TECHNICAL STANDARDS – Issue version (2020) NAMCATS: Part 172 – AIR TRAFFIC SERVICES (ATS)

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1. General

1.1 Section 227 of the Civil Aviation Act, 2016 (Act no. 6 of 2016 – hereinafter "the Act") empowers the Executive Director of Civil Aviation to issue technical standards for civil aviation "on such matters as may be prescribed". Section 227(3) of the Act further empowers the Executive Director of Civil Aviation to incorporate into a technical standard any international aviation standard or any amendment without publishing the text of such standard or any amendment "by mere reference" to the title, number and year of issue of such standard or amendment or to any other particulars by which such standard or amendment is sufficiently identified.

1.2 By way of Government Notice 89/2020 published in Government Gazette 7157 dated 27th March 2020, NAMCARS (amendment 2020) provides for Part 172 – " Air Traffic Services" (ATS). This Part 172 provides for the issue of technical standards as NAM-CATS-ATS. The Executive Director of Civil Aviation has, pursuant to the empowerment mentioned above, issued technical standards relating to NAMCAR Part 172 (Air Traffic Services) to be known as NAM-CATS-ATS as further set out in the SCHEDULE herein.

1.3 NAM-CATS-ATS comprises the standards, rules, requirements, methods, specifications, characteristics and procedures which are applicable in respect of the provision of Aeronautical Telecommunications Services to be used in all aspects of civil aviation air and ground operations.

1.4 To the extent possible, each reference to a technical standard in this document, is a reference to the corresponding regulation in the Namibian Civil Aviation Regulations.

Example: *(1) Technical standard 172.02.1 refers to regulation Part 172 of Subpart 02 of the Part 172*

(2) Technical standard 172.02.2 refers to either the whole, or more than one specific regulation, of Subpart 02 of Part 2.

1.5 Where there is any perceived disparity of meaning or inconsistency between these technical standards and the regulations, the provisions of the regulations will take precedence.

1.6 Where there is a difference between a standard and procedure prescribed in ICAO documents and the Civil Aviation Technical Standards (CATS), the CATS standard will prevail.

2. GUIDANCE MATERIAL

2.1 Guidelines and recommendations in support of any particular technical standard are contained in schedules or appendices to, and/or compliance notes inserted throughout, the technical standards. These guidelines, upon release, are intended to provide recommendations and guidance to illustrate a means, but not necessarily the only means of complying with the regulations and technical standards. They may explain certain regulatory requirements by providing interpretive and explanatory materials. It is expected that service providers will document internal actions in their own operational manuals, to put into effect those, or similarly adequate, practices.

3. AMENDMENTS TO THE TECHNICAL STANDARDS

3.1 The NCAA Safety (ANSO) Division has responsibility for the technical content of this technical standard.

3.2 This technical standard is issued, and may only be amended, under the authority of the Executive Director of Civil Aviation.

3.3 Requests for changes to the content of this technical standard must be forwarded to the Executive Director and may come from:

(a) technical areas within NCAA; or

(b) aviation industry service providers or operators; or

(c) pilots and ATC staff.

3.4 The need to change the content of this technical standard may arise for any of the following reasons:

(a) to ensure safety;

(b) to ensure standardisation;

(c) to respond to changed NCAA regulations or standards;

(d) to respond to changes initiated by ICAO;

(e) to accommodate proposed initiatives or new technologies.

3.5 NCAA may approve trials of new procedures or technologies to develop appropriate standards.

4. INTERNATIONAL STANDARDS

4.1 Section 227 of the Civil Aviation Act, 2016 empowers the Executive Director of Civil Aviation to issue technical standard for civil aviation. Section 227 of the Civil Aviation Act, 2016 further empowers the Executive Director of Civil Aviation to incorporate into a technical standard any international aviation standard or any amendment without stating the text of such standard or amendment, "by mere reference" to the title, number and year of issue of such standard or amendment, or to any other particulars by which such standard or amendment is sufficiently identified.

4.2 The following international standards, recommended practices and procedures, as amended from time to time, are incorporated into the technical standards and its appendices contained in this document:

(a) ICAO Annex 10 – Aeronautical Telecommunications, Volume II – Communications Procedures;
(b) ICAO Annex 11 – Air Traffic Services;
(c) ICAO Annex 15 – Aeronautical Information Services;
(d) ICAO Air Traffic Services Planning Manual (Doc 9426);
(e) ICAO Procedures for Air Navigation Services – Air Traffic Management (PANS-ATM) (Doc 4444); and
(f) ICAO Regional Supplementary Procedures (Doc 7030)

4.3 Differences from ICAO Standards, Recommended Practices and Procedures are published in the AIP.

Miscellaneous:

APPENDICES

APPENDIX 1: **Principles governing the identification of navigation specifications and the identification of ATS routes other than standard departure and arrival routes.**

APPENDIX 2: **Principles governing the establishment and identification of significant points**

APPENDIX 3: **Principles governing the identification of standard departure and arrival routes and associated procedures**

APPENDIX 4: **ATS AIRSPACE CLASSES — services provided and flight requirements**

APPENDIX 5: **ATS facilities and equipment**

APPENDIX 6: **Tables of cruising levels**

These Technical Standards apply with immediate effect and repealed the – Civil Aviation Technical Standards NAM-CATS-ATS "Airspace and Air Traffic Services" published under Government Notices No. 3135 of 23 January 2004.

Further access is available on NCAA website: www.ncaa.com.na/resources

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NAMIBIA CIVIL AVIATION AUTHORITY NCAA 15 JUL 2020 PRIVATE BAG 12003 ALSSPANNPLATZ WINDHOEK OFFICE OF THE EXECUTIVE DIRECTOR

15/07/2020

REINHARD GAERTNER
INTERIM EXECUTIVE DIRECTOR

SCHEDULE

PART 172 – AIR TRAFFIC SERVICES

(NAM-CATS-ATS)

List of Technical Standards

172.01.1 DEFINITIONS

Compliance Note:

Throughout the text of these technical standard the term "service" is used as an abstract noun to designate functions, or service rendered; the term "unit" is used to designate a collective body performing a service.

The designation (RR) in these definitions indicates a definition which has been extracted from the Radio Regulations of the International Telecommunication Union (ITU) (see Handbook on Radio Frequency Spectrum Requirements for Civil Aviation including statement of approved ICAO policies.

1.1 When the following terms are used in these technical standard they have the following meanings:

Accepting unit. Air traffic control unit next to take control of an aircraft.

Accident. An occurrence associated with the operation of an aircraft which, in the case of a manned aircraft, takes place between the time any person boards the aircraft with the intention of flight until such time as all such persons have disembarked or in the case of unmanned aircraft, takes place between the time the aircraft is ready to move with the purpose of flight until such time as it comes to rest at the end of the flight and the primary propulsion system is shut down, in which;

(a) a person is fatally or seriously injured as a result of—

(i) being in the aircraft, or

(ii) direct contact with any part of the aircraft, including parts which have become detached from the aircraft, or

(iii) direct exposure to jet blast,

except when the injuries are from natural causes, self-inflicted or inflicted by other persons, or when the injuries are to stowaways hiding outside the areas normally available to the passengers and crew; or

(b) the aircraft sustains damage or structural failure which—

(i) adversely affects the structural strength, performance or flight characteristics of the aircraft, and

(ii) would normally require major repair or replacement of the affected component,

except for engine failure or damage, when the damage is limited to the engine, its cowlings or accessories; or for damage limited to propellers, wing tips, antennas, tires, brakes, fairings, small dents or puncture holes in the aircraft skin; or

(c) the aircraft is missing or is completely inaccessible.

Compliance notes:

(a) For statistical uniformity, an injury resulting in death within thirty days of the date of accident is classified as a fatal injury

(b) An aircraft is considered to be missing when the official search has been terminated and the wreckage has not been located.

(c) *The type of unmanned aircraft system to be investigated is addressed in Aircraft accident and incidents investigation regulations.*

(d) *Guidance for the determination of aircraft damage can be found in Aircraft accident and incidents investigation regulations.*

Act. The Civil Aviation Act No. 16 of 2016.

ADS-C agreement. A reporting plan which establishes the conditions of ADS-C data reporting, that is, data required by the air traffic services unit and frequency of ADS-C reports which have to be agreed to prior to using ADS-C in the provision of air traffic services. The terms of the agreement will be exchanged between the ground system and the aircraft by means of a contract, or series of contracts.

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

Advisory route. A designated route along which air traffic advisory service is available.

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

Aerodrome control service. An air traffic control service for aerodrome traffic.

Aerodrome control tower. A unit established to provide air traffic control service to aerodrome traffic.

Aerodrome traffic. All traffic on the manoeuvring area of an aerodrome and all aircraft flying in the vicinity of an aerodrome.

Aeronautical fixed service (AFS). A telecommunication service between specified fixed points provided primarily for the safety of air navigation and for the regular, efficient and economical operation of air services.

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

Aeronautical mobile service (RR SI.32). A mobile service between aeronautical stations and aircraft stations, or between aircraft stations, in which survival craft stations may participate; emergency position-indicating radio beacon stations may also participate in this service on designated distress and emergency frequencies.

Aeronautical telecommunication station. A station in the aeronautical telecommunication service.

Airborne collision avoidance system (ACAS). An aircraft system based on secondary surveillance radar (SSR) transponder signals which operates independently of ground-based equipment to provide advice to the pilot on potential conflicting aircraft that are equipped with SSR transponders.

Aircraft. 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.

Air-ground communication. Two-way communication between aircraft and stations or locations on the surface of the earth.

AIRMET information. Information issued by a meteorological watch office concerning the occurrence or expected occurrence of specified en-route weather phenomena which may affect the safety of low-level aircraft operations and which was not already included in the forecast issued for low-level flights in the flight information region concerned or sub-area thereof.

Air-taxiing. Movement of a helicopter/VTOL above the surface of an aerodrome, normally in ground effect and at a ground speed normally less than 37 km/h (20 kt).

Compliance Note: The actual height may vary, and some helicopters may require air-taxiing above 8 m (25 ft) AGL to reduce ground effect turbulence or provide clearance for cargo slingloads.

Air traffic. All aircraft in flight or operating on the manoeuvring area of an aerodrome;

Air traffic advisory service. A service provided within advisory airspace to ensure separation, in so far as practical, between aircraft which are operating on IFR flight plans.

Air traffic control clearance. Authorization for an aircraft to proceed under conditions specified by an air traffic control unit.

Compliance Notes:

(a) For convenience, the term "air traffic control clearance" is frequently abbreviated to "clearance" when used in appropriate contexts.

(b) *The abbreviated term "clearance" may be prefixed by the words "taxi," "take-off," "departure," "en route," "approach" or "landing" to indicate the particular portion of flight to which the air traffic control clearance relates.*

Air traffic control service. A service provided for the purpose of:

(a) preventing collisions—

(i) between aircraft, and

(ii) on the manoeuvring area between aircraft and obstructions; and

(b) expediting and maintaining an orderly flow of air traffic;

Air traffic control unit. A generic term meaning variously, area control centre, approach control unit or aerodrome control tower.

Air traffic flow management (ATFM). A service established with the objective of contributing to a safe, orderly and expeditious flow of air traffic by ensuring that ATC capacity is utilized to the maximum extent possible and that the traffic volume is compatible with the capacities declared by the appropriate ATS authority.

Air traffic management (ATM). The dynamic, integrated management of air traffic and airspace (including air traffic services, airspace management and air traffic flow management) — safely, economically and efficiently — through the provision of facilities and seamless services in collaboration with all parties and involving airborne and ground-based functions.

Air traffic service. A generic term meaning variously, flight information service, alerting service, air traffic control service (area control service, approach control service or aerodrome control service);

Air traffic services airspaces. Airspaces of defined dimensions, alphabetically designated, within which specific types of flights may operate and for which air traffic services and rules of operation are specified.

Compliance Note: ATS airspaces are classified as Class A to G as described in NAM-CATS-ATS

Air traffic services reporting office. A unit established for the purpose of receiving reports concerning air traffic services and flight plans submitted before departure.

Compliance Note: An air traffic services reporting office may be established as a separate unit or combined with an existing unit, such as another air traffic services unit, or a unit of the aeronautical information service.

Air traffic services unit. A generic term meaning variously, air traffic control unit, flight information centre or air traffic services reporting office.

Airway. A control area or portion thereof established in the form of a corridor

Air transit route. A defined route for the air transiting of helicopters.

ALERFA. The code word used to designate an alert phase.

Alert phase. A situation wherein apprehension exists as to the safety of an aircraft and its occupants

Alerting service. A service provided to notify appropriate organizations regarding aircraft in need of search and rescue aid, and assist such organizations as required.

Alternate aerodrome. An aerodrome to which an aircraft may proceed when it becomes either impossible or inadvisable to proceed to or to land at the aerodrome of intended landing where the

necessary services and facilities are available, where aircraft performance requirements can be met and which is operational at the expected time of use. Alternate aerodromes include the following:

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

En-route alternate. An alternate aerodrome at which an aircraft would be able to land in the event that a diversion becomes necessary while en-route.

Destination alternate. An alternate aerodrome at which an aircraft would be able to land should it become either impossible or inadvisable to land at the aerodrome of intended landing.

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

Altitude. The vertical distance of a level, a point or an object considered as a point, measured from mean sea level.

Approach control service. Air traffic control service for arriving or departing controlled flights

Approach control unit. A unit established to provide air traffic control service to controlled flights arriving at, or departing from, one or more aerodromes.

Appropriate air traffic services (ATS) authority. Any authority designated by the Executive Director responsible for providing air traffic services in the airspace of Namibia.

Apron. A defined area, on a land aerodrome, intended to accommodate aircraft for purposes of loading or unloading passengers, mail or cargo, fuelling, parking or maintenance.

Apron management service. A service provided to regulate the activities and the movement of aircraft and vehicles on an apron.

Area control centre. A unit established to provide air traffic control service to controlled flights in control areas under its jurisdiction.

Area control service. Air traffic control service for controlled flights in control areas

Area navigation (RNAV). A method of navigation which permits aircraft operation on any desired flight path within the coverage of ground- or space-based navigation aids or within the limits of the capability of self-contained aids, or a combination of these. Area navigation includes performance-based navigation as well as other operations that do not meet the definition of performance-based navigation.

Area navigation route. An ATS route established for the use of aircraft capable of employing area navigation.

ATS route. A specified route designed for channeling the flow of traffic as necessary for the provision of air traffic services.

Compliance notes:

(a) The term "ATS route" is used to mean variously, airway, advisory route, controlled or uncontrolled route, arrival or departure route, etc.

(b) An ATS route is defined by route specifications which include an ATS route designator, the track to or from significant points (waypoints), distance between significant points, reporting requirements and, as determined by the appropriate ATS authority, the lowest safe altitude.

ATS surveillance system. A generic term meaning variously, ADS-B, PSR, SSR or any comparable ground-based system that enables the identification of aircraft.

Authorized person. Any person authorized by the Executive Director either generally or in relation to a particular case or class of cases and any reference to an authorized person includes reference to the holder for the time being of an office designated by the Executive Director.

Automatic dependent surveillance — broadcast (ADS-B). A means by which aircraft, aerodrome vehicles and other objects can automatically transmit and/or receive data such as identification, position and additional data, as appropriate, in a broadcast mode via a data link.

Automatic dependent surveillance — contract (ADS-C). A means by which the terms of an ADS-C agreement will be exchanged between the ground system and the aircraft, via a data link, specifying under what conditions ADS-C reports would be initiated, and what data would be contained in the report. The abbreviated term "ADS contract" is commonly used to refer to ADS event contract, ADS demand contract, ADS periodic contract or an emergency mode.

Automatic terminal information service (ATIS). The automatic provision of current, routine information to arriving and departing aircraft throughout 24 hours or a specified portion thereof:

Data link-automatic terminal information service (D-ATIS). The provision of ATIS via data link.

Voice-automatic terminal information service (Voice-ATIS)" The provision of ATIS by means of continuous and repetitive voice broadcasts.

Base turn. A turn executed by the aircraft during the initial approach between the end of the outbound track and the beginning of the intermediate or final approach track. The tracks are not reciprocal. Base turns may be designated as being made either in level flight or while descending, according to the circumstances of each individual procedure.

Calendar. A discrete temporal reference system that provides the basis for defining temporal position to a resolution of one day (ISO 19108*).

Change-over point. The point at which an aircraft navigating on an ATS route segment defined by reference to very high frequency omni-directional radio ranges is expected to transfer its primary navigational reference from the facility behind the aircraft to the next facility ahead of the aircraft. Change-over points are established to provide the optimum balance in respect of signal strength and quality between facilities at all levels to be used and to ensure a common source of azimuth guidance for all aircraft operating along the same portion of a route segment.

Clearance limit. The point to which an aircraft is granted an air traffic control clearance.

Conference communications. A communication facilities whereby direct speech conversation may be conducted between three or more locations simultaneously.

Control area. A controlled airspace extending upwards from a specified limit above the earth;

Controlled aerodrome. An aerodrome at which air traffic control service is provided to aerodrome traffic. The term "controlled aerodrome" indicates that air traffic control service is provided to aerodrome traffic but does not necessarily imply that a control zone exists.

Controlled airspace. An airspace of defined dimensions within which air traffic control service is provided in accordance with the airspace classification;

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

Controller-pilot data link communications (CPDLC). A means of communication between controller and pilot, using data link for ATC communications.

Control zone. A controlled airspace extending upwards from the surface of the earth to a specified upper limit.

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

Cyclic redundancy checks (CRC). A mathematical algorithm applied to the digital expression of data that provides a level of assurance against loss or alteration of data.

Danger area. An airspace of defined dimensions within which activities dangerous to the flight of aircraft may exist at specified times.

Data link communications. A form of communication intended for the exchange of messages via a data link.

Data accuracy. A degree of conformance between the estimated or measured value and the true value.

Data integrity (assurance level). A degree of assurance that an aeronautical data and its value has not been lost or altered since the origination or authorized amendment.

Data quality. Degree or level of confidence that the data provided meets the requirements of the data user in terms of accuracy, resolution and integrity (or equivalent assurance level), traceability, timeliness, completeness and format.

Datum. Any quantity or set of quantities that may serve as a reference or basis for the calculation of other quantities.

Declared capacity. A measure of the ability of the ATC system or any of its subsystems or operating positions to provide service to aircraft during normal activities. It is expressed as the number of aircraft entering a specified portion of airspace in a given period of time, taking due account of weather, ATC unit configuration, staff and equipment available, and any other factors that may affect the workload of the controller responsible for the airspace.

DETRESFA. The code word used to designate a distress phase.

Distress phase. A situation wherein there is reasonable certainty that an aircraft and its occupants are threatened by grave and imminent danger or require immediate assistance.

Downstream clearance. A clearance issued to an aircraft by an air traffic control unit that is not the current controlling authority of that aircraft.

Emergency phase. A generic term meaning, as the case may be, uncertainty phase, alert phase or distress phase.

Executive Director. The Executive Director of the Namibia Civil Aviation Authority appointed under the Act.

Final approach. That part of an instrument approach procedure which commences at the specified final approach fix or point, or where such a fix or point is not specified,

(a) at the end of the last procedure turn, base turn or inbound turn of a racetrack procedure, if specified; or

(b) at the point of interception of the last track specified in the approach procedure; and ends at a point in the vicinity of an aerodrome from which:

(i) a landing can be made; or

(ii) a missed approach procedure is initiated.

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

Flight information centre. A unit established to provide flight information service and alerting service;

Flight information region. Airspace of defined dimensions within which flight information service and alerting service are provided.

Flight information service. A service provided for the purpose of giving advice and information useful for the safe and efficient conduct of flights.

Flight level. A surface of constant atmospheric pressure which is related to a specific pressure datum, 1013.2 hectopascals (hPa), and is separated from other such surfaces by specific pressure intervals. A pressure type altimeter calibrated in accordance with the Standard Atmosphere:

a) when set to a QNH altimeter setting, will indicate altitude;

b) when set to a QFE altimeter setting, will indicate height above the QFE reference datum;

c) when set to a pressure of 1 013.2 hPa, may be used to indicate flight levels.

Compliance Note: The terms "height" and "altitude", used in Note 1 above, indicate altimetric rather than geometric heights and altitudes.

Flight plan. Specified information provided to air traffic services units, relative to an intended flight or portion of a flight of an aircraft. Specifications for flight plans are contained in Part 91. When the

expression “flight plan form” is used it denotes the model flight plan form indicated in this NAM-CATS Part 172.

Forecast. A statement of expected meteorological conditions for a specified time or period, and for a specified area or portion of airspace.

Geodetic datum. A minimum set of parameters required to define location and orientation of the local reference system with respect to the global reference system/frame.

Gregorian calendar. A calendar in general use; first introduced in 1582 to define a year that more closely approximates the tropical year than the Julian calendar. In the Gregorian calendar, common years have 365 days and leap years 366 days divided into twelve sequential months.

Height. The vertical distance of a level, a point or an object considered as a point, measured from a specified datum.

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

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

IFR. The symbol used to designate the instrument flight rules.

IFR flight. A flight conducted in accordance with the instrument flight rules.

IMC. The symbol used to designate instrument meteorological conditions.

INCERFA. The code word used to designate an uncertainty phase.

Incident. An occurrence, other than an accident, associated with the operation of an aircraft which affects or could affect the safety of operation.

Compliance Note: The types of incidents which are of main interest to the International Civil Aviation Organization for accident prevention studies are listed in the aircraft accidents and incidents investigation.

Instrument flight procedure design. A service established for the design, documentation, validation, maintenance and periodic review of instrument flight procedures necessary for the safety, regularity and efficiency of air navigation.

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

Compliance Note: The specified minima for visual meteorological conditions are contained in NAM-CARs Part 91.

Integrity classification (aeronautical data). Classification based upon the potential risk resulting from the use of corrupted data. Aeronautical data is classified as:

(a) ***routine data***: there is a very low probability when using corrupted routine data that the continued safe flight and landing of an aircraft would be severely at risk with the potential for catastrophe;

(b) ***essential data***: there is a low probability when using corrupted essential data that the continued safe flight and landing of an aircraft would be severely at risk with the potential for catastrophe; and

(c) ***critical data***: there is a high probability when using corrupted critical data that the continued safe flight and landing of an aircraft would be severely at risk with the potential for catastrophe.

International airport. Any airport designated by the Contracting State in whose territory it is situated as an airport of entry and departure for international air traffic, where the formalities incident to customs, immigration, public health, animal and plant quarantine and similar procedures are carried out.

International NOTAM office. An office designated by a State for the exchange of NOTAM internationally.

Level. A generic term relating to the vertical position of an aircraft in flight and meaning variously, height, altitude or flight level.

Manoeuvring area. That part of an aerodrome to be used for the take-off, landing and taxiing of aircraft, excluding aprons.

Meteorological office. An office designated to provide meteorological service for international air navigation.

Movement area. That part of an aerodrome to be used for the take-off, landing and taxiing of aircraft, consisting of the manoeuvring area and the apron(s).

Navigation specification. A set of aircraft and flight crew requirements needed to support performance-based navigation operations within a defined airspace. There are two kinds of navigation specifications:

Required navigation performance (RNP) specification. 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.

Area navigation (RNAV) specification. 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.

Compliance Notes:

The term RNP, previously defined as "a statement of the navigation performance necessary for operation within a defined airspace," has been removed from this NAM-CATS as the concept of RNP has been overtaken by the concept of PBN. The term RNP in this NAM-CATS is now solely used in the context of navigation specifications that require performance monitoring and alerting, e.g. RNP 4 refers to the aircraft and operating requirements, including a 4 NM lateral performance with on-board performance monitoring and alerting.

NOTAM. A notice distributed by means of telecommunication containing information concerning the establishment, condition or change in any aeronautical facility, service, procedure or hazard, the timely knowledge of which is essential to personnel concerned with flight operations.

Obstacle. All fixed (whether temporary or permanent) and mobile objects, or parts thereof, that—

(a) are located on an area intended for the surface movement of aircraft; or

(b) extend above a defined surface intended to protect aircraft in flight; or

(c) stand outside those defined surfaces and that have been assessed as being a hazard to air navigation.

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

Performance based communication (PBC). Communication based on performance specifications applied to the provision of air traffic services.

Compliance Note: An RCP specification includes communication performance requirements that are allocated to system components in terms of the communication to be provided and associated transaction time, continuity, availability, integrity, safety and functionality needed for the proposed operation in the context of a particular airspace concept.

Performance based navigation (PBN). Area navigation based on performance requirements for aircraft operating along an ATS route, on an instrument approach procedure or in a designated airspace.

Compliance Note: Performance requirements are expressed in navigation specifications (RNAV specification, RNP specification) in terms of accuracy, integrity, continuity, availability and functionality needed for the proposed operation in the context of a particular airspace concept.

Performance based surveillance (PBS). Surveillance based on performance specifications applied to the provision of air traffic services.

Compliance Note: An RSP specification includes surveillance performance requirements that are allocated to system components in terms of the surveillance to be provided and associated data delivery time, continuity, availability, integrity, accuracy of the surveillance data, safety and functionality needed for the proposed operation in the context of a particular airspace concept.

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

Printed communications. Communications which automatically provide a permanent printed record at each terminal of a circuit of all messages which pass over such circuit.

Procedures for air traffic management document. A document prescribed by the Executive Director for use by air traffic service providers and prescribing procedures applicable to the management of air traffic and airspace.

Prohibited area. An airspace of defined dimensions, above the land areas or territorial waters of Namibia, within which the flight of aircraft is prohibited;

Radio navigation service. A service providing guidance information or position data for the efficient and safe operation of aircraft supported by one or more radio navigation aids.

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

Reduced vertical separation minima airspace. means the portion of airspace between flight level 290 and flight level 410 within which vertical separation of 1000ft is applicable;

Regional air navigation agreement. An agreement approved by the Council of ICAO on advice of the Air Regional Air Navigation Meeting.

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

Required communication performance (RCP). 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). A set of requirements for air traffic service provision and associated ground equipment, aircraft capability, and operations needed to support performance-based surveillance.

Requirement. A need or expectation that is stated, generally implied or obligatory.

Rescue coordination centre. A unit responsible for promoting efficient organization of search and rescue services and for coordinating the conduct of search and rescue operations within a search and rescue region.

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

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

Runway incursion. Any occurrence at an aerodrome involving the incorrect presence of an aircraft, vehicle or person on the protected area of a surface designated for the landing and take-off of aircraft.

Runway visual range (RVR). *T*he 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.

Safety management system (SMS). A systematic approach to managing safety, including the necessary organizational structures, accountabilities, policies and procedures.

SIGMET information. Information issued by a meteorological watch office concerning the occurrence or expected occurrence of specified en-route weather and other phenomena in the atmosphere that may affect the safety of aircraft operations.

Significant point. A specified geographical location used in defining an ATS route or the flight path of an aircraft and for other navigation and ATS purposes.

Compliance Note: There are three categories of significant points: ground-based navigation aid, intersection and waypoint. In the context of this definition, intersection is a significant point expressed as radials, bearings and/or distances from ground-based navigation aids.

Special VFR flight. A Visual Flight Rules flight cleared by air traffic control to operate within a control zone in meteorological conditions below VMC or at night.

State safety programme. An integrated set of regulations and activities aimed at improving safety.

Station declination. An alignment variation between the zero degree radial of a VOR and true north, determined at the time the VOR station is calibrated.

Taxiing. Movement of an aircraft on the surface of an aerodrome under its own power, excluding take-off and landing.

Terminal control area. A control area normally established at the confluence of ATS routes in the vicinity of one or more major aerodromes.

Track. The projection on the earth's surface of the path of an aircraft, the direction of which path at any point is usually expressed in degrees from North (true, magnetic or grid).

Traffic avoidance advice. Advice provided by an air traffic services unit specifying manoeuvres to assist a pilot to avoid a collision.

Traffic information. Information issued by an air traffic services unit to alert a pilot to other known or observed air traffic which may be in proximity to the position or intended route of flight and to help the pilot avoid a collision.

Transfer of control point. A defined point located along the flight path of an aircraft, at which the responsibility for providing air traffic control service to the aircraft is transferred from one control unit or control position to the next.

Transferring unit. Air traffic control unit in the process of transferring the responsibility for providing air traffic control service to an aircraft to the next air traffic control unit along the route of flight

Uncertainty phase. A situation wherein uncertainty exists as to the safety of an aircraft and its occupants.

VFR means the symbol used to designate the visual flight rules

VFR flight. A flight conducted in accordance with the visual flight rules.

Visual meteorological conditions (VMC). Meteorological conditions expressed in terms of visibility, distance from cloud, and ceiling, equal to or better than specified minima.
Compliance Note: The specified minima are contained in NAM-CARs Part 91.

VMC. The symbol used to designate visual meteorological conditions.

Waypoint. A specified geographical location used to define an area navigation route or the flight path of an aircraft employing area navigation. Waypoints are identified as either:

***Fly-by waypoint*.** A waypoint which requires turn anticipation to allow tangential interception of the next segment of a route or procedure, or

***Flyover waypoint*.** A waypoint at which a turn is initiated in order to join the next segment of a route or procedure.

172.02.1 REQUIREMENTS FOR CERTIFICATION

(1) A person may not provide air navigation service under any of the ANS Parts unless

(a) that person holds a certificate issued under any relevant part of the ANS Parts; and

(b) the service is provided in accordance with

(i) the requirements prescribed under this Part and the relevant part of the ANS Parts; and

(ii) the procedures specified in the air navigation service provider's manual of procedures required under this Part.

(2) Except as provided for in Part 170, a person may not provide an air navigation service in those portions of airspace and the aerodromes designated by the Executive Director in terms of Part 71, except under the authority of, and in accordance with the provisions of a certificate issued under the relevant part of the ANS Parts.

172.02.2 APPLICATION FOR CERTIFICATION

An application for the issuing of an ATS service provider certificate, or an amendment thereof, must be made to the Executive Director in the appropriate form published on the NCAA website.

172.02.3 ISSUE OF ATS PROVIDER CERTIFICATE

The Executive Director may issue an ATS service provider certificate, if the Executive Director is satisfied, in the appropriate form published on the NCAA website

172.02.4 RENEWAL OF ATS PROVIDER CERTIFICATE

An application for the renewal of an ATS provider certificate, must be made to the Executive Director on the appropriate form published on the NCAA website.

172.02.5 DUPLICATE CERTIFICATE

An application for a duplicate certificate must be made and issued in the appropriate form published by the Executive Director on the NCAA website.

172.02.6 PRIVILEGES OF ATS PROVIDER CERTIFICATE HOLDER

An ATS service provider certificate issued under this Part authorises the holder of the certificate to;

(a) Provide air traffic services (ATS) in Namibia and in the Windhoek Flight Information Region; and
(b) Provide air traffic services at all air traffic service units authorised by the certificate issued by the Executive Director and

(c) An ATS service Certificate is limited to the type of ATS services listed on the certificate.

172.03.1 MANUAL OF PROCEDURES

(1) An ANS provider must, at all times, maintain a manual of procedures for each service that it provides and that complies with the requirements prescribed in the relevant part of the ANS Parts.

(2) The manual of procedures must be

(a) type written and in a format that is easy to revise;

(b) include a list of effective pages;

(c) organised in a manner that facilitates the evaluation and certification process taking into account the contents as prescribed in regulation Part 170; and

(d) signed by the ANS provider.

(3) An ANS provider must

(a) submit the manual of procedures to the Executive Director for approval; and

(b) keep at least one approved copy of the manual at its principal place of business.

172.03.2 ATS PROVIDER ORGANIZATION

1. Introduction

1.1 The organisation of an ATS provider must include a description of:

(a) Roles and Functions and activities;

(b) Management positions and responsibilities;

(c) Operational lines of responsibilities; and

(d) Functional organization of ATS units.

1.2 NAM-CARs Part 65 prescribes the rules, regulations and minimum standards for the licensing and rating of ATS personnel including the supervision and enforcement of medical standards. This Part 172 prescribes the minimum standards for the provision and operation of air traffic services.

1.3 NAM-CARs Part 71 prescribes the rules, regulations and minimum standards for the management of the airspace in Namibia.

1.4 The objectives of air traffic services (ATS) and the functions of the service have been specified in this Part 172; however, neither the objectives nor the functions of ATS can be satisfactorily accomplished unless there is an organization through which the objectives can be achieved.

1.5 An ATS provider must develop the procedures necessary for a safe and efficient system of ATS and specify the facilities, accommodation and equipment required to accomplish ATS objectives including all types of communications, navigation and surveillance equipment, and other visual and electronic aids to navigation.

1.6 Guidance on the setting up of an ATS organization can be found in Advisory Pamphlet Number ANSSO-ATS-AP172/01. Typical description of ATS Personnel duties and responsibilities are contained in 172.03.3.

172.03.3 PERSONNEL REQUIREMENTS

1. Management Personnel Requirement

1.1 An appropriate ATS authority must have sufficiently qualified management and technical personnel to ensure the highest degree of safety in its operations.

1.2 An appropriate ATS authority must, as a minimum, have qualified personnel serving full time in the following or equivalent positions:

(a) Manager of Air Traffic Services (or equivalent title); and

(b) An Air Traffic Services Unit Manager for each unit at which the ATS provider provides services.

Compliance Note: *The title of the position is not critical – the core requirement is to ensure that the accountabilities and responsibilities are appropriately distributed and authorised.*

1.3 The Executive Director may authorize alternative, fewer or additional positions or numbers of positions if the ATS provider demonstrates that it can perform the operation with the highest degree of safety under the direction of fewer or different categories of management personnel.

1.4 The title of the positions required under paragraph 1.2, or the title and number of equivalent positions approved under paragraph 1.3, must be set forth in the ATS provider's Manual of Procedure.

1.5 The individuals who serve in the positions required or approved under paragraph 1.2 or 1.3, and anyone in a position to exercise control over operations conducted under the operating certificate must:

(a) be qualified through training, experience, and expertise;

(b) to the extent of their responsibilities, have a full understanding of the following material with respect to the certificate holder's operation:

(i) aviation safety standards and safe operating practices;

(ii) the NAM-CARs;

(iii) their ATC procedures manuals; and

(c) discharge their duties to meet applicable legal requirements and to maintain safe operations.

1.6 An appropriate ATS authority must:

(a) state in the general policy provisions of their ATS Manual of Procedure, the duties, responsibilities, and authority of personnel required under paragraph 1.1 and 1.2 of this section;

(b) list in the manual the names and contacts of the individuals assigned management positions; and

(c) notify the Executive Director within 10 days of any change in personnel or any vacancy in any management position listed.

2. Management Personnel: Responsibilities

2.1 The manager of Air Traffic Services (or equivalent title) is responsible for, *inter alia*:

(a) designating and classifying of airspace when authorised under Part 71;

(b) establishing and designating routes, points and minimum altitudes when authorised under Part 71;

(c) determining the types of ATS to be provided by an ATS unit;

(d) establishing ATS policies, standards and procedures;

(e) ensuring efficient operation of the ATS system in accordance with approved policies, standards and procedures.

(f) development of policy and procedures to determine the capacity of the ATS system including the number of staff required to ensure the provision of an adequate ATS;

(g) maintaining discipline, efficiency and proper deportment of ATS personnel;

(h) investigating complaints against and operational irregularities within the ATS;

(i) collaborating in the investigation of accidents and breaches of air regulations and air navigation orders;

(j) ensuring maintenance of ATS personnel training programmes;

(k) establishment of changes to ATS operational requirements, including personnel, equipment, communications, space and operating positions;

(l) ensuring close liaison with users of air traffic services;

(m) overseeing the selection and promotion/progression of ATS personnel;

(n) evaluation, development and research for new ATS systems and equipment;

(o) overseeing preparation of annual ATS budgets and their implementation;

(p) ensuring the safety and security of ATS systems;

(q) development and promulgation of the ATC procedures manual;

(r) ensuring endorsement and approval of the ATC procedures manual; and

(s) when authorised by the Executive Director, signing Letters of Agreement (LOA) with ATS units in adjacent States as required.

2.2 ATS Operations manager at the ATS headquarters is responsible for*, inter alia:*

(a) supervising and inspecting ATC units;

(b) supervising and inspecting ATC units; ensuring that all units operate in accordance with approved policies, standards and procedures;

(c) assisting in investigating complaints, incidents, accidents, and breaches of air regulations and air navigation orders;

(d) resolving operational problems between regions and making recommendations concerning inter-unit problems, where required;

(e) ensuring appropriate distribution of responsibility and workload to regions or units;

(f) arranging for flight surveillance of ATS procedures, controller performance and the adequacy of air- ground communications.

2.3 ATS Personnel manager at the ATS headquarters is responsible for*, inter alia:*

(a) implementing all aspects of the ATC training programme;

(b) co-ordinating the selection of personnel for training;

(c) co-ordinating medical examination programmes and developing required procedures;

(d) recommending action regarding employees who fail to acquire or to maintain the necessary proficiency;

(e) evaluating progress and potential of trainees;

(f) developing and revising training programmes to satisfy national requirements;

(g) reviewing training aids and material required for training programmes;

(h) conducting such liaison and familiarization with all regions or ATS units as is necessary to be conversant with current requirements for training throughout the ATS organization;

(i) co-ordinating with other branches as required; and

(j) where adopted as policy, arranging familiarization flights and inter-unit liaison visits.

2.4 ATS Planning manager at the ATS headquarters is responsible for*, inter alia:*

(a) organizing the ATS airspace and planning for associated procedures;

(b) reviewing existing procedures;

(c) planning the development and maintenance of airspace requirements;

(d) recommending system improvements;

(e) assisting in the preparation of agreements between ATC units and military ATC units and between national ATS and foreign governments;

(f) developing and maintaining effective relationships with other branches and divisions, other departments and agencies, civil aviation industry organizations and associations and users of the system;

(g) supervising the financial resources of the division.

2.5 ATS Technical evaluation manager at the ATS headquarters is responsible for*, inter alia:*

(a) programming the provision of electronic communications and other ATC equipment;

(b) evaluating new systems;

(c) developing installation plans to ensure optimum use of equipment;

(d) participating in the development of training programmes covering equipment utilization;

(e) co-ordinating with the communications branch and other agencies regarding communications and equipment;

(f) developing regional ATC space requirements, plans and layouts;

(g) ensuring that adequate equipment and supplies are available to units;

(h) checking the quality of performance and reliability of equipment in use in ATC units.

3. ATS Unit Managers - Responsibilities

3.1 The ATS Unit managers are responsible for, *inter alia*:

(a) development and promulgation of the ATC procedures manual for their ATS unit;

(b) assigning a training officer;

(c) declaring the ATC capacity for control areas, control sectors within a control area and for aerodromes within their jurisdiction; and

(d) when authorised by the General Manager (or equivalent title), developing and signing Letters of Agreement (LOA) or letters of procedure with adjacent ATS units.

3.2 An ATS provider must publish a full list of accountabilities and responsibilities for management personnel in their Manual of Procedure.

3.3 ATS unit managers must use the policies, standards, procedures, criteria and information set out in the ATS provider's Manual of Procedure and ATC procedures manual to administer and manage their ATS unit.

3.4 ATS unit managers and supervisory personnel must be familiar with all parts of the regulations governing ATS operations, and all parts of the ATS provider's Manual of Procedure and ATC procedures

manual and have an in-depth knowledge of those provisions that pertain to their management and supervisory responsibilities.

3.5 ATS unit managers and supervisory personnel must use their best judgment for the resolution of a situation for which direction is not provided. ATS unit managers must consult with the general manager of the ATS provider when dealing with situations which may set precedents or have ramifications for other units.

4. Operational Personnel - Job Descriptions

4.1 An ATS provider must include the job descriptions of all operational personnel involved in ATS operations in their ATS Manual of Procedure.

5. Determination of required number of ATS personnel, recruitment and progression

5.1 An ATS provider must, in order to ensure adequate and suitably trained and qualified ATS personnel, have in place a procedure for determining the required number of staff to provide ATS services. In addition, the ATS provider must establish, the necessary procedures and processes for recruitment and progression of personnel to ensure that the required staff capacity can be maintained at all time.

5.2 Guidance on the procedures to be used in determining the number of required ATS personnel and the guiding principles for their recruitment and progression can be found in Advisory Pamphlet Number ANSSO-ATS-AP172/02. However, an ATS provider must be able to employ any suitable method as may be appropriate to its needs.

172.03.4 TRAINING AND COMPETENCY OF ATS PERSONNEL

1.1 An ATS provider must develop, implement and maintain training and competency programmes for ATS personnel to ensure that persons performing an air traffic service hold the necessary

qualifications, knowledge, experience and competencies to perform the services for which the service provider has been approved.

1.2 Guidelines for ATS training and competency are provided in Advisory Pamphlet ANSSO-ATS-AP172/03.

172.03.5 ATS FACILITIES AND EQUIPMENT

1.1 An ATS provider must establish and maintain ATS facilities and equipment as described in Appendix 5 to this Document NAM-CATS-ATS and any other procedures prescribed in the Procedures for ATM document.

172.03.6 AGREEMENTS WITH AERONAUTICAL TELECOMMUNICATION SERVICE PROVIDER

1.1 The term “letter of agreement” covers agreements between two or more adjacent ATS units or between the appropriate ATS authority and ATS authorities of other States dealing with the manner in which ATS are to be provided by the parties concerned. The term “operations letter” covers agreements between one or more ATS unit(s) on the one hand and other authorities, agencies or bodies (the military, other operators, aero- drome operators, etc.) specifying the conditions, means and procedures employed to regulate their co-operation or the conduct of specific operations affecting ATS.

1.2 An ATS provider must establish procedures for the processing of letters of operations between itself and an aeronautical telecommunications service provider to ensure that:

(a) any necessary co-ordination with the aeronautical telecommunications service provider is effected;

(b) the effective date of a letter of operations allows for at least 30 days for familiarization after distribution by all concerned;

(c) the letter is signed by the unit chief controller and responsible personnel of aeronautical telecommunications service provider;

(d) a copy of the agreement is provided to:

(i) the units involved;

(ii) the appropriate ATS authority;

(iii) if applicable, military headquarters, offices of other administrations and Regional Offices.

1.3 Letters of operations must be reviewed frequently and amended or replaced as necessary to ensure conformity with current operational requirements, directives and policy. Amendments should be prepared and processed in the same manner as the original agreement. Agreements that are no longer applicable should be cancelled and all agencies that were provided copies of an agreement should be informed of its cancellation. Each agreement and all amendments thereto must be retained for a specified period of time after their cancellation.

1.4 When preparing operations letters, the unit chief controller, in co-ordination with the aeronautical telecommunication service provider, must develop the subject as follows:

(a) define the purpose;

(b) define the responsibilities of each unit involved if the division of responsibility is not already adequately defined in a manual of operations or established by policy;

(c) describe the procedures that are required to supplement those contained in the manual of operations, establish common operating practices, or resolve differences between conflicting procedures;

(d) describe the procedures that are required to supplement those contained in the manual of operations, establish common operating practices, or resolve differences between conflicting procedures;

(e) include charts or diagrams if they will help to explain the terms of the agreement.

1.5 Whenever possible, the format for operations letters between ATS and aeronautical telecommunications services should take account of the following points:

(i) Parties to the agreement: Specify the agencies, units, authorities between which the letter is agreed;

(ii) Subject: Define the subject of the agreement;

(iii) Effective date: State when the agreement comes into force and, if relevant, when it expires

(iv) Special provisions: Include provisions regarding modification, amendment and/or cancellation of the agreement

(v) Status: Indicate whether the letter supersedes, supplements or otherwise affects other previous agreements;

(vi) Attachments: List any chart, diagram or other appendices;

(vii) Signature: Include appropriate titles and signatures;

(viii) For ease of subsequent reference, it may also be advisable to assign a specific number or other identifier to each letter of agreement.

1.6 For ease of subsequent reference, it may also be advisable to assign a specific number or other identifier to each operations letter.

172.03.7 AGREEMENTS WITH AERODROME OPERATORS

1.1 It is accepted practice that the term “letter of agreement” is used to cover agreements between two or more adjacent ATS units or between ATS authorities of different States dealing with the manner in which ATS are to be provided by the parties concerned. The term “operations letter” is used to cover agreements between one or more ATS unit(s) on the one hand and other authorities, agencies or bodies (the military, other operators, aero- drome operators, etc.) specifying the conditions, means and procedures employed to regulate their co-operation or the conduct of specific operations affecting ATS.

1.2 An ATS provider must establish procedures for the processing of operations letters between itself and an aerodrome operator to ensure that:

(e) any necessary co-ordination with the aerodrome operator is effected;

(f) the effective date of an operations letter allows for at least 30 days for familiarization after distribution by all concerned;

(g) the letter is signed by the unit chief controller and responsible aerodrome operator personnel;

(h) a copy of the operations letter is provided to:

(i) the ATS units and the aerodrome operator's offices involved;

(ii) the appropriate ATS authority;

(iii) if applicable, military headquarters, offices of other administrations and Regional Offices.

1.3 Letters of operations must be reviewed frequently and amended or replaced as necessary to ensure conformity with current operational requirements, directives and policy. Amendments should be prepared and processed in the same manner as the original agreement. Agreements that are no longer applicable should be cancelled and all agencies that were provided copies of an agreement should be informed of its cancellation. Each agreement and all amendments thereto must be retained for a specified period of time after their cancellation.

1.4 When preparing operations letters, the unit chief controller, in co-ordination with the representative of the aerodrome operator, must develop the subject as follows:

(a) define the purpose;

(b) define the responsibilities of the ATS unit and the offices of the aerodrome operator involved;

(c) establish common operating practices, or resolve differences between conflicting procedures;

(d) include charts or diagrams if they will help to explain the terms of the agreement.

1.5 Whenever possible, the format for agreements between ATS and the aerodrome operator should take account of the following points:

(a) Parties to the letter: Specify the agencies, units, authorities between which the agreement is agreed;

(b) Subject: Define the subject of the agreement;

(c) Effective date: State when the agreement comes into force and, if relevant, when it expires

(d) Special provisions: Include provisions regarding modification, amendment and/or cancellation of the agreement;

(e) Status: Indicate whether the letter supersedes, supplements or otherwise affects other previous agreements;

(f) Attachments: List any chart, diagram or other appendices;

(g) Signature: Include appropriate titles and signatures;

1.6 For ease of subsequent reference, it may also be advisable to assign a specific number or other identifier to each agreement.

172.03.9 QUALITY MANAGEMENT AND QUALITY ASSURANCE SYSTEMS

1.1 An ATS provider must ensure that the safety management system implemented in accordance with Part 170 is integrated with its quality management system. The ATS provider's organizational structure and associated accountabilities, resources, processes and procedures must establish and promote a system of continuous quality assurance and improvement while delivering air traffic services.

1.2 The ATS providers QMS and SMS must be complementary. QMS must focus on compliance with prescribed regulations and requirements to meet ATS user expectations and contractual obligations while the SMS must focus on safety performance. While the objectives of the SMS is to identify safety-related hazards, assess the associated risk and implement effective risk controls, the QMS on the other hand must focus on the consistent delivery of air traffic services that meet performance standards. Both the SMS and QMS of the ATS provider must:

(a) be planned and managed;

(b) depend upon measurement and monitoring of performance indicators;

(c) involve all organizational functions related to the delivery of air traffic services; and

(d) strive for continuous improvement of the air traffic services provided.

1.3 An ATS provider's SMS and QMS must utilize similar risk management and assurance processes. The objective of the SMS is to identify safety-related hazards, manage safety risk and measure safety performance during delivery of services with the aim of eliminating hazards or providing effective

controls to mitigate safety risks. The quality assurance function must on the other hand, identify ineffective processes and procedures that must be redesigned for efficiency and effectiveness.

1.4 Given the complementary aspects of SMS and QMS, an ATS provider must be able to establish a synergistic relationship between both systems and ensure that:

(a) SMS is supported by QMS processes such as auditing, inspection, investigation, root cause analysis, process design, statistical analysis and preventive measures;

(b) QMS anticipates safety issues that exist despite the organization's compliance with standards and specifications; and

c) quality principles, policies and practices are linked to the objectives of safety management.

1.5 ATS organizations may experience change due to introduction of new systems, equipment, policies, programmes, services and regulations. Established processes and procedures may become ineffective when such changes occur. To ensure consistent delivery of air traffic services, the ATS provider must redesigned such processes and procedures, in order for the ATS system to continue meeting prescribed standards or regulatory requirements. Quality management practices require that the impact on the quality of services resulting from such change be evaluated, and new procedures and processes be put in place. Sound management of changes is critical to the maintenance of the ATS provider's quality assurance system.

1.6 In managing change in the quality assurance system, an ATS provider must take into account the following considerations:

(a) *Criticality of systems and activities*. Changes to equipment and activities associated with relatively high impact on the established processes and procedures must be evaluated to ensure that necessary measures are taken to redesign the procedures and processes.

(b) *Stability of systems and operational environments*. Planned changes under the direct control of the organization may be associated with the introduction of new equipment or services or increased air traffic levels. Unplanned changes, including those that are operational, political or economic in nature, may also result in established processes and procedures

becoming ineffective. ATS providers must review their processes and procedures more frequently in instances where frequent systemic or environmental changes occur.

(c) *Past performance*. Past performance of critical systems may be a reliable indicator of future performance. An ATS provider must employ trend analyses to track the performance of the quality assurance processes and procedures over time and to factor this information into the planning of future activities under situations of change.

172.03.10 FATIGUE MANAGEMENT SYSTEM

1. General

1.1 An ATS provider must for the purposes of managing its fatigue-related safety risks, establish one of the following:

(a) air traffic controller schedules commensurate with the service(s) provided and in compliance with the duty period limitations and rest requirements; or

(b) a fatigue risk management system (FRMS) in compliance with these standards for the provision of all air traffic control services; or

(c) a fatigue risk management system (FRMS) in compliance with these standards for a defined part of its air traffic control services in conjunction with schedules in compliance with the duty period limitations and rest requirements for the remainder of its air traffic control services.

1.2 Where the air traffic services provider complies with duty period limitations and rest requirements in the provision of part or all of its air traffic control services the ATS provider must:

(a) that the prescribed duty period limitations are not exceeded and that non-duty rest period requirements are met;

(b) ensure that its personnel familiarize with the principles of fatigue management and its policies with regard to fatigue management;

(c) establish a process to allow variations from the duty period limitations and rest requirements to address any additional risks associated with sudden, unforeseen operational circumstances; and

(d) ensure variations to these regulations are approved by the Executive Director and that such variations are based on an established process in order to address strategic operational needs in exceptional circumstances; and in case of such variations, demonstrate that any associated risk is being managed to a level of safety equivalent to, or better than, that achieved through the prescribed fatigue management requirements.

Compliance Note: Complying with the prescribed duty period limitations and rest requirements does not relieve the air traffic services provider of the responsibility to manage its risks, including fatigue-related risks, using its SMS in accordance with the established service provider's safety management system.

1.3 Where an air traffic services provider implements an FRMS to manage fatigue-related safety risks in the provision of part or all of its air traffic control services in accordance with these regulations, the air traffic services provider must:

(a) have processes to integrate FRMS functions with its other safety management functions; and

(b) have an FRMS that is approved by the Executive Director in accordance with a documented process that provides an acceptable level of safety;

and the ATS provider must ensure protection of safety information which support the continued availability of information required by an FRMS in accordance with safety management requirements.

2. Prescriptive fatigue management requirements

2.1 In order to address acute and cumulative fatigue, circadian factors and the type of work in air traffic services, the maximum and minimum duty hours/days and rest periods must be as prescribed in NAM-CARs Part 65 for the following:

(a) the maximum:

(i) number of hours in any duty period;

(ii) number of consecutive work days;

(iii) number of hours worked in a defined period; and

(iv) time-in-position;

(b) the minimum:

(i) duration of non-duty periods ;

(ii) number of non-duty days required in a defined period; and

(iii) duration of breaks between periods of time-in-position in a duty period.

2.2 The air traffic services provider must identify a process for assigning unscheduled duties that allows air traffic controllers to avoid extended periods of being awake.

2.3 The process established in accordance with 1.2 (c) and (d) to allow variations from the requirements of paragraph 2.1 above, must include the provision of:

(a) the reason for the need to deviate;

(b) the extent of the deviation;

(c) the date and time of enactment of the deviation; and

(d) a safety case, outlining mitigations, to support the deviation.

3. Fatigue risk management system (FRMS) requirements

3.1 FRMS Policy and Documentation

3.1.1 FRMS policy:

3.1.1.1 The air traffic services provider must define its FRMS policy, with all elements of the FRMS clearly identified.

3.1.1.2 The policy must:

(a) define the scope of FRMS operations;

(b) reflect the shared responsibility of management, air traffic controllers, and other involved personnel;

(c) clearly state the safety objectives of the FRMS;

(d) be signed by the accountable executive of the organization;

(e) be communicated, with visible endorsement, to all the relevant areas and levels of the organization;

(f) declare management commitment to effective safety reporting;

(g) declare management commitment to the provision of adequate resources for the FRMS;

(h) declare management commitment to continuous improvement of the FRMS;

(i) require that clear lines of accountability for management, air traffic controllers, and all other involved personnel are identified; and

(j) require periodic reviews to ensure it remains relevant and appropriate.

3.1.2 FRMS documentation

3.1.2.1 An air traffic services provider must develop and keep current FRMS documentation that describes and records:

(a) FRMS policy and objectives;

(b) FRMS processes and procedures;

(c) accountabilities, responsibilities and authorities for these processes and procedures;

(d) mechanisms for ongoing involvement of management, air traffic controllers, and all other involved personnel;

(e) FRMS training programmes, training requirements and attendance records;

(f) scheduled and actual duty and non-duty periods and break periods between times in position in a duty period with significant deviations and reasons for deviations noted; and

(g) FRMS outputs including findings from collected data, recommendations, and actions taken.

3.2 Fatigue risk management process

3.2.1 Identification of fatigue-related hazards

3.2.1.1 An air traffic services provider must develop and maintain three fundamental and documented processes for fatigue hazard identification:

(a) *Predictive*. The predictive process must identify fatigue hazards by examining air traffic controller scheduling and taking into account factors known to affect sleep and fatigue and their effects on performance. Methods of examination may include but are not limited to:

(i) air traffic services or industry operational experience and data collected on similar types of operations or from other industries with shift work or 24-hour operations;

(ii) evidence-based scheduling practices; and

(iii) bio-mathematical models.

(b) *Proactive*. The proactive process must identify fatigue hazards within current air traffic services operations. Methods of examination may include but are not limited to:

(i) self-reporting of fatigue risks;

(ii) fatigue surveys;

(iii) relevant air traffic controller performance data;

(iv) available safety databases and scientific studies;

(v) tracking and analysis of differences in planned and actual worked times; and

(vi) observations during normal operations or special evaluations.

(c) *Reactive*. The reactive process must identify the contribution of fatigue hazards to reports and events associated with potential negative safety consequences in order to determine how the impact of fatigue could have been minimized. At a minimum, the process may be triggered by any of the following:

(i) fatigue reports;

(ii) confidential reports;

(iii) audit reports; and

(iv) incidents.

3.2.2 Fatigue-related risk assessment

3.2.2.1 An air traffic services provider must develop and implement risk assessment procedures that determine when the associated risks require mitigation.

3.2.2.2 The risk assessment procedures must review identified fatigue hazards and link them to:

(a) operational processes;

(b) their probability;

3.2.3 Risk mitigation

3.2.3.1 An air traffic services provider must develop and implement fatigue risk mitigation procedures that:

(a) select the appropriate mitigation strategies;

(b) implement the mitigation strategies; and

(c) monitor the strategies' implementation and effectiveness.

3.3 FRMS safety assurance process

3.3.1 The air traffic services provider must develop and maintain FRMS safety assurance processes to:

(a) provide for continuous FRMS performance monitoring, analysis of trends, and measurement to validate the effectiveness of the fatigue safety risk controls. The sources of data may include, but are not limited to:

(i) hazard reporting and investigations;

(ii) audits and surveys; and

(iii) reviews and fatigue studies (both internal and external);

(b) provide a formal process for the management of change. This must include but is not limited to:

(i) identification of changes in the operational environment that may affect the FRMS;

(ii) identification of changes within the organization that may affect the FRMS; and

(iii) consideration of available tools which could be used to maintain or improve FRMS performance prior to implementing changes; and

(c) provide for the continuous improvement of the FRMS. This must include but is not limited to:

(i) the elimination and/or modification of preventive controls and recovery measures that have had unintended consequences or that are no longer needed due to changes in the operational or organizational environment;

(ii) routine evaluations of facilities, equipment, documentation and procedures; and

(iii) the determination of the need to introduce new processes and procedures to mitigate emerging fatigue-related risks.

3.4 FRMS promotion

3.4.1 FRMS promotion processes support the ongoing development of the FRMS, the continuous improvement of its overall performance, and attainment of optimum safety levels. The following must be established and implemented by the air traffic service provider as part of its FRMS:

(a) training programmes to ensure competency commensurate with the roles and responsibilities of management, air traffic controllers, and all other personnel involved in the FRMS; and

(b) an effective FRMS communication plan that:

(i) explains FRMS policies, procedures and responsibilities to all relevant stakeholders; and

(ii) describes communication channels used to gather and disseminate FRMS-related information.

172.03.11 SECURITY PROGRAM

1.1 An ATS provider must prepare and maintain an ATS security programme.

1.2 An ATS security programme must specify the physical security requirements, practices, and procedures to be followed for the purposes of minimising the risk of destruction of, damage to, or

interference with the operation of, any ATS unit operated by the service provider where such destruction, damage, or interference is likely to endanger the safety of aircraft.

1.3 Without limiting the generality of paragraph 1.2, the security programme must specify such physical security requirements, practices, and procedures as may be necessary to—

(a) ensure that entrances to permanent ATS facilities are subject to positive access control at all times, so as to prevent unauthorised entry;

(b) protect personnel on duty;

(c) prevent damage to facility or equipment used by the provider in providing an air traffic service;

(d) be followed in the event of a bomb threat or other threat of violence against an ATS unit; and

(e) monitor ATS unit buildings to ensure that any intrusion or interference is detected.

1.4 Given the sensitivity of such plans, the security plan must be managed as a secure document.

1.5 At the request of the Executive Director, the security program must be made available for inspection and review by authorised personnel.

172.03.12 ATS STATION STANDING INSTRUCTIONS

1.1 While prepared under the direction of the person in charge of an ATS unit, ATS unit operating instructions are issued under the authority of the appropriate ATS authority. ATS unit operating instructions primarily consist of procedures and instructions of a local nature which are either subject to frequent change or limited in application, but are, in all cases, supplementary to the provisions of the ATS manual prepared under this Part 172.

1.2 Station standing instructions must, as necessary, contain:

(a) detailed unit operational procedures and requirements;

(b) detailed unit administrative requirements, including the responsibilities of each operating position;

(c) amplification and/or explanation of provisions of the ATS manual, where necessary.

1.3 Specific terminology should be used to differentiate between mandatory, recommended and optional application of the relevant provisions. Other terminology and abbreviations should conform to those used in other operating manuals and relevant documents.

1.4 In the preparation of unit operating instructions, relevant instructions contained in other readily accessible documents must only be referred to but not repeated in order to avoid the need for amendment of the operating instructions every time the quoted instructions are changed.

1.5 Amendments to unit operating instructions must be recorded in the document and brought to the attention of all controllers concerned in the most appropriate manner. In addition, as part of the conditions of taking over a specific operating position, controllers should be required to indicate, in an appropriate manner, that an amendment has been noted.

172.03.13 DOCUMENTATION

1.1 An ATS provider must hold and maintain certain documentation essential to the provision of air traffic services.

1.2 Documents that are essential for the provision of air traffic services include:

(a) Namibia Civil Aviation Regulations and the associated Technical Standards

(b) ICAO Annex 1 to 19 as amended from time to time;

(c) ICAO Doc 4444 – PANS ATM

(d) ICAO Doc 8400 – Abbreviation and Codes

(e) ICAO Doc 7910 – Location indicators

(f) ICAO Doc 9426 – ATS planning manual

(g) ICAO Doc 8585 – Designators for Aircraft Operating Agencies

(h) ICAO Doc 8643 – Aircraft type designators

(i) ICAO Doc 9859 – Safety management Manual

(j) ICAO Doc 7030 – Regional supplementary procedures

(k) The Procedures for air traffic management document

(l) ATS Manual and associated documents

(m) Station standing instructions

(n) Namibia Aeronautical information publication

(o) Aeronautical Information Circulars

(p) Applicable NOTAMs

(q) ATS Advisory Pamphlets, Notices, Directives

(r) Forms, Checklists, etc

172.03.14 DOCUMENTS AND RECORDS

1. Introduction

1.1 This section sets out the standards and requirements for the preparation, maintenance, and retention of documents, reports and records for each ATS provider.

1.2 A system for records covers identification, collection, indexing, storage, security, maintenance, access and disposal of records necessary for the operational provision of air traffic services and for the purpose of assisting with any accident or incident investigation.

1.3 The records referred to in 1.4 above must include —

(1) telephone communications; and

(2) radio broadcasts and communications; and

(3) air-ground digital data exchanges; and

(4) radar information; and

(5) filed flight plans including standard and repetitive plans; and

(6) flight progress strips; and

(7) staff duty rosters; and

(8) appropriate meteorological and aeronautical information, except where the information is retained for an equivalent period by a meteorological or AIS organisation; and

(9) a record for every person who is required to be trained, including details of each segment of training and knowledge testing or competency assessment as appropriate for the training conducted.

2. Electronic recording and retention of automatic recordings

2.1 An ATS provider must establish systems and procedures for ensuring the electronic recording of –

(1) all ATS radio and telephone communications; and

(2) all high-frequency air-ground communications; and

(3) all relevant data from primary and secondary radar equipment, or obtained through automatic dependent surveillance (ADS), used in providing or supporting an ATC service; and

(4) any transfer and acceptance of control process not conducted by telephone.

2.2 An ATS provider must ensure that the electronic records referred to in 2.1 above –

(1) include time recording, correct to within 5 seconds of UTC, as determined by reference to a standard time station or GPS time standard; and

(2) either—

(i) replicate the voice communications, and, if applicable, the radar picture, at a particular operating position; or

(ii) are accompanied by a statement fully describing the differences between the recording supplied and a recording in accordance with subparagraph (i).

2.3 For the purposes of paragraph 2.2 (2) the term radar picture includes any visual presentation of aircraft position, however derived.

2.4 An ATS provider must ensure that the following items used for the provision of air traffic services are retained for the period shown in the Table below:

Recorded Event	***Minimum Retention Period***
Direct pilot-controller two-way radiotelephony or datalink communications	30 days
Direct-speech or data link between air traffic services units	30 days
Surveillance data from primary and secondary radar equipment or obtained through ADS or other surveillance means	14 days
Automated flight data processing including on-screen display of aircraft tracks and label blocks	14 days

2.5 Automatic recordings must have a means of establishing accurately the time, in hours/minutes/seconds, at which any recorded event occurred.

2.6 Where possible, provision of synchronous integration of radar and on-screen data with related voice recordings should be facilitated.

3. Logbooks and position Logs

3.1 An ATS provider must establish procedures to ensure that a logbook, with sequentially numbered pages, is kept at each ATS unit, and, where a unit has physically separate operations areas, at each such location within the unit.

3.2 The procedure must ensure that—

(a) the logbook is maintained by the senior person on duty, or the person on watch at a nominated operating position; and

(b) the logbook is maintained throughout the hours of watch of the unit or operations room; and

(c) all entries include the time of entry; and

(d) the person responsible for maintaining a logbook signs On Watch, and effects transfer of responsibility by successive On Watch entries; and

(e) logbook entries are—

(i) in chronological sequence and in ink; and

(ii) without erasure, defacement, or obliteration; and

(iii) corrected by drawing a single line through the erroneous information and initialling the correction; and

(f) actual times of opening and closing watch are recorded in the logbook, together with the reason for every variation from published hours of service; and

(g) logbooks are retained for a period of 3 years from the date of final entry

3.3 An ATS provider must establish a procedure to ensure the keeping of an operating position log, when such information is not available in the logbook required by paragraph 3.1 above.

3.4 The procedure must ensure that the operating position log—

(a) contains sufficient information to identify—

(i) when that position was in operation; and

(ii) the services being provided from that position; and

(iii) the identity of the individual providing the service; and

(b) is retained for a period of at least 30 days from the date of filing.

3.5 All Log Book entries must be recorded against the times of the occurrence, or time of the Log Book entry.

3.6 The minimum information to be recorded is shown in the following Table.

Occasion	Information
At the commencement of each day's operation	• UTC date and time;

Occasion	Information
	• Where required, identification of the unit and/or the operating position.
On assuming responsibility for a position	• The UTC date and time of assuming responsibility for a position and the signature of the officer commencing duty (see also voice recordings); • Results of equipment checks; • Result of time check.
During operation of the unit	• Air Safety Incidents, including accidents and breaches of the Regulations such as non-compliance with ATC instructions; • Actions taken in relation to any SAR activity including distress communications; • General notes concerning essential aerodrome information, such as the results of aerodrome inspections, closure of sections of the manoeuvring area caused by works or natural phenomena, etc.; • Times of aerodrome closure and reopening, with reasons for the closure; • Change in status of facilities, service or procedure including communication difficulties and tests; • Short term changes in staffing or hours of coverage, including variations to required staffing levels; • Any dispensation given against the Regulations • Status of navigation aids.
Handover/takeover (where a separate form is not provided and kept as a record)	• A summary of outstanding action and unusual operations which are current or anticipated, relating to the traffic display and/or SAR activity; • The status of communications and equipment; • The time of handover/takeover, against the signatures of the officers involved.
Closure of unit and/or position	• Time of closure and conditions and actions relating to the closure, followed by changes to equipment status, and any outstanding action; • The time of intended reopening, and the signature of the officer closing the unit/position.

3.7 Where appropriate voice recording facilities are available, details of opening and closing watch, or the identification of staff assuming responsibility for a position may be recorded orally in lieu of a logbook entry. In either case, the procedures used must be sufficient to readily establish, for the purposes of investigation, the status of the position (active/inactive) and the person responsible for any active position, at any given time.

4. Document Retention

4.1 An ATS provider must ensure the following documentation/data is stored in a form and manner acceptable to the Executive Director for the periods shown in the Table below.

Type of Unit Data	*Minimum Retention Period*
ATS messages, including flight plans	30 days
Flight progress strips or documents of a similar nature used for the recording of flight data and the issue of clearances, instructions and directions	30 days
Transcripts of automated weather broadcasts (e.g. ATIS)	30 days
Handover/takeover details, including, if not electronically recorded, the identification of the person taking over	30 days
Unit Log Book	5 years
Details of interruptions to services*	5 years
Details of failures of equipment used for the provision of air traffic services*	5 years
Details of facility unavailability*	5 years
Staff duty rosters	5 years
Details of actions carried out under the Safety Management System including follow-up corrective and preventative actions	5 years
Directions and instructions issued to staff for the provision of air traffic services	5 years
Technical manuals used for the provision of air traffic services	5 years

**Note: Some of these items may be recorded in the Unit Log Book*

4.2 An ATS provider must ensure that:

(a) the unit log, forms and documents are filed and stored on a daily (local time) basis as follows:

(i) forms, messages, reports, etc. are to be grouped by type, packaged and labeled indicating the site name, year, month and day;

(ii) data strips are to be separately packaged for each location;

(iii) tapes, diskettes, cassettes or any other similar device used to store digital data from electronic systems certified for electronic logging are to be separately packaged; and

(iv) revenue messages for domestic and international services are to be separately packaged for long- term retention.

(b) the log material secured as a result of an incident or regulatory infraction is retained until the investigation or enforcement action is completed. DCA ANSSO in coordination with the ATS provider will determine when retention is no longer required; and

(c) at units where electronic logging is performed, adequate procedures are in place to back-up electronically logged data on a daily basis.

5. Personnel Licensing Records

5.1 An ATS provider must ensure that records of ATS personnel licensing and competency certification under Part 65 are kept for a minimum of 3 years, including after an employee ceases to be employed by the ATS provider. This includes details of:

(a) training;

(b) renewal and currency of ratings, endorsements and qualifications; and

(c) other proficiencies required by the ATS provider to be demonstrated.

Type of Training	***Minimum Retention Period***
Pre-On-Job-Training (POJT)	3 years
On-Job-Training (OJT)	3 years
Recurrent Training	3 years
Remedial Training	3 years

6. Record retention for investigation

6.1 Where requisitioned, by an appropriate authority, for the purposes of investigation, records must be isolated and kept in a secure place until their release by that authority.

7. Maintaining Records - General

7.1 Records must not be completed in anticipation of the recorded action being completed.

7.2 Deletions from communications records are not permitted. All entries must be written in non-erasable ink, and must be legible.

7.3 Non-active forms or strips on which an error is noted may be replaced. Active forms or strips, fault reports, records and Log Books must be changed, or errors corrected by:

(a) drawing a line through the incorrect data and writing the correct data adjacent thereto; or

(b) cancelling the old and rewriting the record, retaining both the old and the new for later reference purposes.

8. Access to ATS Records

8.1 An ATS provider must advise all of its ATS units of restrictions concerning access to ATS audio and video recordings. This advice should be published in the ATS provider's ATC procedures manual (Part 1 – generic, and Part 2 – unit specific).

9. Flight Strip Filling Procedures

9.1 An ATS provider must detail procedures for filling of flight progress strips both for paper and electronic format. This information must be published in ATC procedures manual.

10. Recording and Transmission of Information on the Progress of Flights

10.1 Information on the actual progress of flights, including those of heavy or medium unmanned free balloons, under neither ATC service nor air traffic advisory service must be:

(a) recorded by the ATS unit serving the FIR within which the aircraft is flying in such a manner that it is available for reference and in case it is requested for search and rescue action;

(b) transmitted by the ATS unit receiving the information to other ATS units concerned, when so required.

172.03.15 DOCUMENT AND RECORDS CONTROL SYSTEM

1.1 An ATS provider must establish a document control system which covers the authorisation, standardization, publication, distribution and amendment of all documentation issued by the organisation, or required by the organisation for the provision of air traffic services.

1.2 These processes must ensure:

(a) authorisation of documents and records is made by a designated authority appropriate to the provider's management and safety accountability structures;

(b) that the currency of documents can be readily determined and that only current versions are available for operational use;

(c) availability at locations where needed by the provider's personnel;

(d) a master copy of relevant documents and records is securely held;

(e) archival of documents and records where they have been superseded.

1.3 All documents that are related to and referenced in the Manual of Procedure are to be indexed in that manual.

1.4 An ATS provider must establish a system for records which covers identification, collection, indexing, storage, security, maintenance, access and disposal of records necessary for the provision of ATS.

1.5 The records system must provide an accurate chronicle of activities for the purpose of reconstruction of events for air safety investigation, and for safety system analysis. The records should include but not limited to:

(a) air traffic services (ATC) records from flight plans and flight progress strips, or computer print-outs where automation has been introduced into an ATS system;

(b) records of flights monitored by radar;

(c) the records of ATS related incidents;

(d) the result of studies carried out to determine methods and workload factors at ATS units.

172.03.16 DEVIATION FROM AIR TRAFFIC SERVICE STANDARDS

1.1 An ATS provider must ensure that any air traffic service it provides is provided in accordance with:

(a) the rules and regulations set out in NAM-CARs Part 172;

(b) the standards set out in this NAM-CATS Part 172; and

(c) the procedures and practices in the ATS provider's manual of procedures.

1.2 However, the ATS provider may deviate from the standards if an emergency, or other circumstance, arises that makes the deviation necessary in the interests of aviation safety.

1.3 As soon as practicable, the ATS provider must notify the Executive Director of the deviation giving justifications for the deviation including the period of such deviation.

172.04.1 ESTABLISHMENT OF AUTHORITY FOR THE PROVISION OF AIR TRAFFIC SERVICE

1.1 The Executive Director must determine, in accordance with these technical standards and for the airspaces over which Namibia has jurisdiction, those portions of the airspace and those aerodromes where air traffic services will be provided. The Executive Director must thereafter arrange for such services to be established and provided in accordance with the provisions of these standards, except that, by mutual agreement, the Executive Director may delegate to another State the responsibility for establishing and providing air traffic services in portions of airspaces within the Windhoek flight information region or control areas or control zones extending over the territories of another State.

1.2 Where the Executive Director delegates to another State the responsibility for the provision of air traffic services over the Namibian territory, the Executive Director does so without derogation of Namibia's national sovereignty. Similarly, the providing State's responsibility is limited to technical

and operational considerations and does not extend beyond those pertaining to the safety and expedition of aircraft using the concerned airspace. Furthermore, the providing State in providing air traffic services within the territory of Namibia will do so in accordance with the requirements of Namibia which is expected to establish such facilities and services for the use of the providing State as are jointly agreed to be necessary. The Executive Director must not withdraw or modify such facilities and services without prior consultation with the providing State. Both the Executive Director and the providing States may terminate the agreement between them at any time.

1.3 Those portions of the airspace over the high seas or in airspace of undetermined sovereignty where air traffic services will be provided by Namibia must be as determined on the basis of regional air navigation agreements. The Executive Director having accepted the responsibility to provide air traffic services in such portions of airspace must thereafter arrange for the services to be established and provided in accordance with the provisions of these technical standards.

1.4 For the purpose of these standards, the phrase “regional air navigation agreements” refers to the agreements approved by the Council of ICAO normally on the advice of Regional Air Navigation Meetings.

1.5 Where Namibia has accepted the responsibility for providing air traffic services over the high seas or in airspace of undetermined sovereignty, the standards prescribed in this document must be applicable to those airspaces.

1.6 When it has been determined that air traffic services will be provided, the Executive Director must designate the authority responsible for providing such services.

1.7 A person or organisation designated by the Executive Director to provide air traffic service is responsible for establishing and providing those services in accordance with the standards prescribed in this document.

1.8 Situations which arise in respect of the establishment and provision of air traffic services to either part or whole of an international flight are as follows:

Situation 1: a flight along a route, or portion of a route, contained within the airspace under the sovereignty of Namibia established for the provision of air traffic services. In this case, the authority responsible for the establishment and provision of air traffic services is the Executive Director

Situation 2: a flight along a route, or portion of a route, contained within airspace under the sovereignty of Namibia where by mutual agreement, the responsibility for the establishment and provision of air traffic services has been delegated to another State. In this case, the authority responsible for the establishment and provision of air traffic services is the State to whom responsibility for establishment and provision of air traffic services has been delegated.

Situation 3: a flight along a portion of a route contained within airspace over the high seas or in airspace of undetermined sovereignty for which Namibia has accepted the responsibility for the establishment and provision of air traffic services. In this case, the authority responsible for the establishment and provision of air traffic services is the Executive Director.

1.9 Where air traffic services are established, the Executive Director must publish information as necessary to permit the utilization of such services.

1.10 The portions of airspace and air routes for which air traffic services must be provided over the territory of Namibia must be as prescribed in NAM-CARs and NAM-CATS Part 71.

172.04.4 DETERMINATION OF NEED FOR AIR TRAFFIC SERVICES

1.1 The need for the provision of air traffic services shall be determined by consideration of the following:

a) the types of air traffic involved;

b) the density of air traffic;

c) the meteorological conditions;

d) such other factors as may be relevant.

Note.— Due to the number of elements involved, it has not been possible to develop specific data to determine the need for air traffic services in a given area or at a given location. For example:

a) a mixture of different types of air traffic with aircraft of varying speeds (conventional jet, etc.) might necessitate the provision of air traffic services, whereas a relatively greater density of traffic where only one type of operation is involved would not;

b) meteorological conditions might have considerable effect in areas where there is a constant flow of air traffic (e.g. scheduled traffic), whereas similar or worse meteorological conditions might be relatively unimportant in an area where air traffic would be discontinued in such conditions (e.g. local VFR flights);

c) open stretches of water, mountainous, uninhabited or desert areas might necessitate the provision of air traffic services even though the frequency of operations is extremely low.

1.2 The carriage of airborne collision avoidance systems (ACAS) by aircraft in a given area shall not be a factor in determining the need for air traffic services in that area.

172.04.5 DESIGNATION OF THE PORTIONS OF THE AIRSPACE AND CONTROLLED AERODROMES WHERE AIR TRAFFIC SERVICES WILL BE PROVIDED

1.1 When it has been determined that air traffic services will be provided in particular portions of the airspace or at particular aerodromes, then those portions of the airspace or those aerodromes must be designated in relation to the air traffic services that are to be provided.

1.2 The designation of the particular portions of the airspace or the particular aerodromes must be as follows:

1.2.1 *Flight information regions*. Those portions of the airspace where it is determined that flight information service and alerting service will be provided must be designated as flight information regions.

1.2.2 *Control areas and control zones*

a) Those portions of the airspace where it is determined that air traffic control service will be provided to IFR flights must be designated as control areas or control zones.

b) Those portions of controlled airspace wherein it is determined that air traffic control service will also be provided to VFR flights must be designated as Classes B, C, or D airspace.

c) Where designated within a flight information region, control areas and control zones form part of that flight information region.

1.2.3 *Controlled aerodromes.* Those aerodromes where it is determined that air traffic control service will be provided to aerodrome traffic must be designated as controlled aerodromes.

1.2.4 The Executive Director may designate portions of the airspace as special use airspace if it considers such airspace necessary in the interest of safety or national security or for any other reasons in the public interest.

1.2.5 Special use airspace established in accordance with (2) may be designated as—

(a) restricted areas;
(b) prohibited areas;
(c) danger areas;
(d) low flying zone; and
(e) flight training area.

1.3 The lateral limits of the airspaces designated under this Part must be defined by—

(a) geographical coordinates;
(b) prominent geographical lines, circles or any part of a circle of a specified radius or great circle between two points or a parallel of latitude.

1.4 The vertical limits of airspaces designated under this Part must be defined by heights, altitudes or flights levels.

1.5 The Executive Director must publish the designated portions of airspace in the aeronautical information publication (AIP).

172.04.6 CLASSIFICATION OF AIRSPACES

1.1 ATS airspaces must be classified and designated in accordance with the following:

Class A. IFR flights only are permitted, all flights are provided with air traffic control service and are separated from each other.

Class B. IFR and VFR flights are permitted, all flights are provided with air traffic control service and are separated from each other.

Class C. IFR and VFR flights are permitted, all flights are provided with air traffic control service and IFR flights are separated from other IFR flights and from VFR flights. VFR flights are separated from IFR flights and receive traffic information in respect of other VFR flights.

Class D. IFR and VFR flights are permitted and all flights are provided with air traffic control service, IFR flights are separated from other IFR flights and receive traffic information in respect of VFR flights, VFR flights receive traffic information in respect of all other flights.

Class E. IFR and VFR flights are permitted, IFR flights are provided with air traffic control service and are separated from other IFR flights. All flights receive traffic information as far as is practical. Class E may not be used for control zones.

Class F. IFR and VFR flights are permitted, all participating IFR flights receive an air traffic advisory service and all flights receive flight information service if requested.

Compliance Note. Where air traffic advisory service is implemented, this is considered normally as a temporary measure only until such time as it can be replaced by air traffic control.

Class G. IFR and VFR flights are permitted and receive flight information service if requested.

1.2 The Executive Director must select airspace classes as appropriate to the needs of Namibia.

1.4 The requirements for flights within each class of airspace are as shown in the table below:

ATS airspace classes — services provided and flight requirements

Class	*Type of flight*	*Separation provided*	*Service provided*	*Speed limitation**	*Radio communication requirement*	*Subject to an ATC clearance*
A	IFR only	All aircraft	Air traffic control service	Not applicable	Continuous two-way	Yes
B	IFR	All aircraft	Air traffic control service	Not applicable	Continuous two-way	Yes
	VFR	All aircraft	Air traffic control service	Not applicable	Continuous two-way	Yes
C	IFR	IFR from IFR IFR from VFR	Air traffic control service	Not applicable	Continuous two-way	Yes
	VFR	VFR from VFR	1) Air traffic control service for separation from IFR; 2) VFR/VFR traffic information (and traffic avoidance advice on request)	250 kt IAS below 3 050 m (10 000 ft) AMSL	Continuous two-way	Yes
D	IFR	IFR from IFR	Air traffic control service, traffic information about VFR flights (and traffic avoidance advice on request)	250 kt IAS below 3 050 m (10 000 ft) AMSL	Continuous two-way	Yes
	VFR	Nil	IFR/VFR and VFR/VFR traffic information (and traffic avoidance	250 kt IAS below 3 050 m (10 000 ft) AMSL	Continuous two-way	Yes

Class	*Type of flight*	*Separation provided*	*Service provided*	*Speed limitation**	*Radio communication requirement*	*Subject to an ATC clearance*
			advice on request)			
E	IFR	IFR from IFR	Air traffic control service and, as far as practical, traffic information about VFR flights	250 kt IAS below 3 050 m (10 000 ft) AMSL	Continuous two-way	Yes
	VFR	Nil	Traffic information as far as practical	250 kt IAS below 3 050 m (10 000 ft) AMSL	No	No
F	IFR	IFR from IFR as far as practicable	Air traffic advisory service; flight information service	250 kt IAS below 3 050 m (10 000 ft) AMSL	Continuous two-way	No
	VFR	Nil	Flight information service	250 kt IAS below 3 050 m (10 000 ft) AMSL	No	No
G	IFR	Nil	Flight information service	250 kt IAS below 3 050 m (10 000 ft) AMSL	Continuous two-way	No
	VFR	Nil	Flight information service	250 kt IAS below 3 050 m (10 000 ft) AMSL	No	No
* When the height of the transition altitude is lower than 3 050 m (10 000 ft) AMSL, FL 100 should be used in lieu of 10 000 ft.						

Compliance Note. Where the ATS airspaces adjoin vertically, i.e. one above the other, flights at a common level would comply with requirements of, and be given services applicable to, the less restrictive class of airspace. In applying these criteria, Class B airspace is therefore considered less restrictive than Class A airspace; Class C airspace less restrictive than Class B airspace, etc.

172.04.7 PERFORMANCE-BASED NAVIGATION (PBN) OPERATIONS

1.1 The appropriate ATS authority must, where performance-based navigation is applied, prescribe navigation specifications. When applicable, the navigation specifications for designated areas, tracks or air traffic services routes must be prescribed on the basis of regional air navigation agreements. In designating a navigation specification, it must be considered that limitations may apply as a result of navigation infrastructure constraints or specific navigation functionality requirements.

1.2 The prescribed navigation specifications must be appropriate to the level of communications, navigation and air traffic services provided in the airspace concerned.

1.3 The appropriate ATS authority must develop procedures for use in airspaces utilizing RNAV and RNP applications including procedures to enable transition between airspaces having different navigation specifications. The appropriate ATS authority must:

(a) determine the specific points where the traffic will be directed as it transits from airspace requiring a navigation specification with less stringent performance and functional requirements to an airspace requiring a navigation specification having more stringent performance and functional requirements; and

(b) co-ordinate efforts with relevant parties in order to obtain a regional agreement detailing the required responsibilities.

1.4 Air traffic controllers must take appropriate action to provide increased separation and to coordinate with other ATS units as appropriate, whenever an aircraft is reported to be unable to maintain the prescribed level of navigation performance.

172.04.8 PERFORMANCE-BASED COMMUNICATION (PBC) OPERATIONS

1.1 In applying performance based communication (PBC), the appropriate ATS authority must prescribe the required communication performance (RCP) specifications. When applicable, the RCP specification(s) must be prescribed on the basis of regional air navigation agreements.

***Compliance note**. In prescribing an RCP specification, limitations may apply as a result of communication infrastructure constraints or specific communication functionality requirements.*

2.1 The prescribed RCP specifications must be appropriate to the air traffic services provided.

1.3 The appropriate ATS authority must, when implementing performance-based communication and surveillance (PBCS), comply with guidelines prescribed by the Executive Director.

***Compliance Note**. Information on the performance-based communication and surveillance (PBCS) concept and guidance material on its implementation are contained in the Performance-based Communication and Surveillance (PBCS) Manual (Doc 9869).*

172.04.9 PERFORMANCE-BASED SURVEILLANCE (PBS) OPERATIONS

1.1 In applying performance-based surveillance (PBS) the ATS authority must prescribe the required surveillance performance (RSP) specifications. When applicable, the RSP must be prescribed on the basis of regional air navigation agreements.

***Compliance Note**. In prescribing an RSP specification, may apply as a result of surveillance infrastructure constraints or specific surveillance functionality requirements*.

1.2 The prescribed RSP specifications must be appropriate to the air traffic services provided.

1.3 Where an RSP specifications has been prescribed for performance-based surveillance, ATS units must be provided with equipment capable of performance consistent with the prescribed RSP specifications.

***Compliance Note**. Information on the PBCS concept and guidance material on its implementation are contained in the Performance-based Communication and Surveillance (PBCS) Manual (Doc 9869).*

172.04.10 ESTABLISHMENT AND DESIGNATION OF UNITS PROVIDING AIR TRAFFIC SERVICES

1. The air traffic services must be provided by units established and designated as follows:

1.1 Flight information centres must be established to provide flight information services and alerting services within flight information regions, unless the responsibility of providing such services within a flight information region is assigned to an air traffic control unit having adequate facilities for the discharge of such responsibility. This does not preclude the delegation to other units the function of providing certain elements of the flight information service.

***Compliance Note**: This does not preclude delegating to other units the function of providing certain elements of the flight information service.*

1.2 Air traffic control units must be established to provide air traffic control service, flight information service and alerting service within control areas, control zones and at controlled aerodromes.

172.04.11 SPECIFICATIONS FOR FLIGHT INFORMATION REGIONS, CONTROL AREAS AND CONTROL ZONES

1. General

1.1 The delineation of airspace, wherein air traffic services are to be provided, must be related to the nature of the route structure and the need for efficient service rather than to the national boundary.

***Compliance Note 1**. Agreements to permit the delineation of airspace lying across the national boundaries may be made where such action will facilitate the provision of air traffic services. Agreements which permit delineation of airspace boundaries by straight lines may be made where data processing techniques are used by air traffic services units.*

***Compliance Note 2**. Where delineation of airspace is made by reference to national boundaries, suitably sited transfer points will be mutually agreed upon.*

2. Flight information region

2.1 The flight information region must be delineated to cover the whole of the air route structure to be served.

2.2. The flight information region must include all airspace within its lateral limits, except where limited by an upper flight information region.

2.3. Where a flight information region is limited by an upper flight information region, the lower limit specified for the upper flight information region constitutes the upper vertical limit of the flight information region and must coincide with a VFR cruising level described in Appendix 6 to this NAM-CATS-ATS.

***Compliance Note**. Where an upper flight information region is established the procedures applicable therein need not be identical with those applicable in the underlying flight information region.*

3. Control areas

3.1 Control areas including, inter alia, airways and terminal control areas must be delineated so as to encompass sufficient airspace to contain the flight paths of those IFR flights or portions thereof to which it is desired to provide the applicable parts of the air traffic control service, taking into account the capabilities of the navigation aids normally used in that area.

***Compliance Note**. In a control area other than one formed by a system of airways, a system of routes may be established to facilitate the provision of air traffic control.*

3.2 A lower limit of a control area must be established at a height above the ground or water of not less than 200 m (700 ft).

***Compliance Note**. This does not imply that the lower limit has to be established uniformly in a given control area.*

3.3 The lower limit of a control area may, when practicable and desirable in order to allow freedom of action for VFR flights below the control area, be established at a greater height than the minimum specified in 3.3.

2.4. 3.4 When the lower limit of a control area is above 900 m (3 000 ft) MSL it must coincide with a VFR cruising level described in Appendix 6 to this NAM-CATS-ATS.

***Compliance Note**. This implies that the selected VFR cruising level be such that expected local atmospheric pressure variations do not result in a lowering of this limit to a height of less than 200 m (700 ft) above ground or water.*

3.5 An upper limit of a control area must be established when either:

(a) air traffic control service will not be provided above such upper limit; or
(b) the control area is situated below an upper control area, in which case the upper limit must coincide with the lower limit of the upper control area.

2.5. 3.6 When established, such upper limit must coincide with a VFR cruising level as described in Appendix 6 to this NAM-CATS-ATS.

4. Flight information region or control areas in the upper airspace

Where it is desirable to limit the number of flight information regions or control areas through which high flying aircraft would otherwise have to operate, a flight information region or control area, as appropriate, may be delineated to include the upper airspace within the lateral limits of a number of lower flight information regions or control areas.

5. Control zones

5.1 The lateral limits of control zones must encompass at least those portions of the airspace, which are not within control areas, containing the paths of IFR flights arriving at and departing from aerodromes to be used under instrument meteorological conditions.

***Compliance Note**. Aircraft holding in the vicinity of aerodromes are considered as arriving aircraft.*

5.2 The lateral limits of a control zone must extend to at least 9.3 km (5 NM) from the centre of the aerodrome or aerodromes concerned in the directions from which approaches may be made.

***Compliance Note**. A control zone may include two or more aerodromes situated close together.*

5.3 If a control zone is located within the lateral limits of a control area, it must extend upwards from the surface of the earth to at least the lower limit of the control area.

***Compliance Note**. An upper limit higher than the lower limit of the overlying control area may be established when desired.*

5.4 If a control zone is located outside of the lateral limits of a control area, an upper limit must be established.

2.6. 5.5 If it is desired to establish the upper limit of a control zone at a level higher than the lower limit of the control area established above it, or if the control zone is located outside of the lateral limits of a control area, its upper limit may be established at a level which can easily be identified by pilots. When this limit is above 900 m (3 000 ft) MSL it must coincide with a VFR cruising level described in Appendix 6 to this NAM-CATS-ATS.

***Compliance Note**. This implies that, if used, the selected VFR cruising level be such that expected local atmospheric pressure variations do not result in a lowering of this limit to a height of less than 200 m (700 ft) above ground or water.*

172.04.12 IDENTIFICATION OF AIR TRAFFIC SERVICES UNITS AND AIRSPACES

1.1 An area control centre or flight information centre may be identified by the name of a nearby town or city or geographic feature.

1.2 An aerodrome control tower or approach control unit may be identified by the name of the aerodrome at which it is located.

1.3 A control zone, control area or flight information region may be identified by the name of the unit having jurisdiction over such airspace.

172.04.13 ESTABLISHMENT AND IDENTIFICATION OF AIR TRAFFIC SERVICES ROUTES

1. Establishment of air traffic services routes

1.1 When ATS routes are established, a protected airspace along each ATS route and a safe spacing between adjacent ATS routes must be provided.

1.2 When warranted by density, complexity or nature of the traffic, special routes may be established for use by low-level traffic, including helicopters operating to and from helidecks on the high seas. When determining the lateral spacing between such routes, account must be taken of the navigational means available and the navigation equipment carried on board helicopters.

1.3 ATS routes must be identified by designators.

1.4 Designators for ATS routes other than standard departure and arrival routes must be selected in accordance with the principles set forth in Appendix 1 to this NAM-CATS-ATS.

1.5 Standard departure and arrival routes and associated procedures must be identified in accordance with the principles set forth in Appendix 3 to this NAM-CATS-ATS.

Compliance Note 1. *Guidance material relating to the establishment of ATS routes is contained in the Air Traffic Services Planning Manual (Doc 9426).*

Compliance Note 2. *Guidance material relating to the establishment of ATS routes defined by VOR is contained in Advisory Pamphlet ANSSO-ATS-AP172/06.*

Compliance Note 3*: The spacing between parallel tracks or between parallel ATS route centre lines based on performance-based navigation will be dependent upon the relevant navigation specification required.*

172.04.14 ESTABLISHMENT OF CHANGE-OVER POINTS

1.1 An ATS provider must define and publish change-over points on ATS route segments defined by reference to very high frequency omnidirectional radio ranges where this will assist accurate navigation along the route segments. The establishment of change-over points must be limited to route segments of 110 km (60 NM) or more, except where the complexity of ATS routes, the density of navigation aids or other technical and operational reasons warrant the establishment of change-over points on shorter route segments.

1.2 Unless otherwise established in relation to the performance of the navigation aids or frequency protection criteria, the change-over point on a route segment is the mid-point between the facilities in the case of a straight route segment or the intersection of radials in the case of a route segment which changes direction between the facilities.

Compliance Note 2. *Guidance on the establishment of change-over point is contained in Advisory Pamphlet ANSSO-ATS-AP172/06.*

172.04.15 ESTABLISHMENT AND IDENTIFICATION OF SIGNIFICANT POINTS

1.1 Significant points must be established for the purpose of defining an ATS route or instrument approach procedure and/or in relation to the requirements of air traffic services for information regarding the progress of aircraft in flight.

1.2 Significant points must be identified by designators.

1.3 Significant points must be established with reference to ground-based radio navigation aids, preferably VHF or higher frequency aids.

1.4 Where ground-based or space-based radio navigation aids do not exist, significant points must be established at locations which can be determined by self-contained airborne navigation aids, or, where navigation by visual reference to the ground is to be effected, by visual observation. Specific points may be designated as ‘‘transfer of control’’ points by agreement between adjacent air traffic control units or control positions concerned.

1.5 Significant points must be established and identified in accordance with the principles set forth in Appendix 2 to this NAM-CATS-ATS.

1.6 In areas where no system of fixed routes is established or where the routes followed by aircraft vary depending on operational considerations, significant points must be determined and reported in terms of World Geodetic System — 1984 (WGS-84) geographical coordinates, except that permanently established significant points serving as exit and/or entry points into such areas must be designated in accordance with the applicable provisions of these standards.

172.04.16 ESTABLISHMENT AND IDENTIFICATION OF STANDARD ROUTES FOR TAXING AIRCRAFT

1.1 Where necessary, standard routes for taxiing aircraft may be established on an aerodrome between runways, aprons and maintenance areas. Such routes must be direct, simple and where practicable, designed to avoid traffic conflicts.

1.2 Standard routes for taxiing aircraft may be identified by designators distinctively different from those of the runways and ATS routes.

172.04.17 COORDINATION BETWEEN AIR TRAFFIC SERVICES AND OPERATORS

1.1 ATS units, in carrying out their objectives, must have due regard for the requirements of the operators consequent on their obligations as specified in the NAM-CARs, Parts 91, 121 and 135 and, if so required by the operators, must make available to them or their designated representatives such information as may be available to enable them or their designated representatives to carry out their responsibilities.

1.2 When so requested by an operator, messages (including position reports) received by ATS units and relating to the operation of the aircraft for which operational control service is provided by that operator must, so far as practicable, be made available immediately to the operator or a designated representative in accordance with locally agreed procedures.

1.3 When it becomes evident that delays will be encountered by arriving aircraft, operators or designated representatives must, to the extent practicable, be notified and kept currently informed of any changes in such expected delays.

1.4 When an occurrence of unlawful interference with an aircraft takes place or is suspected, ATS units must, in accordance with locally agreed procedures, immediately exchange necessary information with the operator or its designated representative.

172.04.18 COORDINATION BETWEEN AIR TRAFFIC SERVICES AND MILITARY AUTHORITIES

1.1 An ATS provider must establish and maintain close cooperation with military authorities responsible for activities that may affect flights of civil aircraft within their areas of responsibility.

1.2 Coordination of activities potentially hazardous to civil aircraft must be effected in accordance with 172.03.19. An ATS provider is responsible for initiating the promulgation of information regarding activities potentially hazardous to civil aircraft. If activities potentially hazardous to civil aircraft take place on a regular or continuing basis, special committees must be established as required to ensure that the requirements of all parties concerned are adequately coordinated.

1.3 Arrangements must be made to permit information relevant to the safe and expeditious conduct of flights of civil aircraft to be promptly exchanged between ATS units and appropriate military units.

1.4 ATS units must, either routinely or on request, in accordance with locally agreed procedures, provide appropriate military units with pertinent flight plan and other data concerning flights of civil aircraft. In order to eliminate or reduce the need for interceptions, ATS providers must designate any areas or routes where flight plans requirements, two-way communications and position reporting apply to all flights to ensure that all pertinent data is available in appropriate ATS units specifically for the purpose of facilitating identification of civil aircraft.

1.5 A strayed or unidentified aircraft may be suspected as being the subject of unlawful interference. Should an ATS unit consider that a strayed or unidentified aircraft may be the subject of unlawful interference, the Military Authority must immediately be informed in accordance with locally agreed procedures.

1.6 An ATS provider must establish special procedures in order to ensure that:

(a) ATS units are notified if a military unit observes that an aircraft which is, or might be, a civil aircraft is approaching, or has entered, any area in which interception might become necessary;

(b) all possible efforts are made to confirm the identity of the aircraft and to provide it with the navigational guidance necessary to avoid the need for interception.

1.7 In communications between ATS units and aircraft in the event of an emergency, Human Factors principles shall be observed. Phraseologies to be used if the aircraft is in two-way radio contact must be as prescribed by the Executive Director in the Procedures for air traffic management document.

1.8 Whenever unlawful interference with an aircraft is suspected, and where automatic distinct display of SSR Mode A Code 7500 and Code 7700 is not provided, the controller must attempt to verify any suspicion by setting the SSR decoder to Mode A Code 7500 and thereafter to Code 7700.

Compliance Note: An aircraft equipped with an SSR transponder is expected to operate the transponder on Mode A Code 7500 to indicate specifically that it is the subject of unlawful interference. The aircraft may operate the transponder on Mode A Code 7700, to indicate that it is threatened by grave and imminent danger and requires immediate assistance. An aircraft equipped with other surveillance system transmitters, including ADS-B and ADS-C, might send the emergency and/or urgency signal by all of the available means.

172.04.19 COORDINATION OF ACTIVITIES POTENTIALLY HAZARDOUS TO CIVIL AIRCRAFT

1.1 The arrangements for activities potentially hazardous to civil aircraft, whether over the territory of Namibia or over the high seas under the jurisdiction of Namibia must be coordinated with the ATS provider. The coordination must be effected early enough to permit timely promulgation of information regarding the activities in accordance with the provisions of Part 175.

1.2 Where the organization planning the activities is located outside Namibia, the ATS provider must effect initial coordination through the ATS authority responsible for the airspace over the State where the organization is located.

1.3 The objective of the coordination is to achieve the best arrangements which will avoid hazards to civil aircraft and minimize interference with the normal operations of such aircraft.

1.3.1 In determining these arrangements the following must be observed:

(a) the locations or areas, times and durations for the activities must be selected to avoid closure or realignment of established ATS routes, blocking of the most economic flight levels, or delays of scheduled aircraft operations, unless no other options exist;

(b) the size of the airspace designated for the conduct of the activities must be kept as small as possible;

(c) direct communication between the appropriate ATS authority or air traffic services unit and the organization or unit conducting the activities must be provided for use in the event that civil aircraft emergencies or other unforeseen circumstances require discontinuation of the activities.

1.4 The ATS provider must ensure that a safety risk assessment is conducted, as soon as practicable, for activities potentially hazardous to civil aircraft and that appropriate risk mitigation measures are implemented.

Compliance Note 1. Such risk mitigation measures may include, but would not be limited to, airspace restriction or temporary withdrawal of established ATS routes or portions thereof.

Compliance Note 2. Guidance on safety risk management can be found in the Safety Management Manual (SMM) (Doc 9859).

1.4.1 The ATS provider must establish procedures to enable the organization or unit conducting or identifying activities potentially hazardous to civil aircraft to contribute to the safety risk assessment in order to facilitate consideration of all relevant safety-significant factors.

Compliance Note. Guidance on collaborative decision making (CDM) processes for safety assessment and promulgation through NOTAM that could involve military authorities can be found in the Manual Concerning Safety Measures Relating to Military Activities Potentially Hazardous to Civil Aircraft Operations (Doc 9554) .

1.5 The ATS provider is responsible for initiating the promulgation of information regarding the activities.

1.6 Where activities potentially hazardous to civil aircraft take place on a regular or continuing basis, the Executive Director may establish a special committee to ensure that the requirements of all parties concerned are adequately coordinated.

1.7 Adequate steps must be taken to prevent emission of laser beams from adversely affecting flight operations.

***Compliance Note**. Guidance material regarding the hazardous effects of laser emitters on flight operations is contained in the Manual on Laser Emitters and Flight Safety (Doc 9815).*

1.8 In order to provide added airspace capacity and to improve efficiency and flexibility of aircraft operations, procedures providing for a flexible use of airspace reserved for military or other special activities may be established. The procedures must permit all airspace users to have safe access to such reserved airspace.

1.9 An ATS provider must:

(a) provide instructions to controllers to avoid potential hazards to aircraft under their control. It is not possible to list all potential hazards, but each ATS provider must provide a comprehensive list covering the most likely scenarios within Windhoek FIR and publish the procedures in the ATC procedures manual; and

(b) ensure that all relevant authorities and users are informed of any potential hazards.

172.04.20 DETERMINATION AND REPORTING OF ATS-RELATED AERONAUTICAL DATA

1.1 Determination and reporting of air traffic services-related aeronautical data must be in accordance with the accuracy and integrity classification required to meet the needs of the end-user of aeronautical data.

Compliance Note. Specifications concerning the accuracy and integrity classification of air traffic services related aeronautical data are contained in PANS-AIM (Doc 10066), Appendix 1.

1.2 Digital data error detection techniques shall be used during the transmission and/or storage of aeronautical data and digital data sets.

Compliance Note. Detailed specifications concerning digital data error detection techniques are contained in PANS-AIM (Doc 10066).

172.04.21 COORDINATION BETWEEN METEOROLOGICAL AND AIR TRAFFIC SERVICES AUTHORITIES

1.1 To ensure that aircraft receive the most up-to-date meteorological information for aircraft operations, arrangements must be made, where necessary, between meteorological and air traffic services authorities for air traffic services personnel:

(a) in addition to using indicating instruments, to report, if observed by the air traffic services personnel or communicated by aircraft, such other meteorological elements as may be agreed upon with the meteorological services;

(b) to report as soon as possible to the associated meteorological office, meteorological phenomena of operational significance, if observed by air traffic services personnel or communicated by aircraft, which have not been included in the aerodrome meteorological report;

(c) to report as soon as possible to the associated meteorological office, pertinent information concerning pre-eruption volcanic activity, volcanic eruptions and information concerning volcanic ash cloud and for personnel working in area control centre and flight information centre to report information concerning pre-eruption volcanic activity, volcanic eruptions and

information concerning volcanic ash cloud to the associated meteorological watch office and the designated volcanic ash advisory centres (VAACs).

Compliance Note. *VAACs are designated by regional air navigation agreements in accordance with the provisions of NAMCAR/NAMCATS Part 174.*

1.2 The air traffic services authority must make arrangements for air traffic services units providing area control service and flight information service to maintain close coordination with the associated meteorological watch offices to ensure that information on volcanic ash included in NOTAM and SIGMET messages is consistent.

172.04.22 COORDINATION BETWEEN AERONAUTICAL INFORMATION SERVICES AND AIR TRAFFIC SERVICES AUTHORITIES

1.1 An air traffic service authorities must ensure that aeronautical information services units obtain information to enable them provide up-to-date pre-flight information and to meet the need for in-flight information.

1.2 The air traffic service authorities must make arrangements for air traffic service units to report to the responsible aeronautical information services unit, with a minimum delay:

(a) information on aerodrome conditions;

(b) the operational status of associated facilities, services and navigation aids within its area of responsibility;

(c) the occurrence of volcanic activity observed by air traffic services personnel or reported by aircraft; and

(d) any other information considered to be of operational significance.

1.3 Before introducing changes to the air navigation system, due account must be taken by the services responsible for such changes of the time needed by the aeronautical information service for the preparation, production and issuance of relevant material for promulgation. To ensure timely

provision of the information to the aeronautical information service, close coordination between those services concerned is required.

1.4 Of particular importance are changes to aeronautical information that affect charts and/or computer-based navigation systems which qualify to be notified by the Aeronautical Information Regulation and Control (AIRAC) system, as specified in Part 175. The predetermined, internationally agreed AIRAC effective dates must be observed by the responsible air traffic services when submitting the raw information/data to aeronautical information services.

Compliance Note. Detailed specifications concerning the AIRAC system are contained in PANS-AIM (Doc 10066), Chapter 6.

1.5 The air traffic services units responsible for the provision of raw aeronautical information/data to the aeronautical information services must do so while taking into account accuracy and integrity requirements required to meet the needs of the end-user of aeronautical data.

Compliance Note 1. Specifications concerning the accuracy and integrity classification of air traffic services related aeronautical data are contained in PANS-AIM (Doc 10066), Appendix 1.

Compliance Note 2*. Specifications for the issue of a NOTAM and ASHTAM are contained in, Part 175 and NAMCATS-AIS.*

Compliance Note 3*. Reports of volcanic activity must comprise the information detailed in Part 174.*

Compliance Note 4*. AIRAC information must be distributed by the aeronautical information service at least 42 days in advance of the AIRAC effective dates with the objective of reaching recipients at least 28 days in advance of the effective date.*

Compliance Note 5*. The schedule of the predetermined internationally agreed AIRAC common effective dates at intervals of 28 days and guidance for the AIRAC use are contained in the Aeronautical Information Services Manual (Doc 8126, Chapter 2, 2.6).*

172.04.23 MINIMUM FLIGHT ALTITUDES

1.1 Minimum flight altitudes must be determined and promulgated by the ATS provider for each ATS route and control area. The minimum flight altitudes determined must provide a minimum clearance above the controlling obstacle located within the areas concerned.

Compliance Note. The requirements for publication of minimum flight altitudes and of the criteria used to determine them are contained in PANS-AIM (Doc 10066), Appendix 12. Detailed obstacle clearance criteria are contained in PANS-OPS (Doc 8168), Volume II.

1.2 The criteria used to determine the minimum flight altitudes must be published in GEN 3.3.5 of the Aeronautical Information Publication (AIP). This criteria must be in accordance with the obstacle clearance criteria described in PANS-OPS (Doc 8168), Volume II.

172.04.24 SERVICE TO AIRCRAFT IN THE EVENT OF AN EMERGENCY

1. Unlawful Interference and Bomb Threat

1.1 An air traffic services unit which in the course of providing an air traffic service, knows or believe that an aircraft is in a state of emergency or is being subjected to unlawful interference, must give maximum consideration, assistance and priority to that aircraft over other aircraft as may be necessitated by circumstances.

Compliance Note. *To indicate that an aircraft is in a state of emergency, an aircraft which is equipped with an appropriate data link capability and/or secondary surveillance radar transponder may operate the equipment as follows:*

(a) On Mode A, Code 7700; or

(b) On Mode A, Code 7500, to indicate specifically that it is being subjected to unlawful interference; and/or

(c) *Activate the appropriate emergency and/or urgency capability of ADS-B or ADS-C; and/or*

(d) *Transmit the appropriate emergency message via Controller-Pilot-Data-Link- Communication (CPDLC)*

1.2 In communications between ATS units and aircraft in the event of an emergency, human factors principles must be observed.

***Compliance Note**. Guidance material on Human Factors principles can be found in the Human Factors Training Manual (Doc 9683)*

1.3 When an occurrence of unlawful interference with an aircraft takes place or is suspected, ATS units must attend promptly to requests by the aircraft. Information pertinent to the safe conduct of the flight must continue to be transmitted and necessary action must be taken to expedite the conduct of all phases of the flight, especially the safe landing of the aircraft.

1.4 When an occurrence of unlawful interference with an aircraft takes place or is suspected, ATS units must, in accordance with locally agreed procedures, immediately inform the appropriate authority designated by the State and exchange necessary information with the operator or its designated representative.

Compliance Notes:

(a) *A strayed or unidentified aircraft may be suspected as being the subject of unlawful interference.*

(b) *Procedures relating to the handling of strayed or unidentified aircraft are described in 172.03.25 of this NAM-CATS-ATS.*

(c) *The NCAA Procedures for air traffic management document, Part 15, Chapter 1 contains more specific procedures related to unlawful interference*.

172.04.25 IN-FLIGHT CONTINGENCIES - STRAYED OR UNIDENTIFIED AIRCRAFT

Compliance Note 1. *The terms "strayed aircraft" and "unidentified aircraft" in this paragraph have the following meanings:*

Strayed aircraft. An aircraft which has deviated significantly from its intended track or which reports that it is lost.

Unidentified aircraft. An aircraft which has been observed or reported to be operating in a given area but whose identity has not been established.

Compliance Note 2. An aircraft may be considered, at the same time, as a "strayed aircraft" by one unit and as an "unidentified aircraft" by another unit.

Compliance Note 3. A strayed or unidentified aircraft may be suspected as being the subject of unlawful interference.

1.1 As soon as an air traffic services unit becomes aware of a strayed aircraft it must take all necessary steps as outlined in a) and b) below to assist the aircraft and to safeguard its flight:

Compliance Note*. Navigational assistance by an air traffic services unit is particularly important if the unit becomes aware of an aircraft straying, or about to stray, into an area where there is a risk of interception or other hazard to its safety.*

(a) If the aircraft's position is not known, the air traffic services unit must:

(i) attempt to establish two-way communication with the aircraft, unless such communication already exists;

(ii) use all available means to determine its position;

(iii) inform other ATS units into whose area the aircraft may have strayed or may stray, taking into account all the factors which may have affected the navigation of the aircraft in the circumstances;

(iv) inform, in accordance with locally agreed procedures, appropriate military units and provide them with pertinent flight plan and other data concerning strayed aircraft;

(v) request from the units referred to in (iii) and (iv) and from other aircraft in flight every assistance in establishing communication with the aircraft and determining its position.

Compliance Note. The requirements in (iv) and (v) above apply also to ATS units informed in accordance with (iii)

(b) When the aircraft's position is established, the air traffic services unit must:

(i) advise the aircraft of its position and corrective action to be taken; and

(ii) provide, as necessary, other ATS units and appropriate military units with relevant information concerning the strayed aircraft and any advice given to that aircraft.

1.2 As soon as an air traffic services unit becomes aware of an unidentified aircraft in its area, it must endeavour to establish the identity of the aircraft whenever this is necessary for the provision of air traffic services or required by the appropriate military authorities in accordance with locally agreed procedures. To this end, the air traffic services unit must take such of the following steps as are appropriate in the circumstances:

(a) attempt to establish two-way communication with the aircraft;

(b) inquire of other air traffic services units within the flight information region about the flight and request their assistance in establishing two-way communication with the aircraft;

(c) inquire of air traffic services units serving the adjacent flight information regions about the flight and request their assistance in establishing two-way communication with the aircraft;

(d) attempt to obtain information from other aircraft in the area.

1.3 The air traffic services unit must, as necessary, inform the appropriate military unit as soon as the identity of the aircraft has been established.

1.4 Where the ATS unit considers that a strayed or unidentified aircraft may be the subject of unlawful interference, the ATS unit must immediately inform the appropriate authorities in accordance with locally agreed procedures established in the ATS Procedures Manual.

172.04.26 IN-FLIGHT CONTINGENCIES - INTERCEPTION OF CIVIL AIRCRAFT

1.1 As soon as an air traffic services unit learns that an aircraft is being intercepted in its area of responsibility, it must take such of the following steps as are appropriate in the circumstances:

(a) attempt to establish two-way communication with the intercepted aircraft via any means available, including the emergency radio frequency 121.5 MHz, unless such communication already exists;

(b) inform the pilot of the intercepted aircraft of the interception;

(c) establish contact with the intercept control unit maintaining two-way communication with the intercepting aircraft and provide it with available information concerning the aircraft;

(d) relay messages between the intercepting aircraft or the intercept control unit and the intercepted aircraft, as necessary;

(e) in close coordination with the intercept control unit take all necessary steps to ensure the safety of the intercepted aircraft;

(f) inform ATS units serving adjacent flight information regions if it appears that the aircraft has strayed from such adjacent flight information regions.

1.2 As soon as an air traffic services unit, learns that an aircraft is being intercepted outside its area of responsibility, it must take such of the following steps as are appropriate in the circumstances:

(a) inform the ATS unit serving the airspace in which the interception is taking place, providing this unit with available information that will assist in identifying the aircraft and requesting it to take action in accordance with 1.1 above;

(b) relay messages between the intercepted aircraft and the appropriate ATS unit, the intercept control unit or the intercepting aircraft.

1.3 An ATS provider must:

(a) publish in its ATS Procedures Manual, procedures to be followed by the controller in the event of notification that a civil aircraft is being intercepted. These procedures must comply with procedures prescribed in 1.1 and 1.2 above; and

(b) publish in its ATS procedures manual, interception and response signals to be used between the aircraft for controller information.

172.04.27 TIME IN AIR TRAFFIC SERVICES

1.1 An air traffic services unit must use Coordinated Universal Time (UTC) and must express the time in hours and minutes and, when required, seconds, of the 24-hour day beginning at midnight.

1.2 Air traffic services units must be equipped with clocks indicating the time in hours, minutes and seconds, clearly visible from each operating position in the unit concerned.

1.3 Air traffic services units clocks and other time-recording devices must be checked as necessary to ensure correct time to within plus or minus 30 seconds of UTC. Wherever data link communications are utilized by an air traffic services unit, clocks and other time-recording devices must be checked as necessary to ensure correct time to within 1 second of UTC.

1.4 The correct time must be obtained from a standard time station or, if not possible, from another unit which has obtained the correct time from such station.

1.5 An aerodrome control towers must, prior to an aircraft taxiing for take-off, provide the pilot with the correct time, unless arrangements have been made for the pilot to obtain it from other sources. Air traffic services units must, in addition, provide aircraft with the correct time on request. Time checks must be given to the nearest half minute.

172.04.28 REQUIREMENTS FOR THE CARRIAGE AND OPERATION OF PRESSURE-ALTITUDE REPORTING TRANSPONDERS

1. General

1.1 When an aircraft carries a serviceable transponder, the pilot must operate the transponder at all times during flight, regardless of whether the aircraft is within or outside airspace where secondary surveillance radar(SSR) is used for ATS purposes.

1.2 Except in case of emergency, communication failure or unlawful interference, the pilot must:

a) operate the transponder and select Mode A codes as directed by the ATC unit with which contact is being made; or

b) operate the transponder on Mode A codes as prescribed on the basis of regional air navigation agreements; or

c) in the absence of any ATC directions or regional air navigation agreements, operate the transponder on Mode A Code 2000

1.3 When the aircraft carries serviceable Mode C equipment, the pilot must continuously operate this mode, unless otherwise directed by ATC.

1.4 When requested by ATC to specify the capability of the transponder aboard the aircraft, pilots must indicate this in item 10 of the flight plan by inserting the appropriate letter prescribed for the purpose.

1.5 When requested by ATC to CONFIRM SQUAWK (code), the pilot must:

a) verify the Mode A code setting on the transponder;

b) reselect the assigned code if necessary; and

c) confirm to ATC the setting displayed on the controls of the transponder.

2. Use of Mode C

Whenever Mode C is operated, pilots shall, in air-ground voice communications where level information is required, give such information by stating their level to the nearest full 30 m or 100 ft as indicated on the pilot's altimeter.

3. Use of Mode S

Pilots of aircraft equipped with Mode S having an aircraft identification feature must set the aircraft identification in the transponder. This setting must correspond to the aircraft identification specified in item 7 of the Flight plan, or, if no flight plan has been filed, the aircraft registration.

Compliance Note. *All Mode S equipped aircraft engaged in international civil aviation are required to have an aircraft identification feature.*

4. Emergency procedure

The pilot of an aircraft in a state of emergency must set the transponder to Mode A Code 7700 unless ATC has previously directed the pilot to operate the transponder on a specified code. In the latter case, the pilot must continue to use the specified code unless otherwise advised by ATC. However, a pilot may select Mode A Code 7700 whenever there is a specific reason to believe that this would be the best course of action.

5. Communication failure procedures

The pilot of an aircraft losing two-way communications must set the transponder to Mode A Code 7600.

Compliance Note. A controller who observes an SSR response indicating selection of the communications failure code will determine the extent of the failure by instructing the pilot to SQUAWK

IDENT or to change code. If it is determined that the aircraft receiver is functioning, further control of the aircraft will be continued using code changes or IDENT transmission to acknowledge receipt of clearances. Different procedures may be applied to Mode S equipped aircraft in areas of Mode S coverage.

6. Unlawful interference with aircraft in flight

6.1 If there is unlawful interference with an aircraft in flight, the pilot-in-command shall attempt to set the transponder to Mode A Code 7500 in order to indicate the situation. If circumstances so warrant, Code 7700 should be used instead.

6.2 If a pilot has selected Mode A Code 7500 and has been requested to confirm this code by ATC, the pilot must, according to circumstances, either confirm this or not reply at all.

***Compliance Note**. If the pilot does not reply, ATC will take this as confirmation that the use of Code 7500 is not an inadvertent false code selection.*

7. Transponder failure procedures when the carriage of a functioning transponder is mandatory

7.1 In case of a transponder failure after departure, ATC units must attempt to provide for continuation of the flight to the destination aerodrome in accordance with the flight plan. Pilots may, however, expect to comply with specific restrictions.

7.2 In the case of a transponder which has failed and cannot be restored before departure, pilots must:

a) inform ATS as soon as possible, preferably before submission of a flight plan;

b) insert in item 10 of the ICAO flight plan form under SSR the character N for complete unserviceability of the transponder or, in case of partial transponder failure, insert the character corresponding to the remaining transponder capability;

c) comply with any published procedures for requesting an exemption from the requirements to carry a functioning SSR transponder; and

d) if required by the appropriate ATS authority, plan to proceed, as directly as possible, to the nearest suitable aerodrome where repair can be carried out.

172.04.29 SAFETY MANAGEMENT AND PREVENTION OF RUNWAY INCURSIONS

***Compliance Note**. Detailed guidance material on ATS safety management are contained in Part 2 of the Procedures for air traffic management document.*

1. General

1.1 An ATS provider must ensure that the level of air traffic services (ATS) and communications, navigation and surveillance, as well as the ATS procedures applicable to the airspace or aerodrome concerned, are appropriate and adequate for maintaining an acceptable level of safety in the provision of ATS.

1.2 The requirements in respect of services, systems and procedures applicable to airspaces and aerodromes must be established on the basis of a regional air navigation agreement in order to facilitate the harmonization of ATS in adjacent airspaces.

1.3 To ensure that safety in the provision of ATS is maintained, the appropriate ATS authority must implement safety management systems (SMS) for the air traffic services under its jurisdiction.

1.4 The ATS SMS must be established in accordance with the SMS framework comprising of the following components and elements:

(a) Safety policy and objectives;
  (i) Management commitment and responsibility,
  (ii) Safety accountabilities

(iii) Appointment of key safety personnel,
(iv) Coordination of emergency response planning,
(v) SMS documentation

(b) Safety risk management;
(i) Hazard identification,
(ii) Safety risk assessment and mitigation

(c) Safety assurance;
(i) Safety performance monitoring and measurement,
(ii) The management of change,
(iii) Continuous improvement of the SMS

(d) Safety promotion;
(i) Training and education
(ii) Safety communication

1.5 An ATS service provider must publish details concerning its safety management system as part of its Manual of Procedure.

2. Objectives of ATS SMS

2.1 The objectives of ATS safety management must be to ensure that:

a) the established level of safety applicable to the provision of ATS within an airspace or at an aerodrome is met; and

b) safety-related enhancements are implemented whenever necessary.

3. ATS Safety management activities

3.1 An ATS SMS must include, inter alia, the following with respect to the provision of air traffic services:

a) monitoring of overall safety levels and detection of any adverse trend;

b) safety reviews of ATS units;

c) safety assessments in respect of the planned implementation of airspace reorganizations, the introduction of new equipment systems or facilities, and new or changed ATS procedures; and

d) a mechanism for identifying the need for safety enhancing measures.

3.2 All activities undertaken in an ATS SMS must be fully documented. All documentation must be retained for such period of time as is specified by the appropriate ATS authority.

4. Monitoring of safety levels

4.1 Collection and evaluation of safety-related data

4.1.1 Data for use in safety monitoring programmes must be collected from as wide a range of sources as possible, as the safety-related consequences of particular procedures or systems may not be realized until after an incident has occurred.

4.1.2 The appropriate ATS authority must establish a formal incident reporting system for ATS personnel to facilitate the collection of information on actual or potential safety hazards or deficiencies related to the provision of ATS, including route structures, procedures, communications, navigation and surveillance systems and other safety significant systems and equipment as well as controller workloads.

4.2 Review of incident and other safety-related reports

4.2.1 Safety-related reports concerning the operation of air traffic services, including air traffic incident reports, must be systematically reviewed by the appropriate ATS authority in order to detect any adverse trend in the number and types of incidents which occur.

4.2.2 Reports concerning the serviceability of ATS facilities and systems, such as failures and degradations of communications, surveillance and other safety significant systems and equipment, must be systematically reviewed by the appropriate ATS authority in order to detect any trend in the operation of such systems which may have an adverse effect on safety.

5. Safety reviews

5.1 General requirements

Safety reviews of ATS units must be conducted on a regular and systematic basis by personnel qualified through training, experience and expertise and having a full understanding of relevant ATS standards, procedures, safe operating practices and human factors principles.

5.2 Scope

5.2.1 The scope of ATS unit safety reviews must include at least the following issues:

5.2.1.1 Regulatory issues to ensure that:

a) ATS operations manuals, ATS unit instructions and air traffic control (ATC) coordination procedures are complete, concise and up-to-date;

b) the ATS route structure, where applicable, provides for:

   i) adequate route spacing; and

   ii) crossing points for ATS routes located so as to reduce the need for controller intervention and for inter- and intra-unit coordination;

c) the separation minima used in the airspace or at the aerodrome are appropriate and all the provisions applicable to those minima are being complied with;

d) where applicable, provision is made for adequate observation of the manoeuvring area, and procedures and measures aimed at minimizing the potential for inadvertent runway incursions are in place. This observation may be performed visually or by means of an ATS surveillance system;

e) appropriate procedures for low visibility aerodrome operations are in place;

f) traffic volumes and associated controller workloads do not exceed defined, safe levels and that procedures are in place for regulating traffic volumes whenever necessary;

g) procedures to be applied in the event of failures or degradations of ATS systems, including communications, navigation and surveillance systems, are practicable and will provide for an acceptable level of safety; and

h) procedures for the reporting of incidents and other safety-related occurrences are implemented, that the reporting of incidents is encouraged and that such reports are reviewed to identify the need for any remedial action.

5.2.1.2 Operational and technical issues to ensure that:

a) the environmental working conditions meet established levels for temperature, humidity, ventilation, noise and ambient lighting, and do not adversely affect controller performance;

b) automation systems generate and display flight plan, control and coordination data in a timely, accurate and easily recognizable manner and in accordance with Human Factors principles;

c) equipment, including input/output devices for automation systems, are designed and positioned in the working position in accordance with ergonomic principles;

d) communications, navigation, surveillance and other safety significant systems and equipment:

i) are tested for normal operations on a routine basis;

ii) meet the required level of reliability and availability as defined by the appropriate authority;

iii) provide for the timely and appropriate detection and warning of system failures and degradations;

iv) include documentation on the consequences of system, subsystem and equipment failures and degradations;

v) include measures to control the probability of failures and degradations; and

vi) include adequate backup facilities and/or procedures in the event of a system failure or degradation; and

e) detailed records of systems and equipment serviceability are kept and periodically reviewed.

In the context above, the terms reliability and availability have the following meanings:

i) *Reliability*. The probability that a device or system will function without failure over a specified time period or amount of usage; and

ii) *Availability*. The ratio of percentage of the time that a system is operating correctly to the total time in that period.

5.2.1.3 Licensing and training issues to ensure that:

a) controllers are adequately trained and properly licensed with valid ratings;

b) controller competency is maintained by adequate and appropriate refresher training, including the handling of aircraft emergencies and operations under conditions with failed and degraded facilities and systems;

c) controllers, where the ATC unit/control sector is staffed by teams, are provided relevant and adequate training in order to ensure efficient teamwork;

d) the implementation of new or amended procedures, and new or updated communications, surveillance and other safety significant systems and equipment is preceded by appropriate training and instruction;

e) controller competency in the English language is satisfactory in relation to providing ATS to international air traffic; and

f) standard phraseology is used.

6. Safety assessments

6.1 Need for safety assessments

6.1.1 A safety assessment must be carried out in respect of proposals for significant airspace reorganizations, for significant changes in the provision of ATS procedures applicable to an airspace or an aerodrome, and for the introduction of new equipment, systems or facilities, such as:

a) a reduced separation minimum to be applied within an airspace or at an aerodrome;

b) a new operating procedure, including departure and arrival procedures, to be applied within an airspace or at an aerodrome;

c) a reorganization of the ATS route structure;

d) a re-sectorization of an airspace;

e) physical changes to the layout of runways and/or taxiways at an aerodrome; and

f) implementation of new communications, surveillance or other safety-significant systems and equipment, including those providing new functionality and/or capabilities.

Compliance Note 1: A reduced separation minimum may refer to the reduction of a horizontal separation minimum, including a minimum based on required navigation performance (RNP), a

reduced vertical separation minimum of 300 m (1 000 ft) between FL 290 and FL 410 inclusive (RVSM), the reduction of a separation minimum based on the use of an ATS surveillance system or a wake turbulence separation minimum or reduction of minima between landing and/or departing aircraft.

Compliance Note 2: When, due to the nature of the change, the acceptable level of safety cannot be expressed in quantitative terms, the safety assessments may rely on operational judgement.

6.1.2 Proposals may be implemented only when the safety assessment has shown that an acceptable level of safety will be met.

6.2 Safety-significant factors

6.2.1. The safety assessment must consider relevant, all factors determined to be safety-significant, including:

a) types of aircraft and their performance characteristics, including aircraft navigation capabilities and navigation performance;
b) traffic density and distribution;
c) airspace complexity, ATS route structure and classification of the airspace;
d) aerodrome layout, including runway configurations, runway lengths and taxiway configurations;
e) type of air-ground communications and time parameters for communication dialogues, including controller intervention capability;
f) type and capabilities of surveillance system, and the availability of systems providing controller support and alert functions. Where ADS-B implementation envisages reliance upon a common source for surveillance and/or navigation, the safety assessment must take account of adequate contingency measures to mitigate the risk of either degradation or loss of this common source (i.e. common mode failure);
g) any significant local or regional weather phenomena; and
h) reduction in separation minima as determined by the ATS authority.

7. Safety-enhancing measures

7.1 Any actual or potential hazard related to the provision of ATS within an airspace or at an aerodrome, whether identified through an ATS safety management activity or by any other means, must be assessed and classified by the appropriate ATS authority for its risk acceptability.

7.2 Except when the risk can be classified as acceptable, the ATS authority concerned must, as a matter of priority and as far as practicable, implement appropriate measures to eliminate the risk or reduce the risk to a level that is acceptable.

7.3 If it becomes apparent that the level of safety applicable to an airspace or an aerodrome is not, or may not be achieved, the appropriate ATS authority must, as a matter of priority and as far as practicable, implement appropriate remedial measures.

7.4 Implementation of any remedial measure must be followed by an evaluation of the effectiveness of the measure in eliminating or mitigating a risk.

8. Prevention of runway incursions

8.1 An ATS provider which provides aerodrome control services or aerodrome flight information services must take appropriate measures to prevent runway incursions.

8.2 The ATS provider must ensure that the measures it puts in place to prevent runway incursions are integrated with the runway safety programme established by the aerodrome operator.

8.3 Runway incursions may be prevented by ensuring that:

(a) a clear and unambiguous method is used on the operating console to indicate that a runway is temporarily obstructed;

(b) whenever practical, ATC en-route clearance are issued prior to taxi;

(c) where applicable, stop bars are switched on to indicate that all traffic must stop and off to indicate that traffic may proceed;

(d) aircraft or vehicles are never instructed to cross illuminated red stop bars when entering or crossing a runway and in the event of unserviceable stop bars that cannot be deselected, contingency measures, such as follow-me vehicles, are used;

(e) ATC procedures contain a requirement to issue an explicit clearance including the runway designator when authorizing a runway crossing or to hold short of any runway including runways not in use;

(f) ATC procedures contain a requirement to include the runway designator when an instruction to hold short of any runway is issued;

(g) Standard taxi routes where available, are utilized to minimize the potential for pilot confusion;

(h) where applicable, progressive taxi instructions are used to reduce pilot workload and the potential for confusion and progressive taxi instructions do not infer a clearance to cross a runway;

(i) existing visibility restrictions from the control tower which have a potential impact on the ability to see the runway are assessed and any such areas are clearly identified on a hot spot map;

(j) environmental constraints do not compromise safety, e.g. regular, multiple changes to the runway configuration;

(k) runway safety issues are included in the training and briefings for ATC staff;

(l) hazards are identified and any risks associated with runway capacity enhancing procedures (intersection departures, multiple line-ups, conditional clearances, etc.), when used individually or in combination, are evaluated and if necessary, appropriate mitigation strategies are developed;

(m) line-up clearance are issued to an aircraft if that aircraft will be required to hold on the runway for more than 90 seconds beyond the time it would normally be expected to depart;

(n) when conditional clearances are used, specific training is provided to ensure that such clearances are used strictly according to applicable standards;

(o) when using multiple or intersection departures, oblique or angled taxiways that limit the ability of the flight crew to see the landing runway threshold or final approach area are not used; and

(p) Controllers are “head-up” for a continuous watch on aerodrome operations.

8.4 Where an aerodrome controller, having issuing a take-off clearance or a landing clearance, becomes aware of a runway incursion or the imminent occurrence thereof, or the existence of any obstruction on or in close proximity to the runway likely to impair the safety of an aircraft taking off or landing, he/she must take appropriate action follows:

(a) cancel the take-off clearance for a departing aircraft;

(b) instruct a landing aircraft to execute a go-around or missed approach;

(c) in all cases inform the aircraft of the runway incursion or obstruction and its location in relation to the runway.

Compliance Note. Animals and flocks of birds may constitute an obstruction with regard to runway operations. In addition, an aborted take-off or a go-around executed after touchdown may expose the aeroplane to the risk of overrunning the runway. Moreover, a low altitude missed approach may expose the aeroplane to the risk of a tail strike. Pilots may, therefore, have to exercise their judgement in accordance with the rules of the air, concerning the authority of the pilot-in-command of an aircraft.

8.5 Pilots and air traffic controllers must report any occurrence involving an obstruction on the runway or a runway incursion.

172.04.30 COMMON REFERENCE SYSTEMS

1. Horizontal reference system

World Geodetic System — 1984 (WGS-84) must be used as the horizontal (geodetic) reference system for air navigation. Reported aeronautical geographical coordinates (indicating latitude and longitude) must be expressed in terms of the WGS-84 geodetic reference datum;

Compliance Note. *Comprehensive guidance material concerning WGS-84 is contained in the World Geodetic System — 1984 (WGS-84) Manual (Doc 9674).*

2. Vertical reference system

Mean sea level (MSL) datum, which gives the relationship of gravity-related height (elevation) to a surface known as the geoid, must be used as the vertical reference system for air navigation;

Compliance Note. *The geoid globally most closely approximates MSL. It is defined as the equipotential surface in the gravity field of the Earth which coincides with the undisturbed MSL extended continuously through the continents.*

3. Temporal reference system

3.1 The Gregorian calendar and Coordinated Universal Time (UTC) must be used as the temporal reference system for air navigation.

3.2 When a different temporal reference system is used, this must be indicated in GEN 2.1.2 of the Aeronautical Information Publication (AIP).

172.04.32 CONTINGENCY PLANNING REQUIREMENTS

1. Introduction

1.1 Contingency measures for application in the event of disruptions of air traffic services and related supporting services must be consistent with these standards.

1.2 The purpose of these standards is to assist in providing for the safe and orderly flow of air traffic in Namibia in the event of disruptions of air traffic services and related supporting services and in preserving the availability of air routes within the airspace of Namibia during such circumstances.

1.3 These standards have been developed in recognition of the fact that circumstances before and during events causing disruptions of services to civil aviation may vary widely and that contingency measures, including access to designated aerodromes for humanitarian reasons, in response to specific events and circumstances must be adapted to these circumstances. The requirements set forth the allocation

of responsibility between the State of Namibia and ICAO for the conduct of contingency planning and the measures to be taken into consideration in developing, applying and terminating the application of such plans.

1.4 These standards consider inter alia, that the effects of disruption of services in particular portions of airspace are likely to affect significantly the services in adjacent airspace, thereby creating a requirement for international coordination, with the assistance of ICAO as appropriate.

1.5 An ATS provider must consider that:

(a) the role of ICAO in the field of contingency planning and coordination of such plans is necessary;
(b) ICAO's role in contingency planning is global and not limited to airspace over the high seas and areas of undetermined sovereignty, if the availability of major world air routes within the air transportation system is to be preserved;
(c) international organizations concerned, such as the International Air Transport Association (IATA) and the International Federation of Airline Pilots' Associations (IFALPA), are valuable advisers on the practicability of overall plans and elements of such plans.

2. Contingency Plan

2.1 The contingency plans must be developed with the assistance of ICAO as necessary, in close coordination with the air traffic services authorities responsible for the provision of services in adjacent portions of airspace and with airspace users concerned.

2.2 The contingency plans must as a minimum include:

(a) the actions to be taken by the members of the provider's personnel responsible for providing the service; and
(b) possible alternative arrangements for providing the service; and
(c) the arrangements for resuming normal operations for the service.

2.3 Where the contingency plan constitutes a temporary deviation from the approved regional air navigation plan, the Executive Director must forward such deviations to the ICAO Council for approval.

3. Status of contingency plans

3.1 Contingency plans are intended to provide alternative facilities and services to those provided for in the regional air navigation plan when those facilities and services are temporarily not available. Contingency arrangements are therefore temporary in nature, remain in effect only until the services and facilities are reactivated.

4. Responsibility for developing, promulgating and implementing contingency plans

4.1 The appropriate ATS authority responsible for providing air traffic services and related supporting services in Windhoek FIR is also responsible, in the event of disruption or potential disruption of these services, for instituting measures to ensure the safety of international civil aviation operations and, where possible, for making provisions for alternative facilities and services. To that end the appropriate ATS authority must develop, promulgate and implement appropriate contingency plans. Such plans must be developed in consultation with other States and airspace users concerned and with ICAO, as appropriate, whenever the effects of the service disruption(s) are likely to affect the services in adjacent airspace.

4.2 The responsibility for appropriate contingency action in respect of airspace over the high seas for which Namibia has accepted responsibility rests with the appropriate ATS authority responsible for providing the services until, and unless, that responsibility is temporarily reassigned by ICAO to (an)other State(s).

4.3 The responsibility for appropriate contingency action in respect of airspace where the responsibility for providing the services has been delegated by the Executive Director to another State rests with the State providing the services until, and unless the Executive Director terminates temporarily the delegation. Upon termination, the Executive Director assumes responsibility for appropriate contingency action.

Note: The International Civil Aviation Organization (ICAO) may initiate and coordinate appropriate contingency action in the event of disruption of air traffic services and related supporting services affecting international civil aviation operations wherein, for some reason, the appropriate ATS authorities cannot adequately discharge the responsibility referred to in 4.1. In such circumstances, ICAO will work in coordination with States responsible for airspaces adjacent to Windhoek FIR that are affected by the disruption. ICAO may also initiate and coordinate appropriate contingency action at the request of the Executive Director.

5. Preparatory action

5.1 Time is essential in contingency planning if hazards to air navigation are to be reasonably prevented. Timely introduction of contingency arrangements requires decisive initiative and action, which again presupposes that contingency plans have, as far as practicable, been completed and agreed among the parties concerned before the occurrence of the event requiring contingency action, including the manner and timing of promulgating such arrangements.

5.2 The appropriate ATS authority must take preparatory action, as appropriate, to facilitate timely introduction of contingency arrangements. Such preparatory action must include:

(a) preparation of general contingency plans for introduction in respect of generally foreseeable events such as industrial action or labour unrest affecting the provision of air traffic services and/or supporting services. The appropriate ATS authority providing services in airspace over the high seas or of undetermined sovereignty for which Namibia has accepted responsibility, must take appropriate action to ensure that adequate air traffic services will continue to be provided to international civil aviation operations including operations which do not involve landing or take-off;

(b) assessment of risk to civil air traffic due to military conflict or acts of unlawful interference with civil aviation as well as a review of the likelihood and possible consequences of natural disasters or public health emergencies. Preparatory action must include initial development of special contingency plans in respect of natural disasters, public health emergencies, military

conflicts or acts of unlawful interference with civil aviation that are likely to affect the availability of airspace for civil aircraft operations and/or the provision of air traffic services and supporting services. The appropriate air traffic services authority must, as far as practicable, anticipate that there may be a need to avoid particular portions of airspace at short notice and therefore plan for alternative routings and services in such cases.

(c) monitoring of any developments that might lead to events requiring contingency arrangements to be developed and applied. The appropriate ATS authority must designate persons/administrative units to undertake such monitoring and, when necessary, to initiate effective follow-up action; and

(d) designation/establishment of a secondary location which, in the event of disruption of air traffic services and introduction of contingency arrangements, would be able to provide, 24 hours a day, up-to-date information on the situation and associated contingency measures until the system has returned to normal.

(e) The appropriate ATS authority must designate a coordinating team for the purpose of coordinating activities during the disruption.

***Compliance Note**: ICAO will be available for monitoring developments that might lead to events requiring contingency arrangements to be developed and applied and will, as necessary, assist in the development and application of such arrangements. During the emergence of a potential crisis, a coordinating team will be established in the Regional Office in Nairobi and at ICAO Headquarters in Montreal. The tasks of these teams will be to monitor the situation continuously and to exchange up-to-date information with other States which may be affected with contingency arrangements.*

6. Coordination

6.1 A contingency plan must be acceptable to providers and users of contingency services alike, i.e. in terms of the ability of the providers to discharge the functions assigned to them and in terms of safety of operations and traffic handling capacity provided by the plan in the circumstances.

6.2 Accordingly, when disruption of air traffic services and/or related supporting services is anticipated or experienced, the ATS authority must advise ICAO Regional Office and other States whose services might be affected as early as practicable. Such advice must include information on associated contingency measures or a request for assistance in formulating contingency plans.

6.3 Detailed coordination requirements must be determined by the appropriate ATS authority and/or ICAO, as appropriate, keeping in mind the provisions of 6.2. In the case of contingency arrangements not appreciably affecting airspace users or service provided outside the Namibian airspace, the coordination requirements are naturally few or non-existent. Such cases are believed to be few.

6.4 In the case of multi-State ventures, detailed coordination leading to formal agreement of the emerging contingency plan must be undertaken with each State which is to participate. Such detailed coordination must also be undertaken with those States whose services will be significantly affected, for example by re-routing of traffic, and with international organizations concerned who provide invaluable operational insight and experience.

6.5 Whenever necessary to ensure orderly transition to contingency arrangements, the coordination referred to in this section must include agreement on a detailed, common NOTAM text to be promulgated at a commonly agreed effective date.

7. Development, promulgation and application of contingency plans

7.1 Development of a sound contingency plan is dependent upon circumstances, including the availability, or not, of the airspace affected by the disruptive circumstances for use by international civil aviation operations. Sovereign airspace can be used only on the initiative of, or with the agreement or consent of, the authorities of the State concerned regarding such use. Otherwise, the contingency arrangements must involve bypassing the airspace and should be developed by adjacent States or by ICAO in cooperation with such adjacent States. In the case of airspace over the high seas or of undetermined sovereignty, development of the contingency plan might involve, depending upon circumstances, including the degree of erosion of the alternative services offered, temporary reassignment by ICAO of the responsibility for providing air traffic services in the airspace concerned.

7.2 Development of a contingency plan presupposes as much information as possible on current and alternative routes, navigational capability of aircraft and availability or partial availability of navigational guidance from ground-based aids, surveillance and communications capability of adjacent air traffic services units, volume and types of aircraft to be accommodated and the actual status of the air traffic services, communications, meteorological and aeronautical information services.

7.3 The following are the main elements to be considered for contingency planning depending upon circumstances:

(a) re-routing of traffic to avoid the whole or part of the Windhoek FIR , normally involving establishment of additional routes or route segments with associated conditions for their use;

(b) establishment of a simplified route network through the Windhoek FIR , if it is available, together with a flight level allocation scheme to ensure lateral and vertical separation, and a procedure for adjacent area control centres to establish longitudinal separation at the entry point and to maintain such separation through the Windhoek FIR ;

(c) reassignment of responsibility for providing air traffic services in airspace over the high seas for which Namibia is responsible or in airspace of undetermined sovereignty that have been delegated to Namibia;

(d) provision and operation of adequate air-ground communications, AFTN and ATS direct speech links, including reassignment, to adjacent States, of the responsibility for providing meteorological information and information on status of navigation aids;

(e) special arrangements for collecting and disseminating in-flight and post-flight reports from aircraft;

(f) a requirement for aircraft to maintain continuous listening watch on a specified pilot-pilot VHF frequency in specified areas where air-ground communications are uncertain or non-existent

and to broadcast on that frequency, preferably in English, position information and estimates, including start and completion of climb and descent;

(g) a requirement for all aircraft in specified areas to display navigation and anti-collision lights at all times;

(h) a requirement and procedures for aircraft to maintain an increased longitudinal separation that may be established between aircraft at the same cruising level;

(i) a requirement for climbing and descending well to the right of the centre line of specifically identified routes;

(j) establishment of arrangements for controlled access to the contingency area to prevent overloading of the contingency system; and

(k) a requirement for all operations in the contingency area to be conducted in accordance with IFR, including allocation of IFR flight levels, from the relevant Cruising Levels specified in Appendix 6 to this NAM-CATS-ATS, to ATS routes in the area.

7.4 Notification, by NOTAM, of anticipated or actual disruption of air traffic services and/or related supporting services must be dispatched to users of air navigation services as early as practicable. The NOTAM must include the associated contingency arrangements. In the case of foreseeable disruption, the advance notice must in any case not be less than 48 hours.

7.5 Notification by NOTAM of discontinuance of contingency measures and reactivation of the services set forth in the regional air navigation plan must be dispatched as early as practicable to ensure an orderly transfer from contingency conditions to normal conditions.

7.6 In addition to the above and taking into account the extent of the services that may be provided by an ATS provider, the contingency plan may include, but is not limited to, arrangements for the following:

(a) airspace management, including:

(i) transfer of responsibility;

(ii) redesignation;

(iii) handling of emergency traffic;

(b) air traffic flow management;

(c) air traffic separation;

(d) alternatives for the continuing provision of the services (e.g. alternative operating positions or ATS units);

(e) alternative services (e.g. traffic information);

(f) SAR alerting;

(g) information transfer/coordination;

(h) notifications to affected parties;

(i) letters of agreement with other providers on any of the above matters;

(j) restoration of staff, facility or equipment to normal levels;

(k) measures to test the suitability of the plan; and

(l) staff training requirements to ensure the plan can be safely implemented.

7.7 An ATS service provider must publish details concerning its contingency plan(s) as part of its Manual of Procedure.

8. Amendment of the contingency plan

8.1 The appropriate ATS authority must review the Contingency plans at frequent intervals and when any operational change is planned to ensure their currency and continued efficacy. Action must be taken to ensure that amendments are made available to all holders of the contingency plan.

172.04.33 IDENTIFICATION AND DELINEATION OF PROHIBITED, RESTRICTED AND DANGER AREAS

1.1 Each prohibited area, restricted area, or danger area established by Namibia must, upon initial establishment, be given an identification and full details and must be published in the AIP, ENR 5.1.

Compliance Note. PANS-AIM (Doc 10066), Appendix 2, ENR 5.1

1.2 The identifications so assigned must be used to identify the areas in all subsequent notifications pertaining to that area.

1.3 The identification of prohibited, restricted and danger areas must be composed of a group of letters and figures as follows:

(a) nationality letters for location indicators assigned to the State or territory which has established the airspace;

(b) a letter P for prohibited area, R for restricted area and D for danger area as appropriate; and

(c) a number, unduplicated within the State of Namibia.

1.4 Prohibited, restricted and danger areas in Namibia in accordance with 1.3 above must be identified as FYP, FYR and FYD respectively followed by a number.

1.5 To avoid confusion, identification numbers may not be reused for a period of at least one year after cancellation of the area to which they refer.

1.6 Coordination with the appropriate agencies must be undertaken to ensure that, when a prohibited, restricted or danger area is established, the area is as small as practicable and is contained within simple geometrical limits, so as to permit ease of reference by all concerned.

172.04.34 INSTRUMENT FLIGHT PROCEDURE DESIGN SERVICE

***Compliance Note**. Guidance material for regulatory framework for the oversight of instrument flight procedure design service is contained in the Manual on the Development of a Regulatory Framework for Instrument Flight Procedure Design Service (Doc 10068).*

1.1 The Executive Director must in accordance with NAMCAR Part 173:

a) designate a service provider to provide an instrument flight procedure design service; and/or

b) agree with one or more Contracting State(s) to provide a joint service; and/or

c) delegate the provision of the service to external agency(ies).

1.2 In all cases in paragraph 1.1 above, the Executive Director approves and remains responsible for all instrument flight procedures for aerodromes and airspace under the authority of Namibia.

1.3 A person designated by the Executive Director to provide instrument flight procedure design services, must in accordance with the provisions of NAMCAR/NAMCATS Part 173:

a) design instrument flight procedures in accordance with approved design criteria;

b) utilize a quality management system at each stage of the instrument flight procedure design process;

Compliance Note. *The requirement for a quality management system can be met by means of a quality assurance methodology, such as that described in PANS-OPS (Doc 8168), Volume II. Guidance for implementing such a methodology is contained in the Quality Assurance Manual for Flight Procedure Design (Doc 9906).*

c) ensure maintenance and periodic review of instrument flight procedures for aerodromes and airspace it designs;

Compliance Note*. Guidance on maintenance and periodic review is contained in the Quality Assurance Manual for Flight Procedure Design (Doc 9906).*

d) establish an interval for periodic review of instrument flight procedures not exceeding five years.

1.4 An air traffic service provider intending to design an instrument flight procedure for aerodromes or airspace under the authority of Namibia, must meet the requirements established under NAMCAR/NAMCATS Part 173.

172.05 REQUIREMENTS FOR THE PROVISION OF AIR TRAFFIC CONTROL SERVICE

This Sub-Part provides detailed standards pursuant to NAM-CARs Part 172, SUB-PART 4. These standards apply to any person or organisation providing air traffic control services within the airspaces and at aerodromes in Namibia including airspaces over the high seas and of undetermined sovereignty for which Namibia has accepted responsibility for the provision of air traffic services.

172.05.1 APPLICATION OF AIR TRAFFIC CONTROL (ATC) SERVICES

1.1 An air traffic control (ATC) service must be provided to all:

(a) IFR flights in airspace Classes A, B, C, D and E;

(b) VFR flights in airspace Classes B, C and D;

(c) Special VFR (SVFR) flights; and

(d) aerodrome traffic at controlled aerodromes.

172.05.2 PROVISION OF AIR TRAFFIC CONTROL (ATC) SERVICE

1. Aerodrome control service

1.1 Aerodrome control service is an air traffic control service provided to aerodrome traffic for the purpose of landing and taking off. Aerodrome control service is provided by an aerodrome control tower as described in Section 4 below.

2. Approach control service

2.1 Approach control service is an air traffic control service provided to arriving or departing controlled flights.

2.2 Approach control service must be provided by an aerodrome control tower or area control centre when it is necessary or desirable to combine under the responsibility of one unit the functions of the approach control service with those of the aerodrome control service or the area control service.

2.3 Approach control service may be provided by an approach control unit when it is necessary or desirable to establish a separate unit.

3. Area control service

3.1 Area control service is air traffic control service provided to controlled flights in control areas.

3.2 An area control service must be provided by an Area Control Centre (ACC) or by the unit providing approach control service in a control zone or in a control area of limited extent which is designated primarily for the provision of approach control service and where no area control center is established.

4. Aerodrome control service

4.1 General

4.1.1 An aerodrome control service must be provided by an aerodrome control tower (TWR). The task of providing specified services on the apron, such as apron management service, may be assigned to an aerodrome control tower or to a separate unit.

4.1.2 An ATS provider must:

(a) define the objectives of aerodrome control and publish these in the ATC procedures manual;

(b) publish instructions in its ATC procedures manual for the aerodrome controller to carry out his responsibility of alerting service.

(c) ensure that instructions for visual surveillance from the control tower are published in its ATC procedures manual.

4.2 Functions of Aerodrome Control Towers

General

4.2.1 Aerodrome control towers must issue information and clearances to aircraft under their control to achieve a safe, orderly and expeditious flow of air traffic on and in the vicinity of an aerodrome with the object of preventing collision(s) between:

(a) aircraft flying within the designated area of responsibility of the control tower, including the aerodrome traffic circuits;

(b) aircraft operating on the manoeuvring area;

(c) aircraft landing and taking off;

(d) aircraft and vehicles operating on the manoeuvring area;

(e) aircraft on the manoeuvring area and obstructions on that area.

4.2.2 Aerodrome controllers must maintain a continuous watch on all flight operations on and in the vicinity of an aerodrome as well as vehicles and personnel on the manoeuvring area. Watch must be maintained by visual observation, augmented in low visibility conditions by an ATS surveillance system when available.

4.2.3 Traffic must be controlled in accordance with the procedures set forth herein and all applicable traffic rules specified by the ATS provider. If there are other aerodromes within a control zone, traffic at all aerodromes within such a zone must be coordinated so that traffic circuits do not conflict.

4.2.4 The functions of an aerodrome control tower may be performed by different control or working positions, such as:

(a) aerodrome controller, normally responsible for operations on the runway and aircraft flying within the area of responsibility of the aerodrome control tower;

(b) ground controller, normally responsible for traffic on the manoeuvring area with the exception of runways;

(c) clearance delivery position, normally responsible for delivery of start-up and ATC clearances to departing IFR flights.

4.2.5 Where parallel or near-parallel runways are used for simultaneous operations, individual aerodrome controllers must be responsible for operations on each of the runways.

Alerting service provided by aerodrome control towers

4.2.6 Aerodrome control towers are responsible for alerting the rescue and fire-fighting services whenever:

(a) an aircraft accident has occurred on or in the vicinity of the aerodrome;

(b) information is received that the safety of an aircraft which is or will come under the jurisdiction of the aerodrome control tower may have or has been impaired;

(c) requested by the flight crew; or

(d) when otherwise deemed necessary or desirable by the controller or aerodrome management.

4.2.7 Procedures concerning the alerting of the rescue and fire-fighting services must be contained in instructions that must be prescribed in the ATC procedures manual. Such instructions must specify the type of information to be provided to the rescue and fire-fighting services, including type of aircraft and type of emergency and, when available, number of persons on board, and any dangerous goods carried on the aircraft.

4.2.8 Aircraft which fail to report after having been transferred to an aerodrome control tower, or, having once reported, cease radio contact and in either case fail to land five minutes after the expected landing time, must be reported to the APP, ACC or FIC, or to the RCC or rescue sub-centre, in accordance with instructions that must be prescribed in Part 2 of the ATC procedures manual.

Failure or irregularity of navigation aids and equipment

4.2.9 Aerodrome control towers must immediately report any failure or irregularity of operation in any equipment, light or other device established at an aerodrome for the guidance of aerodrome traffic and flight crews or required for the provision of ATC service.

4.3 Aerodrome Traffic Pattern

4.3.1 All aerodrome traffic patterns must be a left-hand traffic pattern unless a right-hand traffic pattern has been established by the Executive Director.

4.3.2 An ATS provider must publish circuit procedures for each aerodrome in the Part 2 of their ATC procedures manual.

4.4 Selection of Runway-in-Use

4.4.1 An ATS provider must ensure that the TWR selects the runway-in-use that will permit aircraft to land and take- off as near as possible into wind unless safety, the runway configuration or traffic conditions determine that a different direction is preferable.

4.4.2 In addition to the surface wind speed and direction, in selecting the runway in-use the tower controller must take into consideration other relevant factors such as hazardous meteorological conditions in the approach area and landing aids available.

4.4.3 The term "runway-in-use" must be used to indicate the runway or runways that, at a particular time, are considered by the aerodrome control tower to be the most suitable for use by the types of aircraft expected to land or take off at the aerodrome.

4.4.4 Runways must not be selected for noise abatement purposes for landing operations unless they are equipped with suitable glide path guidance, e.g. ILS, or a visual approach slope indicator system for operations in visual meteorological conditions.

4.4.5 Noise abatement must not be a determining factor in runway nomination under the following circumstances:

(a) If the runway surface conditions are adversely affected (e.g. by snow, slush, ice, sand, water, mud, rubber, oil or other substances);

(b) For landing in conditions:

(i) When the ceiling is lower than 500 ft above aerodrome elevation, or the visibility is less than 1900 m; or

(ii) When the approach requires use to be made of vertical minima greater than 300 ft above aerodrome elevation and:

a. The ceiling is lower than 800 ft above aerodrome elevation; or

b. The visibility is less than 3000 m;

(c) For take-off when the visibility is less than 1900 m;

(d) When wind shear has been reported or forecast or when thunderstorms are expected to affect the approach or departure; and

(e) When the crosswind component, including gusts, exceeds 15 kt, or the tailwind component, including gusts, exceeds 5 kt.

4.4.6 Instructions for the selection of runway-in-use must be published in Parts 1 and 2 of the ATC procedures manual.

4.5 Recording of Persons on Board (POB)

4.5.1 Tower controllers must, at initial contact with ATC, request the number of persons on board (POB) for all flights departing within Namibian airspace. This information must be recorded and maintained and released to the ACC if requested as detailed in the ATC procedures manual.

4.6 Information Related to the Operation of Aircraft

Start-up time

4.6.1 Start-up time procedures must be implemented where necessary to avoid congestion and excessive delays on the manoeuvring area or when warranted by air traffic flow management (ATFM) regulations.

4.6.2 Start-up time procedures must be contained in Part 2 of the ATC procedures manual, and must specify the criteria and conditions for determining when and how start-up times must be calculated and issued to departing flights.

4.6.3 Prior to start-up the pilot must be informed of any relevant meteorological detail unless the pilot on initial contact indicates that the information has been received.

Essential Local Traffic Information

4.6.4 Information on essential local traffic must be issued in a timely manner, either directly or through the unit providing approach control service when, in the judgment of the aerodrome controller, such information is necessary in the interests of safety, or when requested by aircraft.

4.6.5 Essential local traffic must be considered to consist of any aircraft, vehicle or personnel on or near the manoeuvring area, or traffic operating in the vicinity of the aerodrome, which may constitute a hazard to the aircraft concerned.

4.6.6 Essential local traffic must be described so as to be easily identified.

4.6.7 Specific procedures concerning the provision of essential local traffic information must be detailed in the ATC procedures manual.

Runway Incursion or Obstructed Runway

4.6.8 In the event the aerodrome controller, after a take-off clearance or a landing clearance has been issued, becomes aware of a runway incursion or the imminent occurrence thereof, or the existence of any obstruction on or in close proximity to the runway likely to impair the safety of an aircraft taking off or landing, appropriate action must be taken as follows:

(a) cancel the take-off clearance for a departing aircraft;

(b) instruct a landing aircraft to execute a go-around or missed approach;

(c) in all cases inform the aircraft of the runway incursion or obstruction and its location in relation to the runway.

4.6.9 Air traffic controllers must report any occurrence involving an obstruction on the runway or a runway incursion.

Uncertainty of position on the manoeuvring area

4.6.10 In the event the aerodrome controller becomes aware of an aircraft or vehicle that is lost or uncertain of its position on the manoeuvring area, appropriate action must be taken immediately to safeguard operations and assist the aircraft or vehicle concerned to determine its position.

Wake turbulence and jet blast hazards

4.6.11 Whenever the responsibility for wake turbulence avoidance rests with the pilot-in-command, aerodrome controllers must, to the extent practicable, advise aircraft of the expected occurrence of hazards caused by turbulent wake.

4.6.12 In issuing clearances or instructions, air traffic controllers must take into account the hazards caused by jet blast and propeller slipstream to taxiing aircraft, to aircraft taking off or landing, particularly when intersecting runways are being used, and to vehicles and personnel operating on the aerodrome.

Abnormal aircraft configuration and condition

4.6.13 Whenever an abnormal configuration or condition of an aircraft, including conditions such as landing gear not extended or only partly extended, or unusual smoke emissions from any part of the aircraft, is observed by or reported to the aerodrome controller, the aircraft concerned must be advised without delay.

4.6.14 When requested by the flight crew of a departing aircraft suspecting damage to the aircraft, the departure runway used must be inspected without delay and the flight crew advised in the most expeditious manner as to whether any aircraft debris or bird or animal remains have been found or not.

4.6.15 Specific procedures concerning the provision of information must be detailed in Parts 1 and 2 (as appropriate) of the ATC procedures manual.

4.7 Essential Information on Aerodrome Conditions

4.7.1 Essential information on aerodrome conditions must be given to every aircraft, except when it is known that the aircraft already has received all or part of the information from other sources. The information must be given in sufficient time for the aircraft to make proper use of it, and the hazards must be identified as distinctly as possible.

4.7.2 Essential information on aerodrome conditions must include information relating to the following:

(a) construction or maintenance work on, or immediately adjacent to the movement area;

(b) rough or broken surfaces on a runway, a taxiway or an apron, whether marked or not;

(c) sand, snow, slush or ice on a runway, a taxiway or an apron;

(d) water on a runway, a taxiway or an apron;

(e) sand or snow banks or drifts adjacent to a runway, a taxiway or an apron;

(f) other temporary hazards, including parked aircraft and birds on the ground or in the air;

(g) failure or irregular operation of part or all of the aerodrome lighting system;

(h) any other pertinent information.

4.7.3 When a condition, not previously notified, pertaining to the safe use by aircraft of the manoeuvring area is reported to or observed by the controller, the appropriate aerodrome authority must be informed and operations on that part of the manoeuvring area terminated until otherwise advised by the appropriate aerodrome authority.

4.7.4 Specific procedures concerning the provision of essential information on aerodrome conditions must be detailed in the ATC procedures manual.

4.8 Control of Taxiing Aircraft

General

4.8.1 Specific procedures for rotorcraft air-taxiing must be detailed in Parts 1 and 2 of the ATC procedures manual.

4.8.2 An aircraft known or believed to be the subject of unlawful interference or which for other reasons needs isolation from normal aerodrome activities must be cleared to the designated isolated parking position as detailed in Part 2 of the ATC procedures manual.

Taxi clearance

4.8.3 Prior to issuing a taxi clearance, the controller must determine where the aircraft concerned is parked.

4.8.4 Taxi clearances must contain concise instructions and adequate information so as to assist the flight crew to follow the correct taxi routes, to avoid collision with other aircraft or objects and to minimize the potential for the aircraft inadvertently entering an active runway.

4.8.5 When a taxi clearance contains a taxi limit beyond a runway, it must contain an explicit clearance to cross or an instruction to hold short of that runway.

4.8.6 Standard taxi routes must be used whenever practicable. Where standard taxi routes have not been published, a taxi route must, whenever possible, be described by use of taxiway and runway designators. Other relevant information, such as an aircraft to follow or give way to, must also be provided to a taxiing aircraft.

Taxiing on a runway in use

4.8.7 For the purpose of expediting air traffic, aircraft may be permitted to taxi on the runway-in-use, provided no delay or risk to other aircraft will result. Where control of taxiing aircraft is provided by a ground controller and the control of runway operations by an aerodrome controller, the use of a runway by taxiing aircraft must be coordinated with and approved by the aerodrome controller. Communication with the aircraft concerned must be transferred from the ground controller to the aerodrome controller prior to the aircraft entering the runway.

4.8.8 If the control tower is unable to determine, either visually or via an ATS surveillance system that a vacating or crossing aircraft has cleared the runway, the aircraft must be requested to report when it

has vacated the runway. The report must be made when the entire aircraft is beyond the relevant runway-holding position.

Use of runway holding positions

4.8.9 Except as prescribed by an ATS provider in Part 1 or 2 of their ATC procedures manual, aircraft must not be held closer to a runway-in-use than at a runway-holding position.

4.8.10 Aircraft must not be permitted to line up and hold on the approach end of a runway-in-use whenever another aircraft is effecting a landing, until the landing aircraft has passed the point of intended holding.

Rotorcraft taxiing operations

4.8.11 A frequency change must not be issued to single-pilot rotorcraft hovering or air-taxiing. Whenever possible, control instructions from the next ATS unit must be relayed as necessary until the pilot is able to change frequency.

4.9 Control of Aircraft in the Traffic Circuit

General

4.9.1 Aircraft in traffic circuit must be controlled as per prescribed separation minima in the CATS and as detailed in Parts 1 and 2 of an ATS provider's ATC procedures manual except that:

(a) aircraft in formation (more than one aircraft in a group) are exempted from the separation minima with respect to separation from other aircraft of the same formation;

(b) aircraft operating on runways suitable for simultaneous landing or take-off are exempted from the separation minima; and

(c) lower minima may apply to aircraft operations in accordance with military requirements when so prescribed.

Entry of traffic circuit

4.9.2 Depending on the circumstances and traffic conditions, an aircraft may be cleared to join at any position in the traffic circuit.

4.9.3 An arriving aircraft executing an instrument approach must normally be cleared to land straight in unless visual manoeuvring to the landing runway is required.

Priority for landing

4.9.4 If an aircraft enters an aerodrome traffic circuit without proper authorization, it must be permitted to land if its actions indicate that it so desires. If circumstances warrant, aircraft that are in contact with the controller may be instructed by the controller to give way so as to remove as soon as possible the hazard introduced by such unauthorised operation. In no case may permission to land be withheld indefinitely.

4.9.5 In cases of emergency it may be necessary, in the interests of safety, for an aircraft to enter a traffic circuit and effect a landing without proper authorization. Controllers must recognize the possibilities of emergency action and render all assistance possible.

4.9.6 Priority must be given to:

(a) an aircraft which anticipates being compelled to land because of factors affecting the safe operation of the aircraft (engine failure, shortage of fuel, etc.);

(b) air ambulance aircraft or aircraft carrying any sick or seriously injured persons requiring urgent medical attention;

(c) aircraft engaged in search and rescue operations; and

(d) other aircraft as may be determined by the ATS provider.

4.9.7 Local procedures affecting an aircraft that has been compelled to land without authorization must be detailed in Part 2 of the ATC procedures manual.

4.10 Order of Priority for Arriving and Departing Aircraft

4.10.1 An aircraft landing or in the final stages of an approach to land must normally be given priority over aircraft intending to depart.

4.10.2 Departing aircraft must normally be cleared in the order in which they are ready for take-off, except that deviations may be made from this order of priority to facilitate the maximum number of departures with the least average delay.

4.11 Control of Departing Aircraft

Departure sequence

4.11.1 Departures must normally be cleared in the order in which they are ready for take-off, except that deviations may be made from this order of priority to facilitate the maximum number of departures with the least average delay.

Separation of departing aircraft

4.11.2 Except as provided in the separation minima prescribed in this CATS, a departing aircraft must not normally be permitted to commence take-off until the preceding departing aircraft has crossed the end of the runway-in-use or has started a turn or until all preceding landing aircraft are clear of the runway-in-use.

Take-off clearance

4.11.3 Take-off clearance may be issued to an aircraft when there is reasonable assurance that the required separation will exist when the aircraft commences take-off.

4.11.4 When an ATC clearance is required prior to take-off, the take-off clearance must not be issued until the ATC clearance has been transmitted to and acknowledged by the aircraft concerned. The ATC clearance must be forwarded to the tower with the least possible delay after receipt of a request made by the tower or prior to such request if practicable.

4.11.5 Subject to 4.11.4, the take-off clearance must be issued when the aircraft is ready for take-off and at or approaching the departure runway, and the traffic situation permits. To reduce the potential for misunderstanding, the take-off clearance must include the designator of the departure runway.

4.11.6 In the interest of expediting traffic, a clearance for immediate take-off may be issued to an aircraft before it enters the runway.

4.11.7 An ATS provider must stipulate in their ATC procedures manual the minimum general separation which must be applied between arriving and departing aircraft.

4.11.8 As provided in this CATS, lower minima may be applied at individual aerodromes. Such lower minima must be published in Part 2 of the ATC procedures manual.

4.12 Control of Arriving Aircraft

Separation of landing aircraft and preceding landing and departing aircraft using the same runway

4.12.1 Except as provided in the separation minima prescribed this CATS, a landing aircraft must not normally be permitted to cross the runway threshold on its final approach until the preceding departing aircraft has crossed the end of the runway-in-use, or has started a turn, or until all preceding landing aircraft are clear of the runway-in-use.

Clearance to land

4.12.2 An aircraft may be cleared to land when there is reasonable assurance that the separation in 4.12.1, or prescribed in accordance with this CATS, will exist when the aircraft crosses the runway threshold,

provided that a clearance to land must not be issued until a preceding landing aircraft has crossed the runway threshold. To reduce the potential for misunderstanding, the landing clearance must include the designator of the landing runway.

Landing and roll-out manoeuvres

4.12.3 When necessary or desirable in order to expedite traffic, a landing aircraft may be requested to:

(a) hold short of an intersecting runway after landing;

(b) land beyond the touchdown zone of the runway;

(c) vacate the runway at a specified exit taxiway;

(d) expedite vacating the runway.

4.12.4 In requesting a landing aircraft to perform a specific landing and/or roll-out manoeuvre, the type of aircraft, runway length, location of exit taxiways, reported braking action on runway and taxiway, and prevailing meteorological conditions must be considered. A HEAVY aircraft must not be requested to land beyond the touchdown zone of a runway.

4.12.5 When necessary or desirable, e.g. due to low visibility conditions, a landing or a taxiing aircraft must be instructed to report when a runway has been vacated.

4.12.6 An ATS provider must stipulate in their ATC procedures manual minimum general separation standard which must be applied between arriving and departing aircraft.

4.12.7 As provided in sub-section 9, lower minima may be applied at individual aerodromes. Such lower minima must be published in Part 2 of the ATC procedures manual and will depend on a number of factors.

4.13 Low Visibility Operations

4.13.1 When there is a requirement for traffic to operate on the manoeuvring area in conditions of visibility which prevent the tower from applying visual separation between aircraft, and between aircraft and vehicles, the following must apply:

(a) at the intersection of taxiways, an aircraft or vehicle on a taxiway must not be permitted to hold closer to the other taxiway than the holding position limit defined by a clearance bar, stop bar or taxiway intersection marking.

(b) the longitudinal separation on taxiways must be as specified for each particular aerodrome by the ATS provider. This separation must take into account the characteristics of the aids available for surveillance and control of ground traffic, the complexity of the aerodrome layout and the characteristics of the aircraft using the aerodrome.

4.13.2 The ATS provider must establish provisions applicable to the start and continuation of precision approach category II/III operations as well as departure operations in RVR conditions less than a value of 550 m.

4.13.3 Low visibility operations must be initiated by or through the tower.

4.13.4 The tower must inform the approach unit concerned when procedures for precision approach category II/III and low visibility operations will be applied and also when such procedures are no longer in force.

4.13.5 The tower must, prior to a period of application of low visibility procedures, establish a record of vehicles and persons currently on the manoeuvring area and maintain this record during the period of application of these procedures to assist in assuring the safety of operations on that area.

4.13.6 An ATS provider must-publish general procedures for low visibility operations in its ATC procedures manual. Local procedures for CAT II and III operations must be published in its ATC procedures manual.

4.14 Obstructed Runway or Runway Incursion

4.14.1 Instructions with regard to actions to be taken in the event of an obstructed runway or a runway incursion must be contained in the ATC procedures manual.

4.15 Suspension of VFR Operations

4.15.1 Any suspension of VFR operations must be accomplished through or notified to the tower. Procedures for suspension of VFR operations must be detailed in the ATC procedures manual.

4.15.2 Whenever VFR operations are suspended, the tower must:

(a) hold all departures other than those which file IFR;

(b) recall all local VFR flights; or obtain approval for Special VFR operations;

(c) notify the APP or the ACC of the action taken; and

(d) notify all operators affected or their designated representatives of the reason for taking such action, if necessary or requested.

4.16 Authorization of Special VFR (SVFR) Flights

4.16.1 When traffic conditions permit, and subject to the weather minima prescribed in 4.16.2, SVFR flights may be authorised by the tower to operate within a control zone on pilot request.

4.16.2 SVFR may only be authorised when the ground visibility is not less than 1500 m.

4.16.3 Separation must be effected between all SVFR flights in accordance with the minima prescribed by the ATS provider and as detailed in their ATC procedures manual and between SVFR flights and IFR flights in accordance with the applicable separation minima prescribed in sub-section 9.

4.17 Operation of Aeronautical Ground Lighting

Aeronautical Ground Lights: General

4.17.1 Except as provided in 4.17.2 and 4.17.3, all aeronautical ground lights must be operated:

(a) continuously during the hours of darkness or during the time the centre of the sun's disc is more than 6 degrees below the horizon, whichever requires the longer period of operation, unless otherwise provided hereafter or otherwise required for the control of air traffic; and

(b) at any other time when their use, based on meteorological conditions, is considered desirable for the safety of air traffic.

4.17.2 Lights on and in the vicinity of aerodromes that are not intended for en-route navigation purposes may be turned off, subject to further provisions in this section, if no likelihood of either regular or emergency operation exists, provided that they can be again brought into operation at least one hour before the expected arrival of an aircraft.

4.17.3 At aerodromes equipped with lights of variable intensity a table of intensity settings, based on conditions of visibility and ambient light, when so requested by an aircraft, further adjustment of the intensity must be made whenever possible.

4.17.4 An ATS provider must publish procedures for the operation of aeronautical ground lights in its ATC procedures manual including guidance for air traffic controllers in the operation aeronautical ground lighting and in effecting adjustment of variable intensity lights used to suit the prevailing conditions.

Approach Lighting

4.17.5 In addition, approach lighting must also be operated:

(a) by day when requested by an approaching aircraft;

(b) when the associated runway lighting is operated.

4.17.6 The lights of a visual approach slope indicator system must be operated during the hours of daylight as well as of darkness and irrespective of the visibility conditions when the associated runway is being used.

Runway Lighting

4.17.7 Runway lighting must not be operated if that runway is not in use for landing, take-off or taxiing purposes, unless required for runway inspections or maintenance.

4.17.8 If runway lighting is not operated continuously, lighting following a take-off must be provided as specified below:

(a) at aerodromes where ATC service is provided and where lights are centrally controlled, the lights of one runway must remain lighted after take-off as long as is considered necessary for the return of the aircraft due to an emergency occurring during or immediately after take-off;

(b) at aerodromes without ATC service or without centrally controlled lights, the lights of one runway must remain lighted until such time as would normally be required to reactivate the lights in the likelihood of the departing aircraft returning for an emergency landing, and in any case not less than fifteen minutes after take-off.

Stopway Lighting

4.17.9 Stopway lights must be operated whenever the associated runway lights are operated.

Taxiway Lighting

4.17.10 Where required to provide taxi guidance, taxiway lighting must be turned on in such order that a continuous indication of the taxi path is presented to taxiing aircraft. Taxiway lighting or any portion thereof may be turned off when no longer needed.

Stop Bars

4.17.11 Where installed, stop bars must be switched on to indicate that all traffic must stop and switched off to indicate that traffic may proceed.

Obstacle lighting

4.17.12 Obstacle lighting associated with the approach to or departure from a runway or channel, where the obstacle does not project through the inner horizontal surface, as described in Part 139 may be turned off and on simultaneously with the runway or channel lights.

4.17.13 Unserviceability lights may not be turned off as permitted under 4.17.12 while the aerodrome is open.

4.18 Aircraft Navigation Lights

4.18.1 When aircraft navigation lights are observed to be off or unserviceable, in whole or in part, the pilot must be advised about the problem.

4.19 Monitoring of Visual Aids

4.19.1 Aerodrome controllers must make use of automatic monitoring facilities, when provided, to ascertain whether the lighting is in good order and functioning according to selection.

4.19.2 In the absence of an automatic monitoring system or to supplement such a system, the aerodrome controller must visually observe such lighting as can be seen from the TWR and use information from other sources such as visual inspections or reports from aircraft to maintain awareness of the operational status of the visual aids.

4.19.3 On receipt of information indicating a lighting fault, the aerodrome controller must take such action as is warranted to safeguard any affected aircraft or vehicles, and initiate action to have the fault rectified.

4.20 Aerodrome Traffic Signals

4.20.1 Signals used by light-gun in the tower together with appropriate response must be published in the ATC procedures manual.

4.21 Provision of Correct Time

4.21.1 Aerodrome control towers must, prior to an aircraft taxiing for take-off, provide the pilot with the correct time, unless arrangements have been made for the pilot to obtain it from other sources.

4.21.2 ATS services units must provide aircraft with the correct time on request.

4.21.3 Time checks must be given to the nearest half minute.

4.22 Coordination between Tower and Approach Control Unit

4.22.1 Provision must be made to ensure that the approach control unit is at all times kept informed of the sequence in which aircraft will depart as well as the runway to be used.

4.22.2 Provision must be made to display the designators of assigned Standard Instrument Departure (SID) procedures to the tower, approach control unit and area control centre as applicable.

4.22.3 An ATS provider must publish procedures for coordination requirements between the approach control unit and the tower in their ATC procedures manual.

4.23 Procedures and instruction on VIP Flights

4.23.1 Aerodromes provided with ATC service must establish procedures and detailed instructions for handling VIP flights at the unit, and publish those procedures and instructions the ATC procedures manual.

4.23.2 At aerodromes normally not handling ATC service, a temporary ATC service may be provided either from the tower if one is installed or from a mobile unit specifically brought in.

4.23.3 Standard separation must be provided between VIP flights and other controlled flights.

4.23.4 VIP flights must be given priority for landing and take-off except in the case of another aircraft being subject to an emergency.

4.24 Use of ATS Surveillance Systems in the Aerodrome Control Service

4.24.1 An ATS provider must publish procedures for the use of ATS surveillance systems in the aerodrome control service in the ATC procedures manual.

4.24.2 When so permitted by the ATS provider, ATS surveillance systems may be used in the provision of aerodrome control service to perform the following functions:

(a) flight path monitoring of aircraft on final approach;

(b) flight path monitoring of other aircraft in the vicinity of the aerodrome;

(c) establishing separation between succeeding departing aircraft; and

(d) providing navigation assistance to VFR flights.

4.24.3 SVFR flights must not be vectored unless special circumstances, such as emergencies, dictate otherwise.

4.24.4 Caution must be exercised when vectoring VFR flights so as to ensure that the aircraft concerned does not inadvertently enter instrument meteorological conditions.

4.24.5 In prescribing conditions and procedures for the use of ATS surveillance systems in the provision of aerodrome control service, the ATS provider must ensure that the availability and use of an ATS surveillance system will not be detrimental to visual observation of aerodrome traffic.

4.25 Use of Surface Movement Radar (SMR)

4.25.1 In the absence of visual observation of all or part of the manoeuvring area or to supplement visual observation, surface movement radar (SMR) provided in accordance with the relevant standards and requirements in force, or other suitable surveillance equipment, may be utilized to:

(a) monitor the movements of aircraft and vehicles on the manoeuvring area;

(b) provide directional information to pilots and vehicle drivers as necessary; and

(c) provide advice and assistance for the safe and efficient movement of aircraft and vehicles on the manoeuvring area.

4.25.2 If SMR radar is utilized by an ATS provider, procedures must be published in the ATC procedures manual that describe how the SMR is to be used to supplement visual observations and how aircraft are to be identified when using SMR.

5. Approach control service

5.1 General

5.1.1 An approach control service must be provided by:

(a) an aerodrome control tower or area control centre when it is necessary or desirable to combine under the responsibility of one unit the functions of the approach control service with those of the aerodrome control service or the area control service;

(b) an approach control unit (APP) when it is necessary or desirable to establish a separate unit.

5.1.2 The role of the approach control service is to issue clearances and information to aircraft under its control to achieve a safe, orderly and expeditious flow of air traffic in the approach control area of responsibility, as detailed in the ATC procedures manual.

5.2 Minimum Levels

5.2.1 An aircraft must not be cleared for an initial approach unless:

(a) the pilot has reported passing a designated point associated with an instrument approach procedure or defined by a radio aid;

(b) the aircraft has been observed by radar to have passed a designated point associated with an instrument approach procedure (IAP); or

(c) the crew reports that they have and can maintain the aerodrome in sight and requests a visual approach as specified in the ATC procedures manual.

5.3 Information for Departing Aircraft

5.3.1 Information regarding significant changes in the meteorological conditions in the take-off or climb-out area, obtained by the unit providing approach control service after a departing aircraft has established communication with such unit, must be transmitted to the aircraft without delay, except when it is known that the aircraft already has received the information.

5.3.2 Information regarding changes in the operational status of visual or non-visual aids essential for take-off and climb must be transmitted without delay to a departing aircraft, except when it is known that the aircraft already has received the information.

5.4 Information for Arriving Aircraft

5.4.1 As early as practicable after an aircraft has established communication with the approach control service, the following elements of information, in the order listed, must be transmitted to the aircraft, with the exception of such elements which it is known the aircraft has already received:

(a) type of approach and runway-in-use;

(b) meteorological information, as follows:

(1) surface wind direction and speed, including significant variations;

(2) visibility and, when applicable, runway visual range (RVR);

(3) present weather;

(4) cloud below 5000 ft or below the highest minimum sector altitude, whichever is greater;

(5) cumulonimbus;

(6) if the sky is obscured, vertical visibility when available;

(7) air temperature;

(8) dew point temperature, inclusion determined on the basis of a regional air navigation agreement;

(9) altimeter setting(s);

(10) any available information on significant meteorological phenomena in the approach area; and

(11) trend-type landing forecast, when available.

(c) current runway surface conditions, in case of precipitants or other temporary hazards;

(d) changes in the operational status of visual and non-visual aids essential for approach and landing.

5.4.2 If it becomes necessary or operationally desirable that an arriving aircraft follow an IAP or use a runway other than that initially stated, the flight crew must be advised without delay.

5.4.3 At the commencement of final approach, the following information must be transmitted to aircraft:

(a) significant changes in the mean surface wind direction and speed;

(b) the latest information, if any, on wind shear and/or turbulence in the final approach area; and

(c) the current visibility representative of the direction of approach and landing or, when provided, the current runway visual range value(s) and the trend.

5.4.4 During final approach, the following information must be transmitted without delay:

(a) the sudden occurrence of hazards (e.g. unauthorised traffic on the runway);

(b) significant variations in the current surface wind, expressed in terms of minimum and maximum values;

(c) significant changes in runway surface conditions;

(d) changes in the operational status of required visual or non-visual aids; and

(e) changes in observed RVR value(s), in accordance with the reported scale in use, or changes in the visibility representative of the direction of approach and landing.

5.5 Expected Approach Time

5.5.1 An expected approach time (EAT) must be determined for an arriving aircraft that will be subjected to a delay of 10 minutes or more or such other period as prescribed by the Executive Director. The EAT must be transmitted to the aircraft as soon as practicable and preferably not later than at the commencement of its initial descent from cruising level.

5.5.2 A revised EAT must be transmitted to the aircraft without delay whenever it differs from that previously transmitted by 5 minutes or more, or such lesser period of time as has been established by the ATS provider or agreed between the ATS units concerned.

5.5.3 An EAT must be transmitted to the aircraft by the most expeditious means whenever it is anticipated that the aircraft will be required to hold for 30 minutes or more.

5.5.4 The holding fix to which an EAT relates must be identified together with the EAT whenever circumstances are such that this would not otherwise be evident to the pilot.

5.5.5 An ATS provider must detail instructions in the ATC procedures manual concerning requirements for issuing EATs to arriving aircraft at individual aerodromes.

5.6 Holding

5.6.1 Each ATS provider must ensure that controllers are familiar with the relevant holding procedures for all IAPs published in the AIP for the aerodrome(s) in their area of responsibility.

5.6.2 In the event an aircraft is held en route or at a location or aid other than the initial approach fix, the aircraft concerned must, as soon as practicable, be given an expected onward clearance time from the holding fix. The aircraft must also be advised if further holding at a subsequent holding fix is expected.

5.7 Approach Sequence and Clearance

5.7.1 Approach clearance must be issued in an order which will facilitate arriving of the maximum number of aircraft with the least average delay as detailed in the ATC procedures manual, except that a special priority must be given to:

(a) aircraft which anticipate being compelled to land because of factors affecting their safe operation, e.g., engine failure, shortage of fuel, etc.;

(b) air ambulance aircraft or aircraft carrying any sick or seriously injured person requiring urgent medical attention;

(c) aircraft in search and rescue operations; and

(d) other aircraft as may be determined by the ATS provider or the Executive Director.

5.7.2 Succeeding aircraft must only be cleared for approach:

(a) when the preceding aircraft has reported that it is able to complete its approach without encountering instrument meteorological conditions; or

(b) when the preceding aircraft is in communication with and sighted by the TWR, and reasonable assurance exists that a normal landing can be accomplished; or

(c) when timed approaches are used, the preceding aircraft has passed the defined point inbound, and reasonable assurance exists that a normal landing can be accomplished;

(d) when the use of an ATS surveillance system confirms that the required longitudinal spacing between succeeding aircraft has been established.

5.7.3 In establishing the approach sequence, the need for increased longitudinal spacing between arriving aircraft due to wake turbulence must be taken into account.

5.7.4 If the pilot of an aircraft in an approach sequence has indicated an intention to hold for weather improvement, or for other reasons, such action must be approved. However, when other holding aircraft indicate intention to continue their approach to land, the pilot desiring to hold will be cleared to an adjacent fix for holding awaiting weather change or re-routing.

5.7.5 Alternatively, the aircraft must be given a clearance to place it at the top of the approach sequence so that other holding aircraft may be permitted to land.

5.7.6 Coordination must be effected with any adjacent ATC unit or control sector, when required, to avoid conflict with the traffic under the jurisdiction of that unit or sector.

Timed approach procedures

5.7.7 Subject to approval by the Executive Director, the following procedure may be utilized as necessary to expedite the approaches of a number of arriving aircraft:

(a) a suitable point on the approach path, which must be capable of being accurately determined by the pilot, must be specified, to serve as a checkpoint in timing successive approaches;

(b) aircraft must be given a time at which to pass the specified point inbound, which time must be determined with the aim of achieving the desired interval between successive landings on the runway while respecting the applicable separation minima at all times, including the period of runway occupancy.

(c) the time at which aircraft should pass the specified point must be determined by the unit providing approach control service and notified to the aircraft sufficiently in advance to permit the pilot to arrange the flight path accordingly.

(d) each aircraft in the approach sequence must be cleared to pass the specified point inbound at the previously notified time, or any revision thereof, after the preceding aircraft has reported passing the point inbound.

General

5.7.8 In determining the time interval or longitudinal distance to be applied between successive approaching aircraft, the relative speeds between succeeding aircraft, the distance from the specified point to the runway, the need to apply wake turbulence separation, runway occupancy times, the prevailing meteorological conditions as well as any condition which may affect runway occupancy times must be considered.

5.7.9 When an ATS surveillance system is used to establish an approach sequence, the minimum distance to be established between succeeding aircraft must be specified in the ATC procedures manual. The ATC procedures manual must additionally specify the circumstances under which any increased

longitudinal distance between approaches may be required as well as the minima to be used under such circumstances.

5.8 Visual Approaches

5.8.1 Subject to the conditions in 5.8.3, clearance for an IFR flight to execute a visual approach may be initiated by the controller but only with the concurrence of the flight crew must be required.

5.8.2 Controllers must exercise caution in initiating a visual approach when there is reason to believe that the flight crew concerned is not familiar with the aerodrome and its surrounding terrain. Controllers must also take into consideration the prevailing traffic and meteorological conditions when initiating visual approaches.

5.8.3 An IFR flight may only be cleared to execute a visual approach provided the pilot can maintain visual reference to the terrain and:

(a) the reported ceiling is at or above the level of the beginning of the initial approach segment for the aircraft so cleared; or

(b) the pilot reports at the level of the beginning of the initial approach segment or at any time during the instrument approach procedure that the meteorological conditions are such that with reasonable assurance a visual approach and landing can be completed.

5.8.4 Separation must be provided between an aircraft cleared to execute a visual approach and other arriving and departing aircraft.

5.8.5 For successive visual approaches, separation must be maintained by the controller until the pilot of a succeeding aircraft reports having the preceding aircraft in sight. The aircraft must then be instructed to follow and maintain own separation from the preceding aircraft.

5.8.6 When both aircraft are of a HEAVY wake turbulence category, or the preceding aircraft is of a heavier wake turbulence category than the following, and the distance between the aircraft is less than the appropriate wake turbulence minimum, the controller must issue a caution of possible wake

turbulence. The pilot-in-command of the aircraft concerned remains responsible for ensuring that the spacing from a preceding aircraft of a heavier wake turbulence category is acceptable.

5.8.7 Conditions for visual approaches must be published in the ATC procedures manual.

5.9 Instrument Approaches

5.9.1 The approach control service must specify the IAP to be used by arriving aircraft. A flight crew may request an alternative procedure and, if circumstances permit, may be cleared accordingly.

5.9.2 If a pilot reports or it is clearly apparent to the ATS unit that the pilot is not familiar with the IAP, the initial approach level, the point (in minutes from the appropriate reporting point) at which base turn or procedure turn will be started, the level at which the procedure turn must be carried out and the final approach track must be specified, except that only the last-mentioned need be specified if the aircraft is to be cleared for a straight-in approach. The frequency(s) of the navigation aid(s) to be used as well as the missed approach procedure must also be specified when deemed necessary.

5.10 Coordination

5.10.1 As published in the ATC procedures manual, the approach control service must keep the area control service informed of relevant data affecting the approach sequence such as:

(a) lowest level at the clearance limit for use by the area control service.
(b) expected type of IAP;
(c) next available EAT;
(d) revisions of EAT when 5 minutes or more different from that issued to the area control service;
(e) departure times;
(f) missed approach; and
(g) information on overdue or unreported aircraft.

5.10.2 The approach control service must keep the tower advised of the following data:

(a) sequence in which aircraft will be established on final approach for landing including ETA of arriving aircraft, not less than 15 minutes before ETA;

(b) statement of transfer of control and communication to the tower, giving relevant information; and

(c) anticipated delay to departing traffic.

5.10.3 After coordination with the approach control service, the area control service may clear the first arriving aircraft for approach rather than to a holding fix.

5.11 Use of ATS Surveillance Systems in the Approach Control Service

5.11.1 As detailed in a service provider's ATC procedures manual, the information presented on a radar display may be used to perform the following functions in the provision of approach control services:

(a) provide radar vectoring of arriving traffic on to final approach aids;

(b) provide radar monitoring of parallel ILS approaches and instruct aircraft to take appropriate action in the event of possible or actual penetrations of the Non Transgression Zone (NTZ);

(c) provide radar vectoring of arriving traffic to a point from which a visual approach can be completed;

(d) provide radar monitoring of other pilot-interpreted approaches;

(e) provide radar separation between:

(i) succeeding departing aircraft;

(ii) succeeding arriving aircraft; and

(iii) a departing aircraft and a succeeding arriving aircraft.

5.11.2 ATS surveillance systems used in the provision of approach control service must be appropriate to the functions and level of service to be provided.

5.11.3 ATS surveillance systems used to monitor parallel ILS approaches must meet the requirements for such operations specified in 5.13.

5.12 General Approach Control Procedures Using ATS Surveillance Systems

5.12.1 Procedures and requirements for using ATS surveillance system in the approach control service must comply, except as provided in 5.12.2, with the applicable standards prescribed in 172.04.27.

5.12.2 Each ATS provider must –

(a) Publish general procedures for the use of radar in approach control function in its ATC procedures manual; and

(b) Determine and publish in its ATC procedures manual radar separation minima within the TMA including reduced separation minima together with any conditions in accordance with the standards prescribed in 172.05.4.

5.13 Operations on Parallel or Near-Parallel Runways

5.13.1 Procedures and requirements for operating on parallel or near-parallel runways must be published by an ATS provider in its ATC procedures manual. Except as provided in 5.13.2, these procedures must comply with the applicable standards as prescribed in 172.05.4.

6. Area Control Service

6.1 General

6.1.1 An ATS provider must define the objectives of the area control service in its ATC procedures manual.

6.2 Transfer of Control

6.2.1 The area control service must retain control of aircraft until the transfer of control point prescribed in unit procedures in the ATC procedures manual.

6.3 Transfer of Communication

6.3.1 Communication transfer must occur at the same time as the transfer of control unless a different procedure is coordinated.

6.4 Control Procedures

6.4.1 An ATS provider must detail in their ATC procedures manual the use of the following control procedures:

(a) release not before;

(b) clearance expiry; and

(c) criteria for release of inbound traffic.

6.5 Coordination between Area Control Centres

6.5.1 An ATS provider must detail in their ATC procedures manual the procedures for information interchange between adjacent area control centres. The procedures must include transfer of control and communication, which must be detailed in LOA established under sub-section 14.7 and published in Part 2 of their ATC procedures manual.

6.5.2 If a flight should enter an adjacent area, information concerning any revision of the estimate of three minutes or more must be forwarded to the adjacent area control centre. Such information must normally be provided by telephone.

6.6 Coordination between the Area Control Service and the Approach Control Service

6.6.1 General coordination procedures between the Area Control Service and the Approach Control Service must be detailed in the ATC procedures manual.

6.6.2 Local procedures for coordination must be published in Part 2 of the ATC procedures manual.

6.6.3 Provision must be made to ensure that the approach control service is at all times kept informed of the sequence of aircraft following the same Standard Arrival Route (STAR).

6.6.4 Provision must be made to display the designators of assigned STARs to the area control service, approach control service and tower, as applicable.

6.7 *Coordination between Area Control Centre Positions*

6.7.1 Data exchange between individual positions and/or sectors must be detailed in the ATC procedures manual.

172.05.3 OPERATION OF AIR TRAFFIC CONTROL SERVICE

1.1 In order to provide air traffic control service, an air traffic control unit must:

(a) be provided with information on the intended movement of aircraft, or variations therefrom, and with current information on actual progress of each aircraft;

(b) determine from the information received, the relative positions of known aircraft to each other;

(c) issue clearances and information for the purpose of preventing collision between aircraft under its control and of expediting and maintaining an orderly flow of traffic;

(d) coordinate clearances with other units:

(i) whenever an aircraft might otherwise conflict with traffic operated under the control of such other units;

(ii) before transferring control of an aircraft to such other units.

1.2 Information on aircraft movements, together with a record of air traffic control clearances issued to such aircraft, must be so displayed as to permit ready analysis in order to maintain an efficient flow of air traffic with adequate separation between aircraft.

1.3 Air traffic control units must where possible, be equipped with devices that record background communication and the aural environment at air traffic controller work stations, capable of retaining the information recorded during at least the last twenty four hours of operation.

Compliance Note. *Provisions related to the non-disclosure of recordings and transcripts of recordings from air traffic control units are contained in the aircraft accident and incident investigation regulations.*

1.4 Clearances issued by air traffic control units must provide separation:

(a) between all flights in airspace Classes A and B;

(b) between IFR flights in airspace Classes C, D and E;

(c) between IFR flights and VFR flights in airspace Class C;

(d) between IFR flights and SVFR flights; and

(e) between special VFR flights,

except that, when requested by an aircraft and if so prescribed by an ATS provider for the cases listed under (b) above in airspace Classes D and E, a flight may be cleared without separation being so provided in respect of a specific portion of the flight conducted in visual meteorological conditions.

1.5 Separation by an air traffic control unit must be obtained using at least one of the following:

a) Vertical separation, obtained by assigning different levels selected from:

(i) the appropriate table of cruising levels in Appendix 6 to this NAM-CATS-ATS;

(ii) a modified table of cruising levels, prescribed in accordance with Appendix 6 to this NAM-CATS-ATS for flight above FL 410,

except that the correlation of levels to track as prescribed therein shall not apply whenever otherwise indicated in appropriate aeronautical information publications or air traffic control clearances;

b) Horizontal separation, obtained by providing:

(i) longitudinal separation, by maintaining an interval between aircraft operating along the same, converging or reciprocal tracks, expressed in time or distance; or

(ii) lateral separation, by maintaining aircraft on different routes or in different geographical areas;

c) Composite separation, consisting of a combination of vertical separation and one of the other forms of separation contained in b) above, using minima for each which may be lower than, but not less than half of, those used for each of the combined elements when applied individually. Composite separation shall only be applied on the basis of regional air navigation agreements.

***Compliance Note**. Guidance material relating to the implementation of composite lateral/vertical separation is contained in the Air Traffic Services Planning Manual (Doc 9426).*

1.6 For all airspaces where reduced vertical separation minima of 300 m (1 000 ft) is applied between FL 290 and FL 410 inclusive, a programme shall be instituted, on a regional basis, for monitoring the height-keeping performance of aircraft operating at these levels, in order to ensure that the continued application of this vertical separation minimum meets the safety objectives. The scope of regional monitoring programmes shall be adequate to conduct analyses of aircraft group performance and evaluate the stability of altimetry system error.

***Compliance Note.** Guidance material relating to the implementation of composite lateral/vertical separation is contained in the Air Traffic Services Planning Manual (Doc 9426).*

1.7 Where required communication performance/required surveillance performance (RCP/RSP) specifications are applied, the appropriate ATS authority must institute a programme for monitoring

the performance of the infrastructure and the participating aircraft against the appropriate RCP and/or RSP specifications, to ensure that operations in the applicable airspace continue to meet safety objectives. The scope of the monitoring programme required in (5) above must be adequate to evaluate communication and/or surveillance performance, as applicable.

***Compliance Note**. Guidance material relating to RCP and RSP specifications and monitoring of communication and surveillance performance is contained in the Performance-based Communication and Surveillance (PBCS) Manual (Doc 9869).*

1.7 The appropriate ATS authority may put in place, through interregional agreement, arrangements for:

a) the sharing of data and/or information from monitoring programmes with other regions.

b) the sharing between regions of data and/or information from monitoring programmes.

172.05.4 SEPARATION MINIMA

1. Selection of separation minima

1.1 The selection of separation minima for application within a given portion of airspace shall be as follows:

a) the separation minima shall be selected from those prescribed by the Executive Director except that, where types of aids are used or circumstances prevail which are not covered by those provisions, other separation minima may be established as necessary by:

(i) the ATS authority, following consultation with operators, for routes or portions of routes contained within the sovereign airspace of Namibia;

(ii) regional air navigation agreements for routes or portions of routes contained within airspace over the high seas or over areas of undetermined sovereignty.

b) the selection of separation minima must be made in consultation with the ATS authorities responsible for the provision of air traffic services in neighbouring airspace when:

(i) traffic will pass into the airspaces of another neighbouring State;

(ii) routes are closer to the common boundary of the neighbouring airspaces than the separation minima applicable in the circumstances.

Compliance Note. *The purpose of this provision is to ensure, in the first case, compatibility on both sides of the line of transfer of traffic, and, in the other case, adequate separation between aircraft operating on both sides of the common boundary.*

1.2 Details of the selected separation minima and of their areas of application shall be notified:

a) to the ATS units concerned in the ATC procedures manual; and

b) to pilots and operators through aeronautical information publications, where separation is based on the use by aircraft of specified navigation aids or specified navigation techniques.

Compliance Note. *Details of applicable separation minima as prescribed by the Executive Director are contained in Parts 5 and 6 of the Procedures for Air Traffic Management document. Separation minima based on ATS surveillance are contained in Part 8 of the Procedures for Air Traffic Management document.*

1.3 Lower separation minima than those prescribed by the Executive Director may only be utilized under the following conditions:

(a) the reduced separation minima have been shown by a safety assessment to provide an acceptable level of safety;

(b) operators have been consulted during the safety assessment process;

(c) the Executive Director has approved the reduced separation minima; and

(d) the reduced minima have been published in the AIP where separation is based on the use by aircraft of specified navigation aids or specified navigation techniques.

1.4 Additional separation minima applicable only within the territorial airspace of Namibia may be prescribed by the appropriate ATS authority where deemed necessary provided that the results of a risk assessment indicate that an alternative level of compliance will be achieved. Such additional separation minima must be approved by the Executive Director.

172.05.5 RESPONSIBILITY FOR CONTROL

1.1 An appropriate ATS authority must designate the area of responsibility of each ATS unit, and when applicable, for individual sectors within an ATS unit.

Responsibility for control of individual flights

1.2 A controlled flights must be under the control of only one air traffic control unit at any given time.

Responsibility for control within a given block of airspace

1.3 Responsibility for the control of all aircraft operating within a specified block of airspace must be vested in a single air traffic control unit. However, control of an aircraft or groups of aircraft may be delegated to other air traffic control units provided that the coordination between all air traffic control units concerned is assured.

172.05.6 TRANSFER OF RESPONSIBILITY FOR CONTROL

1. Place or time of transfer

The responsibility for the control of an aircraft must be transferred from one air traffic control unit to another as follows:

1.1 Between two units providing area control service:

The responsibility for the control of an aircraft must be transferred from a unit providing area control service in a control area to the unit providing area control service in an adjacent control area at the time of crossing the common control area boundary as estimated by the area control centre having control of the aircraft or at such other point or time as has been agreed between the two units.

1.2 Between a unit providing area control service and a unit providing approach control service:

The responsibility for the control of an aircraft must be transferred from a unit providing area control service to a unit providing approach control service, and vice versa, at a point or time agreed between the two units.

1.3 Between a unit providing approach control service and an aerodrome control tower:

1.3.1 *Arriving aircraft*. The responsibility for the control of an arriving aircraft must be transferred from the unit providing approach control service to the aerodrome control tower, when the aircraft;

(a) is in the vicinity of the aerodrome, and:
    (i) it is considered that approach and landing will be completed in visual reference to the ground, or
    (ii) it has reached uninterrupted visual meteorological conditions, or
(b) is at a prescribed point or level, as specified in letters of agreement or ATS unit instructions; or
(c) has landed.

***Compliance Note**: Even though there is an approach control unit, control of certain flights may be transferred directly from an area control centre to an aerodrome control tower and vice versa, by prior arrangement between the units concerned for the relevant part of approach control service to be provided by the area control centre or the aerodrome control tower, as applicable.*

1.3.2 *Departing aircraft*. The responsibility for control of a departing aircraft must be transferred from the aerodrome control tower to the unit providing approach control service:

(a) when visual meteorological conditions prevail in the vicinity of the aerodrome:
    (i) prior to the time the aircraft leaves the vicinity of the aerodrome, or
    (ii) prior to the aircraft entering instrument meteorological conditions, or
    (iii) at a prescribed point or level,

as specified in letters of agreement or ATS unit instructions;

(b) when instrument meteorological conditions prevail at the aerodrome:

(i) immediately after the aircraft is airborne, or
(ii) at a prescribed point or level,

as specified in letters of agreement or ATS unit instructions.

1.4 Between control sectors/positions within the same air traffic control unit:

The responsibility for control of an aircraft must be transferred from one control sector/position to another control sector/position within the same air traffic control unit at a point, level or time, as specified in ATS unit instructions.

2. Coordination of transfer

2.1 Responsibility for control of an aircraft may not be transferred from one air traffic control unit to another without the consent of the accepting control unit, which must be obtained in accordance with 2.2, 2.2.1, 2.2.2 and 2.3.

2.2 The transferring control unit must communicate to the accepting control unit the appropriate parts of the current flight plan and any control information pertinent to the transfer requested.

2.2.1 Where transfer of control is to be effected using radar or ADS-B data, the control information pertinent to the transfer must include information regarding the position and, if required, the track and speed of the aircraft, as observed by radar or ADS-B immediately prior to the transfer.

2.2.2 Where transfer of control is to be effected using ADS-C data, the control information pertinent to the transfer must include the four-dimensional position and other information as necessary.

2.3 The accepting control unit must:

(a) indicate its ability to accept control of the aircraft on the terms specified by the transferring control unit, unless by prior agreement between the two units concerned, the absence of any such indication is understood to signify acceptance of the terms specified, or indicate any necessary changes thereto; and

(b) specify any other information or clearance for a subsequent portion of the flight, which it requires the aircraft to have at the time of transfer.

2.4 The accepting control unit must notify the transferring control unit when it has established two-way voice and/or data link communications with and assumed control of the aircraft concerned, unless otherwise specified by agreement between the two control units concerned.

2.5 Applicable coordination procedures, including transfer of control points, must be specified in letters of agreement and ATS unit instructions as appropriate.

3. Responsibility in Respect of Military Traffic

3.1 Certain military flights require a degree of operational freedom, which is not consistent with the application of civil ATC procedures. To ensure flight safety, the military authorities are required to inform ATC prior to operating such flights in airspace under the jurisdiction of the ATS provider.

3.2 Reduced separation minima necessary to accomplish operational freedom for military flights may be authorised when so requested. However, ATC is then only responsible for separating civil traffic from such military units and any reduced separation must be applicable only between individual military aircraft forming part of such units and not between military and civil aircraft.

3.3 When necessary, temporary airspace reservations may be established for certain military operations. The military authority is responsible for coordinating notifications of airspace reservations.

172.05.7 AIR TRAFFIC CONTROL CLEARANCE

1. General

1.1 Air traffic control clearances must be based solely on the requirements for providing air traffic control service.

1.2 Each ATS provider must issue instructions for the issuance of clearances detailing the procedures for providing ATC service to known traffic in the ATC procedures manual. Such instructions must contain, but is not limited to the following items:

(a) clearance coordination
(b) clearance validity
(c) clearance issuance
(d) clearance content
(e) revised clearances
(f) clearances out of controlled airspace
(g) downstream clearances.

1.3 ATS units must issue ATC clearances as necessary to prevent collisions and to expedite and maintain an orderly flow of air traffic.

1.4 ATC clearances must be issued early enough to ensure that they are transmitted to the aircraft in sufficient time for it to comply with it.

2. Contents of Clearances

2.1 An air traffic control clearance must indicate:

(a) aircraft identification as shown in the flight plan;
(b) clearance limit;
(c) route of flight;

(d) level(s) of flight for the entire route or part thereof and changes of levels if required;

Compliance Note: If the clearance for the levels covers only part of the route, it is important for the air traffic control unit to specify a point to which the part of the clearance regarding levels applies whenever necessary.

(e) any necessary instructions or information on other matters such as approach or departure manoeuvres, communications and the time of expiry of the clearance.

Compliance Note 1*: The time of expiry of the clearance indicates the time after which the clearance will be automatically cancelled if the flight has not been commenced.*

Compliance Note 2*: Detailed information regarding ATC clearances are contained in Part 4 of the Procedures for air traffic management document.*

2.2 Standard departure and arrival routes and associated procedures may be established when necessary to facilitate:

(a) the safe, orderly and expeditious flow of air traffic;

(b) the description of the route and procedure in air traffic control clearances

Compliance Note*: Material relating to the establishment of standard departure and arrival routes and associated procedures is contained in the Air Traffic Services Planning Manual (Doc 9426). The design criteria are contained in PANS-OPS (Doc 8168), Volume II.*

2.3 Where standard departure and arrival routes have been established, the ATS authority must publish the associated procedures in the AIP.

3. Clearances for transonic flight

3.1 The air traffic control clearance relating to the transonic acceleration phase of a supersonic flight must extend at least to the end of that phase.

3.2 The air traffic control clearance relating to the deceleration and descent of an aircraft from supersonic cruise to subsonic flight may provide for uninterrupted descent, at least during the transonic phase.

4. Read-back of clearances and safety-related information

4.1 The flight crew must read back to the air traffic controller safety-related parts of ATC clearances and instructions which are transmitted by voice. The following items must always be read back:

(a) ATC route clearances;

(b) clearances and instructions to enter, land on, take off from, hold short of, cross and backtrack on any runway; and

(c) runway-in-use, altimeter settings, SSR codes, level instructions, heading and speed instructions and, whether issued by the controller or contained in ATIS broadcasts, transition levels.

4.1.1 Other clearances or instructions, including conditional clearances, must be read back or acknowledged in a manner to clearly indicate that they have been understood and will be complied with.

4.1.2 The air traffic controller must listen to the read-back to ascertain that the clearance or instruction has been correctly acknowledged by the flight crew and must take immediate action to correct any discrepancies revealed by the read-back.

4.2 Unless specified by the appropriate ATS authority, voice read-back of CPDLC messages is not required.

***Compliance Note**: The procedures and provisions relating to the exchange and acknowledgement of CPDLC messages are contained in NAMCAR/NAMCATS Part 171, and in Part 14 of the Procedures for ATM document.*

4.3 The appropriate ATS authority must develop procedures and provisions relating to the exchange and acknowledgement of CPDLC messages.

4.4 The controller must ensure that instructions and information which require the flight crew to employ visual detection, recognition and observation are phrased in a clear, concise and complete manner.

5. Coordination of Clearances

5.1 An air traffic control clearance must be coordinated between ATC units to cover the entire route of an aircraft or a specified portion thereof as follows:

5.1.2 An aircraft must be cleared for the entire route to the aerodrome of first intended landing:

(a) when it has been possible, prior to departure, to coordinate the clearance between all the units under whose control the aircraft will come; or

(b) when there is reasonable assurance that prior coordination will be effected between those units under whose control the aircraft will subsequently come.

Compliance Note: Where a clearance is issued covering the initial part of the flight solely as a means of expediting departing traffic, the succeeding en-route clearance will be as specified above even though the aerodrome of first intended landing is under the jurisdiction of an ACC other than the one issuing the en-route clearance.

5.2 When coordination as in 5.1 has not been achieved or is not anticipated, the aircraft must be cleared only to that point where coordination is reasonably assured; prior to reaching such point, or at such point, the aircraft must receive further clearance, holding instructions being issued as appropriate.

5.3 When prescribed by the appropriate ATS authority, aircraft must contact a downstream air traffic control unit, for the purpose of receiving a downstream clearance prior to the transfer of control point, and:

(a) the aircraft must maintain the necessary two-way communication with the current ATC unit while obtaining a downstream clearance.

(b) a clearance issued as a downstream clearance must be clearly identifiable as such to the pilot.

(c) unless coordinated, downstream clearances must not affect the aircraft's original flight profile in any airspace, other than that of the ATC unit responsible for the delivery of the downstream clearance.

***Compliance Note**: Requirements relating to the application of downstream clearance delivery service are specified in Part 171.*

(d) where practicable, and where data link communications are used to facilitate downstream clearance delivery, two-way voice communications between the pilot and the ATC unit providing the downstream clearance must be available.

5.4 When an aircraft intends to depart from an aerodrome within a control area to enter another control area within a period of thirty minutes, or such other specific period of time as has been agreed between the area control centres concerned, coordination with the subsequent area control centre must be effected prior to issuance of the departure clearance.

5.5 When an aircraft intends to leave a control area for flight outside controlled airspace, and will subsequently re-enter the same or another control area, a clearance from point of departure to the aerodrome of first intended landing may be issued. Such clearance or revisions thereto must apply only to those portions of the flight conducted within controlled airspace.

172.05.8 ATS SYSTEM CAPACITY AND AIR TRAFFIC FLOW MANAGEMENT

1.1 Air traffic flow management (ATFM) must be implemented for airspace where air traffic demand at times exceeds, or is expected to exceed, the declared capacity of the air traffic control services concerned. The capacity of the air traffic control services concerned will normally be declared by the appropriate ATS authority.

1.2 When implemented air traffic flow management must be implemented on the basis of regional air navigation agreements or, if appropriate, through multilateral agreements. Such agreements should make provision for common procedures and common methods of capacity determination.

1.3 When it becomes apparent to an ATC unit that traffic additional to that already accepted cannot be accommodated within a given period of time at a particular location or in a particular area, or can only be accommodated at a given rate, that unit must so advise the air traffic flow management (ATFM) unit, as well as, when appropriate, ATS units concerned. Flight crews of aircraft destined to the location or area in question and operators concerned must also be advised of the delays expected or the restrictions that will be applied. Operators concerned must be advised, in advance where possible, of restrictions imposed by the air traffic flow management unit when such is established.

Compliance Note: *Operators concerned will normally be advised, in advance where possible, of restrictions imposed by the air traffic flow management unit when such is established.*

1.4 ATS System capacity and air traffic flow management must be in accordance with the procedures prescribed in Part 3 of the Procedures for ATM document.

172.05.9 CONTROL OF PERSONS AND VEHICLES AT AERODROMES

1.1 The movement of persons or vehicles including towed aircraft on the manoeuvring area of an aerodrome must be controlled by the tower as necessary to avoid hazard to them or to aircraft landing, taxiing or taking off.

1.2 In conditions where low visibility procedures are in operation:

(a) persons and vehicles operating on the manoeuvring area of an aerodrome must be restricted to the essential minimum, and particular regard must be given to the requirements to protect the ILS sensitive area(s) when Category II or Category III precision instrument operations are in progress;

(b) subject to the provisions in 1.3 below, the minimum separation between vehicles and taxiing aircraft must be as prescribed by the ATS provider taking into account the aids available;

(c) when mixed ILS Category II or Category III precision instrument operations are taking place to the same runway continuously, the more restrictive ILS critical and sensitive areas must be protected.

Compliance Note: *The period of application of low visibility procedures is determined in accordance with ATS unit instructions. Guidance on low visibility operations on an aerodrome is contained in the Manual of Surface Movement Guidance and Control Systems (SMGCS) (Doc 9476).*

1.3 Emergency vehicles proceeding to the assistance of an aircraft in distress must be afforded priority over all other surface movement traffic.

1.4 Subject to the provisions in 1.3 above, vehicles on the manoeuvring area are required to comply with the following rules:

(a) vehicles and vehicles towing aircraft must give way to aircraft which are landing, taking off or taxiing;

(b) vehicles must give way to other vehicles towing aircraft;

(c) vehicles must give way to other vehicles in accordance with ATS unit instructions;

(d) notwithstanding the provisions of (a), (b) and (c) above, vehicles and vehicles towing aircraft must comply with instructions issued by the aerodrome control tower.

1.5 When communications by a system of visual signals is deemed to be adequate, or in the case of radio communication failure, the signals prescribed in the rules of the air regulations must be used.

1.6 An ATS provider must publish procedures in its ATC procedures manual regarding the movement of persons or vehicles on the manoeuvring area who must be subject to permission from the tower and must be controlled as necessary for their own safety and to avoid hazard to aircraft landing, taxiing or taking-off.

172.05.10 PROVISION OF RADAR AND ADS-B ALERT AND WARNING SYSTEMS

1.1 The appropriate ATS authority must ensure that radar and ADS-B ground systems, where established, provide for the display of safety-related alerts and warnings, including conflict alert, conflict prediction, minimum safe altitude warning and unintentionally duplicated SSR codes.

172.05.11 USE OF SURFACE MOVEMENT RADAR (SMR)

1.1 In the absence of visual observation of all or part of the manoeuvring area, or to supplement visual observation, surface movement radar (SMR) provided in accordance with the provisions of NAMCAR Part 139, or other suitable surveillance equipment may be utilised.

1.2 The surface movement radar (SMR) or other suitable surveillance equipment where provided, must be utilised to:

(a) monitor the movement of aircraft and vehicles on the manoeuvring area;

(b) provide directional information to pilots and vehicle drivers as necessary; and

(c) provide advice and assistance for the safe and efficient movement of aircraft and vehicles on the manoeuvring area.

1.3 The appropriate ATS authority must pursuant to (1) and (2) publish procedures for the use of surface movement radar (SMR) and other surface surveillance equipment by the aerodrome control tower.

***Compliance Note**: See the ICAO Manual of Surface Movement Guidance and Control Systems (SMGCS) (Doc 9476), the Advanced Surface Movement Guidance and Control Systems (A-SMGCS) Manual (Doc 9830) and the Air Traffic Services Planning Manual (Doc 9426) for guidance on the use of SMR.*

172.06 REQUIREMENTS FOR FLIGHT INFORMATION SERVICE

1. Introduction

These standards apply to any person or organisation providing flight information services within the airspaces and at aerodromes in Namibia including airspaces over the high seas and of undetermined sovereignty for which Namibia has accepted responsibility for the provision of air traffic services.

172.06.1 APPLICATION OF FLIGHT INFORMATION SERVICE

1.1 The provision of flight information service to an aircraft does not relieve the pilot-in-command of an aircraft of any responsibilities and the pilot-in-command has to make the final decision regarding any suggested alteration of flight plan.

1.2 Where ATS units provide both flight information service (FIS) and air traffic control service, the provision of air traffic control service must have precedence over the provision of FIS whenever the provision of ATC service so requires.

1.3 An air traffic services unit must recognise that in certain circumstances aircraft on final approach, landing, take-off and climb may require to receive without delay, essential information other than that pertaining to the provision of air traffic control service.

1.4 The transfer of responsibility for the provision of FIS must be in accordance with the procedures prescribed in Part 9 of the Procedures for ATM document.

1.5 The transmission of FIS information including the means of transmission, transmission of weather information, volcanic activity and other information must comply with the procedures prescribed in Part 9 of the Procedures for ATM document.

172.06.2 SCOPE OF FLIGHT INFORMATION SERVICE

1.1 FIS must include the provision of pertinent:

(a) SIGMET and AIRMET information;

(b) information concerning pre-eruption volcanic activity, volcanic eruptions and volcanic ash clouds;

(c) information concerning the release into the atmosphere of radioactive materials or toxic chemicals;

(d) information on changes in the availability of radio navigation services;

(e) information on changes in condition of aerodromes and associated facilities, including information on the state of the aerodrome movement areas when they are affected by sand, or significant depth of water;

(f) information on unmanned free balloons; and

(g) any other information likely to affect safety.

1.2 FIS provided to flights must include, in addition to those listed in 1.1, the provision of information concerning:

(a) weather conditions reported or forecast at departure, destination and alternate aerodromes;

(b) collision hazards, to aircraft operating in airspace Classes C, D, E, F and G; and

(c) for flight over water areas, in so far as practicable and when requested by a pilot, any available information such as radio call sign, position, true track, speed, etc., of surface vessels in the area.

***Compliance Notes**:*

(i) The information in b), including only known aircraft the presence of which might constitute a collision hazard to the aircraft informed, will sometimes be incomplete and air traffic services cannot assume responsibility for its issuance at all times or for its accuracy.

(ii) When there is a need to supplement collision hazard information provided in compliance with b), or in case of temporary disruption of flight information service, traffic information broadcasts by aircraft may be applied in designated airspaces. Guidance on traffic

information broadcasts by aircraft and related operating procedures is contained in Advisory Pamphlet ANSSO-ATS-AP172/04.

1.3 ATS units may transmit, as soon as practicable, special air-reports to other aircraft concerned, to the associated meteorological office, and to other ATS units concerned. Transmissions to aircraft where made, must be continued for a period to be determined by agreement between the MET service provider concerned and the ATS provider.

1.4 FIS provided to VFR flights must include, in addition to those listed in 1.1, the provision of available information concerning traffic and weather conditions along the route of flight that are likely to make operation under the visual flight rules impracticable.

172.06.3 OPERATIONAL FLIGHT INFORMATION SERVICE BROADCASTS

1. Application

1.1 The meteorological information and operational information concerning radio navigation services and aerodromes included in the flight information service must, whenever available, be provided in an operationally integrated form.

1.2 Where integrated operational flight information messages are to be transmitted to aircraft, they are to be transmitted with the content and, where specified, in the sequence indicated, for the various phases of flight.

1.3 Operational flight information service broadcasts, when provided, must consist of messages containing integrated information regarding selected operational and meteorological elements appropriate to the various phases of flight. These broadcasts must be of three major types, i.e. HF, VHF and ATIS.

1.4 *Use of the OFIS messages in directed request/reply transmissions*

1.4.1 When requested by the pilot, the applicable OFIS message(s) must be transmitted by the appropriate ATS unit.

2. HF operational flight information service (OFIS) broadcasts

2.1 HF operational flight information service (OFIS) broadcasts may be provided when it has been determined by regional air navigation agreements that a requirement exists.

2.2 Whenever such broadcasts are provided:

(a) the information must be in accordance with 2.5 below, as applicable, subject to regional air navigation agreements;

(b) the aerodromes for which reports and forecasts are to be included must be as determined by regional air navigation agreements;

(c) the time-sequencing of stations participating in the broadcast must be as determined by regional air navigation agreements;

(d) the HF OFIS broadcast message must take into consideration human performance. The broadcast message must not exceed the length of time allocated for it by regional air navigation agreements, care being taken that the readability is not impaired by the speed of the transmission;

Compliance Note: The ATS provider must publish in its Manual of procedures, guidance on human performance.

(e) each aerodrome message should be identified by the name of the aerodrome to which the information applies;

(f) when information has not been received in time for a broadcast, the latest available information should be included together with the time of that observation;

(g) the full broadcast message should be repeated if this is feasible within the remainder of the time allotted to the broadcasting station;

(h) the broadcast information should be updated immediately a significant change occurs; and

(i) the HF OFIS message should be prepared and disseminated by the most appropriate unit(s) as designated by each State.

2.3 Pending the development and adoption of a more suitable form of speech for universal use in aeronautical radiotelephony communications, HF OFIS broadcasts concerning aerodromes designated for use by international air services must be available in the English language.

2.4 Where HF OFIS broadcasts are available in more than one language, a discrete channel must be used for each language.

2.5 HF operational flight information service broadcast messages must contain the following information in the sequence indicated or as determined by regional air navigation agreements:

(a) En-route weather information:

Information on significant en-route weather phenomena must be in the form of available SIGMET as prescribed in NAM-CARs Part 174.

(b) Aerodrome information including:

(i) name of aerodrome;
(ii) time of observation;
(iii) essential operational information;
(iv) surface wind direction and speed; if appropriate, maximum wind speed;
(v) visibility and, when applicable, runway visual range (RVR);
(vi) present weather;
(vii) cloud below 1 500 m (5 000 ft) or below the highest minimum sector altitude, whichever is greater; cumulonimbus; if the sky is obscured, vertical visibility when available; and
(viii) aerodrome forecast.

Compliance Note: *Elements in (v), (vi) and (vii) above are replaced by the term "CAVOK" whenever the conditions as specified in Part 11 of the Procedures for ATM document prevail.*

3. VHF operational flight information service (OFIS) broadcasts

3.1 VHF operational flight information service broadcasts may be provided as determined by regional air navigation agreements.

3.2 Whenever such broadcasts are provided:

(a) the aerodromes for which reports and forecasts are to be included must be as determined by regional air navigation agreements;

(b) each aerodrome message must be identified by the name of the aerodrome to which the information applies;

(c) when information has not been received in time for a broadcast, the latest available information must be included together with the time of that observation;

(d) the broadcasts must be continuous and repetitive;

(e) The VHF OFIS broadcast message must take into consideration human performance. The broadcast message must, whenever practicable, not exceed five minutes, care being taken that the readability is not impaired by the speed of the transmission;

(f) the broadcast message must be updated on a scheduled basis as determined by regional air navigation agreements. In addition it should be expeditiously updated immediately a significant change occurs; and

(g) the VHF OFIS message must be prepared and disseminated by the designated unit(s)

3.3 Pending the development and adoption of a more suitable form of speech for universal use in aeronautical radiotelephony communications, VHF OFIS broadcasts concerning aerodromes designated for use by international air services must be available in the English language.

3.4 Where VHF OFIS broadcasts are available in more than one language, a discrete channel must be used for each language.

3.5 VHF operational flight information service broadcast messages must contain the following information in the sequence indicated

(a) name of aerodrome;

(b) time of observation;

(c) landing runway;

(d) significant runway surface conditions and, if appropriate, braking action;

(e) changes in the operational state of the radio navigation services, if appropriate;

(f) holding delay, if appropriate;

(g) surface wind direction and speed; if appropriate, maximum wind speed;

(h) visibility and, when applicable, runway visual range (RVR);

(i) present weather;

(j) cloud below 1 500 m (5 000 ft) or below the highest minimum sector altitude, whichever is greater; cumulonimbus; if the sky is obscured, vertical visibility, when available;

(k) air temperature;

(l) dew point temperature;

(m) QNH altimeter setting;

(n) supplementary information on recent weather of operational significance and, where necessary, wind shear;

(o) trend forecast, when available; and

(p) notice of current SIGMET messages.

Compliance Note 1: *Elements in (h), (i) and (j) above are replaced by the term "CAVOK" whenever the conditions as specified in Part 11 of the Procedures for ATM document prevail.*

Compliance Note 1: *Elements in (k), (l) and (m) above will be as determined on the basis of regional air navigation agreements*

4. Voice-automatic terminal information service (Voice-ATIS) broadcasts

4.1 Voice-automatic terminal information service (Voice-ATIS) broadcasts must be provided at aerodromes where there is a requirement to reduce the communication load on the ATS VHF air-ground communication channels. When provided, they must comprise:

(a) one broadcast serving arriving aircraft; or

(b) one broadcast serving departing aircraft; or

(c) one broadcast serving both arriving and departing aircraft; or

(d) two broadcasts serving arriving and departing aircraft respectively at those aerodromes where the length of a broadcast serving both arriving and departing aircraft would be excessively long.

4.2 A discrete VHF frequency must, whenever practicable, be used for Voice-ATIS broadcasts. If a discrete frequency is not available, the transmission may be made on the voice channel(s) of the most appropriate terminal navigation aid(s), preferably a VOR, provided the range and readability are adequate and the identification of the navigation aid is sequenced with the broadcast so that the latter is not obliterated.

4.3 Voice-ATIS broadcasts may not be transmitted on the voice channel of an ILS.

4.4 Whenever Voice-ATIS is provided, the broadcast must be continuous and repetitive.

4.5 The information contained in the current broadcast must immediately be made known to the ATS unit(s) concerned with the provision to aircraft of information relating to approach, landing and take-off, whenever the message has not been prepared by that (those) unit(s).

Compliance Note. *The requirements for the provision of ATIS that applies to both Voice-ATIS and D-ATIS are contained in Section 6 below.*

4.6 Voice-ATIS broadcasts provided at designated aerodromes for use by international air services must be available in the English language as a minimum.

4.7 Where Voice-ATIS broadcasts are available in more than one language, a discrete channel must be used for each language.

4.8 The Voice-ATIS broadcast message must, whenever practicable, not exceed 30 seconds, care being taken that the readability of the ATIS message is not impaired by the speed of the transmission or by the identification signal of a navigation aid used for transmission of ATIS. The ATIS broadcast message must take into consideration human performance.

5. Data link-automatic terminal information service (D-ATIS)

5.1 Where a D-ATIS supplements the existing availability of Voice-ATIS, the information must be identical in both content and format to the applicable Voice-ATIS broadcast.

5.2 Where real-time meteorological information is included but the data remains within the parameters of the significant change criteria, the content, for the purpose of maintaining the same designator, is considered identical.

***Compliance Note**: Significant change criteria are specified in Appendix 3 to NAMCATS Part 174, Appendix 3, paragraph 2.3.2.*

5.3 Where a D-ATIS supplements the existing availability of Voice-ATIS and the ATIS requires updating, Voice ATIS and D-ATIS must be updated simultaneously.

***Compliance Note:** Guidance material relating to D-ATIS is contained in the Manual of Air Traffic Services Data Link Applications (Doc 9694). The technical requirements for the D-ATIS application are contained in NAMCAR/NAMCATS Part 171.*

6. Automatic terminal information service (voice and/or data link)

6.1 Whenever Voice-ATIS and/or D-ATIS is provided:

(a) the information communicated must relate to a single aerodrome;

(b) the information communicated must be updated immediately a significant change occurs;

(c) the preparation and dissemination of the ATIS message is the responsibility of the air traffic services;

(d) individual ATIS messages must be identified by a designator in the form of a letter of the ICAO spelling alphabet. Designators assigned to consecutive ATIS messages must be in alphabetical order;

(e) aircraft must acknowledge receipt of the information upon establishing communication with the ATS unit providing approach control service or the aerodrome control tower, as appropriate;

(f) the appropriate ATS unit must, when replying to the message in e) above or, in the case of arriving aircraft, at such other time as may be prescribed by the appropriate ATS authority, provide the aircraft with the current altimeter setting; and

(g) the meteorological information must be extracted from the local meteorological routine or special report.

***Compliance Note**: In accordance with Sections 4.1 and 4.3 of Appendix 3 to Document NAMCATS Part 174, the surface wind direction and speed and runway visual range (RVR) are to be averaged over 2 minutes and 1 minute, respectively; and the wind information is to refer to conditions along the runway for departing aircraft and to conditions at the touchdown zone for arriving aircraft. A template for the local meteorological report, including the corresponding ranges and resolutions of each element, are in Appendix 3 to Document NAMCATS, Part 174.*

6.2 When rapidly changing meteorological conditions make it inadvisable to include a weather report in the ATIS, the ATIS messages must indicate that the relevant weather information will be given on initial contact with the appropriate ATS unit.

6.3 Information contained in a current ATIS, the receipt of which has been acknowledged by the aircraft concerned, need not be included in a directed transmission to the aircraft, with the exception of the altimeter setting, which must be provided in accordance with 6.1 f).

6.4 If an aircraft acknowledges receipt of an ATIS that is no longer current, any element of information that needs updating must be transmitted to the aircraft without delay.

6.5 Contents of ATIS must be kept as brief as possible. Information additional to that specified in 7 to 9 below, for example information already available in aeronautical information publications (AIPs) and NOTAM, may only be included when justified in exceptional circumstances.

7. ATIS for arriving and departing aircraft

7.1 ATIS messages containing both arrival and departure information must contain the following elements of information in the order listed:

(a) name of aerodrome;

(b) arrival and/or departure indicator;

(c) contract type, if communication is via D-ATIS;

(d) designator;

(e) time of observation, if appropriate;

(f) type of approach(es) to be expected;

(g) the runway(s) in use; status of arresting system constituting a potential hazard, if any;

(h) significant runway surface conditions and, if appropriate, braking action;

(i) holding delay, if appropriate;

(j) transition level, if applicable;

(k) other essential operational information;

(l) surface wind direction (in degrees magnetic) and speed, including significant variations and, if surface wind sensors related specifically to the sections of runway(s) in use are available and the information is required by operators, the indication of the runway and the section of the runway to which the information refers;

(m) visibility and, when applicable, RVR and, if visibility/RVR sensors related specifically to the sections of runway(s) in use are available and the information is required by operators, the indication of the runway and the section of the runway to which the information refers;

(n) present weather;

(o) cloud below 1 500 m (5 000 ft) or below the highest minimum sector altitude, whichever is greater; cumulonimbus; if the sky is obscured, vertical visibility when available;

(p) air temperature;

(q) dew point temperature;

(r) altimeter setting(s);

(s) any available information on significant meteorological phenomena in the approach and climb-out areas including wind shear, and information on recent weather of operational significance;

(t) trend forecast, when available; and

(u) specific ATIS instructions.

Compliance Note: *Elements in (m), (n) and (o) above are replaced by the term "CAVOK" whenever the conditions as specified in Part 11 of the Procedures for ATM document prevail.*

Compliance Note 1: *Element in (q) above will be as determined on the basis of regional air navigation agreements*

8. ATIS for arriving aircraft

ATIS messages containing arrival information only must contain the following elements of information in the order listed:

(a) name of aerodrome;

(b) arrival indicator;

(c) contract type, if communication is via D-ATIS;

(d) designator;

(e) time of observation, if appropriate;

(f) type of approach(es) to be expected;

(g) main landing runway(s); status of arresting system constituting a potential hazard, if any;

(h) significant runway surface conditions and, if appropriate, braking action;

(i) holding delay, if appropriate;

(j) transition level, if applicable;

(k) other essential operational information;

(l) surface wind direction (in degrees magnetic) and speed, including significant variations and, if surface wind sensors related specifically to the sections of runway(s) in use are available and the information is required by operators, the indication of the runway and the section of the runway to which the information refers;

(m) visibility and, when applicable, RVR and, if visibility/RVR sensors related specifically to the sections of runway(s) in use are available and the information is required by operators, the indication of the runway and the section of the runway to which the information refers;

(n) present weather;

(o) cloud below 1 500 m (5 000 ft) or below the highest minimum sector altitude, whichever is greater; cumulonimbus; if the sky is obscured, vertical visibility when available;

(p) air temperature;

(q) dew point temperature;

(r) altimeter setting(s);

(s) any available information on significant meteorological phenomena in the approach area including wind shear, and information on recent weather of operational significance;

(t) trend forecast, when available; and

(u) specific ATIS instructions

Compliance Note: *Elements in (m), (n) and (o) above are replaced by the term "CAVOK" whenever the conditions as specified in Part 11 of the Procedures for ATM document prevail.*

Compliance Note 1: *Element in (q) above will be as determined on the basis of regional air navigation agreements*

9. ATIS for departing aircraft

9.1 ATIS messages containing departure information only must contain the following elements of information in the order listed:

(a) name of aerodrome;

(b) departure indicator;

(c) contract type, if communication is via D-ATIS;

(d) designator;

(e) time of observation, if appropriate;

(f) runway(s) to be used for take-off; status of arresting system constituting a potential hazard, if any;

(g) significant surface conditions of runway(s) to be used for take-off and, if appropriate, braking action;

(h) departure delay, if appropriate;

(i) transition level, if applicable;

(j) other essential operational information;

(k) surface wind direction (in degrees magnetic) and speed, including significant variations and, if surface wind sensors related specifically to the sections of runway(s) in use are available and the information is required by operators, the indication of the runway and the section of the runway to which the information refers;

(l) visibility and, when applicable, RVR and, if visibility/RVR sensors related specifically to the sections of runway(s) in use are available and the information is required by operators, the indication of the runway and the section of the runway to which the information refers;

(m) present weather;

(n) cloud below 1 500 m (5 000 ft) or below the highest minimum sector altitude, whichever is greater; cumulonimbus; if the sky is obscured, vertical visibility when available;

(o) air temperature;

(p) dew point temperature;

(q) altimeter setting(s);

(r) any available information on significant meteorological phenomena in the climb out area including wind shear;

(s) trend forecast, when available; and

(t) specific ATIS instructions.

Compliance Note: *Elements in (l), (m) and (n) above are replaced by the term "CAVOK" whenever the conditions as specified in Part 11 of the Procedures for ATM document prevail.*

Compliance Note 1: *Element in (p) above will be as determined on the basis of regional air navigation agreements*

172.06.4 VOLMET BROADCASTS AND D-VOLMET SERVICE

1.1 HF and/or VHF VOLMET broadcasts and/or D-VOLMET service must be provided when it has been determined by regional air navigation agreements that a requirement exists.

Compliance Note: *NAMCAR/NAMCATS Part 174 provide details of VOLMET broadcasts and DVOLMET service.*

1.2 VOLMET broadcasts must use standard radiotelephony phraseologies.

Compliance Note*: Guidance on standard radiotelephony phraseologies to be used in VOLMET broadcasts is given in the Manual on Coordination between Air Traffic Services, Aeronautical Information Services and Aeronautical Meteorological Services (Doc 9377), Appendix 1.*

172. 07 REQUIREMENTS FOR ALERTING SERVICE

172.07.1 APPLICATION OF ALERTING SERVICE

1.1 Alerting service shall be provided:

a) for all aircraft provided with air traffic control service;

b) in so far as practicable, to all other aircraft having filed a flight plan or otherwise known to the air traffic services; and

c) to any aircraft known or believed to be the subject of unlawful interference.

1.2 Flight information centres or area control centres must serve as the central point for collecting all information relevant to a state of emergency of an aircraft operating within the flight information region or control area concerned and for forwarding such information to the appropriate Rescue Coordination Centre (RCC).

1.3 In the event of a state of emergency arising to an aircraft while it is under the control of an aerodrome control tower or approach control unit, such unit shall notify immediately the flight information centre or area control centre responsible which shall in turn notify the rescue coordination centre, except that notification of the area control centre, flight information centre, or rescue coordination centre

shall not be required when the nature of the emergency is such that the notification would be superfluous.

1.3 Nevertheless, whenever the urgency of the situation so requires, the aerodrome control tower or approach control unit responsible shall first alert and take other necessary steps to set in motion all appropriate local rescue and emergency organizations which can give the immediate assistance required.

1.4 Each ATS provider must stipulate who has the overall responsibility for the provision of alerting service and whom to notify and publish details in its manual of procedures.

172.07.2 NOTIFICATION OF RESCUE COORDINATION CENTRE (RCC)

1.1 Without prejudice to any other circumstances that may render such notification advisable, ATS units must, except as prescribed in 3 below, notify RCC immediately when an aircraft is considered to be in a state of emergency in accordance with the following:

(a) **UNCERTAINTY PHASE (INCERFA)** when:

(i) no communication has been received from an aircraft within a period of thirty minutes after the time a communication should have been received, or from the time an unsuccessful attempt to establish communication with such aircraft was first made, whichever is the earlier; or when

(ii) an aircraft fails to arrive within thirty minutes of the estimated time of arrival last notified to or estimated by ATS units, whichever is the later,

except when no doubt exists as to the safety of the aircraft and its occupants.

(b) **ALERT PHASE (ALERFA)** when:

(i) following the uncertainty phase, subsequent attempts to establish communication with the aircraft or inquiries to other relevant sources have failed to reveal any news of the aircraft; or when

(ii) an aircraft has been cleared to land and fails to land within five minutes of the estimated time of landing and communication has not been re-established with the aircraft; or when

(iii) information has been received which indicates that the operating efficiency of the aircraft has been impaired, but not to the extent that a forced landing is likely,

except when evidence exists that would allay apprehension as to the safety of the aircraft and its occupants; or when

(iv) an aircraft is known or believed to be the subject of unlawful interference.

(c) **DISTRESS PHASE (DETRESFA)** when:

(i) Following the alert phase, further unsuccessful attempts to establish communication with the aircraft and more widespread unsuccessful inquiries point to the probability that the aircraft is in distress; or when

(ii) the fuel on board is considered to be exhausted, or to be insufficient to enable the aircraft to reach safety; or when

(iii) information is received which indicates that the operating efficiency of the aircraft has been impaired to the extent that a forced landing is likely; or when

(iv) information is received or it is reasonably certain that the aircraft is about to make or has made a forced landing,

except when there is reasonable certainty that the aircraft and its occupants are not threatened by grave and imminent danger and do not require immediate assistance.

1.2 The notification must contain such of the following information as is available in the order listed:

(a) INCERFA, ALERFA or DETRESFA, as appropriate to the phase of the emergency;

(b) agency and person calling;

(c) nature of the emergency;

(d) significant information from the flight plan;

(e) unit which made last contact, time and means used;

(f) last position report and how determined;

(g) colour and distinctive marks of aircraft;

(h) dangerous goods carried as cargo;

(i) any action taken by reporting office; and

(j) other pertinent remarks.

1.3 Such part of the information specified in 1.2, which is not available at the time notification is made to a rescue coordination centre, may be sought by an air traffic services unit prior to the declaration of a distress phase, if there is reasonable certainty that this phase will eventuate.

1.4 Further to the notification in 1.1, the RCC must, without delay, be furnished with:

(a) any useful additional information, especially on the development of the state of emergency through subsequent phases; or

(b) information that the emergency situation no longer exists.

Compliance Note. *The cancellation of action initiated by the rescue coordination centre is the responsibility of that centre.*

172.07.3 USE OF COMMUNICATION FACILITIES

1.1 Air traffic services units must, as necessary, use all available communication facilities to endeavour to establish and maintain communication with an aircraft in a state of emergency, and to request news of the aircraft.

172.07.4 PLOTTING AIRCRAFT IN A STATE OF EMERGENCY

1.1 When a state of emergency is considered to exist, the flight of the aircraft involved must be plotted on a chart in order to determine the probable future position of the aircraft and its maximum range of action from its last known position.

1.2 The flights of other aircraft known to be operating in the vicinity of the aircraft involved must also be plotted in order to determine their probable future positions and maximum endurance.

1.6 The progress of an aircraft in emergency that is under ATS surveillance must be monitored and may whenever possible, be plotted on the situation display until the aircraft passes out of coverage of the ATS surveillance system.

1.7 The air traffic service unit must provide position information to all ATS units which may be able to give assistance to the aircraft.

172.07.5 INFORMATION TO THE OPERATOR OF AN AIRCRAFT IN EMERGENCY

5.1 When an area control centre or flight information centre decides that an aircraft is in the uncertainty or the alert phase, it must, when practicable, advise the operator prior to notifying the RCC.

***Compliance Note**: If an aircraft is in the distress phase, the rescue coordination centre has to be notified immediately in accordance with 1.1.*

5.2 An area control or a flight information centre must notify the rescue coordination centre immediately, if an aircraft is in the distress phase.

5.3 All information notified to the RCC by an area control centre or flight information centre must, whenever practicable, also be communicated, without delay, to the operator.

172.07.6 INFORMATION TO AIRCRAFT OPERATING IN THE VICINITY OF AN AIRCRAFT IN A STATE OF EMERGENCY

1.1 An air traffic services unit, having established that an aircraft is in a state of emergency must except as provided in 1.2 below, inform other aircraft known to be in the vicinity of the aircraft involved, of the nature of the emergency as soon as practicable.

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

172.07.7 HANDLING AND REPORTING ACCIDENTS AND INCIDENTS

1. General

1.1 An ATS provider must publish procedures in its ATC procedures manual, to be followed by all ATS units concerning-

(a) reporting of any incident or accident.

(b) coordination procedures for adjacent ATS units that might be affected by the incident/accident.

1.2 An ATS provider must provide all ATS units with appropriate incident/accident report forms. In the event of an incident or accident these must be completed as early as practical and forwarded according to published reporting procedures.

1.3 Reportable occurrences as described in sub-section 2 below cannot be exhaustive and any occurrences determined to be of hazardous nature must also be reported. The occurrences described do not include accidents and incidents covered under the accident/incident investigation regulations. The contents herein must not preclude the reporting of any occurrences, situations or condition which, if

repeated in different but likely circumstances or are allowed to continue uncorrected, could create a hazard to air traffic management.

2. Reportable Occurrences

2.1 Near Collisions

2.1.1 Near collision incidents encompassing specific situations where one aircraft and another aircraft/the ground/a vehicle/person or objects are perceived to be too close to each other including:

(a) Separation minima infringement;

(b) Inadequate separation;

(c) "Near-CFIT" (near-controlled flight into terrain);

(d) Runway incursion where avoiding action was necessary.

2.2 Potential for collision or near collision

2.2.1 Potential for collision or near collision encompassing specific situations having the potential to be an accident or a near collision, if another aircraft is in the vicinity including:

(a) Runway incursion where no avoiding action is necessary;

(b) Runway excursion;

(c) Aircraft deviation from ATC clearance;

(d) Aircraft deviation from applicable "ATM" (air traffic management) regulation:

(i) Aircraft deviation from applicable published regulations and ATM procedures;

(ii) Unauthorised penetration of airspace;

(iii) Deviation from ATM-related aircraft equipment carriage and operations, as mandated by Part 91.

2.3 ATM specific occurrences

2.3.1 ATM-specific occurrences encompassing those situations where the ability to provide safe ATM services is affected, including situations where, the safe operation of aircraft has not been jeopardized. This must include the following occurrences:

(e) Inability to provide ATM services:

(i) Inability to provide air traffic services;

(ii) Inability to provide airspace management services; or

(iii) Inability to provide air traffic flow management services.

(b) Provision of significantly incorrect, inadequate or misleading information from any ground sources, e.g. ATC, "ATIS" (automatic terminal information service), meteorological services, navigation databases, maps, charts, manuals, etc.

(c) Provision of less than prescribed terrain clearance.

(d) Provision of incorrect pressure reference data (i.e. altimeter setting).

(e) Incorrect transmission, receipt or interpretation of significant messages when this results in a hazardous situation.

(f) Separation minima infringement.

(g) Unlawful radio communication transmission.

(h) Failure of ANS ground or satellite facilities.

(i) Failure of data processing and distribution function;

(j) Failure of navigation aids; or

(k) ATM system security.

2.4 ATC surveillance and communication malfunctions or failures

(a) Significant malfunction or deterioration of service.

(b) Failure or unplanned shutdown of a major operational ATC computer system, requiring reversion to manual back-up and resulting in disruption to the normal flow of air traffic.

2.5 Aerodrome hazards

(a) Significant deterioration of aerodrome infrastructure.

(b) Aerodrome manoeuvring areas obstructed by aircraft, vehicles, animals or foreign objects, resulting in a hazardous or potentially hazardous situation.

(c) Errors or inadequacies in marking of obstructions or hazards on aerodrome movement areas resulting in a hazardous situation.

(d) Failure, significant malfunction or unavailability of airfield lighting.

2.6 Suspected Problematic Use of Psychoactive Substances

2.6.1 Where the safety of an aircraft was or could have been endangered by impairment of any member of ground staff (e.g. ATS personnel, vehicle operators, etc.).

172.08 AIR TRAFFIC SERVICES REQUIREMENTS FOR COMMUNICATION

172.08.1 AERONAUTICAL MOBILE SERVICE (AIR-GROUND COMMUNICATION)

1. General

1.1 Radiotelephony and/or data link must be used in air-ground communications for air traffic services purposes.

Compliance Note. *Requirements for ATS units to be provided with and to maintain guard on the emergency channel 121.5 MHz are specified in NAMCAT/NAMCSTS Part 171.*

1.2 Where an RCP specification has been prescribed for performance-based communication, ATS units must, in addition to the requirements specified in 1.1, be provided with communication equipment which will enable them to provide ATS in accordance with the prescribed RCP specification(s).

Compliance Note*: Information on the performance-based communication and surveillance (PBCS) concept and guidance material on its implementation are contained in the Performance-based Communication and Surveillance (PBCS) Manual (Doc 9869).*

1.3 When direct pilot-controller two-way radiotelephony or data link communications are used for the provision of air traffic control service, recording facilities must be provided on all such air-ground communication channels.

Note. Requirements for retention of all automatic recordings of communications in ATC are specified in NAMCAR/NAMCATS Part 171.

1.4 The ATS provider must comply with the requirements for retention of all automatic recordings of communications in ATC as specified in NAMCAR/NAMCATS Part 171.

1.5 Recordings of communications channels as required in paragraph 1.3 must be retained for a period of 90 days.

2. For flight information service

2.1 Air-ground communication facilities must enable two-way communications to take place between a unit providing flight information service and appropriately equipped aircraft flying anywhere within the flight information region.

2.2 Whenever practicable, air-ground communication facilities for flight information service must permit direct, rapid, continuous and static-free two-way communication.

3. For area control centre

3.1 Air-ground communication facilities must enable two-way communications to take place between a unit providing area control service and appropriately equipped aircraft flying anywhere within the control area(s).

3.2 Whenever practicable, air-ground communication facilities for area control service must permit direct, rapid, continuous and static-free two-way communications.

3.3 Where air-ground voice communication channels are used for area control service and are worked by air-ground communicators, suitable arrangements must be made to permit direct pilot-controller voice communications, as and when required.

4. For approach control service

4.1 Air-ground communication facilities must enable direct, rapid, continuous and static-free two-way communications to take place between the unit providing approach control service and appropriately equipped aircraft under its control.

4.2 Where the unit providing approach control service functions as a separate unit, air-ground communications must be conducted over communication channels provided for its exclusive use.

5. For aerodrome control service.

5.1 Air-ground communication facilities must enable direct, rapid, continuous and static-free two-way communications to take place between an aerodrome control tower and appropriately equipped aircraft operating at any distance within 45 km (25 NM) of the aerodrome concerned.

5.2 Where conditions warrant, separate communication channels must be provided for the control of traffic operating on the manoeuvring area.

172.08.2 AERONAUTICAL FIXED SERVICE (GROUND-GROUND COMMUNICATION)

1. General

1.1 Direct speech and/or data link communications must be used in ground-ground communications for air traffic services purposes.

Compliance Note 1: *Indication by time of the speed with which the communication should be established is provided as a guide to communication services, particularly to determine the types of communication channels required, e.g. that "instantaneous" is intended to refer to communications which effectively provide for immediate access between controllers; "fifteen seconds" to accept switchboard operation and "five minutes" to mean methods involving retransmission.*

Compliance Note 2: *Requirements for retention of all automatic recordings of communications in ATC are specified in NAMCAR/NAMCATS Part 171.*

1.2 The appropriate air traffic services authority must develop procedures for retention of all automated recordings of communications in ATC in accordance with NAM-CAR Part 171.

2. Communication within the flight information region

2.1 Communication between air traffic service units

2.1.1 A flight information centre must have facilities for communications with the following units providing a service within its area of responsibility:

(a) the area control centre, unless collocated;

(b) approach control units

(c) aerodrome control towers

2.1.2 An area control centre, in addition to being connected to the flight information centre as prescribed in 2.1.1, must have facilities for communications with the following units providing a service within its area of responsibility:

(a) approach control units;

(b) aerodrome control towers;

(c) air traffic services reporting offices, when separately established.

2.1.3 An approach control unit, in addition to being connected to the flight information centre and the area control centre as prescribed in 2.1.1 and 2.1.2, must have facilities for communications with the associated aerodrome control tower(s) and, when separately established, the associated air traffic services reporting office(s).

2.1.4 An aerodrome control tower, in addition to being connected to the flight information centre, the area control centre and the approach control unit as prescribed in 2.1.1, 2.1.2 and 2.1.3, must have facilities for communications with the associated air traffic services reporting office, when separately established.

2.2 Communication between air traffic services and other units

2.2.1 A flight information centre and an area control centre must have facilities for communications with the following units providing a service within their respective area of responsibility:

(a) appropriate military units;

(b) the meteorological office serving the centre;

(c) the aeronautical telecommunications station serving the centre;

(d) appropriate operator's offices;

(e) the rescue coordination centre or, in the absence of such centre, any other appropriate emergency service;

(f) the international NOTAM office serving the centre.

2.2.2 An approach control unit and an aerodrome control tower must have facilities for communications with the following units providing a service within their respective area of responsibility:

(a) appropriate military units

(b) rescue and emergency services (including ambulance, fire, etc.);

(c) the meteorological office serving the unit concerned;

(d) the aeronautical telecommunications station serving the unit concerned;

(e) the unit providing apron management service, when separately established.

2.2.3 The communication facilities required under 2.2.1 a) and 2.2.2 a) must include provisions for rapid and reliable communications between the air traffic services unit concerned and the military unit(s) responsible for control of interception operations within the area of responsibility of the air traffic services unit.

2.3 Description of communication facilities

2.3.1 The communication facilities required under 2.1, 2.2.1 a) and 2.2.2 a), b) and c) must include provisions for:

(a) communications by direct speech alone, or in combination with data link communications, whereby for the purpose of transfer of control using radar or ADS-B, the communications can be established instantaneously and for other purposes the communications can normally be established within fifteen seconds; and

(b) printed communications, when a written record is required; the message transit time for such communications being no longer than five minutes.

2.3.2 In all cases not covered by 2.3.1, the communication facilities must include provisions for:

(a) communications by direct speech alone, or in combination with data link communications, whereby the communications can normally be established within fifteen seconds; and

(b) printed communications, when a written record is required; the message transit time for such communications being no longer than five minutes.

2.3.3 In all cases where automatic transfer of data to and/or from air traffic services computers is required, suitable facilities for automatic recording must be provided.

2.3.4 The communication facilities required in accordance with 2.1 and 2.2 must be supplemented, as and where necessary, by facilities for other forms of visual or audio communications, for example, closed circuit television or separate information processing systems.

2.3.5 The communication facilities required under 2.2.2 a), b) and c) must include provisions for communications by direct speech arranged for conference communications.

2.3.6 The communication facilities required under 2.2.2 d) must include provisions for communications by direct speech arranged for conference communications, whereby the communications can normally be established within fifteen seconds.

2.3.7 All facilities for direct-speech or data link communications between air traffic services units and between air traffic services units and other units described under 2.2.1 and 2.2.2 must be provided with automatic recording.

2.3.8 Recordings of data and communications as required in 2.3.3 and 2.3.7 must be retained for a period of at least thirty days.

3. Communications between the flight information region and other flight information regions

3.1 The Flight information centre and area control centre must have facilities for communications with all adjacent flight information centres and area control centres.

3.1.1 These communication facilities must in all cases include provisions for messages in a form suitable for retention as a permanent record, and delivery in accordance with transit times specified by regional air navigation agreements.

3.1.2 Unless otherwise prescribed on the basis of regional air navigation agreements, facilities for communications between area control centres serving contiguous control areas must, in addition, include provisions for direct speech and, where applicable, data link communications, with automatic recording, whereby for the purpose of transfer of control using radar, ADS-B or ADS-C data, the communications can be established instantaneously and for other purposes the communications can normally be established within fifteen seconds.

3.1.3 When so required by agreement between Namibia and other neighbouring States in order to eliminate or reduce the need for interceptions in the event of deviations from assigned track, facilities for communications between the flight information centre or area control centre with adjacent flight information centres or area control centres other than those mentioned in 3.1.2 must include provisions for direct speech alone, or in combination with data link communications. The communication facilities must be provided with automatic recording.

3.1.4 The communication facilities in 3.1.3 above may where possible permit communications to be established normally within fifteen seconds.

3.2 Adjacent ATS units may be connected in all cases where special circumstances exist.

***Compliance Note**. Special circumstances may be due to traffic density, types of aircraft operations and/or the manner in which the airspace is organized and may exist even if the control areas and/or control zones are not contiguous or have not (yet) been established.*

3.3 Wherever local conditions are such that it is necessary to clear aircraft into an adjacent control area prior to departure, an approach control unit and/or aerodrome control tower may be connected with the area control centre serving the adjacent area.

3.4 The communication facilities in 3.2 and 3.3 above may include provisions for communications by direct speech alone, or in combination with data link communications, with automatic recording, whereby for the purpose of transfer of control using radar, ADS-B or ADS-C data, the communications can be

established instantaneously and for other purposes the communications can normally be established within fifteen seconds.

3.5 In all cases where automatic exchange of data between air traffic services computers is required, suitable facilities for automatic recording shall be provided.

3.6 Recordings of data and communications as required in 3.5 must be retained for a period of at least thirty days.

4. Procedures for direct-speech communications

1.1 The ATS provider must develop appropriate procedures for direct-speech communications to permit immediate connections to be made for very urgent calls concerning the safety of aircraft, and the interruption, if necessary, of less urgent calls in progress at the time.

172.08.3 SURFACE MOVEMENT CONTROL SERVICE

1. Communications for the control of vehicles on manoeuvring areas at controlled aerodromes

1.1 Two-way radiotelephony communication facilities must be provided for aerodrome control service for the control of vehicles on the manoeuvring area, except where communication by a system of visual signals is deemed to be adequate.

1.2 Where conditions warrant, separate communication channels must be provided for the control of vehicles on the manoeuvring area. Automatic recording facilities must be provided on all such channels.

1.3 Recordings of communications as required in sub-regulation 1.2 above must be retained for a period of at least thirty days.

172.08.4 AERONAUTICAL RADIO NAVIGATION SERVICE

1. Automatic recording of surveillance data

1.1 Surveillance data from primary and secondary radar equipment or other systems (e.g. ADS-B, ADS-C), used as an aid to air traffic services, must be automatically recorded for use in accident and incident investigations, search and rescue, air traffic control and surveillance systems evaluation and training.

1.3 Automatic recordings must be retained for a period of at least thirty days. When the recordings are pertinent to accident and incident investigations, they shall be retained for longer periods until it is evident that they will no longer be required.

172.09 AIR TRAFFIC SERVICE REQUIREMENTS FOR INFORMATION

172.09.1 METEOROLOGICAL INFORMATION

1. General

1.1 Air traffic services units must be supplied with up-to-date information on existing and forecast meteorological conditions as necessary for the performance of their respective functions. The information must be supplied in such a form as to require a minimum of interpretation on the part of air traffic services personnel and with a frequency which satisfies the requirements of the air traffic services units concerned.

1.2 Air traffic services units may be supplied with available detailed information on the location, vertical extent, direction and rate of movement of meteorological phenomena in the vicinity of the aerodrome, and particularly in the climb-out and approach areas, which could be hazardous to aircraft operations.

1.3 The meteorological phenomena referred to in 1.2 must include the available supplementary information concerning significant meteorological conditions, particularly those in the approach and climb-out areas. Where practicable, the information must identify the location of the meteorological condition.

1.4 When computer-processed upper air data are made available to air traffic services units in digital form for use by air traffic services computers, the contents, format and transmission arrangements must be as agreed between the Meteorological Authority and the appropriate ATS Authority.

2. Flight information centres and area control centres

2.1 Flight information centres and area control centres must be supplied with meteorological information as described in 2.2 below, particular emphasis being given to the occurrence or expected occurrence of weather deterioration as soon as this can be determined. These reports and forecasts must cover the flight information region or control area and such other areas as may be determined on the basis of regional air navigation agreements.

***Compliance Note**: For the purpose of this provision, certain changes in meteorological conditions are construed as deterioration in a weather element, although they are not ordinarily considered as such. An increase in temperature may, for example, adversely affect the operation of certain types of aircraft.*

2.2 The following meteorological information must be supplied to a flight information centre or area control centre by its associated aerodrome meteorological office:

(a) METAR and SPECI, including current pressure data for aerodromes and other locations, TAF and trend forecasts and amendments thereto, covering the flight information region or the control area and, if required by the flight information centre or area control centre, covering aerodromes in neighbouring flight information regions, as determined by regional air navigation agreement;

(b) forecasts of upper winds, upper-air temperatures and significant en-route weather phenomena and amendments thereto, particularly those which are likely to make operation under visual flight rules impracticable, SIGMET and AIRMET information and appropriate special air-reports for the flight information region or control area and, if determined by regional air navigation agreement and required by the flight information centre or area control centre, for neighbouring flight information regions;

(c) any other meteorological information required by the flight information centre or area control centre to meet requests from aircraft in flight; if the information requested is not available in the associated meteorological watch office, that office must request the assistance of another meteorological office in supplying it;

(d) information received on volcanic ash cloud, for which a SIGMET has not already been issued, as agreed between the meteorological and ATS authorities concerned;

(e) information received concerning the release of radioactive material into the atmosphere, as agreed between the meteorological and ATS authorities concerned;

(f) tropical cyclone advisory information issued by a TCAC in its area of responsibility;

(g) volcanic ash advisory information issued by a VAAC in its area of responsibility; and

(h) information received on pre-eruption volcanic activity and/or a volcanic eruption as agreed between the meteorological and ATS authorities concerned.

Compliance Note: For the purpose of this provision, certain changes in meteorological conditions are construed as deterioration in a weather element, although they are not ordinarily considered as such. An increase in temperature may, for example, adversely affect the operation of certain types of aircraft.

2.3 Flight information centre and area control centre must be provided, at suitable intervals, with current pressure data for setting altimeters, for locations specified by the flight information centre or area control centre concerned.

3. Units providing approach control service

3.1 Units providing approach control service must be supplied with meteorological information as described in 3.2 below for the airspace and the aerodromes with which they are concerned. Special reports and amendments to forecasts must be communicated to the units providing approach control service as soon as they are necessary in accordance with established criteria, without waiting for the next routine report or forecast. Where multiple anemometers are used, the indicators to which they are related must be clearly marked to identify the runway and section of the runway monitored by each anemometer.

3.2 The following meteorological information must be supplied, as necessary, to an approach control unit by its associated aerodrome meteorological office:

(a) local routine and special reports, METAR and SPECI, TAF and trend forecasts and amendments thereto, for the aerodrome(s) with which the approach control unit is concerned;

(b) SIGMET and AIRMET information, wind shear warnings and alerts and appropriate special air-reports for the airspace with which the approach control unit is concerned and aerodrome warnings;

(c) any additional meteorological information agreed upon locally;

(d) information received on volcanic ash cloud, for which a SIGMET has not already been issued, as agreed between the meteorological and ATS authorities concerned; and

(e) information received on pre-eruption volcanic activity and/or a volcanic eruption as agreed between the meteorological and ATS authorities concerned.

3.3 Units providing approach control service must be provided with current pressure data for setting altimeters, for locations specified by the unit providing approach control service.

3.4 Units providing approach control service for final approach, landing and take-off must be equipped with surface wind display(s). The display(s) must be related to the same location(s) of observation and

be fed from the same sensor(s) as the corresponding display(s) in the aerodrome control tower and in the meteorological station, where such a station exists.

3.5 Units providing approach control service for final approach, landing and take-off at aerodromes where runway visual range values are assessed by instrumental means must be equipped with display(s) permitting read-out of the current runway visual range value(s). The display(s) must be related to the same location(s) of observation and be fed from the same sensor(s) as the corresponding displays in the aerodrome control tower and in the meteorological station, where such a station exists.

3.6 Units providing approach control service for final approach, landing and take-off at aerodromes where the height of cloud base is assessed by instrumental means may be equipped with display(s) permitting read-out of the current value(s) of the height of cloud base. The displays must be related to the same location(s) of observations and be fed from the same sensor(s) as the corresponding display(s) in the aerodrome control tower and in the meteorological station, where such a station exists.

3.7 Units providing approach control service for final approach, landing and take-off must be supplied with information on wind shear which could adversely affect aircraft on the approach or take-off paths or during circling approach.

***Compliance Note**: Provisions concerning the issuance of wind shear warnings and alerts and ATS requirements for meteorological information are given in Appendices 6 and 9 of NAMCATS Part 174.*

4. Aerodrome control towers

4.1 Aerodrome control towers must be supplied with meteorological information as described in 4.2 below for the aerodrome with which they are concerned. Special reports and amendments to forecasts must be communicated to the aerodrome control towers as soon as they are necessary in accordance with established criteria, without waiting for the next routine report or forecast.

4.2 The following meteorological information must be supplied, as necessary, to an aerodrome control tower by its associated aerodrome meteorological office:

(a) local routine and special reports, METAR and SPECI, TAF and trend forecasts and amendments thereto, for the aerodrome concerned;

(b) SIGMET and AIRMET information, wind shear warnings and alerts and aerodrome warnings;

(c) any additional meteorological information agreed upon locally, such as forecasts of surface wind for the determination of possible runway changes;

(d) information received on volcanic ash cloud, for which a SIGMET has not already been issued, as agreed between the meteorological and ATS authorities concerned; and

(e) information received on pre-eruption volcanic activity and/or a volcanic eruption as agreed between the meteorological and ATS authorities concerned.

4.3 Aerodrome control towers must be provided with current pressure data for setting altimeters for the aerodrome concerned.

4.4 Aerodrome control towers must be equipped with surface wind display(s). The display(s) must be related to the same location(s) of observation and be fed from the same sensor(s) as the corresponding display(s) in the meteorological station, where such a station exists. Where multiple sensor(s) are used, the displays to which they are related must be clearly marked to identify the runway and section of the runway monitored by each sensor.

4.5 Aerodrome control towers at aerodromes where runway visual range values are measured by instrumental means must be equipped with display(s) permitting read-out of the current runway visual range value(s). The display(s) must be related to the same location(s) of observation and be fed from the same sensor(s) as the corresponding display(s) in the meteorological station, where such a station exists.

4.6 Aerodrome control towers at aerodromes where the height of cloud base is assessed by instrumental means may be equipped with display(s) permitting read-out of the current value(s) of the height of cloud base. The displays must be related to the same location(s) of observations and be fed from the same sensor(s) as the corresponding display(s) in the meteorological station, where such a station exists.

4.7 Aerodrome control towers must be supplied with information on wind shear which could adversely affect aircraft on the approach or take-off paths or during circling approach and aircraft on the runway during the landing roll or take-off run.

4.8 Aerodrome control towers and/or other appropriate units may be supplied with aerodrome warnings.

4.9 The meteorological conditions for which aerodrome warnings are issued are listed below:

(a) tropical cyclone (to be included if the 10-minute mean surface wind speed at the aerodrome is expected to be 17 m/s (34 kt) or more)
(b) thunderstorm
(c) hail
(d) freezing precipitation
(e) hoar frost or rime
(f) sandstorm
(g) dust storm
(h) rising sand or dust
(i) strong surface wind and gusts
(j) squall
(k) frost
(l) volcanic ash
(m) tsunami (*Note. Aerodrome warnings related to the occurrence or expected occurrence of tsunami are not required where a national public safety plan for tsunami is integrated with the "at risk" aerodrome concerned)*
(n) volcanic ash deposition
(o) toxic chemicals
(p) other phenomena as agreed locally

5. Communication stations

Where necessary for flight information purposes, current meteorological reports and forecasts must be supplied to communication stations. A copy of such information must be forwarded to the flight information centre or the area control centre.

172.09.2 INFORMATION ON AERODROME CONDITIONS AND THE OPERATIONAL STATUS OF ASSOCIATED FACILITIES

1.1 Aerodrome control tower and units providing approach control service must be kept currently informed of the operationally significant conditions of the movement area, including the existence of temporary hazards, and the operational status of any associated facilities at the aerodrome(s) with which they are concerned.

1.2 Aerodrome conditions that are significant to the safe operation of aircraft at an aerodrome are listed in Part 7 of the Procedures for ATM document.

172.09.3 INFORMATION ON THE OPERATIONAL STATUS OF NAVIGATION SERVICES

1.1 ATS units must be kept currently informed of the operational status of radio navigation services and visual aids essential for take-off, departure, approach and landing procedures within their area of responsibility and those radio navigation services and visual aids essential for surface movement.

1.2 Information on the operational status, and changes thereto, of radio navigation services and visual aids referred to in sub-regulation 1.1 must be provided to ATS on a timely basis consistent with the use of the service(s) and aid(s) involved.

1.3 ATS units must be provided with up-to-date information on the operational status of those non-visual and visual aids which are essential to the departure, approach and landing phases of flight. This information must include information on any failure or malfunction of such aids or any degradation of their operational status on a timely basis.

1.4 The information to be provided to the various ATS units must be as follows:

a) An approach control service employing standard instrument arrival procedures –
   (i) the non-visual aids which define those procedures;
   (ii) the operational status of non-visual aids used for initial and intermediate phases of instrument
   (iii) approach procedures for the aerodrome(s) for which it has responsibility;
   (iv) the operational status of visual and non-visual aids used for the final approach and landing phases of instrument approach procedures for the aerodrome(s) for which it has responsibility;
   (v) the operational status of visual and non-visual aids used for initial track guidance at and immediately following take-off, and those navigation aids used for turning points for instrument departure procedures.

b) An aerodrome control tower requires information on the operational status of visual and non-visual aids used for approach, landing and take-off at the aerodrome with which it is concerned.

c) An area control centre which provides clearances to aircraft executing instrument approach procedures and/or instrument departure procedures at aerodromes for which there is no other established ATC unit providing approach control service requires information on the operational status of visual and non-visual aids used for approach, landing, take-off and initial climb at such aerodromes.

d) A flight information centre requires information on the operational status of visual and non-visual aids used for approach, landing and take-off at aerodromes within its areas of responsibility for which there is no established ATC unit providing approach control service.

***Compliance Note**. Specifications for monitoring visual aids are contained in NAMCAR/NAMCATS Part 174 and related guidance material is in the Aerodrome Design Manual (Doc 9157), Part 5. Specifications for monitoring non-visual aids are contained in NAMCAR/NAMCATS Part 171.*

172.09.4 INFORMATION ON UNMANNED FREE BALLOONS

1.1 Operators of unmanned free balloons must keep the appropriate air traffic services units informed of details of flights of unmanned free balloons.

1.2 Early notification of the intended flight of an unmanned free balloon in the medium or heavy category must be made to the appropriate air traffic services unit not less than seven days before the date of the intended flight.

1.3 Notification of the intended flight must include such of the following information as may be required by the appropriate air traffic services unit:

a) balloon flight identification or project code name;
b) balloon classification and description;
c) SSR code, aircraft address or frequency, as applicable;
d) operator's name and telephone number;
e) launch site;
f) estimated time of launch (or time of commencement and completion of multiple launches);
g) number of balloons to be launched and the scheduled interval between launches (if multiple launches);
h) expected direction of ascent;
i) cruising level(s) (pressure-altitude);
j) the estimated elapsed time to pass 18 000 m (60 000 ft) pressure-altitude or to reach cruising level if at or below 18 000 m (60 000 ft), together with the estimated location;

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

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

Compliance Note. If there is to be more than one location of impact/recovery, each location is to be listed together with the appropriate estimated time of impact. If there is to be a series of continuous impacts, the time to be included is the estimated time of the first and the last in the series (e.g. 070330Z–072300Z).

1.4 Any changes in the pre-launch information notified in accordance with 1.3 above must be forwarded to the air traffic services unit concerned not less than 6 hours before the estimated time of launch, or in the case of solar or cosmic disturbance investigations involving a critical time element, not less than 30 minutes before the estimated time of the commencement of the operation.

1.5 Immediately after a medium or heavy unmanned free balloon is launched the operator must notify the appropriate air traffic services unit of the following:

a) balloon flight identification;
b) launch site;
c) actual time of launch;
d) estimated time at which 18 000 m (60 000 ft) pressure-altitude will be passed, or the estimated time at which the cruising level will be reached if at or below 18 000 m (60 000 ft), and the estimated location; and
e) any changes to the information previously notified in accordance with 1.3 g) and h).

1.6 The operator must notify the appropriate air traffic services unit immediately when it is known that the intended flight of a medium or heavy unmanned free balloon, previously notified has been cancelled.

1.7 The operator of a heavy unmanned free balloon operating at or below 18 000 m (60 000 ft) pressure-altitude must monitor the flight path of the balloon and forward reports of the balloon's position as requested by air traffic services. Unless air traffic services require reports of the balloon's position at more frequent intervals, the operator must record the position every 2 hours.

1.8 The operator of a heavy unmanned free balloon operating above 18 000 m (60 000 ft) pressure-altitude must monitor the flight progress of the balloon and forward reports of the balloon's position as requested by air traffic services. Unless air traffic services require reports of the balloon's position at more frequent intervals, the operator must record the position every 24 hours.

1.9 If a position cannot be recorded in accordance with 1.7 and 1.8 above, the operator must immediately notify the appropriate air traffic services unit. This notification must include the last recorded position. The appropriate air traffic services unit must be notified immediately when tracking of the balloon is re-established.

1.10 One hour before the beginning of planned descent of a heavy unmanned free balloon, the operator must forward to the appropriate ATS unit the following information regarding the balloon:

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

1.10 The operator of a heavy or medium unmanned free balloon must notify the appropriate air traffic services unit when the operation is ended.

172.09.5 INFORMATION CONCERNING VOLCANIC ACTIVITY

1.1 ATS units must be informed, in accordance with local agreement, of pre-eruption volcanic activity, volcanic eruptions and volcanic ash cloud which could affect airspace used by flights within their area of responsibility.

1.2 Area control centres and flight information centres must be provided with volcanic ash advisory information issued by the associated volcanic ash advisory centre (VAAC) in accordance with the provisions of NAMCAR/NAMCATS Part 174.

1.3 VAACs are designated by regional air navigation agreements to respond to notifications on volcanic eruptions, or expected volcanic eruptions and reports on volcanic ash.

1.4 The information on pre-eruption volcanic activity, volcanic eruptions and volcanic ash cloud must be made in the form of a volcanic activity report comprising of:

a) message type, VOLCANIC ACTIVITY REPORT;
b) station identifier, location indicator or name of station;
c) date/time of message;
d) location of volcano and name if known; and
e) concise description of event including, as appropriate, level of intensity of volcanic activity, occurrence of an eruption and its date and time, and the existence of a volcanic ash cloud in the area together with direction of ash cloud movement and height.

Compliance Note. Pre-eruption volcanic activity in this context means unusual and/or increasing volcanic activity which could presage a volcanic eruption.

172.09 .6 INFORMATION CONCERNING RADIOACTIVE MATERIALS AND TOXIC CHEMICAL "CLOUDS"

1.1 ATS units must be informed, in accordance with local agreement, of the release into the atmosphere of radioactive materials or toxic chemicals which could affect airspace used by flights within their area of responsibility.

1.2 An ATS unit that is informed of the release into the atmosphere of radioactive materials or toxic chemicals must transmit this information to aircraft using one or more of the following means as determined by the ATS authority:

a) the preferred method of directed transmission on the initiative of the appropriate ATS unit to an aircraft, ensuring that receipt is acknowledged; or

b) a general call, unacknowledged transmission to all aircraft concerned; or

c) broadcast; or

d) data link.

172.10 SPECIAL PROCEDURES

172.10.1 GENERAL

1.1 The special procedures apply to any person or organisation providing air traffic services within the airspaces and at aerodromes in Namibia including airspaces over the high seas and of undetermined sovereignty for which Namibia has accepted responsibility for the provision of air traffic services.

1.2 Special procedures comprise procedures published by an ATS provider in its ATS procedures manual to provide instructions for use by air traffic controllers to manage non-standard or special situations. Such procedures where published must be as comprehensive as possible and must include all relatively frequent occurring situations.

1.3 An ATS provider must ensure that the special procedures comply with relevant regulations and standards, any other applicable rules, and directives or procedures as may be issued by the Executive Director.

172.10.2 FUEL DUMPING

1.1 An ATS provider must publish in its ATS manual for the guidance of ATS personnel the procedures to be followed during fuel dumping by aircraft.

1.2 The procedures required in 1.1 must include:

(a) procedures to be followed by the aircraft dumping fuel;

(b) suitable locations to be used by aircraft for the purpose of fuel dumping;

(c) the communication requirements for fuel dumping operations;

(d) procedures to be followed by the ATS unit concerned including the ;

(i) separation minima to be applied between an aircraft dumping fuel and other aircraft

(ii) communication of information to other ATS units; and

(iii) communication of information to other known aircraft;

***Compliance Note**: Guidance material on fuel dumping including separation, communication and information to other ATS units and other traffic is contained in Part 15 of the Procedures for ATM document.*

172.10.3 PHOTOGRAPHIC SURVEY FLIGHTS

1.1 An ATS provider must publish in its ATS manual, comprehensive instructions to be followed by the ATS personnel for aircraft carrying out photographic aerial surveys.

1.2 The ATS provider must ensure that the published procedures take into account relevant requirements in the aircraft operations regulations regarding aerial work.

172.10.4 REPETITIVE FLIGHT PLANS (RPL)

1.1 RPLs shall not be used for flights other than IFR flights operated regularly on the same day(s) of consecutive weeks and on at least ten occasions or every day over a period of at least ten consecutive days. The elements of each flight plan shall have a high degree of stability.

1.2 RPLs shall cover the entire flight from the departure aerodrome to the destination aerodrome. RPL procedures shall be applied only when all ATS authorities concerned with the flights have agreed to accept RPLs.

1.3 The use of RPLs for international flight shall be subject to the provision that the affected adjacent States either already use RPLs or will use them at the same time. The procedures for use between States shall be the subject of bilateral, multilateral or regional air navigation agreement as appropriate.

1.4 The ATS provider must develop procedures for the use of RPLs in accordance with the procedures prescribed by the Executive Director in Part 16 of the Procedures for ATM document.

172.10.5 COORDINATION IN RESPECT OF THE PROVISION OF ATC SERVICES

1.1 An ATS provider must publish in its ATS manual, standardised procedures for the coordination in respect of the provision of air traffic control service.

1.2 The procedures for coordination required in 1.1 must be in accordance with the procedures prescribed by the Executive Director in Part 10 of the Procedures for ATM document.

172.10.6 LETTERS OF AGREEMENT AND OPERATIONAL LETTERS

Compliance Note: the term "letter of agreement" is used to cover agreements between two or more adjacent ATS units or between ATS authorities of different States dealing with the manner in which ATS are to be provided by the parties concerned. The term "operations letter" is used to cover agreements between one or more ATS unit(s) on the one hand and other authorities, agencies or bodies (the military, other operators, aerodrome operators, etc.) specifying the conditions, means and procedures employed to regulate their co-operation or the conduct of specific operations affecting ATS.

1.1 An appropriate ATS authority must establish procedures for the processing of letters of agreement and operations letters to ensure that:

(a) any action required by letters of agreement is coordinated with the ATS units concerned;

(b) any necessary co-ordination with other parties concerned with an operations letter is effected;

(c) the effective date of an agreement allows for at least 30 days for familiarization after distribution by all concerned;

(d) the agreement is signed by the unit chief controller and responsible personnel of other agencies/operators involved;

(e) a copy of the agreement is provided to:

(i) the units/agencies/operators involved;

(ii) the Executive Director of ATS;

(iii) if applicable, military headquarters, offices of other administrations and Regional Offices.

1.2 Letters of agreement and operations letters must be reviewed frequently and amended or replaced as necessary to ensure conformity with current operational requirements, directives and policy. Amendments must be prepared and processed in the same manner as the original agreement. Agreements that are no longer applicable must be cancelled and all agencies that were provided copies of an agreement must be informed of its cancellation. Each agreement and all amendments thereto must be retained for a specified period of time after their cancellation.

1.3 An ATS provider must ensure that letters of agreement (LOA) between adjacent ATS units are established to aid in coordination. LOAs must describe supplementary procedures needed to minimize verbal coordination and to ensure compatibility of procedures between adjacent ATS units. LOAs between adjacent Namibian ATS units must be signed by the Managers of both affected ATS units.

1.4 An ATS unit manager, must prepare LOAs or operations letters in co-ordination with other Units, agencies or operators involved, and ensure that the LOAs or operations letters cover the following subjects:

(a) Define the purpose;

(b) define the responsibilities of each unit/agency/operator involved if responsibility is being delegated or if the division of responsibility is not already adequately defined in a manual of operations or established by policy;

(c) if a delegation of the responsibility for airspace is involved, describe the airspace and define conditions governing its use, such as use of levels, routing restrictions, limitations and/or exceptions;

(d) describe the procedures that are required to supplement those contained in the manual of operations, establish common operating practices, or resolve differences between conflicting procedures;

(e) include charts or diagrams if they will help to explain the terms of the agreement;

1.5 The format for letters of agreement must take account of the following:

(a) *Parties to the agreement*: Specify the agencies, units, authorities between which the letter is agreed;

(b) *Subject*: Define the subject of the agreement;

(c) *Effective date*: State when the agreement comes into force and, if relevant, when it expires;

(d) *Special provisions*: Include provisions regarding modification, amendment and/or cancellation of the agreement;

(e) *Status*: Indicate whether the letter supersedes, supplements or otherwise affects other previous agreements;

(f) *Attachments*: List any chart, diagram or other appendices;

(g) *Signature*: Include appropriate titles and signatures;

(h) *Ease of subsequent reference*: Assign a specific number or other identifier to each letter of agreement.

1.6 The format for operations letters may vary due to the variety of subjects which can be covered; therefore, no specific format can be prescribed; however, the provisions for letters of agreement as shown in 1.5 above must be used whenever this is possible.

1.7 LOAs involving ATS units in adjacent States must be developed and signed by the Manager of the affected ATS unit and must be signed by the respective Managers.

1.8 A copy of all LOAs of the unit must be kept as part of the ATS manual.

172.10.7 COORDINATION IN CASES OF AIRCRAFT EXPERIENCING DEGRADATION OF AREA NAVIGATION (RNAV)

1.1 In the case of automated messages not containing the information provided in Item 18 of the flight plan, the sending ATS unit must inform the receiving ATS unit by supplementing the activation message verbally with the phrase “RNAV OUT OF SERVICE” after the call sign of the aircraft concerned.

1.2 When a verbal coordination process is being used, the sending ATS unit must include the phrase “RNAV OUT OF SERVICE” at the end of the message.

172.10.8 COORDINATION IN CASES OF STATE AIRCRAFT OPERATING WITHOUT RNAV CAPABILITY

1.1 In the case of automated messages not containing the information provided in Item 18 of the flight plan, the sending ATS unit must inform the receiving ATS unit by supplementing the activation message verbally with the phrase “NEGATIVE RNAV” after the call sign of the aircraft concerned.

1.2 When a verbal coordination process is being used, the sending ATS unit must include the phrase “NEGATIVE RNAV” at the end of the message.

172.10.9 COORDINATION IN RESPECT OF THE PROVISION OF FLIGHT INFORMATION SERVICE AND ALERTING SERVICE

1.1 An ATS provider must publish in its ATS manual, standardised procedures for coordination in respect of the provision of flight information service.

1.2 The procedures for coordination required in 1.1 must be in accordance with the procedures prescribed by the Executive Director in Part 10 of the Procedures for ATM document.

172.10.10 COORDINATION IN RESPECT OF THE PROVISION OF AIR TRAFFIC ADVISORY SERVICE

1.1 An ATS provider must publish in its ATS manual, standardised procedures for coordination in respect of the provision of air traffic advisory service.

1.2 The procedures for coordination required in 1.1 must be in accordance with the procedures prescribed by the Executive Director in Part 10 of the Procedures for ATM document.

172.10.11 COORDINATION BETWEEN ATS UNIT AND AERONAUTICAL TELECOMMUNICATION STATIONS

1.1 An ATS provider must publish in its ATS manual, standardised procedures for coordination between ATS units and aeronautical telecommunication stations.

1.2 The procedures for coordination required in 1.1 must be in accordance with the procedures prescribed by the Executive Director in Part 10 of the Procedures for ATM document.

172.10.12 RADIO COMMUNICATION FAILURE

1.1 Each ATS provider must publish procedures to be followed when either an airborne or ground-based radio station appears unable to establish two-way communication. This must include expected actions by the aircraft in the event of major communication failures.

1.2 The radio communication failure procedures must be developed in accordance with the procedures prescribed by the Executive Director in Part 8 of the Procedures for ATM document.

172.10.13 DEGRADATION OF AIRCRAFT POSITION SOURCE DATA

1.1 In order to reduce the impact of a degradation of aircraft position source data (e.g. a receiver autonomous integrity monitoring (RAIM) outage for GNSS, an ATS provider must establish, and publish in the ATS procedures manual, contingency procedures to be followed by control positions and ATC units in the event of degradation.

1.2 The contingency procedures must identify the data sources covered by the procedures and must include actions to be taken following the degradation of each identified data source (this may include degradation for example, of a space-based augmentation system (SBAS) outage for a Global Navigation Satellite System (GNSS).

172.10.14 EMERGENCY DESCENT

1.1 An ATS provider must publish procedures for the guidance of ATS personnel when information is received that an aircraft is making an emergency descent through other traffic.

1.2 The procedures must be developed in accordance with the procedures prescribed by the Executive Director in Part 15 of the Procedures for ATM document.

172.10.15 OTHER ATC CONTINGENCY PROCEDURES

1.1 An ATS provider must publish procedures for the guidance of ATS personnel in handling other contingency situations including:

a) Emergency separation
b) Short-term conflict alert (STCA) procedures
c) Procedures in regard to aircraft equipped with airborne collision avoidance systems (ACAS)
d) Minimum safe altitude warning (MSAW) procedures
e) Autonomous runway incursion warning system (ARIWS
f) Change of radiotelephony call sign for aircraft

1.2 The procedures in 1.1 above must be developed in accordance with the procedures prescribed by the Executive Director in Part 15 of the Procedures for ATM document.

172.10.16 LOSS OF VERTICAL NAVIGATION PERFORMANCE REQUIRED FOR REDUCED VERTICAL SEPARATION MINIMUM (RVSM)

1. Degradation of aircraft equipment – pilot reported

1.1 When informed by the pilot of an RVSM-approved aircraft operating in the RVSM airspace that the aircraft's equipment no longer meets the RVSM requirements, the ATS unit must consider the aircraft as non- RVSM approved.

1.2 The ATS unit must take action immediately to provide a minimum vertical separation of 2000 ft or an appropriate horizontal separation from all other aircraft concerned that are operating in the RVSM airspace. An aircraft rendered non-RVSM approved must normally be cleared out of the RVSM airspace by the ATS unit when it is possible to do so.

1.3 The first ACC to become aware of a change in an aircraft's RVSM status must coordinate with adjacent ACCs, as appropriate.

2. Severe turbulence – not forecast

2.1 When an aircraft operating in RVSM airspace encounters severe turbulence due to weather or wake vortex that the pilot believes will impact the aircraft's capability to maintain its cleared flight level, ATC must establish either an appropriate horizontal separation or an increased minimum vertical separation.

2.2 ATC must, to the extent possible, accommodate pilot requests for flight level and/or route changes and must pass on traffic information as required.

2.3 ATC must solicit reports from other aircraft to determine whether RVSM should be suspended entirely or within a specific flight level band and/or area.

2.4 The ACC suspending RVSM must coordinate such suspension(s) with, and any required adjustments to sector capabilities with adjacent ACCs, as appropriate, to ensure an orderly progression to the transfer of traffic.

3. Severe turbulence – forecast

3.1 When a meteorological forecast is predicting severe turbulence, ATC must determine whether RVSM should be suspended and, if so, for how long and for which specific flight level(s) and/or area.

3.2 In cases where RVSM will be suspended, the ACC suspending RVSM must coordinate with adjacent ACCs with regard to the flight levels appropriate for the transfer of traffic, unless a contingency flight level allocation scheme has been determined by LOA. The ACC suspending RVSM must also coordinate applicable sector capabilities with adjacent ACCs as appropriate.

172.10.17 ATS MESSAGES

1. General

1.1 An ATS provider must publish in its ATC procedures manual, procedures or information with regard to transmission of ATS messages. The procedure must include the following information:

(a) Categories of messages
(b) Message composition
(c) Phonetic numbers
(d) ATS message transmitting techniques
(e) Ground station call signs
(f) Aircraft call signs
(g) Change of radiotelephony call sign for aircraft

(h) Exchange of communications

(i) Distress and Urgency Radiotelephony Communication Procedures

(j) Medical transport aircraft radio telephony communication

(k) Coordination with an Aeronautical Communication Station

(l) Unathorised use of ATC frequencies

(m) Phraseologies

2. Categories of messages

An ATS provider must detail the categories of messages that is handled by aeronautical mobile service together with a description of the individual categories. This information must be documented in the ATS manual.

3. Message composition

An ATS provider must detail the composition of messages to be handled by the aeronautical mobile and fixed services in the ATS manual.

4. Phonetic numbers

An ATS provider must list the phonetic alphabet and the pronunciation of numbers from 0 to 10 in its ATS manual.

5. ATS message transmitting techniques

An ATS provider must publish procedures for radio transmitting technique in the ATS manual.

6. Ground station call signs

An ATS provider must publish a table listing the approved ground station call signs in the ATS manual.

7. Aircraft call signs

An ATS provider must issue instructions for the use of both full, abbreviated and changed call signs in the ATS manual.

8. Change of radiotelephony (RTF) call sign for aircraft

8.1 An ATS unit may instruct an aircraft to change its type of radiotelephony (RTF) call sign, in the interests of safety, when similarity between two or more aircraft RTF call signs are such that confusion is likely to occur.

8.2 Any such change to the type of call sign must be temporary and must be applicable only within the airspace(s) where the confusion is likely to occur.

8.3 To avoid confusion, the ATS unit must, if appropriate, identify the aircraft which will be instructed to change its call sign by referring to its position and/or level.

8.4 When an ATS unit changes the type of call sign of an aircraft, that unit must ensure that the aircraft reverts to the call sign indicated by the flight plan when the aircraft is transferred to another ATS unit, except when the call sign change has been coordinated between the two ATS units concerned.

8.5 The appropriate ATS unit must advise the aircraft concerned when it is to revert to the call sign indicated by the flight plan.

9. Exchange of Communications

9.1 An ATS provider must publish, in their ATC procedures manual, procedures for exchange of communication between ground stations and aircraft including requirements for sections that must be read back or include corrections and repetitions.

10 Distress and Urgency Radiotelephony Communication Procedures

10.1 An ATS provider must publish detailed procedures for dealing with aircraft in distress in their ATC procedures manual. These procedures must include the following:

(a) actions by aircraft in distress;

(b) Action by station acknowledging distress message;

(c) imposition of silence; and

(d) action by other stations.

10.2 An ATS provider must publish procedures in their ATC procedures manual for action when an aircraft is reporting an urgency condition. This must include:

(a) action by station acknowledging an urgency message; and

(b) action by all other stations.

10.3 An ATS provider must publish appropriate procedures for direct speech communications must permit immediate connections to be made for very urgent calls concerning the safety of aircraft, and the interruption, if necessary, of less urgent calls in progress at the time.

11. Medical transport aircraft radiotelephony communication

11.1 An ATS provider must publish detailed procedures for communication with air ambulance aircraft in the ATC procedures manual. This must include all relevant information to ensure the most expeditious flight profile available.

12. Coordination with an aeronautical communication station

12.1 An ATS provider must, in the ATC procedures manual, detail coordination procedures between the ATS unit and an aeronautical communication station. These procedures must also be included in the ATC procedures manual in general terms.

13. Unauthorised use of ATC frequency

13.1 An ATS provider must detail procedures to be followed in the event of false and deceptive transmissions on ATC frequencies in the ATC procedures manual.

13.2 When the transmission of false or deceptive instructions and clearances is detected, the ATS provider must take all necessary action to have the transmitter located and the transmission terminated.

14. Phraseologies

14.1 ATS personnel must be familiar with the radiotelephony phraseologies used in the provision of air traffic services

14.2 An ATS provider must publish, in the ATC procedures manual, the standard phraseologies for use by ATS personnel in the provision of ATS. The standard phraseologies for use must be in accordance with the Procedures for Air Traffic Management document (ICAO Doc 4444) as adopted and approved by the Executive Director. These phraseologies are not exhaustive and when circumstances differ, ATS personnel will be expected to use plain language, which must be as clear as possible, to the level specified in the ICAO language proficiency requirements in NAM-CARs Part 65.

172. 09.18 PROCEDURES FOR ATS UNITS WHEN A VOLCANIC ASH CLOUD IS REPORTED OR FORECAST

1.1 An ATS provider must publish in its ATS manual, standardised procedures to be followed by ATS units when a volcanic ash cloud is reported or forecast within the airspace for which the ATS unit is responsible.

1.2 The procedures for coordination required in 1.1 must be in accordance with the procedures prescribed by the Executive Director in Part 15 of the Procedures for ATM document.

172.09.19 RESPONSIBILITY IN REGARD TO MILITARY TRAFFIC

1.1 An ATS provider must publish in its ATS manual, standardised procedures for the guidance of ATS units on responsibility with regard to military aeronautical operations within their areas.

1.3 The procedures required in 1.1 must be in accordance with the procedures prescribed by the Executive Director in Part 16 of the Procedures for ATM document.

172.09.20 RESPONSIBILITY IN REGARD TO UNMANNED FREE BALLOONS

1.1 An ATS provider must publish in its ATS manual, standardised procedures for the guidance of ATS units on responsibility with regard to operation of unmanned free balloons within their areas.

1.2 The procedures required in 1.1 must be in accordance with the procedures prescribed by the Executive Director in Part 16 of the Procedures for ATM document.

172.09.21 AIR TRAFFIC INCIDENT REPORTS

1.1 An ATS provider must publish in its ATS manual, standardised procedures for reporting of incidents specifically related to the provision of air traffic services.

1.2 The procedures required in 1.1 must be in accordance with the procedures prescribed by the Executive Director in Part 16 of the Procedures for ATM document.

172.09.22 STRATEGIC LATERAL OFFSET PROCEDURES (SLOP)

1.1 An ATS provider must publish in its ATS manual, strategic lateral offset procedures (SLOP). These procedures allow aircraft to fly on a parallel track to the right of the centre line relative to the direction

of flight to mitigate the lateral overlap probability due to increased navigation accuracy and wake turbulence encounters.

1.2 The procedures required in 1.1 must be in accordance with the procedures prescribed by the Executive Director in Part 16 of the Procedures for ATM document.

172.09.23 NOTIFICATION OF SUSPECTED COMMUNICABLE DISEASE OR OTHER PUBLIC HEALTH RISK ABOARD AN AIRCRAFT

1.1 The flight crew of an en-route aircraft must, upon identifying a suspected case(s) of communicable disease, or other public health risk, on board the aircraft, promptly notify the ATS unit with which the pilot is communicating, the information.

1.2 An ATS unit upon receipt of information from a pilot regarding suspected case(s) of communicable disease, or other public health risk, on board the aircraft, must notify the appropriate authority designated by the Executive Director and the aircraft operator or its designated representative.

1.3 The notification of information concerning communicable disease, or other public health risk, on board the aircraft by aircraft and ATS units must be carried out in accordance with the procedures prescribed by the Executive Director in Part 16 of the Procedures for ATM document.

172.10 ADMINISTRATIVE PROCEDURES

172.10.1 OPENING AND CLOSING OF CONTROL POSITIONS

1. Determination of hours of service

1.1 An ATS provider must establish procedures and instructions for opening and closing of control positions. Such instructions must take into account the difference between the individual ATS units.

1.2 In order to establish hours of operation, aircraft operators engaged in recurrent pre-planned flight operations are required to provide information on such flights to the appropriate ATS authority. The appropriate ATS authority must assess hours of operation for those ATS units that are not required to operate on a continuous basis using the information provided and taking into account industrial conditions of employment for ATS personnel.

1.3 The assessment of the required duty schedules for the purpose of determining the basic operating hours of individual ATS units must take into account the following factors ;

(a) information provided by operators conducting regular commercial transport flights;

(b) information provided by other users engaged in recurrent pre-planned flight operations;

(c) information on general aviation operations.

1.4 The review of the flight operations information, both as regards origin and destination as well as frequency of operations, in conjunction with the industrial conditions of employment of ATS personnel, shall serve to determine the hours of service of ATS units, except those which as a consequence of agreed international or national obligations, are required to operate on a continuous basis.

1.5 Determination of hours of service for approach and aerodrome control tower units must in addition to the criteria described in 1.2 and 1.3 above take into account:

(a) the requirement to provide approach control service for an adjacent aerodrome;

(b) the requirement to keep an aerodrome open because it serves as a designated alternate for flights to other destinations;

(c) the requirement to provide ATC to overflights within portions of controlled airspace which have been permanently assigned to an APP unit.

1.6 An ATS provider must promulgate the hours of service for its ATS units in the AIP. The promulgated hours of service may not be reduced except in an emergency, or where there is no practical alternative or when it is known that no further requirement for service exists, e.g. at night when the last scheduled flight on which close-down time is based is cancelled. In cases where a reduction is unavoidable during promulgated hours and no relief is available, the associated ACC/flight information centre (FIC) must be notified in advance and appropriate NOTAM action be taken.

2. Opening and closing of watch

2.1 In determining the promulgated hours of service, an ATS provider must make allowance for a specified time before the estimated time of departure (or arrival) of the first aircraft to which the unit is required to provide service. In the case of control towers, a further specified period must be incorporated in duty schedules to allow for such activities as familiarization, facilities check and runway inspection before the unit is opened to service.

2.2 The close-down time of service must be determined as follows:

(a) the estimated time of arrival plus a predetermined time if the last scheduled movement of the day is an arrival;

(b) the time at which transfer of control and communications to the next ATS unit would normally be expected to be effected and associated actions completed if the last scheduled movement of the day is departure;

2.3 An ATS unit must on opening watch, except for ACC/FIC, notify the ACC/FIC advising of the time the watch is opened and any significant unserviceabilities. In addition, an ATS unit must advise the

associated ACC/FIC of any changes in closing or opening times, together with brief details, when these are different from the published hours of operation.

2.4 An ATS unit at an aerodrome serving as a possible alternate must notify the associated ACC of the intended time of closing, 30 minutes prior to the anticipated closure time to enable the ACC to determine if there is a possible need for the aerodrome to be used as an alternate before the closure.

172.10.2 FIRE PREVENTION AND FACILITY EVACUATION

1.1 An ATS provider must:

(a) prepare a fire prevention plan and must ensure that all unit personnel receive instructions regarding the design and operational characteristics of fire detection, alarm and suppression system.

(b) develop procedures and processes to ensure that, in the event of forced evacuation of an ATS unit,:

(i) all aircraft are provided with the minimum service necessary to maintain flight safety;

(ii) personnel can be evacuated safely;

(iii) evacuation plans and procedures are viable and satisfactory; and

(iv) a periodic review of evacuation plans and any necessary updates and changes performed.

(c) periodically conduct emergency evacuation test drills. Such test drills must be conducted in such a way so as not to interfere with normal operation.

1.2 These procedures must be published in the ATC procedures manual.

172.10.3 ATS UNIT FORMS, LOGS, LIBRARIES AND DIRECTIVES

1. Forms

1.1 An ATS provider must include in the ATS Manual of Procedure, a comprehensive list of all relevant forms and must provide the forms to all ATS units, for which it is responsible.

2. Maintenance of Unit Logs

2.1 An ATS provider must make appropriate logs available at all units and issue instructions in the ATC procedures manual on the use and maintenance of ATS unit logs.

2.2 An ATS log must be used to record all significant occurrences and actions relating to operations, facilities, equipment and staff at an ATS unit. An ATS unit log is an official document and, unless otherwise authorized, its contents must be restricted to only those personnel requiring access to the information.

2.3 Separate ATS logs must be maintained for each ATS unit. Information to be recorded in an ATS log must include:

(a) incidents, accidents, non-compliance with regulations or air traffic control (ATC) clearances, regardless of whether an additional, separate report is required;

(b) aerodrome inspections, details of work in progress and other essential aerodrome information;

(c) a change in status of navigation facilities, services and procedures;

(d) time of receipt of special aerodrome reports, SIGMET reports, or any other significant meteorological phenomena.

3. Maintenance of Unit Libraries

3.1 An ATS provider must ensure that unit libraries are maintained at all operating ATS units.

3.2 Information contained in unit libraries must be available to all operating personnel on a 24-hour basis and must contain relevant documents of both general and local nature.

3.3 An ATS provider must instruct each ATS unit to:

(a) provide, in suitable binders, information necessary for the operation of a unit, sector, or position;

(b) provide separate binders for each sector if a unit is sectorized;

(c) ensure that sector/unit binders are readily available at a position when it is in operation.

3.4 An ATS provider must instruct units to periodically review data contained in all publications relative to their respective unit and initiate action as required to ensure accuracy and completeness of published data. The instructions for the periodic review must be published in the ATC procedures manual.

4. Unit Directives

4.1 An ATS provider must publish unit directives in order to keep operational personnel informed of critical safety information. Unit Directives may amplify and/or explain provisions of the ATS manual.

4.2 Unit Directives may be issued in the form of Operations Letters (OL), Operations Bulletins (OB) or Staff Memos (SM), as appropriate or in other formats acceptable to the Executive Director.

4.3 Information of an operational nature that will be effective for the long term (i.e., up to one year) may be published in OL. OLs must be numbered consecutively.

4.4 Information of an operational nature that is more temporary in nature and will be effective for a shorter period of duration (generally three months or less) may be published in an OB. OBs must be numbered consecutively.

4.5 Information that is only administrative or informative in nature may be published in a SM.

4.6 Directives must be cancelled when the information they contain is no longer valid or has expired. A list of current directives must be maintained separately for OLs, OBs and SMs.