AIP

AERONAUTICAL INFORMATION PUBLICATION

Republic of Namibia

PART 2

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PART 2 - EN-ROUTE (ENR)

ENR 0.

ENR 0.1 PREFACE - Not applicable

ENR 0.2 RECORD OF AIP AMENDMENTS - Not applicable

ENR 0.3 RECORD OF AIP SUPPLEMENTS - Not applicable

ENR 0.4 CHECKLIST OF AIP PAGES - Not applicable

ENR 0.5 LIST OF HAND AMENDMENTS TO THE AIP - Not applicable

ENR 0.6 TABLE OF CONTENTS TO PART 2

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ENR 1. GENERAL RULES AND PROCEDURES

ENR 1.1 GENERAL RULES

The air traffic and procedures applicable to air traffic in the Republic of Namibia conform with Annexes 2 and 11 to the Convention of International Civil Aviation and to the Procedures for Air Navigation Services - Rules of the Air and Air Traffic Services, and the Regional Supplementary Procedures applicable to the AFI Region, except for the differences listed in GEN 1.7.

1. Minimum safe height

1.1 Except when necessary for taking off or landing, or except by individual permission from the Executive Director: Civil Aviation Authority, aircraft shall be flown:

a) over built-up areas or over an open-air assembly of persons at heights which will permit, in the event of the failure of a power unit, an emergency landing without undue hazard to persons or property on the surface; these heights shall not be less than 1 000 feet above the highest obstacle within a radius of 2 000 feet from the aircraft;

b) when elsewhere than specified in sub-paragraph a) above, at a height not less than 500 feet above the ground or water.

c) so as not to circle over or do repeated overflights over an open-air assembly of persons at height less than 3000 feet above the surface.

1.2 Except when necessary for take-off or landing an aircraft shall be flown at night, in IMC or when operated in accordance with IFR at a height of at least 1 500 feet above the highest obstacle located within five nautical miles of the aircraft in flight.

2. Dropping of objects

Except in an emergency or unless granted special permission by the Executive Director: Civil Aviation Authority no article shall be dropped from an aircraft in flight other than:

a) fine sand or clean water used as ballast;

b) chemical substance for the purpose of spraying or dusting.

3. Aerobatic flights

3.1 No aircraft shall be flown acrobatically so as to endanger air traffic.

3.2 Except by individual permission from the Executive Director: Civil Aviation Authority, aircraft shall not be flown aerobatically:

a) in the vicinity of air traffic services routes;

b) within five nautical miles of an aerodrome unless at a height not less than 4 000 feet above ground level.

4. Towing flights

4.1 A pilot-in-command of an aircraft in flight shall not permit anything to be towed by the aircraft, except:

a) with the prior approval of the Executive Director; or

b) if certificated to do so under aerial work operations.

4.2 An applicant for a tug pilot rating shall submit to the Executive Director: Civil Aviation Authority, the required information contained in NAMCAR Part 61, Subpart 34.

4.3 *Passengers*

No passengers shall be carried in the tug aircraft while towing operations are in progress.

4.4 *Minimum altitudes*

The minimum safe altitudes prescribed by Regulation 3.2 of the ANR shall be adhered to during all towing operations.

4.5 *Manoeuvres*

Manoeuvres of the aircraft during all towing operations shall be limited so that the tow line is kept extended rearward as nearly as possible in line with the direction of flight of the aircraft and any abrupt changes in aircraft altitude or direction of flight shall be avoided.

4.6 *Atmospheric conditions*

Towing operations shall not be conducted in turbulent atmospheric conditions which may adversely affect the control of the aircraft.

4.7 *Visibility*

When the pilot of the tug aircraft cannot effectively see the glider or banner being towed a suitable rear-view mirror is recommended to eliminate the need for the tug pilot to look back at the glider or banner during towing operations.

4.8 *Release of glider or banner*

4.8.1 At the conclusion of a glider towing operation the glider shall be released in such an area and at such a height as will permit it to make a safe landing.

4.8.2 Banners and tow ropes shall be released in such an area and at such a height as will ensure that all danger to life and property on the ground is avoided.

5. Times and units of measurement

5.1 Universal co-ordinated time (UTC) is used in the air traffic and communication services and in documents published by the aeronautical information service.

5.2 In reporting time, the nearest full minute is used, e.g. 12 HR 40 MIN 40 SEC is reported as 1241.

5.3 Time checks to aircraft are accurate to within 5 seconds.

5.4 The units of measurement used in connection with all air traffic services in the Republic of Namibia are in compliance with the Annex 5.

6. Airspace structure

Refer to ENR 1.4.

7. Prohibited and restricted areas

7.1 *Prohibited areas*

7.1.1 The Executive Director: Civil Aviation Authority may by notice in an AIP or AIC or a NOTAM declare any area to be a prohibited area and shall, for the purposes of the prohibition contained in sub-regulation 7.1.2, when so declaring an area to be a prohibited area:

a) specify a height above the ground surface of such area; or

b) specify an altitude in respect of such area, as he may deem expedient, in the notice in question.

7.1.2 No person shall fly any aircraft whatsoever in the airspace above a prohibited area:

a) below the height specified in terms of sub-regulation 7.1.1.a), or

b) below the altitude specified in terms of sub-regulation 7.1.1.b), as the case may be, in respect of the prohibited area in question.

7.2 *Restricted areas*

7.2.1 The Executive Director: Civil Aviation Authority may by notice in an AIP or AIC or a NOTAM declare any area to be a restricted area and shall, when so deciding an area to be a restricted area, specify in the notice in question:

a) the nature and extent of the restriction applicable in respect of the area in question, and

b) the authorisation under which flights in such a restricted area shall be permitted.

7.2.2 No person shall, in contravention of a restriction contemplated in sub-regulation 7.2.1.a), fly any aircraft to which the said restriction applies in any restricted area, unless the flight in question has been permitted by virtue of any authorisation contemplated in sub-regulation 7.2.1.a).

8. Cloud flights with gliders

NIL INFO AVBL

9. Take-offs and landings of aeroplanes, rotorcraft, airships, powered gliders, gliders and parachutists outside aerodromes admitted for them

9.1 For take-offs and landings of aeroplanes, rotorcraft and airships, permission from the local aeronautical authority is required. For take-offs of powered gliders and gliders outside designated aerodromes, permission from the local aeronautical authority is required; however, for landings of powered gliders and gliders on a cross-country flight, permission is not required. This is to be applied analogously to landings of parachutists outside designated aerodromes.

9.2 The authority granting permission may ask the applicant to produce evidence of the consent of the terrain owner or of other entitled parties.

10. Helicopter operations

10.1 A helicopter shall not land on or take-off from any place unless that place is so situated as to permit that helicopter, in the event of an emergency arising, during such landing or take-off, to land without undue hazard to persons or property on the surface.

10.2 A helicopter shall not carry an external load unless it is carried in such a manner as to permit, in the event of an emergency arising, of such load being jettisoned without undue hazard to persons or property on the surface or to the helicopter.

10.3 a) A helicopter shall not land or take off from any building or structure or place within 100 meters of buildings of structures situated in the area of jurisdiction of a local authority, unless such building, structure or place has been approved for that purpose by the Director: Civil Aviation: Provided that, subject to the provisions of regulation 2.1(2) of the Aerodrome Regulations, 1982, as published by Government Notice R.2189 of 15 October 1982, this provision shall not apply:

i) to a helicopter landing on or taking off from a building, structure or place within an area which is specified in paragraph a) and which is situated within an industrial area or a commercial warehouse area or on open farm land which is suitable for such purpose and in respect of which helicopter the pilot-in-command is the holder of a valid commercial or higher pilot's license (helicopter), or in the case of a private pilot (helicopter), with the written permission of the Executive Director: Civil Aviation Authority, unless specifically prohibited by the local authority concerned;

ii) to a helicopter undertaking a flight for the purpose of saving human lives, or involved in civil defence, or undertaking a flight necessary for the exercising of any power in terms of any law.

b) A local authority may extend the scope of the provisions of paragraph a) i) to include other places in its area of jurisdiction.

c) For the purposes of this sub-regulation, "local authority" means anybody, council or institution contemplated in Section 84 (l) (f) of the Provincial Government Act, 1961 (Act 32 of 1961).

10.4 The Executive Director: Civil Aviation Authority may, in the interests of safe helicopter operations, impose conditions or institute restrictions as to the use of any building, structure or place for the landing or take-off of helicopters, or require special flight procedures to be adopted at and special routes to be followed to and from such building, structure or place by helicopters, and he may, depending upon local circumstances or the type of helicopter operations undertaken, impose different conditions or institute different restrictions or require different special flight procedures to be adopted in respect of different buildings, structures or places, and if circumstances require he may amend or cancel any condition, restriction or special flight procedure or route, or impose any further condition or institute any further restriction or require any further special flight procedure to be adopted.

11. Balloons

11.1 No captive or unmanned free balloons shall be flown in the Republic except with the special permission in writing from the Executive Director and subject to such conditions as he may deem necessary in the

interest of air traffic safety. Provided that at the time of granting such permission in respect of any such balloon, or at any time subsequently, he may exempt the said balloon from all or any of the provisions of these regulations, or determine that the said provision or provisions shall apply to the said balloon subject to such conditions as he may think fit.

11.2 No manned free balloon shall be flown within controlled airspace, unless:

a) it carries radio communication equipment capable of maintaining two-way communication with the responsible air traffic control unit;

b) prior permission to enter the controlled airspace has been obtained from the responsible air traffic control unit; and

c) two-way radio communication and a continuous radio watch is maintained while the balloon is flown within the controlled airspace.

12. Captive and Unmanned Free Balloons, Kites, and Remotely Piloted Aircraft

12.1 No person shall, without the written permission of the Executive Director and under any conditions which the Director may determine, operate a Kite, Remotely Piloted Aircraft, Captive or Unmanned Balloon:

a) higher than 150 feet above the surface;

b) within a published control zone, air traffic zone or air traffic area; or

c) closer than 5NM from the boundary of an aerodrome

13. Rockets

13.1 No person shall fire a rocket within published controlled or advisory airspace or air routes.

13.2 No person, without the written permission of the Executive Director and under such conditions which the Executive Director may determine, shall fire a rocket in airspace other than controlled or advisory airspace, if the rocket will, or is likely to:

a) exceed a height of 2000FT above the surface; and

b) be fired closer than 5NM from an aerodrome boundary

14. OPERATIONS IN CONTROLLED AIRSPACE

14.1GENERAL

14.1.1 This section sets out the pilot action and related ATS activity in civil and military controlled airspace.

14.1.2 For flight in close proximity to the boundary of controlled airspace, separation is not provided with traffic operating outside controlled airspace.

14.2 AIR TRAFFIC CLEARANCES AND INSTRUCTIONS

14.2.1 Except in an emergency, a clearance is required for all flights in Classes A, C, D, and E (IFR only) airspace.

14.2.2 Where the airspace classification and flight rules require, an aircraft must not enter controlled airspace without a clearance. The pilot is responsible for obtaining a clearance and, once obtained, must not amend a planned route, deviate from the cleared track, or change level without obtaining ATC approval. When determining where the clearance request will be made, the pilot should consider aircraft performance, the possibility of frequency congestion if the airspace is known to be busy, the possibility of changes to route and/or level, and the possible delays that might be incurred when clearances have to be coordinated with adjacent ATC sectors.

14.2.3 When clearance has been issued to deviate from the cleared route due weather, the pilot must advise ATC when the weather deviation is no longer required, or when the weather deviation has been completed and the aircraft has returned to its cleared route. Further deviations from route will require a new clearance.

14.2.4 Aircraft planned on RNAV 5 routes within the Windhoek FIR can expect clearance to the next enroute waypoint when clear of weather.

14.2.5 All flights operating in classes G airspace requesting a clearance to operate in classes A, C, D or E (IFR only) airspace must advise position, level and tracking details when making first contact with ATC.

14.2.6 Within VHF radio coverage, pilots must maintain continuous communications with ATC when operating in classes A, C, D and E (IFR only) airspace, as must pilots of IFR flights in Class G airspace.

Further, when in Class G airspace, pilots of VFR flights must monitor the ATS frequency appropriate to their area of operation.

14.2.7 Clearances will be passed direct to pilots by ATC.

14.2.8 The clearance authorises flight in the specified manner to the first point at which the flight leaves controlled airspace, or, if completely in controlled airspace, to the first landing point.

14.2.9 An air traffic clearance proposed by ATC does not relieve the pilot from complying with statutory requirements nor from the responsibility for the ultimate safety of the aircraft.

14.2.10 If considered necessary, a pilot should request a different clearance from that issued. In an emergency, a pilot may act without a clearance and immediately advise ATC.

14.2.11 A pilot must advise ATC immediately if issued a clearance which requires the use of navigation aids not available to the aircraft, or the pilot is not qualified to use.

14.2.12 ATC is responsible for issuing clearances that will enable an aircraft to remain within controlled airspace if the pilot has planned to do so. If a pilot is in doubt that the clearance will keep the aircraft in controlled airspace, ATC should be advised and an alternative clearance may be requested.

14.2.13 For operations within Class A, C, D or E (IFR only) airspace, maintaining 500FT above the lower limit of the CTA steps will provide a vertical buffer with aircraft operating in the adjoining airspace.

14.2.14 A control instruction issued after a clearance is obtained amends the appropriate item in the clearance. When there is any change in the clearance limit and/or route specified in the initial clearance, a completely new clearance will be issued.

14.2.15 When ATC issues a level clearance to an aircraft, any level restrictions or requirement issued with an earlier clearance is automatic-ally cancelled. ATC will issue (or reissue) any required level restrictions or requirements with new level clearances.

Note: This procedure does not apply in relation to SID and STAR operations. For SID and STAR operations, aircraft must comply with level and speed restrictions and/or requirements published on STAR and SID charts unless ATC explicitly cancels the restrictions or requirements.

14.2.16 Whenever a restriction or requirement has been imposed, and, subsequently, a further restriction/requirement is imposed, the subsequent instruction will cancel all previous restrictions/requirements unless:

a) all restrictions/requirements are restated; or

b) the subsequent instruction is prefixed "FURTHER REQUIREMENT".

14.2.17 At a controlled aerodrome, clearance for operation in an adjoining control area is given before departure.

14.2.18 If proposing to fly into a control area from an aerodrome located so close to the entry point that making a full position report before entry is not practicable, a clearance should be requested:

a) at a convenient time before entering the runway for take-off at an aerodrome where communication can readily be established before take-off; or

b) after take-off, if not available or obtainable before take-off, provided that the aircraft does not enter control area until cleared.

Note: Where the enroute MSA is in controlled airspace, the clearance request should be made prior to departure and include an estimated airborne time.

14.2.19 If landing at an aerodrome with the intention of departing for a control area shortly after landing, any revision of notified details relevant to the clearance, should be advised to ATC, and a clearance requested before landing.

14.2.20 Clearances provided to pilots may include a "CLEARANCE VOID TIME". When a void time is specified, the clearance is valid only if the flight enters controlled airspace in accordance with the clearance at or before that time.

14.2.21 Pilots should submit details required for flight in controlled airspace at least 30 minutes before the expected time of entry. Flight details submitted with less than the 30 minutes notification will be processed on a "controller workload permitting" basis, and may be subject to delay. ENR 1.10 refers. Pilots must note flight planning requirements for flights arriving and departing Grootfontein.

14.2.22 Within a Class D CTR, a clearance to take--off is a clearance to operate within the CTR or depart the CTR into Class G or TIBA airspace.

14.3 ROUTE CLEARANCES:

14.3.1 Pilots in command must request a route clearance:

a) For IFR aircraft, on the appropriate frequency, before starting engines; or

b) For VFR aircraft, before staring engines or before entering the runway; and

c) before entering controlled airspace.

14.3.2 Airways clearances normally contain the following items:

a) aircraft identification;

b) destination, area of operation, position or clearance limit;

c) route of flight;

d) assigned level, except when this element is included in the SID description;

e) for IFR flights, departure type;

f) SSR code; and

g) frequency requirements.

14.3.3 The departure instructions for an IFR flight from an aerodrome within a CTR will be in the form of a SID. Where these are not published, or where aircraft or ground based navigation aid(s) are unavailable, tracking instructions will be specified by ATC.

14.3.4 Should a change of runway occur which affects an airways clearance previously issued, ATC will issue a new SID or tracking instructions as appropriate. A new clearance will not necessarily be issued where the same clearance applies to multiple runways.

14.3.5 If an aircraft is cleared only to an intermediate point, and flight be-yond that point will be in controlled airspace, a pilot in command must obtain a further clearance before proceeding beyond the intermediate clearance point.

14.3.6 When an aircraft leaves controlled airspace, a further clearance must be obtained for any subsequent flight in controlled airspace.

14.4 NOMINATION OF RUNWAY

14.4.1 ATC will nominate the runway, preferred runway or take off direction. ATC will not nominate a particular runway for use if an alternative runway is available when:

a) the alternative runway would be preferred due to low cloud, thunderstorms and/or poor visibility;

b) for runways that are completely dry;

i) the crosswind component, including gusts, exceeds 20KT;

ii) the downwind component, including gusts, exceeds 5KT

c) For runways that are not completely dry:

i) the crosswind component, including gusts, exceeds 20KT

ii) there is a downwind component

d) Wind shear has been reported.

14.4.2 Selection of Take-off Direction

14.4.2.1 The pilot in command must ensure that the runway is suitable for the operation. If not suitable for an operational reason, ATC must be advised before taxiing or when requesting an airways clearance by using the phrase:

"REQUIRE RUNWAY (number)".

Such a request may result in delays. The decision to take off rests solely with the pilot in command.

14.4.3 Selection of Circuit Direction

14.4.3.1 Circuit directions and turns will be specified or authorised by ATC but will not be specified in the take-off clearance when a SID has been authorised.

14.4.3.2 A pilot in command must notify ATC if a particular turn or circuit is essential for the safe operation of the aircraft by the use of the word "REQUIRE".

14.4.4 Departure Instructions

14.4.4.1 Departure instructions may contain the following as required:

a) aircraft identification;

b) heading instructions; **

c) altitude restrictions;

d) direction of turn;

e) tracking points; and

f) any other instructions.

** Note: A pilot assigned a heading (including runway heading) must not compensate for wind.

14.4.4.2 When a heading is assigned as a departure instruction, the pilot in command must ensure that the heading and the direction of turn are read back. This requirement also applies to the initial heading assigned by ATC as part of a RADAR SID.

14.4.5 Terrain and Obstacle Clearance

14.4.5.1 Obstacle/terrain avoidance while below the LSALT or MSA, as applicable, is a pilot responsibility except in the circumstances described in 14.4.2.

14.4.5.2 ATC is responsible for terrain clearance when an aircraft has been assigned a level using ATS surveillance service terrain clearance procedures until:

a) the pilot is assigned the responsibility for maintaining such clearance visually, or

b) a visual or instrument approach is commenced

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ENR 1.2 VISUAL FLIGHT RULES

1. Visibility and Distance from Cloud

1.1 Except when operating as a special VFR flight, VFR flights shall be conducted so that the aircraft is flown in conditions of visibility and distance from clouds equal to or greater than those specified in Table 1.2.

1.2 Except when a clearance is obtained from an air traffic control unit, VFR flights shall not take off or land at an aerodrome within a control zone, or enter the aerodrome traffic zone or traffic pattern:

a) when the ceiling is less than 450 M (1 500 FT); or

b) when the ground visibility is less than 5 KM.

Table 1.2*

Altitude band	Airspace class	Flight visibility	Distance from cloud
At and above 3 050 M (10 000 FT) AMSL	A***B C D E F G	8 KM	1 500 M horizontally 300 M (1 000 FT) vertically
Below 3 050 M (10 000 FT) AMSL and above 900 M (3 000 FT) AMSL, or above 300 M (1 000 FT) above terrain, whichever is the higher	A***B C D E F G	5 KM	1 500 M horizontally 300 M (1 000 FT) vertically
At and below 900 M (3 000 FT) AMSL, or 300 M (1 000 FT) above terrain, whichever is the higher	A***B C D E FG	5 KM 5 KM**	1 500 M horizontally 300 M (1 000 FT) vertically Clear of cloud and with the surface in sight

* 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

** When so prescribed by the appropriate ATS authority:

a) flight visibilities reduced to not less than 1 500 M may be permitted for flights operating:
1) at speeds that, in the prevailing visibility, will give adequate opportunity to observe other traffic or any obstacles in time to avoid collision; or
2) in circumstances in which probability of encounters with other traffic would normally be low, e.g. in areas of low volume traffic and for aerial work at low levels.

b) Helicopters may be permitted to operate in less than 1 500 M flight visibility, if maneuvered at a speed that will give adequate opportunity to observe other traffic or any obstacles in time to avoid collision.

*** The VMC minima in Class A airspace are included for guidance to pilots and do not imply acceptance of VFR flights in Class A airspace

1.3 VFR flights between sunset and sunrise, or such other period between sunset and sunrise as may be prescribed by the appropriate ATS authority, shall be operated in accordance with the conditions prescribed by such authority.

1.4 Unless authorized by the appropriate ATS authority, VFR flights shall not be operated:

a) above FL 200;

b) at transonic and supersonic speeds.

1.5 Authorization for VFR flights to operate above FL 290 shall not be granted in areas where a vertical separation minimum of 300 M (1 000 FT) is applied above FL 290.

1.6 Except when necessary for take-off or landing, or except by permission from the appropriate authority, a VFR flight shall not be flown:

a) over the congested areas of cities, towns or settlements or over an open-air assembly of persons at a height less than 300 M (1 000 FT) above the highest obstacle within a radius of 600 M from the aircraft;

b) elsewhere than as specified in 1.6 a), at a height less than 150 M (500 FT) above the ground or water.

1.7 Except where otherwise indicated in air traffic control clearances or specified by the appropriate ATS authority, VFR flights in level cruising flight when operated above 900 M (3 000 FT) from the ground or water, or a higher datum as specified by the appropriate ATS authority, shall be conducted at a flight level appropriate to the track as specified in the Tables of cruising levels.

1.8 VFR flights shall comply with the provision paragraph 3.6 of ICAO Annex 2:

a) when operated within Classes B, C and D airspace;

b) when forming part of aerodrome traffic at controlled aerodromes; or

c) when operated as special VFR flights.

1.9 A VFR flight operating within or into areas, or along routes, designated by the appropriate ATS authority shall maintain continuous air-ground voice communication watch on the appropriate communication channel of, and report its position as necessary to, the air traffic services unit providing flight information service.

1.10 An aircraft operated in accordance with the visual flight rules which wishes to change to compliance with the instrument flight rules shall:

a) if a flight plan was submitted, communicate the necessary changes to be effected to its current flight plan; or

b) when so required, submit a flight plan to the appropriate air traffic services unit and obtain a clearance prior to proceeding IFR when in controlled airspace.

2. Special VFR weather minima

A pilot-in-command may conduct special VFR operations in weather conditions below the conditions prescribed in Regulation 91.06.21 within a control zone-

a) under the terms of an air traffic control clearance;

b) by day only;

c) clear of clouds;

d) with a cloud base of at least 500 FT and a visibility of at least 1500M;

e) in an aircraft equipped with two way radio equipment capable of communicating with an air traffic service unit on the appropriate frequency; and

f) if leaving the control zone, in accordance with instructions issued by an air traffic service unit prior to departure.

A pilot-in-command of a Class 1 or a Class 2 helicopter may within a CTR under the terms of an air traffic control clearance conduct special VFR operations for the purpose of an over-water operation in weather conditions below the minima prescribed in Regulation 91.06.21-

a) by day or by night;

b) when clear of clouds;

c) with a cloud ceiling of at least 300 FT;

d) a flight visibility of at least 900 M; and

e) if leaving a CTR, in accordance with instructions issued by the responsible air traffic service unit prior to departure;

f) provided that-

(i) the flight is only conducted over water;

(ii) the special VFR clearance is only valid in the CTR;

(iii) the minima do not apply to any flight over any portion of land situated in the CTR;

(iv) the helicopter is operated in accordance with an MEL of IFR and night operations; and

(v) the air traffic service unit concerned is notified which helicopters have the MEL to perform such flights.

3. Responsibility to ascertain whether VFR flight is permitted

Out side a control zone or an aerodrome traffic zone or an aerodrome traffic area, the ascertainment of whether or not weather conditions permit flight in accordance with VFR, shall be the responsibility of the pilot-in-command of an aircraft, and whenever weather conditions do not permit a pilot to maintain the minimum distance from cloud and the minimum visibility required by VFR, the pilot shall comply with IFR.

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ENR 1.3 INSTRUMENT FLIGHT RULES

1. Rules applicable to all IFR flights

Instrument Flight Rules conform to the rules published in ICAO Annex 2 - Rules of the Air, Chapter- Instrument Flight Rules.

1.1 *Aircraft equipment*

Aircraft shall be equipped with suitable instruments and with radio navigation apparatus appropriate to the route to be flown.

1.2 *Minimum levels*

A minimum height of 1 500 feet above the highest obstacle within 5 NM is applicable.

1.3 *Change from IFR flight to VFR flight*

1.3.1 The pilot-in-command of an aircraft who elects to change the conduct of the flight of the aircraft from compliance with the instrument flight rules to compliance with the visual flight rules shall, if a flight plan was submitted for the flight, notify the appropriate air traffic services unit specifically that the IFR flight is cancelled and communicate thereto the intended changes to be made to the current flight plan.

1.3.2 When an aircraft operating under the instrument flight rules is flown in or encounters visual meteorological conditions, the pilot-in-command shall not cancel its IFR flight unless it is anticipated, and intended, that the flight will be continued for a reasonable period in uninterrupted visual meteorological conditions.

2. Rules applicable to IFR flights within controlled airspace

2.1 IFR flights shall comply with the provision of 3.6 of Annex 2 to the Convention on International Civil Aviation when operated in controlled airspace

2.2 An IFR flight operating in cruising flight in controlled airspace shall be flown at a cruising level, or, if authorized to employ cruise climb techniques, between two levels or above a level, selected from:

a) The tables of cruising levels in Appendix 3 of Annex 2, or

b) A modified table of cruising levels, when so prescribed in accordance with Appendix 3 of Annex 2 for flight above FL410,

Except that the correlation of levels to track prescribed therein shall not apply whenever otherwise indicated in air traffic control clearances or specified by the appropriate ATS authority in the Aeronautical Information Publication (AIP).

3. Rules applicable to IFR flights outside controlled airspace

3.1 *Special application of the semi-circular rule*

Aircraft flying northbound in the corridor bound by the following lines will fly at an even flight level and aircraft flying southbound will fly at an odd flight level: A straight line from a point 223630S 0170450E to a point 222852S 0172821E then a straight line to a point 175300S 0155800E then a straight line to a point 174738S 0154156E then a straight line to a point 223630S 0170450E.

3.2 *Communications*

An IFR flight operating outside controlled airspace but within or into areas, or along routes, designated by the appropriate ATS authority in accordance with ICAO Annex 2 paragraph 3.3.1.2.c) or d) shall maintain a listening watch on the appropriate radio frequency and establish two-way communication, as necessary, with the air traffic services unit providing flight information service.

3.3 *Position reports*

An IFR flight operating outside controlled airspace and required by the appropriate ATS authority to:

a) Submit a flight plan, and

b) Maintain a listening watch on the appropriate frequency and establish two-way communication, as necessary, with the air traffic services unit providing flight information service,

Shall report position as specified in ICAO Annex 2 paragraph 3.6.3 for controlled flights.

Note: Aircraft electing to use the air traffic advisory service whilst operating IFR within specified advisory airspace are expected to comply with the provisions of ICAO Annex 2 paragraph 3.6, except that the flight plan and changes thereto are not subjected to clearances and that two-way communication will be maintained with the unit providing the air traffic advisory service.

4. Reduced Vertical Separation Minima (RVSM)

Reduced Vertical Separation Minimum (RVSM) refers to vertical separation of aircraft by 1000 ft above Flight Level (FL) 290. Only State RVSM approved aircraft, will be permitted to operate in RVSM airspace within the Namibian Area of Responsibility (FYWF FIR)

After prior coordination with the appropriate ATC centre, State Aircraft (Military, Police and Customs) not RVSM approved will be cleared to operate within RVSM airspace within the Namibian Area of Responsibility, Two Thousand Foot (2000 ft) vertical separation will be applied to such aircraft.

Implementation of RVSM within the Namibian Area of Responsibility will occur in accordance with ICAO Regional agreements.

a) Operators who do not have approval, and/or whose aircraft are not RVSM certified will be excluded from the RVSM Flight Level Band, being required to operate at FL 280 or below, or above FL410.

b) Operators are to note that after implementation of RVSM, FL 420 will no longer be regarded as a valid Flight Level. The next available Flight Level will be Flight Level 430.

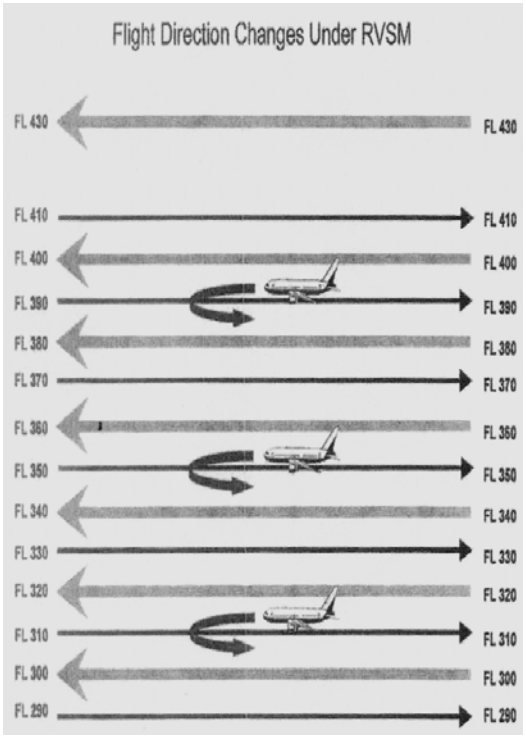
4.2 Operations above Flight Level (FL) 410

Taking into consideration the extended distances of sectors which may be flown by operators the AFI RVSM Implementation Safety Policy has made allowance for those non RVSM approved aircraft which are capable of operating at flight levels above FL410.

Restrictions placed on flights planning to operate at flight levels above FL410 require the climb to the planned flight level, once authorized and commenced under ATC clearance, to be conducted without interruption, until clear of the RVSM flight level band. Conversely, once authorized and commenced under ATC clearance, descent from flight levels above FL410 are to be conducted without interruption, until clear of the RVSM flight level band.

Non-RVSM approved aircraft intending to operate above FL 410 will need to flight plan in accordance with RVSM procedures of neighbouring Regions should the flight commence or terminate in those regions

Reference: AFI Regional Supplementary Procedures (ICAO DOC. 7030)



ENR 1.4 ATS AIRSPACE CLASSIFICATION

1. Classification of airspace

1.1 ATS airspace within the boundaries of Namibia will be classified in accordance with the ICAO standards.

1.2 ICAO airspace classifications not in use within Namibia are indicated accordingly:

a) Class A. All controlled airspace above FL145

b) Class B. Not in use.

c) Class C. All controlled airspace FL145 and below.

d) Class D. Selected CTR at controlled aerodrome.

e) Class E. Selected common used airspace FL195 and below.

f) Class F. Not in use.

g) Class G. All information airspace.

1.3 Speed restrictions for specific airspaces are given with the description for:

a) STAR's (where applicable).

b) Noise abatement procedures (AD 2.21).

c) Rules and regulations.

Table 1.4-1: ATS Airspace Classifications (Controlled)

Class	Type of flight	Separation provided	Service provided	VMC visibility and distance from cloud minima	Speed limitation	Radio communication requirement	ATC clearance
A	IFR only	All aircraft	Air traffic control service	Not applicable	Not applicable	Continuous two-way	Yes
B	IFR	All aircraft	Air traffic control service	Not applicable	Not applicable	Continuous two-way	Yes
	VFR	All aircraft	Air traffic control service	See ENR 1.2	Not applicable	Continuous two-way	Yes
C	IFR	IFR from IFR IFR from VFR	Air traffic control service	Not applicable	Not applicable	Continuous two-way	Yes
	VFR	VFR from IFR	1) Air traffic control service for separation from IFR 2) VFR/VFR traffic information (and traffic avoidance on request)	See ENR 1.2	250kt IAS below 10000ft AMSL	Continuous two-way	Yes

Class	Type of flight	Separation provided	Service provided	VMC visibility and distance from cloud minima	Speed limitation	Radio communication requirement	ATC clearance
D	IFR	IFR from IFR	Air traffic control service including traffic information about VFR flights (and traffic avoidance on request)	Not applicable	250kt IAS below 10000ft AMSL	Continuous two-way	Yes
	VFR	Nil	Traffic information between VFR and IFR flights (and traffic avoidance advice on request)	See ENR 1.2	250kt IAS below 10000ft AMSL	Continuous two-way	Yes
E	IFR	IFR from IFR	Air traffic control service and traffic information about VFR flights as far as practical	Not applicable	250kt IAS below 10000ft AMSL	Continuous two-way	Yes
	VFR	Nil	Traffic information as far as practical	See ENR 1.2	250kt IAS below 10000ft AMSL	No	No

Table 1.4-2: ATS Airspace Classifications (Uncontrolled)

Class	Type of flight	Separation provided	Service provided	VMC visibility and distance from cloud minima	Speed limitation	Radio communication requirement	ATC clearance
F	IFR	IFR from IFR as far as practical	Air traffic advisory service Flight information service	Not applicable	250kt IAS below 10000ft AMSL	Continuous two-way	No
	VFR	Nil	Flight information service	See ENR 1.2	250kt IAS below 10000ft AMSL	Continuous two-way	No
G	IFR	Nil	Flight information service	Not applicable	250kt IAS below 10000ft AMSL	Continuous two-way	No
	VFR	Nil	Flight information service	See ENR 1.2	250kt IAS below 10000ft AMSL	No	No

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.

(Annex 11 2-4 refers)

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ENR 1.5 HOLDING, APPROACH AND DEPARTURE PROCEDURES

1. General

1.1 The holding, approach and departure procedures in use are based on those contained in the latest edition of ICAO Document 8168-OPS/611 (PANS-OPS).

1.2 The holding and approach procedures in use have been based on the values and factors contained in Part II of the PANS-OPS.

2. Arriving flights

2.1 IFR flights entering, and landing within control areas, will be cleared to a specified holding point and instructed to contact the Approach Control at a specified time, level or position. The terms of this clearance shall be adhered to until further instructions are received from Approach Control. If the clearance limit is reached before further instructions have been received, holding procedure shall be carried out at the level last authorised.

2.2 Pilots are requested to inform ATC for any reason the approach and/or holding procedure cannot be performed as required.

3. Departing flights

3.1 At controlled aerodrome, IFR aircraft must request route clearance prior to start.

3.2 IFR aircraft departing from controlled aerodromes will receive route clearance from the local aerodrome control tower during published hours of operation. The clearance limit will normally be the destination aerodrome.

3.3 IFR aircraft departing from non-controlled aerodromes may depart without a Route Clearance provided the clearance is received prior to entering controlled airspace.

4. En-route holding procedure

4.1 Reserved

4.2 Reserved

4.3 Holding Procedures

4.3.1 General

4.3.1.1 When holding is required in a specified pattern the procedures set out in this section must be used.

4.3.1.2 Shape and terminology associated with a standard holding pattern are given in *figure 4.1.*

4.3.1.3 Holding patterns must be flown as the AIP chart depicts, or ATC directs, otherwise. Some area navigation systems are unable to fly non-area navigation holding patterns with strict compliance with the *PANS-OPS, Volume II,* assumptions. These systems may not be used operationally unless the operator has obtained approval in writing that NCAA is satisfied that the area navigation system commands will contain the aircraft within the basic holding area defined by *PANS-OPS, Volume II*, for the environmental conditions assumed by those criteria. Where approval has been given, the pilot must verify over flight of the stipulated fixes by means of the reference facility.

4.3.2 Holding controlled airspace

4.3.2.1 Pilots instructed to hold by ATC must hold at the designated location until further cleared.

4.3.2.2 ATC will normally assign aircraft estimated to arrive first over a holding fix, or first able to commence an approach, the lowest available level for assignment.

4.3.2.3 Where a delay of six minutes or more is expected, ATC should advise an expected approach time or expected landing time.

4.3.2.4 When operationally necessary, a pilot holding must advise ATC of the latest divert time.

4.3.2.5 When an aircraft is holding because weather conditions are worse than the prescribed landing minima, ATC may nominate scheduled reporting times, normally at 15 minute intervals.

4.3.2.6 At the time or position advised, the pilot must depart from the hold. A pilot should leave the holding fix on time, or up to one (1) minute ahead of time, and unless identified, report leaving the holding fix.

4.3.3 Limitations

4.3.3.1 Unless otherwise specified, holding procedures are subject to the following limitations:

a) Speed. Indicated speed must not exceed

i) up to and including FL140

– 230KT, or

– 170KT for holding where the approach is limited to Cat A and B aircraft only;

ii) above FL140 up to and including FL200, 240KT; and

iii) above FL200, 265KT.

Note: Above the highest MSA in turbulent conditions, speeds may be increased to the lesser of 280KT or M0.8 subject to ATC approval in CTA.

b) Outbound timing begins abeam the fix or on attaining the outbound heading, whichever comes later.

c) Time/Distance outbound. The outbound leg must be no longer than:

i) up to and including FL 140 – 1 minute or the time or distance limit specified on the chart;

ii) above FL 140 – 1.5 minutes or the time or distance limit specified on the chart.

d) Turns. All turns in nil wind should be at a bank angle of 25° or Rate One, whichever requires the lesser bank.

e) Wind allowance. Allowance should be made in heading and timing to compensate for the effects of wind to ensure the inbound track is regained before passing the holding fix inbound. Full use should be made of indications available from the aid and estimated or known winds.

f) Exiting. For ATC traffic management, jet aircraft in CTA must leave an en-route holding pattern at 250KT IAS, unless otherwise published or advised by ATC. Pilots may request a variation to this requirement.

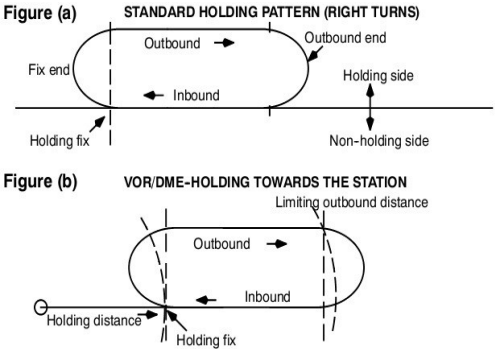

Figure 4.1 - Shape and Terminology Associated with Right Turn Holding Patterns.

4.3.4 Entry into the Holding Pattern

4.3.4.1 The entry into the holding pattern must be according to heading in relation to the three entry sectors shown in Figure 3.2 a and b, recognising a zone of flexibility of 5° on either side of the sector boundaries. For holding on a VOR intersection, the entry track is limited to the radials forming the intersection. For holding on a VOR/DME fix the entry track is limited to either the VOR radial, DME arc or alternatively along the entry radial to a VOR/DME fix at the end of the outbound leg, as published.

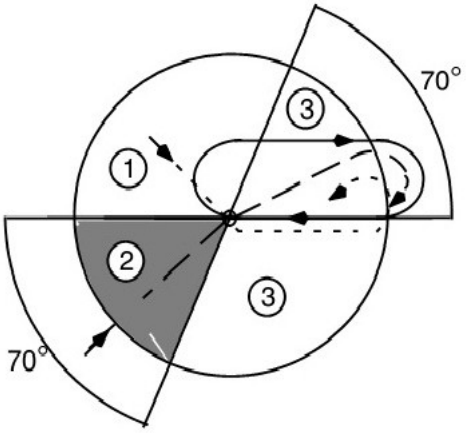

Figure 4.2 a Right Turn Holding Procedure

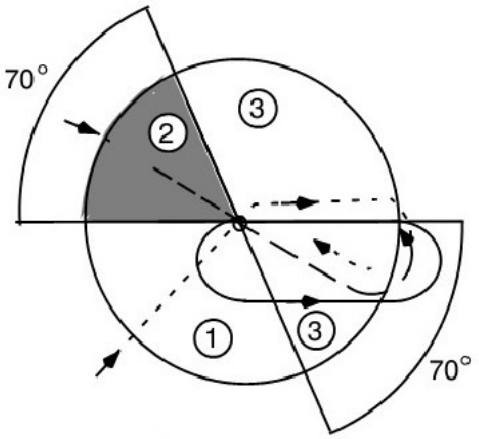

Figure 4.2 b Left Turn Holding Procedure

4.3.4.2 Entry from Sector 1 (Parallel entry):

a) On reaching the holding fix, the aircraft is turned onto an out- bound heading (to track parallel with the inbound track) for the appropriate period of time (taken from over or abeam the holding fix whichever is later), or until reaching the limiting DME distance if earlier; then

b) the aircraft is turned onto the holding side to intercept the inbound track or to return to the fix; and then

c) on the second arrival over the holding fix, the aircraft is turned to follow the holding pattern.

4.3.4.3 Entry from Sector 2 (Offset entry):

a) On reaching the holding fix, the aircraft is turned onto a heading to make good a track making an angle of 30° from the reciprocal of the inbound track on the holding side; then

b) flown outbound:

i) for the appropriate period of time from the holding fix, where timing is specified, up to a maximum of 1 minute 30 seconds; or, if earlier,

ii) until the appropriate limiting DME distance is attained, where distance is specified; then

c) the aircraft is turned in the direction of the holding pattern to intercept the inbound holding track; then

d) on second arrival over the holding fix, the aircraft is turned to follow the holding pattern.

4.3.4.4 Entry from Sector 3 (Direct entry). On reaching the holding fix, the aircraft is turned to follow the holding pattern. Outbound timing begins abeam the fix or, when the abeam position cannot be determined, from completion of the outbound turn.

4.3.4.5 DME Arc Entry. Having reached the fix, the aircraft must enter the holding pattern in accordance with either the Sector 1 or Sector 3 entry procedure.

4.3.5 Standard Holding Pattern

4.3.5.1 When flying the standard holding pattern, an aircraft must:

a) follow the prescribed track inbound to the holding fix;

b) execute a 180° turn in the direction specified, so as to fly outbound a track parallel to the inbound track;

c) continue outbound to the earlier of the time, or the DME limit specified; and

d) execute a 180° turn to realign the aircraft on the inbound track.

4.3.5.2 The “DME Limit”, where prescribed for holding patterns, is the DME distance at which the outbound leg of the holding pattern must be terminated and the turn to the reciprocal track commenced.

4.3.5.3 If entry and holding procedures have not been published or if the procedures are not known to a flight crew, the appropriate air traffic control unit shall specify the designator of the location or aid to be used, the inbound track, radial or bearing, direction of turn in the holding pattern as well as the time of the outbound leg or the distances between which to hold.

4.3.6 Shortening

4.3.6.1 The pilot may shorten the holding pattern to leave the holding fix at a specified time. For prolonged holding at a level not limited by obstacles, the length of the pattern maybe increased, subject to ATC approval where appropriate.

4.3.7 Descent in Holding Pattern

4.3.7.1 Subject to ATC approval, where appropriate, aircraft may descend as required.

5. VMC and visual approaches

5.1 *General procedures*

An IFR flight shall not be cleared to descend below the appropriate initial approach altitude as specified for a published instrument approach procedure unless:

a) the pilot has reported passing an appropriate point defined by a radio aid; or

b) the pilot reports that he can maintain visual contact with the aerodrome; or

c) The pilot is conducting a visual approach (see 5.3).

5.2 *VMC approach*

When requested by the pilot and if so prescribed by the ATSU, an arriving aircraft may be cleared to descend below the initial approach ALT subject to maintaining by day:

a) own separation with terrain;

b) VMC;

c) visual contact with the aerodrome;

d) by night - provided that there is no reduction of standard separation involved.

5.3 *Visual approach*

5.3.1 An IFR flight may be cleared to conduct a visual approach provided:

a) the aircraft is within 25NM of the destination aerodrome and the pilot has reported the aerodrome insight, and

b) the pilot can maintain visual reference to terrain at all times, and

c) the reported ceiling is at or above the initial approach altitude for the aircraft so cleared, and.

d) Reasonable assurance exists that a visual approach and landing can be completed.

5.3.2 When tracking via a STAR and subsequently cleared for visual approach, the pilot must continue to follow the lateral profile of the STAR, including any visual or instrument termination route.

5.3.3 Separation shall be provided between an aircraft cleared to execute a visual approach and other traffic in controlled airspace.

5.3.4 It is the responsibility of the pilot in command to remain in controlled airspace when conducting a visual approach.

6. Air-Ground Communication failure

PANS ATM (DOC 4444) Chapter 15 Section 15.3 refers.

6.1 Action by Air Traffic Control Units when unable to maintain two-way communication with an aircraft operating in a control area or control zone shall be outlined in the paragraphs which follow.

6.2 As soon as it is known that two-way communication has failed, action shall be taken to ascertain whether the aircraft is able to receive transmissions from the air traffic control unit by requesting it to execute a specified manoeuvre which can be observed by an ATS surveillance system or to transmit, if possible, a specified signal in order to indicate acknowledgement.

6.3 If the aircraft fails to indicate that it is able to receive and acknowledge transmissions, separation shall be maintained between the aircraft having the communication failure and other aircraft, based on the assumption that the aircraft will: -

6.3.1 If in Visual Meteorological Conditions:

a) continue to fly in Visual Meteorological Conditions;

b) land at nearest suitable aerodrome; and

c) report its arrival by the most expeditious means to the appropriate air traffic control unit; or

6.3.2 If in Instrument meteorological conditions or when conditions are such that it does not appear likely that the pilot will complete the flight in accordance with:

a) unless otherwise prescribed on the basis of regional air navigation agreement, in airspace where procedural separation is being applied, maintain the last assigned speed and level, or minimum flight altitude if higher, for a period of 20 minutes following the aircraft's failure to report it's position over a compulsory reporting point and thereafter adjust level and speed in accordance with the filed flight plan; or

b) in airspace where an ATS surveillance system is used in the provision of air traffic control, maintain the last assigned speed and level, or minimum flight altitude if higher, for a period of 7 minutes following:

i) the time the last assigned level or minimum flight altitude is reached; or

ii) the time the transponder is set to Code 7600 or the ADS-B transmitter is set to indicate the loss of air-ground communications; or

iii) the aircraft's failure to report its position over a compulsory reporting point;

whichever is later and thereafter adjust level and speed in accordance with the filed flight plan;

c) when being vectored or having been directed by ATC to proceed offset using RNAV without a specified limit, proceed in the most direct manner possible to re-join the current flight plan route no later than the next significant point, taking into consideration the applicable minimum flight altitude;

d) proceed according to the current flight plan route to the appropriate designated navigation aid or fix serving the destination aerodrome and, when required to ensure compliance with e), hold over this aid or fix until commencement of descent;

e) commence descent from the navigation aid or fix specified in d) at, or as close as possible to, the expected approach time last received and acknowledged; or, if no expected approach time has been received and acknowledged, at, or as close as possible to, the estimated time of arrival resulting from the current flight plan;

f) complete a normal instrument approach procedure as specified for the designated navigation aid or fix; and

g) land, if possible, within 30 minutes after the estimated time of arrival specified in e) or the last acknowledged expected approach time, whichever is later.

6.4 Action taken to ensure suitable separation shall cease to be based on the assumption stated in 6.3 when:

a) it is determined that the aircraft is following a procedure differing from that in 6.3; or

b) through the use of electronic or other aids, air traffic control units determine that action differing from that required by 6.3 may be taken without impairing safety; or

c) positive information is received that the aircraft has landed.

6.5 As soon as it is known that two-way communication has failed, appropriate information describing the action taken by the air traffic control unit, or instructions justified by any emergency situation, shall be transmitted blind for the attention of the aircraft concerned, on the frequencies available on which the aircraft is believed to be listening, including the voice frequencies of available radio navigation or approach aids. Information shall also be given concerning:

a) Meteorological conditions favourable to a cloud-breaking procedure in areas where congested traffic may be avoided; and

b) Meteorological conditions at suitable aerodromes.

6.6 Pertinent information shall be given to other aircraft in the vicinity of the presumed position of the aircraft experiencing the failure.

6.7 As soon as it is known that an aircraft which is operating in its area of responsibility is experiencing an apparent radio communication failure, air traffic services unit shall forward information concerning the radio communication failure to all air traffic services units concerned along the route of flight. The area control centre in whose area the destination aerodrome is located shall take steps to obtain information on the alternate aerodrome(s) and other

relevant information specified in the filed flight plan, if such information is not available.

6.8 If circumstances indicate that a controlled flight experiencing a communication failure might proceed to (one of) the alternate aerodrome(s) specified in the filed flight plan, the air traffic control unit(s) serving the alternate aerodrome(s) and any other air traffic control units that might be affected by a possible diversion shall be informed of the circumstances of the failure and requested to attempt to establish communication with the aircraft at a time when the aircraft could possibly be within communication range. This shall apply particularly when, by agreement with the operator or a designated representative, a clearance has been transmitted blind to the aircraft concerned to proceed to an alternate aerodrome, or when meteorological conditions at the aerodrome of intended landing are such that a diversion to an alternate is considered likely.

6.9 When an air traffic control unit receives information that an aircraft, after experiencing a communication failure has re-established communications or has landed, that unit shall inform the air traffic services unit in whose area the aircraft was operating at the time the failure occurred, and other air traffic services units concerned along the route of flight, giving necessary information for the continuation of control if the aircraft is continuing in flight.

6.10 If the aircraft has not reported within thirty minutes after:

a) the estimated time of arrival furnished by the pilot;

b) the estimated time of arrival calculated by area control centre; or

c) the last acknowledged expected approach time,

whichever is latest, pertinent information concerning the aircraft shall be forwarded to aircraft operators, or their designated representatives, and pilots-in-command of any aircraft concerned and normal control resumed if they so desire. It is the responsibility of the aircraft operators, or their designated representatives, and pilots-in-command of aircraft to determine whether they will resume normal operations or take other action.

7. Reserved

8. Standard Instrument Departures (SID)

8.1 General

8.1.1 Standard Instrument Departures (SIDs) are pre-planned IFR departure routes printed for pilot use in diagrammatic and narrative form. They have been produced for selected aerodromes to satisfy the requirements of:

a) noise abatement procedures tracks;

b) airspace segregation for ATC purposes;

c) obstacle clearance requirements; and

d) maximum traffic flexibility

Note 1: SIDs do not account for engine failures or other emergencies involving loss of aircraft performance

Note 2: Outside of Tower hours an aircraft may depart via a published SID for that aerodrome

8.1.2 SIDs (procedural and radar) are procedures to be followed until the aircraft reaches the LSALT for intercepting the route segment.

8.1.3 SIDs (procedural and radar) may be flown by aircraft already airborne, provided that, before commencing a SID, the pilot visually positions the aircraft on the runway centreline so that all tracking and altitude requirements can be met.

8.1.4 A procedural SID specifies in both diagrammatic and narrative form the direction of turn, tracks, and, in some cases, altitude requirement and standard departure points. When tracking to or from a navigation aid is not possible, nominal tracks are shown, the flight planned route should be intercepted as closely as possible to the specified GPS or DME distance, where given.

8.1.5 Radar SIDs specify in diagrammatic and narrative form the initial track and minimum altitude at which a turn may be initiated on to the ATC assigned heading.

Note: SID procedures assume that pilots will not compensate for wind effects when being radar vectored, but will compensate for known or estimated

wind effects when flying departure routes which are expressed as tracks.

8.1.6 Each procedure indicates the minimum design climb gradient that ensures obstacle clearance. When the initial required climb gradient exceeds 3.3%, the altitude at which a 3.3% climb gradient may be flown is shown. An additional gradient, indicated by a figure in brackets, may be included. This additional gradient, based on an airspace requirement, should be flown by aircraft required to remain in controlled airspace.

8.1.7 Diagrams also show minimum sector altitudes within 25NM of the nominated azimuth aid.

Note: SID diagrams are not drawn to scale, bearings are magnetic and altitude requirements are referenced to QNH while flight level requirements are referenced to 1013.2 hPA

8.2 Procedural SIDs

8.2.1 Procedural SIDs are identified by the name of the first enroute waypoint, or by the name of a waypoint within a SID, and the amendment status of the procedure, eg 'EGMAS ONE DEPARTURE' or 'ANSUX THREE DEPARTURE'.

Note 1: SIDs are not identified in terms of take-off runway designators, but separate SID instructions are listed and must be followed for each runway served by the SID.

Note 2: Brackets encompass limitations on the use of the procedures by some aircraft (located in the procedure title block and SID identifier) and abbreviations, eg, 'RWY 08/26 SOUTH and SOUTH EAST (JET) (RNP1 or RNAV 1)'.

8.2.2 Unless specifically designated otherwise, (see 8.2.1, Note 2), procedural SIDs are for use by all aircraft.8.3 RADAR SIDs

8.3.1 Radar SIDs are generally identified by the name of the city in which the aerodrome is located, or by the name of the aerodrome, and the amendment status of the procedure, eg, 'WALVIS BAY ONE DEPARTURE'.

8.3.2 ATC will assign a departure heading to be flown after the initial take-off phase, as depicted on the Radar SID chart, to the Minimum Vectoring Altitude (MVA). The pilot in command is not to commence the take-off without having obtained the assigned departure heading and should advise ATC if the heading is unacceptable.

8.3.3 The climb gradient shown on the RADAR SID chart provides obstacle clearance up to the LSALT, but ATC will ensure obstacle clearance during vectoring above MVA.

Note: Radar SIDs are not identified in terms of take-off runway designators, but separate Radar SID instructions are listed and must be followed for each runway served by the procedure.

8.4 ATC Procedures/Requirements

8.4.1 ATC will nominate a requirement to operate in accordance with a SID procedure in the departure instructions of an airways clearance.

8.4.2 When ATC issues climb clearance to an aircraft on a SID, the aircraft must comply with all level restrictions or requirements published on the SID chart (the vertical profile) unless ATC explicitly cancels the restrictions or requirements.

Note: Pilots must note and comply with the above requirement in 8.4.1.

8.4.3 Speed restrictions below MSA/MVA associated with waypoints are designed in accordance with PANSOPS DOC 8168 and may not be cancelled by ATC. Pilots must adhere to these speeds.

A speed restriction of 250KT may be imposed on a SID for traffic management purposes. ATC may vary this speed. The pilot in command must advise ATC if the aircraft will be unable to comply. Where practical this should be done at the airways clearance stage.
8.4.4 The pilot in command must advise ATC if cleared via a SID which requires the use of navigation aids not available to the aircraft.

8.4.5 A SID may be cancelled by ATC, either before or after take-off, by the use of the phrase:
"CANCEL SID" or "ON REACHING (level or distance) CANCEL SID (alternative ATC instructions)".

8.4.6 In a surveillance environment, when a procedural SID is cancelled before take-off, ATC may:
a. require the pilot in command to depart in accordance with a radar SID; or
b. issue alternative instructions that require the

aircraft to depart on runway track using the climb gradient specified in the cancelled SID. In this case ATC will use the phrase "CANCEL SID, MAINTAIN RUNWAY TRACK (three digits) DEGREES".

Note: For the application of this procedure, the runway and radar SID tracks must be the same up to the MVA.

8.4.8 In VMC by day, the pilot in command may request, or ATC may issue a visual departure.

8.4.9 When a procedural SID is cancelled airborne, the cancellation will not be effected below the MVA (identified aircraft) or MSA unless the cloud base is such as to permit flight in VMC by day up to the MVA/MSA as appropriate.

8.4.10 For a Radar SID, the direction of turn and assigned heading must be advised on first contact with Approach.

8.5 Aircraft Performance

8.5.1 SIDs provide specific aircraft performance parameters. The design climb gradients shown are provided to assist the pilot in maintaining obstacle clearance. A pilot not meeting the published gradients, for any reason, accepts responsibility for obstacle clearance. If alternative procedures are necessary, eg after engine failure, the pilot in command must advise ATC.

8.5.2 Procedures are designed to PANS-OPS obstacle clearance criteria which consist of:

a. 2.5% gradient of obstacle identification surfaces, or a gradient based on the most critical obstacle, penetrating those surfaces, whichever is the higher gradient; and

b. 0.8% increased obstacle clearance from zero at the departure end of the runway.

8.5.3 Any supplementary gradient given for altitude requirements imposed for other than obstacle clearances purposes does not include the 0.8% clearance

8.5.4 Where the initial climb gradient exceeds 3.3%, the altitude at which a 3.3% climb gradient may be flown will be shown.

8.5.5 Unless otherwise specified, flight parameters are as follows:

a. Bank angle – 15° average achieved;

b. Maximum speed for turning departures – 290KT

Note 1: The 290KT speed referred to in b. above is a Procedures Design parameter only. Speeds if required will be specified on the SID plate.

Note 2: For climb gradients less than 3.3%, obstacle clearance has not been assessed.

9. Stand Instrument Arrivals (STAR)

9.1 General

9.1.1 STARs are pre-planned IFR arrival routes which link enroute airways to a fix at or near the destination aerodrome.

9.1.2 STARs satisfy the requirements of:

a. noise abatement procedure tracks;

b. airspace segregation for ATC purposes'

c. maximum traffic handling capacity;

d. reduction in pilot/controller workload and air/ground communication requirements.

9.1.3 STAR charts are designed to provide pilots with primary navigational reference during the arrival phase, and specify in both diagrammatic and narrative form the route to be followed.

9.1.4 STARs are depicted in AIP charts showing:

a. a transition route, where necessary, to join a fix on the airway to the start of the arrival route;

b. an arrival route;

c. vertical navigation requirements to segregate traffic;

d. speed restrictions to assist in regulating the flow of arriving traffic; and

e. lowest safe altitudes for route segments, and a 25NM MSA.

Note: STAR charts are not drawn to scale.

9.1.5 STARs are designed to terminate;

a. at a fix for an instrument approach; or
b. a fix for a visual termination; or
c. by initiation of vectoring to the final approach course.

9.2 STAR Identification and Clearance Format

9.2.1 A STAR identifier is composed of the following items:

a. a basic indicator, which is the name of the arrival fix at which the arrival route begins;
b. a validity number to identify the current procedure; and
c. the word arrival e.g. "ATUPI ONE ARRIVAL".

9.2.2 A transition is identified by:

a. a basic indicator, which is the name of the transition fix, located on an airway. Where the transition commences; and
b. the word "TRANSITION", eg. "DUNLO TRANSITION".

9.2.3 When a STAR includes more than one arrival track, ATC will nominate the runway to be used in the STAR clearance. Nomination of a runway will identify the track to be flown; eg, "CLEARED ATUPI ONE ARRIVAL, RUNWAY TWO SIX".

9.2.4 Instrument and visual terminations procedures for specified runways may be published on STAR charts.

9.2.5 A level requirement depicted on a STAR chart does not authorise a pilot to descend to meet that requirement. To remove any possible ambiguity, ATC will provide a level assignment with a STAR clearance. ATC will also provide descent to permit compliance with vertical navigation requirements. Pilots must inform ATC if a level requirement cannot be met.

9.2.6 When ATC issue descent clearances to aircraft on a STAR, the aircraft must comply with all level requirements or restrictions published on the STAR chart (the vertical profile) unless ATC explicitly cancels the requirements or restrictions.

Note: Pilots must note and comply with the above requirement in 9.2.5 and 9.2.6.

9.2.7 A STAR clearance contains the following:

a. a STAR identifier;
b. a transition route, when applicable;
c. a runway, when applicable;
d. an instrument or visual termination procedure, when applicable; and
e. a level assignment.

9.3 STAR Procedures

9.3.1 Prior to issuing a STAR, ATC shall advise the pilot that "STAR clearance is available", unless the pilot has been advised by the previous controller to "Expect STAR clearance" on first contact.

9.3.2 STARs will normally be issued prior to commencement of descent to permit pilots to plan for any vertical navigation requirements or speed restrictions.

9.3.3 A STAR may be commenced from any point from a transition fix to an arrival fix.

9.3.4 A pilot must read back to ATC the STAR identifier and any transition, runway and termination procedure in the STAR clearance.

9.3.5 The pilot in command must advise ATC if cleared via a STAR which requires the use of navigation aids not available to the aircraft.

9.3.6 Where a STAR incorporates circuit legs to the runway, pilots of aircraft not equipped with a flight management system may have difficulty with navigation on the STAR. Where this is the case, the pilot in command should accept the STAR clearance and request vectors when contacting Approach Control; eg.
"REQUEST VECTORS FROM [waypoint or fix]

9.3.7 The STAR speed requirement of 250KT IAS below a certain level depicted on the STAR chart must be complied with unless amended by ATC. A speed requirement greater than 250KT issued above that level cancels this requirement. A speed less than 250KT imposed above that level must be complied with throughout the STAR procedure.

9.3.8 ATC may cancel the 250KT STAR speed requirements by individual instructions; eg. “CANCEL 250KT STAR SPEED RESTRICTION”.

9.3.9 ATC may hold or vector an aircraft after a STAR clearance has been issued.

9.3.10 When an aircraft is vectored away or deviates from a STAR or Transition Route associated with a STAR, and the intention is that the aircraft will rejoin the STAR or Transition Route, ATC will restate any restrictions/requirements applicable to the STAR or Transition Route up to and including the point the STAR or Transition Route is rejoined.

9.3.11 ATC will initiate vectoring by use of the following phraseology:
“TURN LEFT (or RIGHT) HEADING (three digit heading) FOR SEQUENCING (or SEPARATION), EXPECT (STAR or Transition Route Identifier) IN (number) MILES (or AT (position)).

9.3.12 When an aircraft is vectored or deviated off a STAR or Transition Route, ATC will;

a. reposition the aircraft on the STAR or Transition Route;
b. provide direct tracking to a waypoint on the STAR or Transition Route; and
c. restate any restrictions/requirements applicable to the STAR or Transition Route being rejoined up to and including the point the STAR or Transition Route is rejoined.

9.3.13 Following vectoring or holding, pilots must resume the previously issued STAR clearance including any transition and comply with any STAR or Transition Route restrictions/requirements from the position at which the aircraft re-intercepts the STAR or Transition Route.

9.3.14 When required, holding must be in accordance with the published procedure, or as directed by ATC.

9.3.15 ATC may cancel a STAR, either prior to or after the Arrival Fix. ATC will reissue any new STAR instructions in full when required.

9.3.16 Compliance with STAR speeds is required. Variations to general or published descent speeds may be issued at ATC discretion, except for speeds which apply below MSA/MVA for the track flown

ENR 1.6 ATS SURVEILLANCE SERVICES AND PROCEDURES

1. General

ATS surveillance service is provided by the following ATC units:
Windhoek ACC above FL145
Windhoek APP within Windhoek TMA and within FYWH CTR above 7100FT.

2. Operating methods

2.1 Identification

ATS surveillance service will be provided after positive identification of the aircraft. Surveillance service will only be provided within controlled airspace.
Aircraft will be identified by one of the following methods:

- By the use of SSR
- By instructing the pilot to commence one or several turns or by observing reported turn.
- By a pilot report over a prescribed position displayed on the surveillance map or plotted on the surveillance map outlay.
- By observing and correlating the surveillance echo of a departing aircraft to a known airborne time.

The aircraft will only be advised of its position if the identification has been carried out by turn.

2.2 Separation

2.2.1 Minimum surveillance separation at Windhoek ACC between identified aircraft under the provision of surveillance service is 10NM.

2.2.2 Minimum surveillance separation within Windhoek APP area of responsibility, FL245 and below, between identified aircraft under the provision of surveillance control is 5NM.

2.2.3 It is not possible to specify separation minima between identified aircraft and unknown traffic due to unpredictable manoeuvres of the latter. However, whenever practicable, minimum surveillance separation will be applied.

2.3 Speed adjustment

Speed adjustment is applied only when the maintaining of an orderly flow of air traffic is thereby considerably facilitated. Speed adjustment is requested to even tens of knots (IAS) or adequate Mach number.

2.4 Vectoring procedures

2.4.1 Whenever an aircraft is being provided with surveillance vectors, the pilot will be advised of the reason for the vectors.

2.4.2 When surveillance vectors are no longer required, the pilot will be instructed to resume own navigation to a specified waypoint.

2.4.3 During surveillance vectors, the controller will issue clearances such that the prescribed obstacle clearance will exist at all times until the aircraft reaches the point where the pilot will resume own navigation.

2.5 Surveillance failure

In the event of surveillance failure, the surveillance controller will, as soon as practicable, establish required lateral or vertical procedural separation between those aircraft provided by surveillance control.

3. Operation of SSR transponders

3.1 Requirements

3.1.1 All aircraft operating within the Windhoek FIR, FL 145 and above, and the Windhoek TMA, are required to be equipped with and operate SSR transponder mode A and C simultaneously.

3.1.2 Aircraft shall set the transponder code as instructed by ATC. If no such instruction is received, the aircraft shall squawk code 2000.
Exceptions see 3.2, 3.3 below and ENR 1.13.

3.1.3 If the aircraft has received a transponder code from previous ATS before entering Windhoek FIR, the aircraft shall maintain this setting if no other instruction is received.

3.2 Emergency procedures

A pilot of an aircraft that is encountering a state of emergency shall set his transponder to mode A code 7700.

3.3 Radio failure

3.3.1 In the event of radio communication failure, mode A code 7600 shall as soon as possible be selected.

3.3.2 The pilot shall by trying to establish contact at alternate frequencies, determine whether it is the aircraft equipment or the ground based equipment that has failed.

3.3.3 If the aircraft is able to receive but not transmit, the pilot shall remain on the established frequency and comply with further instructions issued by the surveillance controller.

3.3.4 In the event that the aircraft is unable to establish contact on alternative frequencies or is unable to receive any instructions, the pilot shall comply with the Air-Ground Communication failure procedures as specified in ENR 1.5.6.

Note. If there is a special radio communication failure procedure prescribed in AIP AD 2.22 for a specific airport, then that procedure shall be complied with.

3.4. Transponder Mandatory Zone

a) Transponder Mandatory Zones are established during the gliding season to ensure greater awareness of glider traffic in areas that may have high-density IFR traffic operations. These areas are established to ensure the ATC is aware if glider activity is taking place in certain areas, and also to allow TCAS equipped aircraft better situational awareness of locating gliders when flying in the same airspace.

b) Buffer Zone

A Buffer zone is established above FL145 between the Special Gliding Area and 60NM from the Windhoek TMA and 70NM from the Walvis Bay TMA.

c) TMZ Kiripotib and Pokweni

A Transponder Mandatory Zone (TMZ) is instated between the Windhoek TMA and 80DME WHV between Radials 155 and 205 WHV. The TMZ operation will be applicable to all gliders above FL145 in the designated glider box up to 80NM WHV and above FL100 in the Buffer Zone also known to the gliders as the Kiripotib Zone.

d) TMZ Kiripotib Zone

The TMZ Kiripotib Zone is established between the Windhoek TMA–C 50NM WHV and 60NM WHV with borders Radial 115 VOR WHV in the East and Radial 205 VOR WHV in the West. FL100 up to FL145.

e) TMZ Walvis Bay

A TMZ is instated between the Walvis Bay TMA and 80DME WBV and the borders of the special gliding area. The TMZ operation will be applicable to all gliders above FL145 in the designated area.

f) TMZ Luderitz

A TMZ is instated between the Lüderitz (FYLZ) ARP and 45DME Lüderitz (FYLZ) ARP and the borders of the special gliding area. The TMZ operation will be applicable to all gliders above FL145 in the designated area.

g) TMZ Airway G653

A TMZ is instated both sides 15NM along the Route G653. The borders of the special gliding area are the West- and East- side border. The TMZ operation will be applicable to all gliders above FL145 in the designated area.

h) TMZ Airway R987

A TMZ is instated both sides 15NM along the Route R987. The borders of the special gliding area are the North- and South- side border. The TMZ operation will be applicable to all gliders above FL145 in the designated area.

i) The TMZ Map

The TMZ Areas are defined in the Purple Areas and include 15NM either side of the R987 and G653 Airways from FL145 – FL195.

i) TMZ Kiripotib and Pokweni

ii) TMZ Walvisbay

iii) TMZ Luderitz

4. Reserved

5. SPEED CONTROL (ARRIVING AIRCRAFT)

5.1 To facilitate the provision of ATS surveillance services in controlled airspace, a pilot of a controlled flight may expect the application of speed control. ATC-issued speed control instructions refer to indicated airspeed or Mach number.

5.2 The pilot must request an alternative when an ATC-issued speed control instruction is unacceptable on operational grounds.

5.3 When the application of speed control can be foreseen, a pilot will be advised of future intentions as soon as practicable.

5.4 An ATC-issued speed control instruction, whilst in force, explicitly cancels published speed restrictions.

Note: Airspace speed limitations still apply at and below FL150 in the Hosea Kutako International TMA unless specifically cancelled by ATC.

5.5 A pilot will be advised when a specific ATC-issued speed control instruction is no longer necessary.

5.6 Unless otherwise stated, an ATC-issued speed control instruction applies until the aircraft reaches the point in the descent profile where the speed would normally be reduced below that assigned by ATC.

5.7 Except for a STAR, or unless otherwise specified, a clearance for final approach or a clearance for a visual approach terminates speed control.

5.8 Pilots will be notified of the use of speed control for their arrival with the phrase: *"For sequencing, descend at 250KT IAS"*

6. AFI Participation areas

6.1 AFI has established four (04) Participating Areas within which specific codes are allocated to enable assignment to aircraft. The four Participating Areas consist of the following FIR's with associated States:

a) **Participating Area East (12)** – Addis Ababa (Ethiopia and Djibouti), Juba (South Sudan), Mogadishu (Somalia), Asmara (Eritrea), Nairobi (Kenya), Entebbe (Uganda), Kigali (Rwanda), Bujumbura (Burundi), Dar-es-Salaam (Tanzania), Seychelles (Seychelles), Antananarivo (Madagascar, Comoros and La Reunion) and Mauritius (Mauritius).

b) **Participating Area South (9)** – Lilongwe (Malawi), Lusaka (Zambia), Luanda (Angola), Beira (Mozambique), Harare (Zimbabwe), Gaborone (Botswana), Windhoek (Namibia), Johannesburg (South Africa, Swaziland and Lesotho), and Cape Town (South Africa).

c) **Participating Area Central (3)** – Kinshasa (D. R Congo), Brazzaville (Congo Brazzaville, Cameroon, Central African Republic, Gabon, Equatorial Guinea, Sao Tome and Principe), and N'Djamena (Chad, Part of Cameroon and Part of Central African Republic).

d) **Participating Area West (6)** – SAL (Cabo Verde), Dakar (Senegal, Mauritania, Gambia, Guinea Bissau, Mali and Cote D'Ivoire), Roberts (Guinea Conakry, Sierra Leone and Liberia), Accra (Ghana, Togo and Benin), Niamey (Niger, Burkina Faso and Part of Mali) and Kano (Nigeria).

7. Code Allocation

7.1 International codes shall be assigned in accordance with the following principles governing the Originating Regional Code Assignment Method (ORCAM):

a) When an aircraft enters the AFI Region (either when departing or during flight), the first ATS unit concerned in that Participating Area shall assign to it a four-digit code;

b) Each flight will keep the original code assignment on entering the AFI Region for the whole flight time within that Participating Area;

c) Normally a code change will be required at the time a flight crosses (leaving) the AFI Region and/or Participating Area boundary. However, in specific cases and by specific arrangements agreed between the ATS units affected during the continuation of the flight, the assigned code may be retained beyond the AFI Region and/or Participating Area boundary.

7.2 Domestic codes are allocated for use by flights that, throughout their flight, remain within the boundaries of the agreed area of use of such codes (normally within one FIR).

7.3 Such Domestic codes will be assigned to flights and used only within one FIR.

8. Code Series for Namibia

No	Domestic	International
1	1300-1377	0600-0677
2	0700-0777	
3	1200-1277	

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ENR 1.7 ALTIMETER SETTING PROCEDURES

1. Introduction

1.1 The altimeter setting procedures in use generally conform to those contained in ICAO 8168 Vol. I, Part 6 and are given in full below. Differences are shown in quotation marks.

1.2 Transition altitudes are as follows:

Eros	10 000 FT
Katima Mulilo	10 000 FT
Keetmanshoop	10 000 FT
Luderitz	10 000 FT
Swakopmund	10 000 FT
Walvis Bay	10 000 FT
Windhoek	10 000 FT

1.3 QNH reports and temperature information for use in determining adequate terrain clearance are provided in MET broadcasts and are available on request from the air traffic services units. QNH values are given in hectopascals (HPA).

1.4 QNH values in inches (INS) and QFE settings are available on request.

1.5 All aircraft operating at level flight, at or above 1 500 FT above the ground or water, irrespective of the weather conditions and irrespective of whether the flight is operating on a VFR or IFR flight plan, shall observe these altimeter setting procedures.

2. Basic altimeter setting procedures

2.1 *General*

2.1.1 A transition altitude is specified for each aerodrome. The transition altitude for all points of departure and arrival within 25 NM of any aerodrome listed in the AIP or AIC shall be the same as that listed for the relative aerodrome.

2.1.2 In VMC flight departing from, or arriving at points beyond 25 NM from any of the aerodromes listed shall observe a height of 2 000 feet above the ground or water as the transition altitude.

2.1.3 In IMC flight departing from, or arriving at points beyond 25 NM from any of the aerodromes listed shall observe the lowest safe cruising altitude as the transition altitude.

2.1.4 The transition level is that level at which the change in reference from 'flight level' used while en-route to 'altitude' used in the vicinity of an aerodrome is made.

2.1.5 The transition level will vary with variations in the barometric pressure so that the transition level will never be less than 1000 feet above the transition altitude within 25 NM of an aerodrome with an ATSU.

2.1.6 Vertical positioning of an aircraft when at or below the transition altitude is expressed in terms of altitude, whereas such positioning at or above the transition level is expressed in terms of flight levels. While passing through the transition layer, vertical positioning is expressed in terms of altitude when descending and in terms of flight levels when ascending.

2.1.7 Flight level zero is located at the atmospheric pressure level of 1013.2 HPA (29.92 INS). Consecutive flight levels are separated by a pressure interval corresponding to 500 FT in the standard atmosphere.

2.1.8 Examples of the relationship between flight levels and altimeter indications are given in the following table:

Flight level number	Altimeter indication Feet
10	1000
15	1500
20	2000
50	5000
100	10000
150	15000
200	20000

2.2 *Take-off and climb*

2.2.1 A QNH altimeter setting will be made available to aircraft on taxi clearance.

2.2.2 Vertical positioning of aircraft during climb is expressed in terms of altitudes until reaching the transition altitude above which vertical positioning is expressed in terms of flight levels.

2.3 *Vertical separation - En-route*

2.3.1 Vertical separation during en route flight shall be expressed in terms of flight levels.

2.3.2 IFR and VFR flights when in level cruising flight, shall be flown at such flight levels, corresponding to the magnetic tracks shown in the following table:

TRACK											
From 000 degrees to 179 degrees						From 180 degrees to 359 degrees					
IFR flights			VFR flights			IFR flights			VFR flights		
Altitude			Altitude			Altitude			Altitude		
FL	Meters	Feet	FL	Meters	Feet	FL	Meters	Feet	FL	Meters	Feet
0			-	-	-	0			-	-	-
10	300	1 000	-	-	-	20	600	2 000	-	-	-
30	900	3 000	35	1 050	3 500	40	1 200	4 000	45	1 350	4 500
50	1 500	5 000	55	1 700	5 500	60	1 850	6 000	65	2 000	6 500
70	2 150	7 000	75	2 300	7 500	80	2 450	8 000	85	2 600	8 500
90	2 750	9 000	95	2 900	9 500	100	3 050	10 000	105	3 200	10 500
110	3 350	11 000	115	3 500	11 500	120	3 650	12 000	125	3 800	12 500
130	3 950	13 000	135	4 100	13 500	140	4 250	14 000	145	4 400	14 500
150	4 550	15 000	155	4 700	15 500	160	4 900	16 000	165	5 050	16 500
170	5 200	17 000	175	5 350	17 500	180	5 500	18 000	185	5 650	18 500
190	5 800	19 000	195	5 950	19 500	200	6 100	20 000			
210	6 400	21 000				220	6 700	22 000			
230	7 000	23 000				240	7 300	24 000			
250	7 600	25 000				260	7 900	26 000			
270	8 250	27 000				280	8 550	28 000			
290	8 850	29 000				300	9 150	30 000			
310	9 450	31 000				320	9 750	32 000			
330	10 050	33 000				340	10 350	34 000			
350	10 650	33 000				360	10 950	36 000			
370	11 300	37 000				380	11 600	38 000			
390	11 900	39 000				400	12 200	40 000			
410	12 500	41 000				430	13 100	43 000			
etc	etc	etc				etc	etc	etc			

Note 1: Some of the lower levels in the above table may not be usable due to terrain clearance requirements.

TRACK												
From 000 degrees to 179 degrees						From 180 degrees to 359 degrees					
IFR flights			VFR flights			IFR flights			VFR flights		
Altitude			Altitude			Altitude			Altitude		
FL	Meters	Feet	FL	Meters	Feet	FL	Meters	Feet	FL	Meters	Feet
Note 2: No VFR flight is permitted above FL 195. Note 3: A flight conducted above FL 200 shall be flown in compliance with IFR.											

2.4 *Approach and landing*

2.4.1 A QNH altimeter setting will be made available in approach clearance and in clearance to enter the traffic circuit.

2.4.2 Vertical positioning of aircraft during approach is controlled by reference to flight levels until reaching the transition level below which vertical positioning is controlled by reference to altitudes.

2.5 *Missed approach*

The relevant portions of paragraphs 2.1.2, 2.2 and 2.4 shall be applied in the case of a missed approach.

3. Description of altimeter setting region

Not applicable in Namibia.

4. Procedures applicable to operators/flight planning

4.1 The levels at which the en-route phase of an IFR flight are to be conducted shall be specified in the flight plan in terms of flight levels. Flights conducted in the vicinity of an aerodrome shall be flown at altitudes if below the transition altitude and at flight levels if above the transition altitude.

4.2 There is no requirement for a VFR flight to state its intended flight level/altitude in a flight plan, except for those flights intending to enter controlled or advisory airspace. However, where a level is stated it shall be:

a) in terms of flight levels if the flights is to be conducted at or above 1 500 feet above the surface; or

b) in terms of flight levels or altitudes if the flight is to be conducted below 1 500 feet above the surface.

4.3 The flight level or levels selected for a flight should:

a) in IMC ensure adequate terrain clearance and

b) for IFR flights, satisfy ATC clearance, and

c) for all IFR flights and for VFR flights at or above 1 500 feet above the surface be compatible with the application of the semi-circular rule.

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ENR 1.8 REGIONAL SUPPLEMENTARY PROCEDURES (DOC 7030)

The supplementary procedures in force are given in their entirety. Differences are shown in quotation marks.

1. Visual flights rules (VFR) (ICAO Annex 2, 4.8)

VFR flights to be operated within a control zone established at an aerodrome serving international flights and in specified portions of the associated terminal control area shall:

a) have two-way radio communications

b) obtain permission from the appropriate air traffic control unit; and

c) report positions, as required.

Note: The phrase "specified portions of the associated terminal control area" is intended to signify at least those portions of the TMA used by international IFR flights in association with approach, holding, departure and noise abatement procedures.

2. Special application of instrument flight rules

Flights shall be conducted in accordance with the instrument flight rules even when not operating in instrument meteorological conditions, when operated more than 90 KM seaward from the shoreline.

3. Air traffic advisory service (PANS-RAC, Part VI, 1.4)

All IFR flights shall comply with the procedures for air traffic advisory service when operating in advisory airspace.

4. Adherence to ATC approved route (ICAO Annex 2, 3.6.2.2)

If an aircraft has inadvertently deviated from the route specified in its ATC clearance, it shall forthwith take action to regain such route within "one hundred (100)" nautical miles from the position at which the deviation was observed.

5. All weather operations

In terms of the Rules of the Air, Air Traffic Services, Search and Rescue and Overflight Regulations, 1975, as amended chapter 5 paragraphs 5.5 and 5.6, no pilot may conduct an instrument approach procedure from a facility under any circumstances unless a State approved instrument procedure has been promulgated for a facility.

5.1 Glossary of terms.

5.1.1 Aerodrome operating minima.

The limits of usability of an aerodrome for either take-off or landing, usually indicated with reference to visibility (VIS) or runway visual range (RVR), to decision height, minimum descent altitude and to cloud conditions.

5.1.2 All Weather Operations (AWOPs)

Any take-off, en-route or landing operations in conditions where visual reference is limited by weather conditions.

5.1.3 Alternate aerodrome for take-off.

An aerodrome to which a flight may proceed should the weather conditions at the aerodrome of departure preclude a return for a landing. Such aerodrome shall lie within the flying times given below, calculated at normal cruising speed in still air with the critical engine inoperative or critical systems on single engine aircraft becoming inoperative.

No of engines	Time from departure Aerodrome
1	20 MIN
2	1 HR
3 or more	2 HR

5.1.4 Alternate aerodrome for landing.

An aerodrome specified in the flight plan to which a flight may proceed when it becomes inadvisable to land at the aerodrome of intended landing.

Note: An alternate aerodrome for landing may be the aerodrome of departure.

5.1.5 Cloud break procedures (break cloud procedure)

5.1.5.1 A Cloud Break Procedure may be approved by the Executive Director: Namibia Civil Aviation Authority when one or more of the following conditions apply:

a) Such procedure is conducted outside controlled airspace
b) Such procedure is conducted inside controlled airspace
c) The runway and/or equipment do not comply with ICAO requirements for the instrument approach procedures.
d) The runway is not aligned with the final approach track.
e) Local QNH may not be available
f) Any cloud break procedure conducted outside Controlled Airspace is conducted at the discretion of the Pilot-in-Command.

5.1.5.2 In the event of such runway and/or equipment does not comply with ICAO requirements the OCA and OCH will not be lower than that specified for circling minima as applicable to aircraft category which is as follows:

Category A	Minimum obstacle clearance
Category B	above the obstacle in the visual manoeuvring area = 295 FT
Category C	Minimum obstacle clearance
Category D	above any obstacle in the visual manoeuvring area = 394 FT

Provided that the Minimum Obstacle Clearance Height (OCH) is not less than:
CAT A 400FT; CAT B 500FT; CAT C 600FT and CAT D 700FT

5.1.6 Categories of aeroplanes

The following five categories of aeroplanes have been established on the basis of 1.3 times the stall speed in the landing configuration at maximum certified landing mass:

Category A	Less than 91 KTS IAS
Category B	91 KTS IAS or more, but less than 121 KTS IAS.
Category C	121 KTS IAS or more, but less than 141 KTS IAS
Category D	141 KTS IAS or more, but less than 166 KTS IAS
Category E	166 KTS IAS or more, but less than 211 KTS IAS

5.1.7 Circling approach.

5.1.7.1 An extension of an instrument approach procedure, so as to provide for visual circling of the aerodrome prior to landing, and ensuring obstacle clearance by restricting the radius of the circling approach as per ICAO Document 8168.

5.1.7.2 The visual manoeuvring area for a circling approach is determined by drawing arcs centred on each runway threshold and joining these arcs with tangent lines. The radius of the arc is related to:

a) Aircraft category

b) Speed for each category

c) Wind speed 25 KTS throughout the turn; and

d) Bank Angle: 200 or 3° per second, whichever requires less bank.

5.1 .7.3 Determination method.

The radius is determined using the formulae as per attachment IIIE of ICAO Document 8168 by applying 25 KTS wind to the true airspeed of each category of aircraft using visual manoeuvring IAS from the table below. The true airspeed is based on an aerodrome elevation of 2000 FT and a temperature of IAS + 15°. See Appendix A para 7.1 for details.

5.1.8 Cloud ceiling.

The height above the ground or water of the base of the lowest layer of cloud situated below 20 000 FT and covering more than half the sky.

5.1.9 Decision Altitude / Height (DA / H)

A specified altitude or height, in the precision approach at which a missed approach must be initiated if the required visual reference to continue the approach, has not been established.

Note: Decision Altitude (DA) is referenced to Mean Sea Level and Decision Height (DH) is referenced to the runway threshold elevation.

5.1.10 En-route Safe Altitude.

An altitude which will ensure a separation height of at least 1500 FT above the highest obstacle located within 5 NM of the aircraft in flight.

5.1.11 Expected Approach Time (EAT)

The time at which ATC expects an arriving aircraft, following a delay, will leave the holding pattern to complete its approach for a landing.

Note: The actual time of leaving the holding pattern will depend upon the approach clearance.

5.1.12 Onward Clearance Time (OCT)

In spite of measures introduced to avoid airborne delays, weather, emergencies and other unpredictable or controllable events may necessitate en-route holding. Pilots are informed that OCT's (onward clearance times) will only be issued if the hold is expected to exceed 10 MIN.

5.1.13 Flight visibility.

The visibility forward from the cockpit of an aircraft.

5.1.14 Final Approach Fix (FAF).

The fix from which the final approach (IFR) to an aerodrome is executed and which identifies the beginning of the final approach segment.

5.1.15 Initial Approach Fix.

The fix (es) depicted on Instrument Approach Procedures Charts that identifies the beginning of the initial segment(s).

5.1.16 Initial Approach Altitude.

The lowest altitude in the holding pattern or on an arrival route of an instrument approach procedure, providing the required protection against obstacles. This altitude may be below Minimum Sector Altitude (MSA) and accepted by a pilot, when being vectored under radar control.

5.1.17 Procedure turn approach.

Procedure turn approach may with ATC approval be executed, if approaching within 30° from the outbound track.

5.1.18 Instrument Approach Procedure (IAP).

A series of predetermined manoeuvres which are carried out by reference to flight instruments which will provide specified protection from obstacles, form the initial approach fix, or where applicable, form the beginning of a defined arrival route, up to a point, from which a landing can be completed and thereafter, if a landing is not completed, up to a position at which holding, or en-route obstacle clearance criteria apply.

5.1.19 Minimum Descent Altitude/Height (MDA/H).

A specified altitude/height in a non-precision approach or circling approach below which no descent is to be made without the required visual reference.

Note: Minimum Descent Altitude (MDA) is referenced to Mean Sea Level (MSL) and Minimum Descend Height (MDH) is referenced to runway threshold or aerodrome elevation.

5.1.20 Minimum sector altitude (MSA).

The lowest altitude which may be used which will provide a minimum clearance of 1000 FT above all objects located in an area contained within a sector of a circle of 25 NM radius centred on significant point (ARP) or the heliport reference point (HRP).

Note: It is the responsibility of the pilot-in-command not to descend prematurely below MSA, unless on a vector under radar control.

5.1.21 Missed Approach Point (MAPT).

That point, in an instrument approach procedure, at or before which the prescribed missed approach procedure must be initiated in order to ensure that the minimum obstacle clearance is not infringed.

5.1.22 Missed Approach Procedure.

The procedure to be followed if the approach cannot be continued.

5.1.23 Non-precision approach.

5.1.23.1 An instrument approach for landing in which no electronic glide path guidance is provided.

5.1.23.2 In the case where there are two facilities utilized for the instrument approach procedure, the facility on which the instrument approach procedure is based shall be deemed to be the primary facility and the second facility shall be deemed to be the secondary facility.

5.1.23.3 In circumstances where the secondary facility is not available whilst executing an instrument approach procedure, and the secondary facility, when operative, would have provided a lower MDA, then the aircraft may descend on a time basis to the specified altitude for the secondary facility, unless a different MDAIH has been specified for the secondary facility in the event of such facility not being available.

5.1.24 Obstacle Clearance Altitude I Height (OCA/H).

The lowest altitude (OCA), or alternatively the lowest height separation from the obstacles to the aircraft in flight in various phases of an instrument approach procedure and which under no circumstances will be less than the minima recommended by ICAO in the document 8168/OPS as amended.

5.1.25 Obstacle clearance criteria.

The criteria used by the State that provides vertical separation from obstacles to aircraft in flight in various phases of an instrument approach procedure and which under no circumstances will be less than the minima recommended by ICAO in document 8168/OPS as amended.

5.1.26 Precision approach.

An Instrument Approach for landing in which precision azimuth guidance and precision glide path guidance are provided in accordance with the minima prescribed for the category of operation.

5.1.27 Required visual reference

The runway environment, i.e., runway threshold, touch-down area, touch down zone lighting, or approach lighting must be visible for sufficient time for the pilot to determine that the aircraft is in a position for a normal visual descent to land

5.1.28 State approved procedure.

No pilot may conduct an instrument approach procedure from a facility under any circumstances unless a State approved instrument approach procedure has been promulgated by NOTAM/AIP SUP action for that facility.

5.1.29 Runway Visual Range (RVR).

The maximum distance, in the direction of take-off or landing, at which the runway or the specified lights or markers delineating it can be seen from a point perpendicular to the runway centre-line and at the average eye-level of a pilot at touchdown.

5.1.30 Visibility.

5.1.30.1 The distance depending on atmospheric conditions and expressed in meters. At which prominent unlighted objects are discernible by day and prominent lighted objects are discernible by night.
5.1.30.2 The following table gives a conversion factor that should be applied to meteorological RVR to obtain visibility (VIS), i.e., VIS = RVR x conversion factor and vice versa.

Lighting elements AVBL	RVR - reported MET VIS	
	DAY	NIGHT
HI approach and RWY lighting	1.5	2.0
Any other type of lighting facility	1.0	1.5
No lighting	1.0	NIL

5.1.31 Visual Descent Point (VDP).

A defined point on the final approach track of a non-precision straight-in approach procedure, from which a normal descent from the MDA to the runway touchdown zone may be commenced, provided the approach threshold of that runway or approach lights or other markings are clearly visible to the pilot. See para 7.2 Appendix B.

5.1.31.1 Clearance to descent subject to maintaining own separation while in VMC

When requested by the pilot of an aircraft and if so prescribed by the appropriate ATS authority and arriving aircraft may be cleared to descent subject to maintaining own separation and remaining in VMC if reports indicate that this is possible

5.2 Airspace definitions.

5.2.1 Advisory airspace.

Airspace of defined dimensions or designated route within which air traffic advisory service is available.

Note: This airspace may be designated advisory area (ADA) or advisory route (ADR)

5.2.2 Controlled airspace.

An airspace of defined dimensions within which air traffic services is provided to IFR flights and to VFR flights in accordance with the airspace classification.

Note: Controlled airspace is a generic term which covers ATS airspace classes A, B, C, D and E as defined in ICAO ANNEX 11, Appendix 4.

5.3 Aerodrome Operating Minima.

The RVR or VIS minima for take-off with an alternate aerodrome for take-off shall be set out in the following:

5.3.1 Take-off minima where the facilities indicated below are available

5.3.1.1 General

a) Take-off minima established by the operator must be expressed as visibility or RVR limits, taking into account all relevant factors for each aerodrome planned to be used and the aeroplane characteristics. Where there is a specific need to see and avoid obstacles on departures and/or for a forced landing, additional conditions (e.g ceiling) must be specified.

b) The pilot-in-command shall not commence take-off unless the weather conditions at the aerodrome of departure are equal to or better than the applicable minima for landing at the aerodrome unless a suitable take-off alternate is available.

c) When the reported meteorological visibility is below that required for take-off and RVR is not reported a take-off may only be commenced if the pilot-in-command can determine that the RVR/Visibility along the take-off runway is equal to or better than the required minimum.

d) When no reported meteorological visibility or RVR is available, take-off may only be commenced if the pilot-in-command can determine that the RVR/Visibility along the take-off runway is equal to or better than the required minimum.

5.3.1.2 Visual Reference
The take-off minima must be selected to ensure sufficient guidance to control the aeroplane in the event of both a discontinued take-off in adverse circumstances and a continued take-off after failure of the critical power unit.

5.3.1.3 Required RVR/Visibility

a) For the multi-engine aeroplanes, whose performance is such that, in the event of a critical power failure at any point during takeoff, the aeroplane can either stop or continue the take-off to a height of 1500 feet above the aerodrome while clearing obstacles by the required margins, the take-off minima established by an operator must be expressed as RVR Visibility values not lower than those given in Table 1 below except as provided in paragraph (5.3.1.4) below:

Table 1: RVR/VISIBILITY FOR TAKE-OFF	
Take-off RVR/Visibility	
FACILITY	RVR/VISIBILITY (Note 3)
Nil (day only)	500 M

Runway edge lighting and/or centreline marking	250/300 M (Notes 1 & 2)
Ruway edge and centreline lighting	200/250 M (Note 1)
Runway edge and cetreline lighting and multiple RVR information	150/200M(Notes 1 & 4)

Note 1 The higher values apply to Category D aeroplanes.

Note 2 For night operation at least runway edge and runway end lights are required.

Note3 The reported RVR/Visibility value representative of the initial part of the take-off run can be replaced by pilot assessment.

Note 4 The required RVR value must be achieved for all the relevant RVR reporting points with the exception given in Note 3 above.

b) For multi-engine aeroplane whose performance conditions in the subparagraph (5.3.1.3)(a) above in the event of a critical power unit failure, there maybe a need to re-land Immediately and to see and avoid obstacles in the take-off area. Such aeroplanes may be operated to the following take-off minima provided they are able to comply with the applicable obstacle clearance criteria, assuming engine failure at the height specified. The take-off minima established by an operator must be based upon the height from which the one engine in-operative net take-off flight path can be constructed. The RVR minima may not be lower than either of the values given in Table 1 above or table 2 below.

i) High intensity runway centerline lights spaced 15 M or less and high intensity edge lights spaced 60 M or less are in operation

iii) Flight deck crew have satisfactorily completed training in a simulator approved for this procedure

ii) A 90 M visual segment is available from the cockpit at the start of the take-off run; and

TABLE 2: ASSUMED ENGINE FAILURE HEIGHT ABOVE THE RUNWAY VERSUS RVR/VISIBILITY

TAKE-OFF RVR / VISIBILITY _FLIGHT PATH

Assumed engine failure height above the take-off runway	RVR / Visibility (Note 2)
<50 FT	200 M
51-Loo FT	300 M
101- 150 FT	400 M
151—200 FT	500 M
201—300 FT	1000 M
>300 FT	1500 M(Note 1)

Note 1: 1 500 M is also applicable if no positive take-off flight path can be constructed.
Note 2: The reported RVR/visibility value representative of the initial part of the take-off run can be replaced by pilot assessment.

c) When reported RVR, or meteorological visibility is not available, the pilot-in-command may not commence take-off unless he or she can determine that the actual conditions satisfy the applicable take-off minima.

5.3.1 .4 Exceptions to Paragraph (5.3.1 .3) (a)

a) Subject to approval of the Director, and provided the requirements in paragraphs (i) to (v) below have been satisfied, an operator may reduce the take-off minima to 125 m RVR (Category D aeroplanes) when:
Low visibility procedures are in force;

iii) The required RVR value has been achieved for all of the relevant RVR reporting points.

b) Subject to the approval of the Executive Director: Namibia Civil Aviation Authority, an operator of an aeroplane using an approved lateral guidance system for take-off may reduce the take-off minima to an RVR less than 125 M (Category A, B and C aeroplanes) or 150 M (Category D aeroplanes). But not lower than 75 M provided runway protection and facilities

equivalent to Category Ill landing operations is available.

5.3.1.5 Landing Minima

An operator may place an approach ban on the intended procedure whether it be a non precision or a Category 1 precision approach should the weather conditions be below certain criteria at destination.

5.3.1..6 Commencement and Continuation of an Approach.

The pilot in command may commence an instrument approach regardless of the reported RVR/Visibility but the approach shall not be continued beyond the outer marker, or equivalent position, if the reported RVR/Visibility is less than the applicable minima.

a) Where RVR is not available, RVR values may be derived by converting the reported visibility in accordance with Table 9 below (conversion of visibility to RVR).

b) If after passing the outer marker or equivalent position in accordance with (a) above, the reported RVR/Visibility falls below the required minima, the pilot in command may continue the approach to DA/H or MDA/H.

c) Where no outer marker or equivalent position exist, the pilot-in-command shall decide whether to continue or abandon the approach before descending below 1000 feet above the aerodrome on the final approach segment.

d) The approach may be continued below DA/H or MDA/H and the landing may be completed provided that the required visual reference is established at the DA/H or MDA/H and is maintained.

No aircraft shall descend below the state published OCA/H unless the required visual reference has been established.

5.3.2 NON PRECISION APPROACH

MDA/H shall be determined by the operator for each runway and for each non-precision approach procedure to be used. In determining the height margin to be added to the OCAIH, in order to calculate such MDAIH the operator shall take the following into account.

a) Aircraft: Category, performance and equipment

b) Aircrew: Experience and level of competency

5.3.2.2 System Minima

a) An operator must ensure that system minima for non-precision approach procedures, which are based upon the use of ILS without glide path (LOC only), RNAV, VOR, NDB, SRA and VDF are not lower than MDH values given in Table 3.

b) System minima

System Approach Procedure	*Lowest DH/MDH*
ILS/MLS/GLS CAT 1	200FT
RNAV with approved vertical guidance	250FT
Localiser with or without DME	250FT
SRA (Terminating at $^1/_2$ NM)	250FT
SRA (Terminating at 1NM)	300FT
SRA (terminating at 2NM or more)	350FT
RNAV without approved vertical guidance	300FT
VOR	300FT
VOR/DME	250FT
NDB	350FT
NDB/DME	300FT
VDF	350FT

Table 3: System Minima for Approach Aids

5.3.2.3 Minimum Descent Height

An operator must ensure that the minimum descent height for a non-precision approach is not lower than either:

a) The *OCHIOCL* for the category of aeroplane; or

b) The system minima.

5.3.2.4 Visual Reference

A pilot may not continue an approach below MDA/IMDH unless at least one of the following visual references for the intended runway is distinctly visible and identifiable to the pilot:

a) Elements of the approach light system;

b) The threshold

c) The threshold markings;

d) The threshold lights;

e) The threshold identification lights

f) The visual glide slope indicator

g) The touchdown zone or touchdown zone markings;

h) The touchdown zone lights;

i) Runway edge lights; or

j) Other visual references accepted by the Director.

5.3.2.5 Required RVR
The lowest minima to be used by an operator for non-precision

TABLE 4(a): RVR FOR NON-PRECISION APPROACH FULL FACILITIES				
Non-precision approach minima Full facilities (Notes *(1),* (5), (6) and *(7)* TABLE 4(d)				
MDH	RVR *I* Aerodrome category			
	A	B	C	D
250 FT —299 FT	800 M	800 M	800 M	1 200 M
300 FT - 449 FT	900 M	1 000 M	1 000 M	1 400 M
450FT—649FT	1 000 M	1200 M	12 000 M	12 000 M
650 FTand above	1 200 M	1 400 M	1 400 M	1 800 M

TABLE 4(b): RVR FOR NON-PRECISION APPROACH INTERMEDIATE FACILITIES				
Non-precision approach minima Intermediate facilities (Notes (2), (5), (6) and *(7)* TABLE 4(d)				
	RVR *I* Aerodrome category			
MDH	A	B	C	D
250 FT - 299 FT	1 000 M	1100 M	1 200 M	1 400 M
300 FT - *449* FT	1 200 M	1 300 M	1 400 M	1 600 M
450 FT - 649 FT	1 400 M	1 500 M	1 600 M	1 800 M
650 FTand above	1 500 M	1 500 M	1 800 M	2 000 M

TABLE 4(c): RVR FOR NON-PRECISION APPROACH BASIC FACILITIES Non-precision approach minima Basic facilities (Notes (3), (5), (6) and (7) TABLE 4(d)				
	RVR / Aerodrome category			
MDH	A	B	C	D
250 FT - 299 FT	1 200 M	1 300 M	1 400 M	1 600 M
300 FT - 449 FT	1 300 M	1 400 M	1 600 M	1 800 M
450 FT - 649 FT	1 500 M	1 500 M	1 800 M	2 000 M
650 FTand above	1 500 M	1 500 M	2 000 M	2 000 M

TABLE 4(d): RVR FOR NON-PRECISION APPROACH NIL APPROACH LIGHT FACILITIES				
Non-precision approach minima Nil approach facilities (Notes (4), (5), (6) and (7)				
	RVR / Aerodrome category			
MDH	A	B	C	D
250 FT - 299 FT	1 500 M	1 500 M	1 600 M	1 800 M
300 FT - 449 FT	1 500 M	1 500 M	1 800 M	2 000 M
450 FT - 649 FT	1 500 M	1 500 M	2 000 M	2 000 M
650 FT and above	1 500 M	1 500 M	2 000 M	2 000 M
Note 1	Full facilities comprise runway markings, 720M or more of HI/MI approach light, runway edge lights, threshold lights and runway end lights. Lights must be on.			
Note 2	Intermediate facilities comprise runway markings, 420-719M of HI/MI approach lights, runway edge lights, threshold lights and runway end lights. Lights must be on.			
Note 3	Basic facilities comprise runway markings, <420 M of HI/MI approach lights, any length of LI approach lights, runaway edge lights, threshold lights and runway end lights. Lights must be on.			
Note 4	Nil approach light facilities comprise runway markings, runway edge lights, threshold lights, runway end lights or no lights at all.			

Note 5	The tables are only applicable to conventional approaches with a nominal descent slope of not greater than 4°. Greater descent slopes will usually require that visual glide slope guidance (e.g. PAPI) is also visible at the Minimum Descent Height.
Note 6	The above figures are either reported RVR or meteorological visibility converted to RVR as in Table 9 below.
Note 7	The MDH mentioned in Table 4(a), (b). (c), (d) refers to the initial calculation of MDH. When selecting the associated RVR, there is no need to take account of a rounding up to the nearest ten feet, which may be done for operational purposes, e.g. conversion to MDA.

5.3.2.6 Night Operations
At least runway edge, threshold and runway end lights must be on.

5.3.3 PRECISION APPROACH-CATEGORY 1 OPERATIONS
5.3.3.1 General
A category 1 operation is a precision instrument approach, which provides for an approach to a decision height not lower tan 200 feet and RVR not less than 550 M.

5.3.3.2 Decision Height
An operator must ensure that the decision height to be used for a Category 1 precision approach is not lower than:
a) The minimum decision height specified in the aeroplane flight manual (AFM) if stated;
b) The minimum height to which the precision approach aid can be used without the required visual reference;
c) The OCH/OCL for the category for aeroplane; or
d) 200 feet.

5.3.3.3 Visual Reference
A pilot may not continue an approach below the category 1 decision height determined in accordance with paragraph 5.3.3.2 above, unless at least one of the following visual references for the intended runway is distinctly visible and identifiable to the pilot:
a) elements of the approach light system
b) the threshold;
c) the threshold markings;
d) the threshold lights;
e) the threshold identification lights;
f) the visual glide slope indicator;
g) the touchdown zone markings;
h) the touchdown zone lights; or
i) runway edge lights.

5.3.3.4 Required RVR
The lowest minima to be used by an operator for Category 1 operations are:

TABLE 5: RVR FOR CATEGORY *1* APPROACH vs FACILITIES and DH Cateqorv *1* minima				
Decision Height	Facilities/RVR(Note 5)			
	Full (Notes*1*&6)	Interim (Notes 2 & 6)	Basic (Notes 3 & 6)	Nil (Notes (4 & 6)
200 FT	550 M	700 M	800 M	1 000 M
201 -250 FT	600 M	700 M	800 M	1 000 M
251—300 FT	650 M	800 M	900 M	1 200 M
301 FTand above	800 M	900 M	1 000 M	1 200 M
Note 1	Note 1	Full facilities comprise runway markings, 720 m or more of HI/MI approach lights, runway edge lights, threshold edge lights, threshold lights and runway end lights. Lights must be on.		
Note 2	Note 2	Intermediate facilities comprise runway markings, 420-719 M of HI/MI approach lights, runway edge lights, threshold lights and runway end lights. Lights must be on.		
Note 3	Note 3	Basic facilities comprise runway markings, <420 M of HI/MI approach lights, any length of LI approach lights, runway edge lights, threshold lights and runway end lights. Lights must be on.		
Note 4	Note 4	Nil approach light facilities comprise runway markings, runway edge lights, threshold lights, runway end lights or no lights at all.		
Note 5	Note 5	The above figures are either the reported RVR or meteorological visibility converted to RVR in accordance with Table 9 below.		
Note 6	Note 6	The table is applicable to conventional approaches with glide slope angle up to and including 4°.		
Note 7	Note 7	The DH mentioned in table 5 refers to the initial calculation of DH. When selecting the associated RVR, there is no need to take account of a rounding up to the nearest ten feet, which may be done for operational purposes, e.g. conversion to DA.		

5.3.3.5 Single Pilot Operations
For single operations, an operator must calculate the minimum RVR for all approaches in accordance with Regulations and the Technical Standards. An RVR of less than 800 M is not permitted except when using a suitable auto-pilot coupled to an ILS or MLS, in which case normal minima apply. The decision height applied may not be less than 1.25 x the minimum disengagement height for the auto-pilot.
5.3.3.6 Night Operations
For night operations at least runway edge, threshold and runway end lights must be on.
5.3.4 PRECISION APPROACH-CATEGORY II OPERATIONS
5.3.4.1 General
A Category II operation is an ILS/MLS approach procedure which provides for an approach to a decision height lower than 200 FT but not lower than 100 FT and RVR of not less than 300 M in case of a manual landing

5.3.4.2 Decision Height
An operator must ensure that the decision height for a Category II operation is not lower than:
a) The minimum decision height specified in the AFM, if stated;
b) The minimum height to which the precision aid can be used without the required visual reference;
c) The OCH/OCL for the category of aeroplane; or
d) The decision height to which the flight crew is authorised to operate; or
e) 100 FT.

5.3.4.3 Visual reference
A pilot may not continue an approach below the Category II decision height determined in accordance with paragraph 5.3.4.2. above, unless visual references containing a segment of at least 3 consecutive lights being the centre line of the approach lights, or touchdown zone lights, or runway centre line lights, or runway edge lights or a combination of these is attained and can be maintained. This visual reference must include a lateral element of the ground pattern, i.e. an approach lighting crossbar or the landing threshold or a barrette of the touchdown zone lighting.

5.3.4.4 Required RVR
The lowest minima to be used by an operator for Category II operations

Table 6: RVR for Category II Approach vs DH

Category II Minima

Decision Height	*Auto-coupled to below DH(Note 1)*	
	RVR/Aeroplane category A, B & C	RVR/Aeroplane Category D
100- 200FT	300M	300(Note 2)/350M
121-140FT	400M	400M
141FT and above	450M	450M

Note 1: The reference to “auto-coupled to below DH” in this table means continued use of the automatic flight control system down to a height which is not greater than 80% of the applicable DH. Thus airworthiness requirements may, through mini9mum engagement height for the automatic flight control system, affect the DH to be applied

.Note 2: 300M may be used for a Category D aeroplane conducting an autoland.

5.3.5 PRECISION APPROACH-CATEGORY III

5.3.5.1 General
Category III operations are sub-divided as follows:

a) Category III A operations

An ILS/MLS procedure, which provides for an approach to a decision height lower than 100FT and RVR of not less than 200M.

b) Category III B operations

An ILS/MLS approach procedure which provides for approach with either decision height lower than 50FT or no decision height and RVR lower than 200 M but not less than 75 M.

5.3.5.2 Decision Height

For operations in which a decision height is used, an operator must ensure that the decision height is not lower than:

a) The minimum decision height specified in the AFM, if stated;
b) The minimum height to which the precision approach aid can be used without the required visual reference; or
c) The decision height to which the flight crew is authorised to operate.

5.3.5.3 No Decision Height Operations

Operations with no decision height may only be conducted if:
a) The operation with no decision height is authorised in the AFM.
b) The approach aid and the aerodrome facilities can support operations with no decision height; and
c) The operator has an approval for Category III operations with no decision height.

Note: In the case of a category III runway it may be assumed that the operations with no decision height can be supported unless specifically restricted as published in the AIP or NOTAM.

5.3.5.4 Visual Reference

a) For Category III operations a pilot may not continue an approach below the decision height determined in accordance with paragraph 5.3.5.2(a) above unless a visual reference containing a segment of at least e consecutive lights being the centre line of the approach lights, or runway centre line lights, or runway edge lights, or a combination of these is attained and can be maintained.
b) For Category III B operations with a decision height a pilot may not continue an approach below the decision height, determined in accordance with paragraph 5.3.5.2(b) above, unless a visual reference containing at least one centreline light attained and can be maintained.
c) For Category III Operations with no decision height, there is no requirement for visual contact with the runway prior to touchdown.

Required RVR
The lowest minima to be used by an operator for Category III operations are:

TABLE 7: RVR FOR CATEGORY III APPROACH VERSUS FLIGHT CONTROL SYSTEMS AND DH

		Flight control system / RVR (metres)			
Approach Category	Decision Height(FT)	Fail-Passive	Fail-Operational		
				With roll-out guidance or control system	
			Without roll-out System	Fail passive	Fail operational
III A	Less than 100 FT	200M(Notel)	200M	200M	200M
III B	Less than 50 FT	Not authorised	Not authorised	125 M	75 M
III B	No DH	Not authorised	Not authorised	Not authorised	75 M
Note 1	For operations to actual RVR values less than 300 M a go-around is assumed in the event of an autopilot failure at or below DH.				

5.3.6 CIRCLING

5.3.6.1 The Lowest minima to be used by an operator for circling are:
TABLE 8
VISIBILITY AND MDH FOR CIRCLING VS AEROPLANE CATEGORY
Aeroplane Category

	A	B	C	D
MDH	400 FT	500 FT	600 FT	700 FT
Minimum meteorological visibility	1500 M	1 600 M	2400 M	3 600 M

5.3.6.2 Circling with prescribed tracks is an accepted procedure within the meaning of the paragraph.

5.3.7 VISUAL APPROACH
An operator may not use RVR of less than 800 M for a visual approach

5.3.8 CONVERSION OF REPORTED METEOROLOGICAL VISIBILITY TO RVR

5.3.8.1 An operator must ensure that a meteorological visibility to RVR conversion is not used for calculating takeoff minima, Category II or III minima or when a reported RVR is available.
5.3.8.2 When converting meteorological visibility to RVR in all other circumstances than those in paragraph
5.3.8.1 above, an operator must ensure that the following table is used:

TABLE 9 : CONVERSION OF VISIBILITY FOR RVR		
Lighting elements in operation	RVR=Reported Met Visibility x	
	DAY	NIGHT
HI approach and Runway lighting	1.5	2
Any type of lighting installation other than above	1	1.5
No Lighting	1	Not applicable

6. Low Visibility Procedures (LVP'S)

6.1 Introduction.
This procedure has been devised to simplify the differing requirements of Category II and III operations. To achieve this, during the relevant weather conditions, explained in sup-paragraph 6.3 below, the localiser sensitive area (LSA) is to be safe guarded. This ensures the protection of the localiser signal against interference and at the same time effectively meets the obstacle free zone requirements (OFZ).
6.2 General.
The procedures prescribed below are based on information contained in ECAC/CEAC Document 17.
6.2.1 Declaring Low Visibility Procedures in force.
6.2.2 Air Traffic Control Low Visibility Procedures become effective when:
6.2.2.1 The lowest RVR is less than 600 M
6.2.2.2 The cloud ceiling is 200 FT or less irrespective of the serviceability state of the ILS, lighting, standby power, etc.
6.2.3 Pilots can expect ILS localiser and glide path signals to be fully protected from interference during the final approach, from the time of notification that LVP'S are in force until the time that notification is received that LVP'S is cancelled.
6.2.4 Air Traffic Control will inform pilots when LVP'S are in force. This may be obtained via the ATIS.
6.3 Localiser sensitive area (LSA).
6.3.1 For practicable purposes, the LSA is a rectangular area contained within parallel line 150 M either side of the runway centreline and between the localiser aerial and the beginning of the RWY demarcated by the aerodrome authority.
6.3.2 No person, vehicle or aircraft is to be permitted to infringe the LSA from the time when:

6.3.2.1 An approaching aircraft is 10 NM from touchdown until it has vacated the LSA.

6.3.2.2 A departing aircraft has commenced its takeoff run until it is airborne and passed the LLZ antenna.

Note: This means that the landing or take-off clearance must not be issued if the LSA is known to be impaired.

6.4 Information to pilots.

In addition to information normally transmitted by ATC, the following information must be passed by the appropriate controller to the pilot of every arriving aircraft:
The current RVR readings of the landing runway for Category I and II only.

6.5 Responsibility of the duty Aerodrome Manager.

The duty Aerodrome Manager must notify all relevant instances including Avionicians Electricians, Meteorological station, Police, all aircraft operators based on the aerodrome, Fire Department, In-flight Catering Companies and Aerodrome Maintenance Personnel that:

6.5.1 LVP'S are in operation and to institute their respective ground safeguarding procedures.

6.5.2 LVP'S are no longer in force.

6.6 Holding Points.

In order to comply with the safeguarding requirements, aircraft awaiting take-off clearance must hold at the Category II holding positions, defined by painted taxiway markings or stopbars lights or at designated Category III holding positions, defined by stopbar lights and painted taxiway markings.

6.7 Failed or downgraded equipment and the effect on landing minima

Failed or downgraded equipment		Effect on Landing	
		CAT II	CAT III
ILS (see Note 1)	ILS Localiser downgrated to CAT II	Not applicable	Not authorised
	ILS Localiser downgrated to CAT I	Not authorisedf	Not authorised
	ILS Glidepth downgrated to CAT II	Not applicable	Not authorised
	ILS Glidepath downgrated to CAT I	Not authorisedf	Not authorised
	ILS LLZ and or GP standby transmitter U/S	Not essential	Not authorised
	ILS transmitter standby power source	Not applicable	Not authorised
	Outer Marker	Use alternative e.g. locator NDB, DME	Use alternative means e.g. locator NDB, DME
	Middle Marker	Not required	Not required
RVR (see Note 4)	Touchdown Zone. RVR not available	Not authorised	Not authorised
	Midpoint. RVR not available	Not authorised	Not authorised
Approach lights	No approach Lights	Not authorised	Full operational Autoland only
(see Note 1)	210M of Approach Lights AVBL as measured from the threshold	Not authorised	No restriction
(see Note 40	450M of Approach Lights AVBL as measured from the threshold	No restriction	
	Secondary power for approach lights not AVBL	Increase RVR minima to 450M	No restriction
RWY lights (see Note 1 to 4)	No RWY lights AVBL(RWY edge, threshold, end, Centreline & TDZ lights U/S	Not authorised	Not authorised
	RWY Edge lights, Threshold and End lights not AVBL. Centreline & TDZ lights normal	Required for manual landings	Not required
	TDZ lights not AVBL	Day OPS authorized. CLL must be AVBL	Full OPS autoland only. Fail passive(day) for CAT II
	Centreline light spacing increased to 30M	Can be accepted	Can be accepted to 200M RVR

TWY lights	TWY lighting	Edgelights and CL markers required	Stobars and CL light required if RVR is less than 150M
Other equipment	Anemometer normally serving the RWY in use	Use other source	Use other source
	Ceilometer	Not required	Not required
	PAPI/VASI	Not required	Not required

Notes:
(1) In case of downgrading of ILS and deficiencies in lights determine first which approach category applies. Then check effect of lighting deficiencies for that category.
(2) For RWY lights, multiple failures other than indicated in the table are not approved.
(3) Deficiencies of approach and RWY lights are treated separately and do not affect each other.
(4) Deficiencies in RWY lights and RVR report, are not allowed together.
(5) 5% of any category of required lighting (i.e., approach, TDZ, RWY edge, TWY lighting), may be inoperative, provided the pattern of lights is not distorted.

7. Appendixes

7.1 Appendix A.
"Paragraph 5.1.7.3 refers"
Table for determining radius for visual manoeuvring (circling) area for aerodromes above 200 FT MSL.

Category of aircraft / IAS(KTS)	A/l 00	B/135	C/120	D/205	E/240
TAS at 2000 FT MSL+25 KTS wind factor(KTS)	131	168	215	242	279
Radius of turn(NM)	0.69	1.13	1.85	2.34	30.12
Straight segment (NM). This is a constant value.	0.30	0.40	0.50	0.60	0.70
Radius from the Threshold(NM)	1.68	2.66	4.20	5.28	6.94

Note:
(1) Radius from the threshold = 2r + straight segment.
(2) Circling visibility will not be less than the approach visibility minima.

7.2 Appendix B
"Paragraph 5.1.32 refers"
Table for determining VDP with/without VASIS/PAPI.

Aerodrome	Facility - RWY	OCA. (OCH.) FT	VDP with VASI/PAPI-DME	VDP without VASI/PAPI-DME
1	2	3	4	5
Keetmanshoop	VOR-04 NDB-04	3866(425) 3788(347)	1.33NM 1.O9NM	2.1ONM 1.86NM
Hosea Kutako	VOR-26 NDB-26	5997(496) 5997(496)	1.56NM 1.56NM	2.1ONM 2.1ONM

7.3 Appendix C
"Table for non-precision approaches to runways without precision approach lighting: or with no approach lighting but with runway lighting and/or runway markers the criteria in the following table applies.

DAY / NIGHT					
OCH in FT	VIS in meters per category of aircraft.				
	A	B	C	D	E
300-320	1600	1600	1600	1800	2000
321-390	1600	1600	1600	2000	2400
391-460	1600	1600	2000	2400	2800
461-530	1600	1600	2000	2800	3200
531-600	1600	1600	2400	2800	3600
601-670	1600	1600	2800	3200	4000
671-740	1600	1600	3200	3600	4400
741-810	1600	2000	3600	4000	4800
811-880	1600	2000	4000	4400	5000
881-950	2000	2000	4400	4800	5000
Above 951	2400	4800	4800	5000	5000

7.4 Appendix D

"Table for non-precision approaches on runways with precision approach lights, runway lights, and/or markers the criteria in the following table applies:

DAY / NIGHT					
OCH in FT	VIS in meters per category of aircraft.				
	A	B	C	D	E
300-320	1200	1200	1200	1400	1600
321-390	1200	1200	1200	1400	1600
391-460	1400	1400	1400	1600	1800

7.5 Appendix E

"Table for precision approaches (all aircraft) category ILS.

	Full Facilities	Intermediate Facilities	Basic Facilities
	precision approach lights, RWY, Lights, including TDZ and centreline lights, RWY markings	Simple HI. Approach Lights, RWY lights and markings.	RWY lights and markings. Any length LI Approach Lights or no Approach Lights.
Decision height (DH) FT	200 - 300	200 - 300	
RVR	550M	800M	*1200M
*For basic facilities a VIS of 1200M is considered equal to a RVR of 1200 M			

8. NATIONAL AIR NAVIGATION SERVICES REGIONAL CONTINGENCY PLAN FOR WINDHOEK FLIGHT INFORMATION REGION

8.1 Contingency Unit

8.1.1 The National Contingency Unit assigned with the responsibility of monitoring the developments that may dictate the activation and enforcement of the contingency plan and coordinate contingency arrangements is as follows:

Name of Agency:	Namibia Civil Aviation Authority
Contact Person 1:	Mr Jeremia Kamati (Senior Manager Air Traffic Services)
Telephone:	+264 61 702217 (Office) or +264 81 1277425 -Mobile H24
Email:	sm-atm@ncaa.na. (During office hours)
Fax:	+264 61 702299 /702099 (During office hours)
AFTN:	FYWFYFYX, FYWFFDMS
Contact Person 2:	Ms Christine Eiman (Manager Air Traffic Services)
Telephone:	+264 61 702219 (Office) or +264 81 2307149 -Mobile H24
Email:	eimanc@ncaa.na (During office hours)

8.1.2 The National Contingency Unit will ensure liaison through the ICAO ESAF Regional Office based in Nairobi, for activation of the Windhoek ATS contingency plan.

8.2 Basic principles

8.2.1 The Namibia ATS contingency plan is based on the following principles:

8.2.1.1 That air traffic services are assumed to be limited or not available within the Windhoek FIR;

8.2.1.2 That only international civil aviation operations conducted in accordance with the instrument flight rules within the upper airspace of Windhoek FIR (above FL245) and performed along the specified contingency routes established, as described in paragraph 8.3 below, are catered for in this contingency plan;

8.2.1.3 That a flight level allocation scheme is applied so that vertical, horizontal or lateral separation is always provided over reporting points for same routes or over crossing routes within the Windhoek FIR.

8.3 System of ATS contingency routes

In the case of total failure of VHF radio communication equipment or complete disruptions of air traffic services within the Windhoek FIR, a system of ATS contingency routes will be established and available as follows: -

Contingency route structure during Partial Unavailability of the WINDHOEK FIR	Contingency Route Number	FL	Minimum Longitudinal Separation	FIRs Involved
DUPKI-UN184-EVUVI (Bi- Directional)	*CR1*	Westbound- FL300,320, 380 Eastbound- FL350, 370, 410	15 minutes	FNAN/FYWF/FBGR
BOPAN-UL435-IBNEV (Bi- Directional)	*CR2*	Westbound- FL300, 320, 380 Eastbound – FL350, 370, 410	15 minutes	FBGR/FYWF/FAJO
XORAK-UN183-XALVI NIBEK (Uni-directional)	*CR3*	Westbound FL300, 320, 380	15 Minutes	FBGR/FYWF/FAJO
NIBEK-UN183-XALVI-UN181-GABSI (Uni-directional)	*CR4*	Eastbound- FL350,370, 410	15 Minutes	FBGR/FYWF/FAJO
AVOGU-UL307-ABAPU (Bi-directional)	*CR5*	Westbound- FL300, 340, 360 Eastbound- FL330,370, 390, 410	15 minutes	FBGR/FYWF/FNAN
ANVAG-UN187-VEDRY-UL686-UMTOL (Bi-Directional)	*CR6*	Northbound- FL280,340 Southbound- FL310, 330, 390	15 Minutes	FNAN/FYWF/FAJA
XUDAN-UN188-XALVI-UN190-OKDOL (Bi-Directional) Note: Traffic routing Northbound shall fly at an even level and Southbound at an odd level.	*CR7*	Northbound- FL280,340,360, Southbound FL330,390 (Bi-Directional) Note: Traffic routing From XUDAN to OKDOL shall fly at an even level and from OKDOL to XUDAN at an odd level.	15 Minutes	FAJA/FYWF/FNAN

8.3.1 A minimum of 15 minutes longitudinal separation shall be provided between aircraft at same level entering the Windhoek FIR.

8.4 Procedure to be followed by adjacent ATS Units

8.4.1 Filed flight plan messages shall continue to be transmitted via the AFTN as per normal procedure:

a) Transmit a current flight plan message, at least one hour before the aircraft's estimated arrival time over the relevant entry point for the Windhoek FIR;

b) Apply a longitudinal separation of at least 15 minutes over the relevant entry point of the Windhoek FIR, between aircraft flying at the same flight level and following the same contingency route and advise the respective pilot-in-command to maintain the flight level and the last Mach Number assigned, where provided, throughout the Windhoek FIR;

c) Not authorizing any flight level or Mach number changes of any aircraft transiting through the Windhoek FIR, within a period of 10 minutes before the aircraft enters the Windhoek FIR;

d) Request each aircraft transiting through the Windhoek FIR to include in their position report, the estimated time of the aircraft over the relevant exit point of the Windhoek FIR, on the contingency ATS route being used. Pilots are to contact the next adjacent ACC as soon as possible, and at the latest,

8.5 Procedures to be followed by aircraft transiting Windhoek FIR

8.5.1 All aircraft transiting through the Windhoek FIR shall strictly comply with the following procedures:

a) Pilots shall strictly adhere to the IATA In-flight Broadcast Procedures (IFBP), as stipulated in paragraph 8.6 of this document and shall maintain a continuous listening watch on VHF frequency 126.9 MHz (day or night);

b) To reach the appropriate flight level assigned by the competent adjacent ACCs of the Windhoek FIR at least 10 minutes before entering the Windhoek FIR;

c) Maintain during their entire flight time within the Windhoek FIR, the last flight level assigned to them by the competent adjacent ACC and in no way change the assigned flight level, including Mach number, where assigned, except in cases of emergencies or for reasons of flight safety;

d) Report their positions when over compulsory reporting points for the ATS contingency route being flown;

e) Operate along or as close as possible to the centreline of the assigned ATS contingency route;

f) To display navigation and anti-collision lights at all times during their transit through the Windhoek FIR;

g) To maintain their own longitudinal separation of 15 minutes from preceding aircraft operating at the same cruising level on the same ATS contingency route;

h) To contact the next adjacent competent ACC at least 10 minutes before the estimated time of arrival over the relevant exit point of the Windhoek FIR;

i) Whenever an emergency or flight safety reasons make it impossible for an aircraft to maintain the last flight level assigned for the transit through the Windhoek FIR, it shall position itself at least 5NM to the right of the centreline of the contingency ATS route being flown before climbing or descending, but remaining within the Windhoek FIR and inform the appropriate area frequency, as well as other aircraft being affected by the descent by broadcasting an emergency level change message on the appropriate area frequency, as well as the IFBP VHF frequency 126.9 MHz and emergency frequency 121.5 MHz. The message shall contain the aircraft call sign, aircraft position, flight level being vacated or crossed and new intended flight level, as well as direction of flight.

8.6 IATA In-flight Broadcast Procedures (IFBP) – AFI Region

8.6.1 Listening watch

A listening watch should be maintained on frequency 126.9 MHz at least 10 minutes before entering the Windhoek FIR and until leaving this airspace.

For aircraft taking off from any aerodrome located within the lateral limits of the Windhoek FIR, listening watch should start as soon as the aircraft is airborne and shall be maintained until leaving the Windhoek FIR.

8.6.2 Time of Broadcast

A broadcast shall be made in English:

a) 10 minutes before entering the Windhoek FIR or, for a pilot taking off from an aerodrome located within the lateral limits of Windhoek FIR, as soon as appropriate;

b) 10 minutes prior to crossing over a reporting point for the ATS contingency route being flow 10 minutes prior to crossing or joining an ATS route;

c) At 20 minutes intervals between distant reporting points;

d) 2 to 5 minutes, where possible, before a change in flight level;

e) At a time of a change in flight level;

f) And at any other time considered necessary by the pilot;

g) In the interest of reducing congestion on the IFBP frequency, pilots may exercise discretion to omit closely spaced repetitive IFBP report.

h) The message shall contain the aircraft call sign, aircraft position, flight level being vacated or crossed and new intended flight level, as well as direction of flight.

8.6.3 Operating Procedures

8.6.3.1 Change of cruising level

a) Changes of cruising level are considered necessary by pilots to avoid traffic conflicts, for weather avoidance or other valid operational reasons;

b) When cruising level changes are unavoidable, all available aircraft lighting which will improve visual detection of the aircraft should be displayed while changing levels.

8.6.4 Collision Avoidance

If on receipt of a traffic information broadcast from another aircraft, a pilot decides that immediate action is necessary to avoid an imminent collision risk to his aircraft and this cannot be achieved in accordance with the right-of-way provisions of Annex 2, he/she should;

a) Unless an alternative manoeuvre appears more appropriate, descend immediately 500 feet

b) If aircraft is TCAS equipped, follow the advisory instructions as provided by the system;

c) Display all available aircraft lighting which would improve the visual detection of the aircraft;

d) As soon as possible reply to the broadcast advising action being taken;

e) Notify the action taken on the appropriate ATS frequency; and

f) As soon as the situation has been rectified, resume normal flight level, notifying the action on the appropriate ATS frequency.

8.6.5 Normal Position Reporting

Normal position reporting procedures should continue at all times, regardless of any action taken to initiate or acknowledge a traffic broadcast.

8.6.6 Operation of transponders

Pilots should ensure that transponder procedures as contained in ICAO PANS OPS, Doc 8168, are complied with and in the absence of other directions from ATC, operate their transponders on Mode A and C, Code 2000.

8.6.7 Use of TCAS

TCAS equipped aircraft should have TA/RA mode selected at maximum range.

8.7 Designated Frequency in AFI

In the AFI Region, and in Windhoek FIR, the designated frequency for the IFBP is 126.9 MHz.

8.8 Enforcement

All airlines operating in the AFI Region and particularly in Windhoek Flight Information Region are requested to:

a) Ensure that their air crews are fully briefed on these procedures and area of application described.

8.9 Review

The procedure and its area of applicability shall be reviewed by the AFI Regional Coordination Group from time to time and FIR's in which the procedure is to be applied may be added or excluded as necessary.

ENR 1.9 AIR TRAFFIC FLOW MANAGEMENT (ATFM)

1. FLOW MANAGEMENT STAGES

1.1 At major airports, Air Traffic Flow Management procedures are applied to manage demand and capacity at specific airports. These procedures are defined in three stages:

a) Strategic - Generally occurs more than one day prior to the day of operation. This is known as schedule coordination and is managed by the specific airport operator, who may use an independent coordinator to manage the scheme.

b) Pre tactical - Occurs on the day prior to operation through the implementation of traffic management initiatives such as a Ground Delay Program (GDP).

c) Tactical - Occurs on the day of operation and uses real time traffic information to sequence traffic to the destination airport. ATC manage this service.

1.2 Tactical flow management takes precedence over pre tactical air traffic flow management which in turn takes precedence over strategic air traffic flow management.

1.3 Tactical flow management will be in operation at Hosea Kutako International (FYWH).

2. TACTICAL

2.1 Aircraft sequencing near ATFM Airports

2.1.1 Due to terminal area traffic density, pilots may expect airborne traffic delays for arrival at locations adjacent to or within Class C control zones.

2.1.2 When sequencing arriving aircraft to controlled aerodromes, ATC may apply one or more of the following:

a) En-route holding procedures;

b) Allocate a waypoint crossing time to the pilot; or

c) Tactically apply delaying action such as speed control; or

d) Vectoring.

2.1.3 When ATC allocates a waypoint crossing time (Required Time of Arrival or RTA), aircraft must adjust speed to cross the waypoint at the specified RTA or up to 30 seconds early. Speed adjustment to meet a waypoint RTA only applies to the specified waypoint. Unless otherwise published or instructed by ATC, pilots must cross the waypoint at the lesser of 250KT or profile speed.

2.1.4 Pilots will be notified of the waypoint RTA by use of the phrase: "*For sequencing, Required Time of Arrival (waypoint name) Time (in minutes), speed reduction approved (if appropriate)*.

2.1.5 Aircraft unable to meet the waypoint RTA must inform ATC as early as possible.

2.1.6 For Speed Control (Arriving Aircraft) requirements refer ENR

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ENR 1.10 FLIGHT PLANNING

1. Procedures for the submission of a flight plan

1.1 A flight plan shall be filed with the nearest convenient air traffic services unit (ATSU). Such a unit shall be responsible for transmitting the flight plan to all ATSU's concerned with the flight.

1.2 A flight plan shall be filed in respect of:

a) all flights to be conducted in controlled or advisory airspace: Provided that this requirement shall not apply in respect of:

i) a flight where the aircraft takes off and lands at the same aerodrome and remain WI a 50NM radius of such aerodrome WO an intermediate landing.

ii) a flight crossing an airway or advisory routes at right angles.

b) an international flight;

c) all flights undertaken for the purposes of commercial air transport operations in terms of Part 121, 127 and 135 and

d) a flight for which alerting action is required.

e) all flights departing or arriving at a manned aerodrome.

1.3 An ATSU may instruct a flight for which a flight plan is prescribed and for which a flight plan has not been filed, to clear or to remain clear of controlled airspace and not to cross the border of the Republic or to enter its airspace until such time as the required flight plan has been filed.

1.4 Unless otherwise authorised by the responsible ATSU, a flight plan to be conducted as in paragraphs 1.2.a) to 1.2.d), shall be filed at least 30 minutes before departure or if filed during flight whilst outside controlled or advisory airspace for a flight to be conducted in such airspace, it shall be filed with the responsible ATSU at least 10 minutes before the aircraft is estimated to reach the intended point of entry into the airspace concerned. Pilots and Operators are strictly warned that no aircraft is to enter or, will be permitted to enter Namibian Airspace without a filed flight plan.

1.5 If a flight plan has been filed with an ATSU prior to departure and is not activated with an ATSU within one hour of the original estimated time of departure or amended estimated time of departure, such a flight plan shall be cancelled.

1.6 Flight plans filed via the internet briefing services will only be validated from 0330 until 1900 UTC X out of these hours medevac flight plans can be filed with Windhoek Area Control Centre.

2. Filing of flight plans (FPL's) by fax and telephonically

2.1 To ensure an effective FPL service using this method, the filing pilots are required to telephonically confirm the receipt of the FPL by the ATSU. Should the follow up telephone call be omitted and the fax transmission be faulty or unsuccessfully completed, processing of the FPL will not be possible and therefore resulting in a delay.

A flight plan shall be submitted by telephone to the ATSU as listed below:

Tel: +264 61 702080/3/9
Fax: +264 61 702088
Fax to email: +264 88 6561134
Email: aim@ncaa.na

2.2 It is requested that:

a) Black pens are used in completing the FPL form as other ink colours do not always transmit successfully.

b) Legible capital letters are used throughout the FPL.

c) FPL's are to reach the concerned station at a minimum time of 30 minutes prior to planned time of departure.

2.3 The following fax and telephone numbers are available for filing:

Station	Fax Number	Telephone Number
Windhoek - AISC	+264 88 6561134	+264 61 702080/1/3/9
Hosea Kutako	+264 62 702499	+264 62 702490/1/2/3
Eros – FYWE	-	+264 61 702090/1
Katima Mulilo	-	+264 66 250202
Walvis Bay	+264 64 702699	+264 64 702690/1
Ondangwa	+264 65 703199	+264 65 703190/1
Luderitz	+264 63 703599	+264 63 703590/1 or +264 63 202228

Note: All foreign registered aircraft intending to fly through Namibian airspace must submit a request for over-flight and/or landing clearance not less than 24 hours prior to departure (GEN 1.2, para 4.2 refers)

Requests can be faxed to: Namibia Civil Aviation Authority, Fax number 264 88 6561133 during office hours only.

In emergencies only, the following is available after hours: fax number +264 62- 702499.

3. Contents of a flight plan

The following information shall be included in a FPL:

a) Aircraft identification.

b) Flight rules and type of flight.

c) Number and type(s) of aircraft and wake turbulence category.

d) Radio communication, navigation and approach aid equipment, and SSR transponder data.

e) Aerodrome of departure and time.

f) Cruising speed and flight level.

g) Route to be followed.

h) Aerodrome of destination and total estimated elapsed time to destination.

i) Alternate aerodrome(s).

j) Flight information region boundaries and total estimated elapsed times to boundaries.

k) Alerting action required.

l) Any other information (Field 18): OPR, STS, SEL etc.

m) Fuel endurance.

n) Total number of persons on board.

o) Emergency and survival equipment and colour of aircraft.

p) Other pertinent information.

q) Pilot-in-command.

Note: Every foreign aircraft intending to fly in or over Namibia must include the Namibian overflight and landing permit number in item 18 of the flight plan.

4. Changes to a flight plan

A new FPL must be filed if the following, or one of the following changes take place:

a) Aircraft identification and aircraft type.

b) The departure aerodrome.

c) The destination aerodrome.

d) The route.

5. Closing a flight plan

5.1 At an aerodrome at which an ATSU is in operation the ATSU will automatically close the FPL on the arrival of the aircraft concerned.

5.2 Where an ATSU is not in operation at the aerodrome of arrival an arrival report shall be submitted to the nearest ATSU, by the quickest means available, immediately before or after landing in respect of a flight for which alerting service was provided.

6. Adherence to flight plan

6.1 The pilot-in-command shall ensure that the aircraft adheres to the current FPL filed for a controlled flight or a flight requesting alerting action unless:

a) in an emergency,

b) a request for change has been made and accepted by the responsible ATSU in who's airspace the aircraft is flying.

6.2 In the event that an aircraft inadvertently deviates from its current track, action shall be taken forthwith to adjust the heading of the aircraft so as to regain track as soon as practicable if the estimated time at the next reporting point, FIR boundary or aerodrome of intended landing has changed by more than 3 minutes from the previous estimate, the revised estimate shall be notified to the responsible ATSU.

7. Repetitive flight planning (RPL)

The procedures concerning the use of RPL's conform to ICAO Doc 4444. Differences are indicated by quotation marks.

7.1 *General*

Only IFR flights which are 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 shall qualify for the filing of RPL's.

7.2 *Submission of RPL's and amendments thereto*

7.2.1 Operators shall submit all RPL's a minimum of 2 weeks (14 days) prior to the date of implementation of the RPL to the Namibia Civil Aviation Authority.

7.2.2 Changes of a permanent nature involving the addition of new flights and/or the deletion or modification of currently listed flights shall be submitted "2 weeks" prior to the changes taking place.

7.2.3 For changes of a temporary nature, i.e. aircraft identification and aircraft type, departure aerodrome, destination aerodrome and/or routing, for a specific flight(s) a complete FPL shall be filed.

7.3 *Contents of a RPL*

A RPL shall contain the following information:

a) Validity period of the FPL.

b) Days of operation.

c) Aircraft identification.

d) Aircraft type and wake turbulence category.

e) Departure aerodrome.

f) "Time of departure".

g) Cruising speed.

h) Cruising level(s).

i) Route.

j) Destination aerodrome.

k) The location where the following information can be obtained immediately on request

   i) Alternate aerodrome.

   ii) Fuel endurance.

   iii) Emergency equipment.

   iv) Other pertinent information

8. Flight plans for Grootfontein (FYGF) and Karibib (FYKA)

8.1 All civil aircraft intending to land at Grootfontein are hereby requested to file and forward FPL two hours before departure to FYGF. ATC at FYGF must be informed two hours before arrival by FYWH controllers of any inbound traffic so as for him/her to contact Army Headquarters.

8.2 No foreign registered Civilian ACFT allowed to land at FYKA and FYGF aerodromes without granted permission from the Ministry of Defence (MOD), office of Chief of Defence (CDF) prior arrangement should be made for authorization at the following address:

MOD, CDF
Private Bag 13307
Windhoek
Fax: +26461 258 215

9. PBN Notification

9.1 Notification of PBN capabilities requires a combination of entries in item 10 (equipment and capabilities) and item 18 of the ATS flight plan. See Appendix 1.

10. Carriage of flight Documentation

Pilots are required to carry, and have readily accessible in the aircraft, the latest editions of the aeronautical maps, charts and other aeronautical information and instructions, published in AIP, that are applicable to the aerodrome of operation and routes to be flown, and any alternative aerodromes or routes that may be used on that flight.

Appendix 1

ITEM 10: EQUIPMENT AND CAPABILITIES

Capabilities comprise the following elements:

a) presence of relevant serviceable equipment on board the aircraft;

b) equipment and capabilities commensurate with flight crew qualifications; and

c) where applicable, authorization from the appropriate authority.

Radio communication, navigation and approach aid equipment and capabilities

INSERT one letter as follows:

N if no COM/NAV/approach aid equipment for the route to be flown is carried or the equipment is unserviceable,

OR S if standard COM/NAV/approach aid equipment for the route to be flown is carried and serviceable *(see Note 1),*

AND/OR

INSERT one or more of the following letters to indicate the serviceable COM/NAV/approach aid equipment and capabilities available:

A	GBAS landing system
B	LPV (APV with SBAS)
C	LORAN C
D	DME
E1	FMC WPR ACARS
E2	D-FIS ACARS
E3	PDC ACARS
F	ADF
G	GNSS (*See Note 2*)
H	HF RTF
I	Inertial Navigation
J	J1 CPDLC ATNVDL Mode 2 (*See Note 3*)
J2	CPDLC FANS 1/A HFDL
J3	CPDLC FANS 1/A VDL Mode 4
J4	CPDLC FANS 1/A VDL Mode 2
J5	CPDLC FANS 1/A SATCOM (INMARSAT)
J6	CPDLC FANS 1/A SATCOM (MTSAT)
J7	CPDLC FANS 1/A SATCOM (Iridium)
K	MLS
L	ILS
M1	ATC RTF SATCOM (INMARSAT)
M2	ATC RTF (MTSAT)
M3	ATC RTF (Iridium)

O VOR
P1–P9 Reserved for RCP
R PBN approved *(See Note 4)*
T TACAN U UHF RTF V VHF RTF
W RVSM approved
X MNPS approved
Y VHF with 8.33 kHz channel spacing capability
Z Other equipment carried or other capabilities *(See Note 5)*

Any alphanumeric characters not indicated above are reserved.

Note 1.— If the letter S is used, standard equipment is considered to be VHF RTF, VOR and ILS, unless another combination is prescribed by the appropriate ATS authority.

Note 2.— If the letter G is used, the types of external GNSS augmentation, if any, are specified in Item 18 following the indicator NAV/ and separated by a space.

Note 3.— See RTCA/EUROCAE Interoperability Requirements Standard for ATN Baseline 1 (ATN B1 INTEROP Standard – DO-280B/ED-110B) for data link services air traffic control clearance and information/air traffic control communications management/air traffic control microphone check.

Note 4.— If the letter R is used, the performance-based navigation levels that can be met are specified in Item 18 following the indicator PBN/. Guidance material on the application of performance-based navigation to a specific route segment, route or area is contained in the Performance-based Navigation (PBN) Manual (Doc 9613).

Note 5.— If the letter Z is used, specify in Item 18 the other equipment carried or other capabilities, preceded by COM/ , NAV/ and/or DAT, as appropriate.

Note 6.— Information on navigation capability is provided to ATC for clearance and routing purposes.

ITEM 18: OTHER INFORMATION

PBN/ Indication of RNAV and/or RNP capabilities. Include as many of the descriptors below, as apply to the flight, up to a maximum of 8 entries, i.e. a total of not more than 16 characters.

	RNAV SPECIFICATIONS
A1	RNAV 10 (RNP 10)
B1	RNAV 5 all permitted sensors
B2	RNAV 5 GNSS
B3	RNAV 5 DME/DME
B4	RNAV 5 VOR/DME
B5	RNAV 5 INS or IRS
B6	RNAV 5 LORANC

C1	RNAV 2 all permitted sensors
C2	RNAV 2 GNSS
C3	RNAV 2 DME/DME
C4	RNAV 2 DME/DME/IRU
D1	RNAV 1 all permitted sensors
D2	RNAV 1 GNSS
D3	RNAV 1 DME/DME
D4	RNAV 1 DME/DME/IRU
	RNP SPECIFICATIONS
L1	RNP 4
O1	RNP 1 all permitted sensors
O2	RNP 1 GNSS
O3	RNP 1 DME/DME
O4	RNP 1 DME/DME/IRU
S1	RNP APCH
S2	RNP APCH with BARO-VNAV
T1	RNP AR APCH with RF (special authorisation required)
T2	RNP AR APCH without RF (special authorisation required)

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ENR 1.11 ADDRESSING OF FLIGHT PLAN MESSAGES

The following AFTN address shall be used for all flights in Namibia originating/terminating at:

FYWH - FYZZNWDH

FYWE - FYZZNERS

FYOA - FYZZNOND

FYWB - FYZZNWVB

FYLZ - FYZZNLUD

FYKM - FYZZNMPA

FYGF - FYZZNGFN

Overflights only - FYZZNNMB

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ENR 1.12 INTERCEPTION OF CIVIL AIRCRAFT

1. Identification and interception of aircraft

1.1 An intercepted aircraft shall carry out the instruction of an intercepting aircraft, as prescribed in these regulations.

1.2 When an aircraft is intercepted the pilot-in-command shall forthwith establish radio contact with the intercepting aircraft on 121.5 MHZ, if the aircraft is so equipped, and if radio contact has not already been established.

1.3 When the intercepting aircraft cannot establish radio contact or contact in any other practical way with the intercepted aircraft, visual signals shall be used as described in the following table.

Table 1.12-1: Visual Interception Signals

Signal by Intercepting Aircraft	Meaning	Response by Intercepted Aircraft
First series		
Day		
a) Rocking wings while in front and to left of intercepted aircraft	Follow me away from a prohibited area	Rocking wings
b) Rocking wings while in front and to right of intercepted aircraft	Follow me to a landing terrain	Rocking wings
c) When a) and b) have been acknowledged, making a slow level turn into desired course	-	Follow intercepting aircraft
Night		
a) As for day, and in addition flashing navigational and, if available, landing lights at irregular intervals	Follow me away from a prohibited or restricted area	Rocking wings if considered safe and showing steady landing light if carried
b) As for day, and in addition flashing navigational and, if available, landing lights at irregular intervals	Follow me to a landing terrain	Rocking wings if considered safe and showing steady landing light if carried
c) As for day, and in addition flashing navigational and, if available, landing lights at irregular intervals when a) and b) have been acknowledged	-	Follow intercepting aircraft.

Provided that: weather conditions or the terrain may require the intercepting aircraft to take up a position in front and to the right of the intercepted aircraft to complete the successive turn to the right.

Signal by Intercepting Aircraft	Meaning	Response by Intercepted Aircraft
Second series		
Day or night		
An abrupt break away of 090º or more without crossing the line of flight of the intercepted aircraft	You may proceed	Rocking wings if considered safe, at night showing steady landing light if carried
Third series		
Day		
Circling landing area, lowering landing gear and overflying the direction of landing	Land on this landing area	Same as interceptor and proceed to land (where applicable) if considered safe, at night showing steady landing light if carried
Night		
As for day and showing steady landing light	-	-
Fourth series		
Day		
First or second series dependent on what further action intercepting aircraft requires to be taken either: a) 'Follow me' or b) 'You may proceed'	Landing terrain unsuitable	Rocking wings (if fixed landing gear) or raising gear (whichever applicable) while passing over landing terrain at a height exceeding 1 000 feet but not exceeding 2 000 feet

1.4 The visual signals shall be used as follows:

a) When an aircraft has been intercepted, for identification only, the intercepting aircraft will use the SECOND series to show that the aircraft may proceed.

b) When an aircraft is to be led away from a prohibited or restricted area, the appropriate part of the FIRST series will be used and the SECOND series when the purpose has been achieved and the aircraft is released.

c) When an aircraft is required to land, the appropriate part of the FIRST series will initially be used, followed by the THIRD series when in the vicinity of the designated landing area.

d) When the pilot of the intercepted aircraft considers the landing area designated as unsuitable for his aircraft type, he will use the FOURTH series to indicate this and new instructions will then be given by the intercepting aircraft.

e) When an intercepted aircraft is in distress the DISTRESS signals should be used, where practical.

2. Interception principles and procedures

2.1 The pilot in command (PIC) of an aircraft flying in the Windhoek FIR airspace when intercepted shall comply with the instructions and procedures specified in this section when interpreting and responding to visual signals and communication.

2.2 The PIC of an aircraft registered in Namibia or operated by a Namibian operator flying in foreign airspace when intercepted shall comply with the interception instructions and procedures of the competent Authority.

2.3 No PIC may conduct an international flight unless the procedures and signals relating to interception of aircraft, as specified in these regulations, are readily available on the flight deck.

Note: The word "interception" in this context does not include intercept and escort services provided, on request, to an aircraft in distress, in accordance with the Search and Rescue Manual (Doc 7333)

3. Action by intercepted aircraft

3.1 The PIC of an aircraft that is intercepted by another aircraft shall immediately:

a) Follow the instructions given by the intercepting aircraft, interpreting and responding to visual signals in accordance with the specifications in item 3.2 below.

b) Notify, if possible, the appropriate air traffic services unit.

c) Attempt to establish radio communication with the intercepting aircraft or with the appropriate intercept control unit, by making a general call on the emergency frequency 121.5 MHz, giving the identity of the intercepted aircraft and the nature of the flight; and if no contact has been established and if practicable, repeating this call on the emergency 243MHz

d) If equipped with SSR transponder, select mode A, code 7700, unless otherwise instructed by the appropriate air traffic services unit.

e) If equipped with ADS-B or ADS-C, select the appropriate emergency functionality, if available, unless otherwise instructed by the appropriate air traffic services unit.

3.2 If any instructions received by radio from any sources conflict with those given by the intercepting aircraft by visual signals, the PIC of the intercepted aircraft shall request immediate clarification while continuing to comply with the visual instructions given by the intercepting aircraft.

3.3 If any instructions received by radio from any sources conflict with those given by the intercepting aircraft by radio, the PIC of the intercepted aircraft shall request immediate clarification while continuing to comply with the radio instructions given by the intercepting aircraft.

4. Radio communication during interception and signals

4.1 If radio contact is established during interception but communication in a common language is not possible, the PIC of each involved aircraft shall attempt to convey instructions, acknowledgement of instructions and essential at information by using the phrases and pronunciations in Table 1 below and transmitting each phrase twice:

Table 1

Phrases for use by INTERCEPTING aircraft			Phrases for use by INTERCEPTED aircraft		
Phrase	Pronunciation 1	Meaning	Phrase	Pronunciation 1	Meaning
CALL SIGN	KOL SA-IN	What is your call sign?	CALL SIGN (call sign)2	KOL SA-IN (call sign)	My call sign is (call sign)
FOLLOW	FOL-LO	Follow me	WILCO	VILL-KO	Understood Will comply
DESCEND	DEE-SEND	Descend for landing	CAN NOT	KANN NOTT	Unable to comply
YOU LAND	YOU LAAND	Land at this aerodrome	REPEAT	REE-PEET	Repeat your instruction
PROCEED	PRO-SEED	You may proceed	AM LOST	AM LOSST	Position unknown
			MAYDAY	MAYDAY	I am in distress
			HIJACK3	HI-JACK	I have been hijacked
			LAND (place name)	LAAND (place name)	I request to land at (place name)
			DESCEND	DEE-SEND	I require descent

1. In the second column, syllables to be emphasized are underlined.
2. The call sign required to be given is that used in radiotelephone, communications with air traffic services units and
corresponding to the aircraft identification in the flight plan.
3. Circumstances may not always permit, nor make desirable, the use of the phrase “HIJACK”.

4.2 The signals in Table 2 shall be used by the pilots of each involved aircraft in the event of interception. Signals initiated by intercepting aircraft and responses by intercepted aircraft.

Table 2

Series	INTERCEPTING Aircraft Signals	Meaning	INTERCEPTING Aircraft Responds	Meaning
1	DAY or NIGHT - Rocking aircraft and flashing navigational lights at irregular intervals (and landing lights in the case of a helicopter) from a position slightly above and ahead of, and normally to the left of, the intercepted aircraft (or to the right if the intercepted aircraft is a helicopter) and, after acknowledgement, a slow level turn, normally to the left, (or to the right in the case of a helicopter) on the desired heading. *Note: Meteorological conditions or terrain may require the intercepting aircraft to reverse the positions and direction of turn given above in Series 1.* *Note: If the intercepting aircraft is not able to keep pace with the intercepting aircraft, the latter is expected to fly a series of race-track patterns and to rock the aircraft each time it passes the intercepted aircraft.*	You have been intercepted. Follow me.	DAY or NIGHT Rocking aircraft. flashing navigational lights at irregular intervals and following.	Understood, will comply.
2	DAY or NIGHT - An abrupt break away manoeuvre from the intercepted aircraft consisting of a climbing turn of 90 degrees or more without crossing the line of flight of the intercepted aircraft.	You may proceed.	DAY or NIGHT - Rocking the aircraft.	Understood, will comply.
3	DAY or NIGHT - Lowering landing gear (if fitted), showing steady landing lights and overflying runway in use or, if the intercepted aircraft is a helicopter, overflying the helicopter landing area. In the case of helicopters, the intercepting helicopter makes a landing approach, coming to hover hear to the landing area.	Land at this aerodrome.	DAY or NIGHT Lowering landing gear (if fitted), showing steady landing lights and following the intercepting aircraft and, if, after overflying the runway in use or helicopter landing area, landing is considered safe, proceeding to land.	Understood, will comply
4	DAY or NIGHT - Raising landing gear (if fitted) and flashing landing lights while passing over runway in use or helicopter landing area at a height exceeding 300 m (1000 ft) but not exceeding 600 m (2000 ft)	Aerodrome you have designated is inadequate.	DAY or NIGHT If it is desired that the intercepted aircraft follow the intercepting aircraft to an alternate aerodrome, the intercepting aircraft raises its landing gear (if fitted) and uses he Series 1	Understood, follow me. Understood, you may proceed.

Series	INTERCEPTING Aircraft Signals	Meaning	INTERCEPTING Aircraft Responds	Meaning
	(in the case of a helicopter, at a height exceeding 50 m (170 ft) but not exceeding 100 m (330 ft) above the aerodrome level, and continuing to circle runway in use or helicopter landing area. If unable to flash landing lights, flash any other lights available.		signals prescribed for intercepting aircraft. If it is decided to release the incepted aircraft, the intercepting aircraft uses the Series 2 signals prescribed for intercepting aircraft.	
5	DAY or NIGHT - Regular switching on and off of all available lights but in such a manner as to be distinct from flashing lights.	Cannot comply.	DAY or NIGHT - Use Series 2 signals prescribed for intercepting aircraft.	
6	DAY or NIGHT - Irregular flashing of all available lights.	In distress.	DAY or NIGHT - Use Series 2 signals prescribed for intercepting aircraft.	Understood

ENR 1.13 UNLAWFUL INTERFERENCE

1. General

The following procedures are intended for use by aircraft when unlawful interference occurs and the aircraft is unable to notify an ATS unit of this fact.

2. Procedures

2.1 Unless considerations aboard the aircraft dictate otherwise, the pilot-in-command should attempt to continue flying on the assigned track and at the assigned cruising level at least until notification to an ATS unit is possible or the aircraft is within radar coverage.

2.2 When an aircraft subjected to an act of unlawful interference must depart from its assigned track or its assigned cruising level without being able to make radiotelephony contact with ATS, the pilot-in-command should, whenever possible:

a) attempt to broadcast warnings on the VHF emergency frequency and other appropriate frequencies, unless considerations aboard the aircraft dictate otherwise. Other equipment such as on-board transponders, data links, etc. should also be used when it is advantageous to do so and circumstances permit; and

b) proceed in accordance with applicable special procedures for in-flight contingencies, where such procedures have been established and promulgated in Doc 7030 - Regional Supplementary Procedures; or

c) if no applicable regional procedures have been established, proceed at a level which differs from the cruising levels normally used for IFR flight in the area by 300 M (1 000 FT) if above FL410 or by 150 M (500 FT) if below FL410

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ENR 1.14 AIR TRAFFIC INCIDENTS

1. Definition of air traffic incidents

1.1 "Air traffic incident" is used to mean a serious occurrence related to the provision of air traffic services such as:

a) aircraft proximity (AIRPROX)

b) serious difficulty resulting in a hazard to aircraft caused, for example, by:

i) faulty procedures;

ii) non-compliance with procedures; or

iii) failure of ground facilities.

1.2 Aircraft proximity

1.2.1 A situation in which, in the opinion of the pilot or the air traffic services personnel, the distance between aircraft, as well as their relative positions and speed, has been such that the safety of the aircraft involved may have been compromised.

1.2.2 Airprox is classified as follows:

a) Risk of collision. The risk classification of aircraft proximity in which serious risk of collision has existed.

b) Safety not assured. The risk classification of aircraft proximity in which the safety of the aircraft may have been compromised.

c) No risk of collision. The risk classification of aircraft proximity in which no risk of collision has existed.

d) Risk not determined. The risk classification of aircraft proximity in which insufficient information was available to determine the risk involved, or inconclusive or confounding evidence precluded such determination.

2. Use of the Air Traffic Incident Report Form

The following persons can make use of the Incident Report Form:

a) by a pilot for filing a report on air traffic incident after arrival or for confirming a report made initially by radio during flight.

Note: If available on board, the form may also be used in providing a pattern for making the initial report in flight.

b) by an ATSU for recording an air traffic incident report received by radio, telephone or teleprinter, or for filing an accident.

Note: The form may be used as the format for the text of a message to be transmitted over the AFS network.

3. Reporting procedures

3.1 The following procedures are to be followed by a pilot who is or has been involved in an accident:

a) During flight, use the appropriate air/ground frequency for reporting an incident of major significance, particularly if it involves other aircraft, so as to permit the facts to be ascertained immediately.

b) As promptly as possible after landing, submit a completed Air Traffic Incident Report Form:

i) for confirming a report of an incident made initially as in 3.1.a) above, or for making the initial report on such an incident if it had not been possible to report it by radio;

ii) for reporting an incident which did not require immediate notification at the time of occurrence.

c) When an operator is required to report an incident or accident to the director, such reports shall be emailed to incidents@ncaa.na

NOTE: These reports to the Namibia Civil aviation Authority are separate to the requirement to report to DAAI and operators should ensure that both parties are informed as required

3.2 An initial report made by radio should contain the following information:

a) aircraft identification;

b) the type of incident, e.g. airprox;

c) the incident;

d) miscellaneous.

3.3 The Incident Report form should be submitted to the Namibia Civil Aviation Authority in Windhoek, Eros airport.

3.4 Where this is not possible the Incident Report Form should be handed in at the nearest ATSU.

4. Purpose of reporting and handling the form

4.1 The purpose of reporting air traffic incidents and hence the investigation thereof is to promote the safety of aircraft.

4.2 The purpose of the form is to provide investigatory authorities with as complete information on an air traffic incident as possible and to enable them to report back, with the least possible delay to the pilot and/or operator concerned, the result of the investigation of the incident and if appropriate, the remedial action taken.

AIR TRAFFIC INCIDENT REPORT FORM

For use when submitting an receiving reports on air traffic incidents. In an initial report by radio, shaded items should be included

A - AIRCRAFT IDENTIFICATION	B - TYPE OF INCIDENT
	AIRPROX/PROCEDURE/FACILITY*

C - THE INCIDENT

1. General

a) Date/time of incident……..UTC

b) Position……

2. Own aircraft

a) Heading and route……

b) True airspeed …… measured in ( ) KTS …….. ( ) km/h ……

c) Level and altimeter setting ……

d) Aircraft climbing or descending

( ) Level flight ( ) Climbing ( ) Descending

e) Aircraft bank angle

( ) Wings level ( ) Slight bank ( ) Moderate bank

( ) Steep bank ( ) Inverted ( ) Unknown

f) Aircraft direction of bank

( ) Left ( ) Right ( ) Unknown

g) Restrictions to visibility (select as many as required)

( ) Sunglare ( ) Windscreen pillar ( ) Dirty windscreen

( ) Other cockpit structure ( ) None

h) Use of aircraft lighting (select as many as required)

( ) Navigation lights ( ) Strobe lights ( ) Cabin lights

( ) Red anti-collision lights ( ) Landing/taxi lights

( ) Logo (tail fin) lights ( ) Other ( ) None

i) Traffic avoidance advice issued by ATS

( ) Yes, based on radar ( ) Yes, based on visual sighting

( ) Yes based on other information ( ) No

* Delete as appropriate

j) Traffic information issued

( ) Yes, based on radar ( ) Yes, based on visual sighting

( ) Yes based on other information ( ) No

k) Airborne collision avoidance system - ACAS

( ) Not carried ( ) Type

( ) Traffic advisory issued ( ) Resolution advisory issued

( ) Traffic advisory or resolution advisory not issued

l) Radar identification

( ) No radar available ( ) Radar identification ( ) No radar identification

m) Other aircraft sighted

( ) Yes ( ) No ( ) Wrong aircraft sighted

n) Avoiding action taken

( ) Yes ( ) No

o) Type of flight plan IFR / VFR / none *

3. Other aircraft

a) Type and call sign/registration (if known) ……

b) If a) above not known, describe below

( ) High wing ( ) Mid wing ( ) Low wing

( ) Rotorcraft

( ) 1 Engine ( ) 2 Engines ( ) 3 Engines

( ) 4 Engines ( ) More than 4 Engines

Marking, colour or other available details

……..

……..

……..

c) Aircraft climbing or descending

( ) Level flight ( ) Climbing ( ) Descending

( ) Unknown

d) Aircraft bank angle

( ) Wings level ( ) Slight bank ( ) Moderate bank

( ) Steep bank ( ) Inverted ( ) Unknown

* Delete as appropriate

e) Aircraft direction of bank

( ) Left ( ) Right ( ) Unknown

f) Lights displayed

( ) Navigation lights ( ) Strobe lights ( ) Cabin lights

( ) Red anti-collision lights ( ) Landing/taxi lights ( ) Logo (tail fin) lights
( ) Other ( ) None ( ) Unknown

h) Traffic avoidance advice issued by ATS

( ) Yes, based on radar ( ) Yes, based on visual sighting

( ) Yes, based on other information ( ) No

( ) Unknown

i) Avoiding action taken

( ) Yes ( ) No ( ) Unknown

4. Distance

a) Closest horizontal distance ……

b) Closest vertical distance ……

5. Flight weather conditions

a) IMC / VMC *

b) Above / below* clouds / fog / haze or between layers *

c) Distance vertically from cloud ……m /ft * below …… m /ft * above

d) In cloud / rain / snow / sleet / fog / haze *

e) Flying into / out of * sun

f) Flight visibility …….. m / km *

6. Any other information considered important by the pilot-in-command

……

……

……

……

……

……

……

* Delete as appropriate

D - MISCELLANEOUS

1. Information regarding reporting aircraft

a) Aircraft registration ……..

b) Aircraft type ……..

c) Operator ……..

d) Airport of departure ……..

e) Airport of first landing …….. destination……..……

f) Reported by radio or other means to ……

……..(name of ATS unit) at time…… UTC

g) Date / time / place of completion of form ……

2. Function, address and signature of person submitting report

a) Function ……..

b) Address ……..

c) Signature ……

d) Telephone number ……

3. Function and signature of person receiving report

a) Function ……..

b) Signature ……

E - SUPPLEMENTARY INFORMATION BY ATS UNIT CONCERNED

1. Receipt of report

a) Report received via AFTN / radio / telephone / other (specify) *……..

b) Report received by …… (name of ATS unit)

2. Details of ATS action

Clearance, incident seen (radar/visually, warning given, result of local inquiry, etc.)

……

……

……

……

……

……

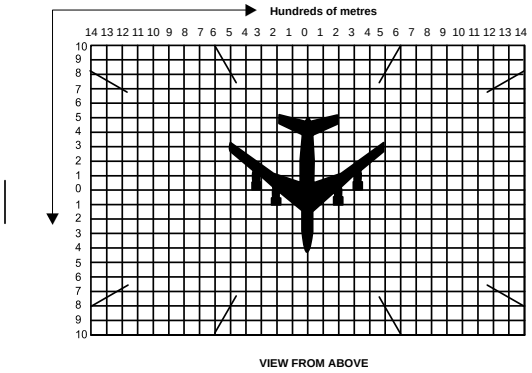
* Delete as appropriate

DIAGRAMS OF AIRPROX

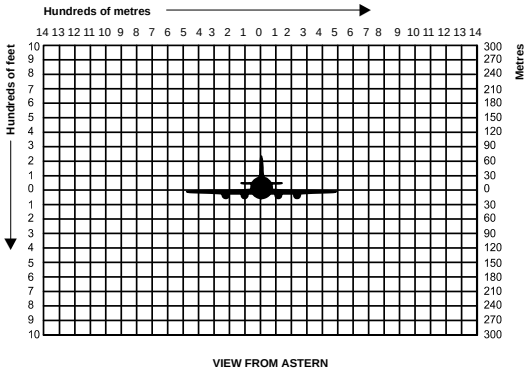
Mark passage of other aircraft relative to you, in plan on the left and in elevation on the right, assuming YOU are at the centre of the diagram, including first sighting and passing distance.

DIAGRAM OF AIRPROX

Mark passage of other aircraft relative to you, in plan on the left and in elevation on the right, assuming YOU are at the centre of each diagram. Include first sighting and passing distance.



VIEW FROM ABOVE



VIEW FROM ASTERN

Instructions for the completion of the Air Traffic Incident Report Form(ICAO FORMAT)

Item	
A	Aircraft identification of the aircraft filing the report
B	An AIRPROX report should be filed immediately by radio
C1	Date/time UTC and position in bearing and distance from a navigation aid or in LAT/LONG
C2	Information regarding aircraft filing the report, tick as necessary
C2-c)	e.g. FL350/1 013 HPA or 2 500 FT/QNH 1 007 HPA or 1 200 FT/QFE 998 hPa
C3	Information regarding the other aircraft involved
C4	Passing distance - state units used
C6	Attach additional papers as required. The diagrams may be used to show aircraft's positions
D1-f)	State name of ATS unit and date/time in UTC
D1-g)	Date and time in UTC
E2	Include details of ATS unit such as service provided, radiotelephony frequency, SSR codes assigned and altimeter setting. Use diagram to show aircraft's position and attach additional papers as required

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ENR 2. AIR TRAFFIC SERVICES AIRSPACE

ENR 2.1 FIR, UTA, CTA, TMA

Name *Lateral limits* *Vertical limits* *Class of airspace*	*Unit providing service*	*Call sign* *Languages* *Area and conditions of use* *Hours of service*	*Frequency/ purpose*	*Remarks*
1	***2***	***3***	***4***	***5***
Windhoek Flight Information Region				
From a point at 180000S 0100000E along a straight line to a point at 171500S 0114500E Thence clockwise along the international boundary between Namibia, Angola, Zambia, Zimbabwe and Botswana to a point at 181901S 0210122E Thence a straight line along the international boundary between Namibia and Botswana to a point at 215957S 0210024E Thence a straight line to a point at 215941S 0200016E Thence a straight line along the international boundary between Namibia and Botswana to a point at 244600S 0200000E Thence clockwise along the international boundary between Botswana and South Africa to a point 264927S 0210136E Thence along a straight line to a point at 273000S 0210000E Thence along a straight line to a point at 273000S 0100000E	GND - FL145: Windhoek FIS FL145 - FL650: Windhoek ACC	GND - FL145: Windhoek Information FL145- FL650: Windhoek Radar English 0500-1700 FIS available outside these hours of operations on 124.7 MHz	Windhoek Information: 129.6 MHz (North) 123.8 MHz (South) Windhoek Radar: 124.7 MHz	Relay station installed at OPUWO (181007S 0135550E) on FREQ 124.7 MHz Except where otherwise authorised, no aircraft is to be operated in this airspace unless two-way radio contact is maintained with air traffic control. The FIR is divided into 2 Sectors, North and South. Refer to ENR 2.2 for the full description. ATM related service delivery within the areas defined as **Johannesburg Oceanic** and **Zambezi Zipfel** of the Windhoek FIR has been delegated to Botswana and South Africa. For Near FIR/Sector boundary operations

Name *Lateral limits* *Vertical limits* *Class of airspace*	*Unit providing service*	*Call sign* *Languages* *Area and conditions of use* *Hours of service*	*Frequency/ purpose*	*Remarks*
1	***2***	***3***	***4***	***5***
Windhoek Flight Information Region				
Thence along a straight line back to the starting point at 180000S 0100000E GND / FL650 Class “A” All controlled airspace above FL145 Class “C” All controlled airspace FL145 and below (Regulated Airspace only) Class “G” BTN GND / FL145 (except for Regulated Airspace) and BTN FL460 / FL650				Refer to Paragraph 1 at the end of this section
Zambezi Zipfel 1. The airspace defined below is delegated to Gaborone FIR From a point at 1757S 02100E clockwise along the boundaries of Namibia and Angola, Zambia to a point at 174730S 0251530E. Thence along the Namibia/ Botswana boundary to a point at 181930S 021000E. Thence a straight line to the starting point at 175730S 021000E 2. FIS in the airspace defined below is provided by the Katima Mulilo ATS Units.	BTN FL145 / FL650			For Near FIR/Sector boundary operations Refer to Paragraph 1 at the end of this section

Name *Lateral limits* *Vertical limits* *Class of airspace*	*Unit providing service*	*Call sign* *Languages* *Area and conditions of use* *Hours of service*	*Frequency/ purpose*	*Remarks*
1	***2***	***3***	***4***	***5***
Windhoek Flight Information Region				
From a point at 175730S 0210000E clockwise along the boundaries BTN Namibia and Angola, Zambia and Botswana to a point 181930S 0210000E thence a straight line to the starting point.	BTN 1500FT AGL /FL140	As per NOTAM	125.6MHz or Windhoek Information outside these hours	Additional VHF forward relay station has been established at Divundu
Johannesburg Oceanic: A portion of the FIR defined as follows: 273000S 0150000E, 273000S 0100000E, 180000S 0100000E, 173000S 0111300E and 273000S 0150000E. GND/FL650	Johannesburg Oceanic	H24	FAJO: 5565 KHz 6559 KHz 8861 KHz 13315 KHz 17955 KHz 21926 KHz	For Near FIR/Sector boundary operations Refer to Paragraph 1 at the end of this section

Name *Lateral limits* *Vertical limits* *Class of airspace*	*Unit providing service*	*Call sign* *Languages* *Area and conditions of use* *Hours of service*	*Frequency/ purpose*	*Remarks*
1	***2***	***3***	***4***	***5***
Windhoek Terminal Control Area				
Terminal Control Area A (TMA A) 222838.52S 0172814.07E (WHV VOR) - 220023.65S 0171705.49E-(352WHV/30) – clockwise along the arc of a circle, radius 30NM centred at 222838.52S 0172814.07E (WHV VOR) – 225652.31S 0173927.11E (172WHV/30) – to a point of origin. <u>FL 145</u> 7500FT MSL Class of Airspace: C <u>7500FT MSL</u> GND Class of Airspace: G **Terminal Control Area B (TMA B)** 222838.52S 0172814.07E (WHV VOR) – 225652.31S 0173927.11E (172WHV/30) – clockwise along the arc of a circle, radius 30NM centred at 222838.52S 0172814.07E (WHV VOR) – 220023.65S 0171705.49E (352WHV/30) – to point of origin <u>FL 145</u> 8500FT MSL Class of Airspace: C	Windhoek Approach	Windhoek Approach English H24	120.50 MHz	1. Speed restrictions apply within Windhoek TMA in Class C airspace. MAX IAS 250KT at and below F150. FYWH AD 2-16 refers. 2. All aircraft operating within the lateral confines of the Windhoek TMA at and below 10000FT AMSL shall use FYWH QNH. Excluding FYWE CTR but Including all Class G and unmanned aerodromes 3. Within the lateral confines of the Windhoek TMA; All aircraft operating in Class G airspace including unmanned aerodromes, but excluding FYD130 shall broadcast and then monitor on 120.50MHz for traffic information

Name *Lateral limits* *Vertical limits* *Class of airspace*	*Unit providing service*	*Call sign* *Languages* *Area and conditions of use* *Hours of service*	*Frequency/ purpose*	*Remarks*
1	*2*	*3*	*4*	*5*
Terminal Control Area B1 (TMA-B1) 222838.52S 0172814.07E (WHV VOR) – 223427.60S 0173032.32E (172WHV/6) – 223924.17S 0171947.50E – clockwise along the arc of a circle, radius 12NM centred at 222923.02S 0172658.54E - 222610.11S 0171429.68E – 222112.24S 0172517.49E (352WHV/8) – to a point of origin <u>8500FT MSL</u> 7500FT MSL Class of Airspace: Class C	Windhoek Approach	Windhoek Approach English H24	120.50 MHz	4. Unless otherwise authorised, no aircraft shall operate within the lateral confines of Windhoek TMA in Class G or Class C airspace. All aircrafts must be capable of maintaining a two-way communication with air traffic control. 5. Carriage of transponder is mandatory for aircraft operating within the lateral confines of the Windhoek TMA in Class G and Class C airspace. 6. For near FIR /Sector boundary operations see note at the end of this section During Eros Tower hours of operation AIP FYWE AD 2-2 refers: Outside Eros Tower hours of operation
Terminal Control Area B2 (TMA B2) 222543.49S 0165731.01E – clockwise along the arc of a circle, radius 12NM centred at 223546.57S 0170439.03E – 222411.55S 0170810.88E – 224652.54S 0171158.76E – clockwise along the arc of a circle, radius 12NM centred at 223649.88S 0170449.59E – 224851.44S 0170413.12E - clockwise along the arc of a circle, radius 30NM centred at 222838.52S 0172814.07E (WHV VOR) – 224423.64S 0170037.02E – to a point of origin.	Eros Tower Windhoek Radar	Eros Tower Windhoek Radar English H24	118.70 MHz 120.50 MHz	

Name *Lateral limits* *Vertical limits* *Class of airspace*	*Unit providing service*	*Call sign* *Languages* *Area and conditions of use* *Hours of service*	*Frequency/ purpose*	*Remarks*
1	*2*	*3*	*4*	*5*
8500FT MSL 7500FT MSL Class of Airspace: C Terminal Control Area C (TMA C) Between an inner circle, radius 30NM centred at 222838.52S 0172814.07E (WHV VOR)-– and an outer circle, radius 50NM centred at 222838.52S 0172814.07E (WHV VOR) FL 145 9500FT MSL 9500FT MSL GND Class of Airspace G	Windhoek Approach	Windhoek Approach English H24	120.50 MHz	

Name *Lateral limits* *Vertical limits* *Class of airspace*	*Unit providing service*	*Call sign* *Languages* *Area and conditions of use* *Hours of service*	*Frequency/ purpose*	*Remarks*
1	**2**	**3**	**4**	**5**
Walvis Bay Terminal Control Area				
Terminal Control Area A (TMA-A) A circle with a radius 20 NM centred on 225855.59S 0143840.48E (WBV VOR) FL145 3500 FT MSL Class of Airspace: Class C 3500 FT GND Class of Airspace: Class G **Terminal Control Area A1 (TMA-A1)** 224918.07S 0145240.27E – clockwise along the arc of a circle, radius 15NM centred at 225828.55S 0143947.08E – 230209.43S 0145533.35E – 231037.31S 0142727.36E – clockwise along the arc of a circle, radius 15NMcentred at 225903.14S 0143752.23E – 225839.35S 0142136.87E to point of origin. 3500FT MSL 2500FT MSL Class of Airspace: Class C **Terminal Control Area B (TMA-B)** Between an inner circle, radius 20NM centred at 225855.59S 0143840.48E (WBV VOR) – and an outer circle, radius 30NM centred at 225855.59S 0143840.48E (WBV VOR)	Walvis Bay Approach	Walvis Bay Approach English MON-SUN: FYWB APP HOD: 0500 - 1700	122.50 MHz	1. Speed restrictions apply within Walvis Bay TMA in Class C airspace. MAX IAS 250KT at and below A100. FYWB AD 2-22 refers. 2. All aircraft operating within the lateral confines of the Walvis Bay TMA at and below 10000FT AMSL shall use FYWB QNH. 3. Unless otherwise authorised, no aircraft shall operate within the lateral confines of Walvis Bay TMA in Class G or Class C airspace unless two-way communication is maintained with air traffic control. 4. For near FIR/Sector boundary operations refer to paragraph 1 at the end of this section.

Name *Lateral limits* *Vertical limits* *Class of airspace*	*Unit providing service*	*Call sign* *Languages* *Area and conditions of use* *Hours of service*	*Frequency/ purpose*	*Remarks*
1	**2**	**3**	**4**	**5**
FL 145 5500FT MSL Class of Airspace: Class C 5500FT MSL GND Class of Airspace:G **Terminal Control Area C (TMA C)** Between an inner circle, radius 30NM centred at 225855.59S 0143840.48E (WBV VOR) – and an outer circle, radius 50NM centred at 225855.59S 0143840.48E (WBV VOR) FL145 9500FT MSL Class of Airspace: C 9500FT MSL GND Class of Airspace: G				

Near FIR/Sector boundary operations

Pilots are requested to adapt the following procedure in the interest of safety:

i) All flights intending to depart from aerodromes within 10NM of a boundary delineating services between two separate ATM service providers e.g. FIR boundary, must ensure that they make contact by whatever means available with the nearest ATS Unit, prior to departure.

ii) The ATS Unit must be provided with the Estimated Time of Departure (ETD), the estimate for the boundary, the intended flight level, route and destination. The Estimated Time of Departure and the Actual Time of Departure (ATD), or time as prior arranged, should not differ by more than 10 minutes.

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ENR 2.2 OTHER REGULATED AIRSPACE

1. General

1.1 Delegation of ATS within Johannesburg FIR to Windhoek Flight Information Service

Lateral limits: From a point at 273000S 0150000E along a straight line to a point at 273000S 0195439E. Thence a straight line to a point at 282312S 0195453E. Thence clockwise along the international boundary between South Africa and Namibia to a point at 283548S 0162042E. Thence a straight line to a point at 283548S 0150000E. Thence along a straight line back to the starting point at 273000S 0150000E.

The services within this part of Johannesburg FIR, 1500 FT AGL to FL195 have been delegated to Windhoek FIR.

Hours of Operation/Language:

124.7 MHz - H24/English
123.8 MHz – HJ/English

NOTE: Above frequencies combined HN

Frequency: 124.7 MHz – FL145 to FL195
123.8 MHz – 1500 FT AGL to FL145

Callsign: Windhoek Radar – FL145 to FL195

Windhoek Information – 1500 FT AGL to FL145

Class of Airspace:

Class “A” - FL145 to FL195
Class “G” - 1500FT AGL to FL145

The area above GND to 1500 FT AGL will be subject to TIBA procedures.

Above FL195 the service will remain with Johannesburg Area Control on frequency 118.5 MHz as Class “A” airspace.

2. Traffic Information Broadcast by Aircraft (TIBA)

With immediate effect the following procedures for aircraft operating outside of controlled airspace, within the boundaries of the Republic of Namibia, are implemented.

2.1 All aircraft operating at or below 1500 FT AGL outside the lateral limits of all promulgated General Flying Area’s, should maintain a listening watch and broadcast regular position reports on frequency 124.8 MHZ.
Aircraft operating within 5 NM of an aerodrome where ATS Unit is not in operation and where no specific frequency has been allocated, should make regular position reports relative to the aerodrome on frequency 124.8 MHZ. (excluding those aerodromes situated within established General Flying Area’s. Refer to Paragraph 2.5 below).

2.1.1 Where a specific frequency has been allocated to an aerodrome the position reports, relative to the aerodrome, should be made within 5 NM of that aerodrome on the appropriate frequency.

2.1.2 En-route position reports should be made at regular intervals containing information useful for collision avoidance e.g. identification, route position/time, level/altitude, next position and estimate. These position reports should be made with reference to prominent landmarks and/or navigational facilities.

2.2 Aircraft operating above 1500 FT AGL outside the areas mentioned in paragraph 1 should maintain a listening watch and should make regular position reports on the appropriate ATC Flight Information Service frequency allocated for the area.

In the event that, due to location or range, no contact can be established with the appropriate ATS Unit or Flight Information Service a listening watch should be maintained and regular position reports / broadcasts should be made on the FIS frequency allocated for the area.

2.3 Special Rules Areas

2.3.1 Namib Naukluft Desert Special Rules Area: refer ENR 2.2-5, 2.2-6.

2.4 General Air-to-Air Aviation Frequency.

2.4.1 To avoid the Traffic information broadcast by Aircraft (TIBA) frequencies from being used for purposes other than essential traffic information broadcast, the frequency 130.35 MHz is available for pilots to discuss general matters.

2.4.2 Messages should be kept short and a listening watch should be maintained on the appropriate TIBA Frequency.

2.5 Frequency for Established General Flying Area's.

Aircraft within promulgated General Flying Area's should operate on frequency 124,4 MHz.

NOTE: Pilots operating at unmanned aerodromes situated within the established General Flying Area's should operate on frequency 124.4 MHz.

2.6 The following is a List of Aerodromes without ATSU's to which specific frequencies have been allocated:

Aerodrome	FREQ
Arandis	123.500 MHz
Bitterwasser	123.600 MHz
Kiripotib	120.250 MHz
Mokuti Lodge	123.500 MHz
Oranjemund	118.700 MHz
Pokweni	120.200 MHz
Veronica	123.200 MHz

NOTE 1: The vertical limits for Veronica, Pokweni, Kiripotib and Bitterwasser is from GND to 3000FT AGL.

NOTE 2: As Oranjemund falls within the Alexander Bay ATZ all aircraft flying into/out of Oranjemund are to contact Alexander Bay Tower on frequency 118.7MHz and if unmanned, remain on 118.7MHz and not to change to 124.8MHz.

Pilots should make the appropriate broadcasts and take all necessary collision avoidance action prior to entering or leaving an area.

3. Strategic Lateral Offset Procedures (SLOP) in OCA

3.1 Strategic Lateral Offset Procedures (SLOP) are not permitted in the Windhoek FIR due to adequate surveillance coverage between FL245 and FL460 inclusive

4. Sectorization of Windhoek Flight Information Region

The Windhoek Flight Information Region has been sectorized as follows:

4.1 Windhoek Area North

4.1.1 That area designated as the Windhoek FIR from 1500FT AGL to FL145 described as follows:

From a point at 180000S 0100000E along a straight line to a point at 171500S 0114500E.

Thence clockwise, along the international boundary between Namibia, Angola, Zambia, Zimbabwe and Botswana to a point at 181901S 0210122E.

Thence a straight line, along the international boundary between Namibia and Botswana to a point at 215957S 0210024E.
Thence a straight line to a point at 215941S 0200016E, thence a straight line to a point at 223858S 0195946E.

Thence along a straight line to a point at 220647S 0175006E,
Thence a straight line to a point at 222839S 0172813E.
Thence a straight line to a point at 22300S2 0100311E,
Thence along a straight line back to the starting point at 180000S 0100000E.

4.1.2 Class of airspace: "G"

4.1.3 Hours of operation: H24 English

4.1.4 *Frequency*: 129. 6 MHz

4.1.5 *Call-sign*: Windhoek Information

4.2 Windhoek Area South

4.2.1 **That area designated as the Windhoek FIR from 1500 FT AGL to FL145 and described as follows:**

From a point at 223858S 0195946E along the international boundary between Namibia and Botswana to a point 244600S 0200000E.
Thence clockwise along the international boundary between Botswana and South Africa to a point at 264927S 0210136E
Thence along a straight line to a point at 273000S 0210000E
Thence along a straight line to a point at 273000S 0100000E
Thence along a straight line to a point at 223002S 0100311E
Thence along a straight line to a point at 222839S 0172813E
Thence along a straight line to a point at 220647S 0175006E
Thence along a straight line back to the starting point at 223858S 0195946E

4.2.2 Class of airspace: 'G'

4.2.3 Hours of operation: H24 English

4.2.4 Frequency: 123. 8 MHz

4.2.5 Call sign: Windhoek Information

4.3 Windhoek Area North

4.3.1 **That area designated as the Windhoek FIR from above FL145 to FL245 (excluding the area above the Zambezi Zipfel which has been delegated to Botswana above FL145):**

From a point at 180000S 0100000E along a straight line to a point at 171500S 0114500E

Thence clockwise, along the international boundary between Namibia, Angola, Zambia, Zimbabwe and Botswana to a point at 181901S 0210122E
Thence a straight line, along the international boundary between Namibia and Botswana to a point at 215957S 0210024E
Thence a straight line to a point at 215941S 0200016E
Thence a straight line to a point at 223858S 0195946E
Thence along a straight line to a point at 220647S 0175006E
Thence a straight line to a point at 222839S 0172813E
Thence a straight line to a point at 223002S 0100311E
Thence along a straight line back to the starting point at 180000S 0100000E

4.3.2 Class of airspace: "A"

4.3.3 Hours of operation: H24 English

4.3.4 Frequency: 124.7 MHz

4.3.5 Callsign: Windhoek Radar

4.4 Windhoek Area South

4.4.1 **That area designated as the Windhoek FIR from above FL145 to FL245 and described as follows:**

From a point at 223858S 0195946E along the international boundary between Namibia and Botswana to a point 244600S 0200000E.
Thence clockwise along the international boundary between Botswana and South Africa to a point at 264927S 0210136E
Thence along a straight line to a point at 273000S 0210000E
Thence along a straight line to a point at 273000S 0100000E
Thence along a straight line to a point at

223002S 0100311E
Thence along a straight line to a point at 222839S 0172813E
Thence along a straight line to a point at 220647S 0175006E
Thence along a straight line back to the starting point at 223858S 0195946E

4.4.2 Class of airspace: "A"

4.4.3 Hours of operation: H24 English

4.4.4 *Frequency*: 124.7 MHz

4.4.5 *Callsign*: Windhoek Radar

4.5 Windhoek Area

4.5.1 **That area designated as the Windhoek FIR from FL245 to FL460 described as follows and excluding the area above the Zambezi Zipfel (above FL145) which has been delegated to Botswana:**

From a point at 180000S 0100000E along a straight line to a point at 171500S 0114500E
Thence clockwise, along the international boundary between Namibia, Angola, Zambia, Zimbabwe and Botswana to a point at 181901S 0210122E

Thence a straight line, along the international boundary between Namibia and Botswana to a point at 215957S 0210024E
Thence a straight line to a point at 215941S 0200016E

Thence a straight line along the international boundary between Namibia and Botswana and South Africa to a point at 273000S 0195439E
Thence along a straight line to a point at 273000S 0100000E
Thence along a straight line back to the starting point at 180000S 0100000E

4.5.2 Hours of operation: H24 English

4.5.3 Frequencies: 124.7 MHz

4.5.4 Callsign: Windhoek Radar

Note 1: The airspace above FL460 to FL650 is classified as Class "G" airspace wherein an information service will be provided by Windhoek Area Control on frequency 124.7 MHz excluding that area above the Zambezi Zipfel (Above FL145).

Note 2: The provision of air traffic services in the Zambezi Zipfel area from 1500FT AGL to FL145, has been delegated to Katima Mulilo ATS Unit on FREQ 125.6MHz. Additional VHF forward relay station has been established at Divundu (All traffic to broadcast TIBA on 125.6MHz if no contact is established or if operated outside hours of operation

Note 3: TIBA procedures on 124.8 MHz will be applicable between GND and 1500FT AGL within the Windhoek FIR

5. NAMIB NAUKLUFT DESERT SPECIAL RULES AREA

Name *Lateral limits* *Vertical limits* *Class of airspace*	*Unit providing service*	*Call Sign* *Language* *Area and conditions of use* *Hours of service*	*Frequency purpose*	*Remarks*
1	**2**	**3**	**4**	**5**
Namib Naukluft Desert Special Rules Area				
Special Rules Area-1 230700.51S 0151000.41E thence along the C14 road- 231823.74S 0152840.44E clockwise along the arc of a circle, radius 50NM, centred at 225855.59S 0143840.48E (WBV VOR)- 234726.64S 0142451.50E- 232253.14S 0141857.95E anti-clockwise along the arc of a circle, radius 30NM, centred at 225855.59S 0143840.48E (WBV VOR) to point of origin	Nil ATS services	H24	127.55MHz Special Rules Area discrete frequency	1. Pilots must monitor and broadcast 127.55MHz while established in the Special Rule Area; 2. DO NOT USE 124.8MHz (TIBA) while operating within the Special Rule Area. 3. Aerodromes located within the Special Rule Area must use127.55MHz; 4. Give relevant traffic information for other aircraft situation awareness, including present position, direction of flight and altitude; 5. Pilots must use correct phraseology at all times; 6. Pilots are responsible for changing to the appropriate frequency when exiting the Special Rule Area; 7. 127.55MHz is not monitored by any ATS facility. It is a dedicated traffic broadcast frequency; 8. Namib Naukluft Desert Special Rule Area includes Special Rule Area-1 and Special Rule Area-2. 9. Caution: Walvis Bay TMA-C overlies Special Rule Area-1

Name *Lateral limits* *Vertical limits* *Class of airspace*	*Unit providing service*	*Call Sign* *Language* *Area and conditions of use* *Hours of service*	*Frequency purpose*	*Remarks*
1	**2**	**3**	**4**	**5**
Namib Naukluft Desert Special Rules Area				
Special Rules Area-2 231823.74S 0152840.44E - thence along the C14 road- 232932.80S 0154559.28E anticlockwise along the arc of a circle, radius 5NM, centred at 233231.54S 0155023.05E – 233228.83S 0154456.00E - 235326.85S 0154443.82E - 240701.06S 0155408.78E - 242805.27S 0154010.59E anticlockwise along the arc of a circle, radius 5NM centred at 243046.32S 0154445.98E – 243446.11S 0154130.19E - south west along the D872 road to the Tsauchab River Bridge at 243842.73S 0153906.99E - 244345.92S 0154006.10E - 245132.27S 0151609.66E - 245109.22S 0144205.82E - 243822.83S 0143152.99E - 240547.44S 0142048.03E - 234726.64S 0142451.50E - anticlockwise along the arc of a circle, radius 50NM centred at 225855.59S 0143840.48E (WBV VOR) - to point of origin FL145 SFC Class G	Nil ATS services	H24	127.55MHz Special Rules Area discrete frequency	1. Pilots must monitor and broadcast 127.55MHz while established in the Special Rule Area; 2. DO NOT USE 124.8MHz (TIBA) while operating within the Special Rule Area. 3. Aerodromes located within the Special Rule Area must use 127.55MHz; 4. Give relevant traffic information for other aircraft situation awareness, including present position, direction of flight and altitude; 5. Pilots must use correct phraseology at all times; 6. Pilots are responsible for changing to the appropriate frequency when exiting the Special Rule Area; 7. 127.55MHz is not monitored by any ATS facility. It is a dedicated traffic broadcast frequency; 8. Namib Naukluft Desert Special Rule Area includes Special Rule Area-1 and Special Rule Area-2.

ENR 3. ATS ROUTES

ENR 3.1 LOWER ATS ROUTES

Route designator *Name of significant points* *Co-ordinates*	*Track* *MAG* *(GEO)* *VOR RDL* *DIST* *(COP)*	*Upper limits* *Lower limits* *Minimum flight altitude* *Airspace classification*	*Lateral limits* *NM*	*Direction of cruising levels* *Odd*	*Even*	*Remarks* *Controlling unit* *Frequency*
1	**2**	**3**	**4**	**5**		**6**
A404						
▲ VEDRY 222838.52S 0172814.07E	092° 272° 29.0NM	FL245 FL145 Class A		↓		Bi directional ACC Windhoek 124.7 MHz
▲ TAVAS 210100.00S 0210000.00E	079° 256° 216.5NM				↑	For continuation see AIP Botswana

Route designator Name of significant points Co-ordinates	Track MAG (GEO) VOR RDL DIST (COP)	Upper limits Lower limits Minimum flight altitude Airspace classification	Lateral limits NM	Direction of cruising levels Odd	 Even	Remarks Controlling unit Frequency
1	2	3	4	5		6
G653						
▲ VEDRY 222838.52S 0172814.07E		FL 245 FL 145 Class A		↑	↓	Bidirectional ACC Windhoek 124.7MHz Annually 01 NOV to 28 Feb of following year route segment XABEB – ANTOR downgraded to Class G, FL145 to FL195 – HJ- due annual gliding season. ENR 5.5-1 refers. For continuation See AIP Botswana
△ XABEB 224200.00S 0182035.00E	119° 298° 50.0NM					
▲ ANTOR 230444.55S 0200000.00E	116° 296° 94.0NM					

Route designator *Name of significant points* *Co-ordinates*	*Track* *MAG* *(GEO)* *VOR* *RDL* *DIST* *(COP)*	*Upper limits* *Lower limits* *Minimum flight altitude* *Airspace classification*	*Lateral limits NM*	*Direction of cruising levels* *Odd*	*Even*	*Remarks* *Controlling unit* *Frequency*
1	2	3	4	5		6
J211						
▲ XALVI 225855.59S 0143840.48E		FL 245 FL 145 Class A		↓		Unidirectional Eastbound
▲ ESTAX 223925.35S 0150324.57E	062° 242° 30.2NM					
△ IMSOK 222622.55S 0163419.03E	094° 273° 85.4NM					ACC Windhoek 124.7MHz
△ VEDRY 222838.52S 0172814.07E	105° 284° 50.1NM					

Route designator *Name of significant points* *Co-ordinates*	*Track* *MAG* *(GEO)* *VOR* *RDL* *DIST* *(COP)*	*Upper limits* *Lower limits* *Minimum flight altitude* *Airspace classification*	*Lateral limits NM*	*Direction of cruising levels* *Odd*	*Even*	*Remarks* *Controlling unit* *Frequency*
1	2	3	4	5		6
R987						
▲ ANVAG 172330.12S 0154922.08E		FL 245 FL 145 Class A		↓	↑	For continuation see Republic of South Africa AIP
△ VEDRY 222838.52S 0172814.07E	171° 354° 320NM					Bidirectional
△ LONOD 231800.00S 0173600.00E	185° 005° 50.0NM					ACC Windhoek 124.7MHz
△ PARAG 250700.00S 0175400.00E	185° 005° 110NM					
△ KELKY 263214.69S 0180649.09E	188° 008° 86.0NM					Annually 01 NOV to 28 Feb of following year route segment LONOD – KEBAT downgraded to Class G, FL145 to FL195 – HJ- due annual gliding season. ENR 5.5-1 refers for continuation See AIP Botswana
▲ KEBAT 273000.00S 0181800.00E	187° 007° 58.0NM					

Route designator *Name of significant points* *Co-ordinates*	*Track* *MAG* *(GEO)* *VOR* *RDL* *DIST* *(COP)*	*Upper limits* *Lower limits* *Minimum flight altitude* *Airspace classification*	*Lateral limits NM*	*Direction of cruising levels* *Odd*	*Even*	*Remarks* *Controlling unit* *Frequency*
1	2	3	4	5		6
W398						
△VEDRY 222838.52S 0172814.07E		FL 245 FL 145 Class A			↓	Unidirectional Westbound
△UVGEN 223425.00S 0165724.00E	270° 091° 29.2NM					
▲UVKIK 225334.00S 0151011.00E	271° 092° 101.3NM					ACC Windhoek 124.7MHz
▲XALVI 225855.59S 0143840.48E	272° 092° 29.7NM					

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ENR 3.2 UPPER ATS ROUTES

NIL

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ENR 3.3 AREA NAVIGATION (RNAV) ROUTES

Route designator (RNP/RNAV [1]) Name of significant points Coordinates	*Track DEG MAG*	*Geodesic DIST NM*	*Upper Limit Lower Limit Airspace classification*	*Direction of cruising levels*		*Remarks Controlling unit Frequency*
				Odd	*Even*	
1	2	3	4	5		6
UL307						
(RNAV 5)[2,3]						For continuation see AIP Botswana
▲ AVOGU 200107.67S 0210000.88E	329° 148°	102	FL460 FL245	↓	↑	Bidirectional
▲ EXIRI 184232.34S 0195019.92E	328° 148°	33				
▲ EVESO 181700.72S 0192801.37E	326° 145°	37.0	Class A			ACC Windhoek 124.7 MHZ
▲ ABAPU 174938.36S 0190201.59E						

1. RNP = Required Navigation Performance; RNAV = area navigation specification
2. RNAV 5 represents aircraft and operating requirements, including a 5NM lateral performance as detailed in the *Performance Based Navigation (PBN) Manual* (Doc 9613)
3. GNSS Required
4. Except in an emergency or due to weather, when flight plan on RNAV 5 route within FYWF FIR, request for direct track not permitted. When deviating for weather, aircraft can expect clearance direct to next en-route waypoint once clear of weather.
5. The flight crew shall advise ATC unit concerned without delay in the event that the aircraft is experiencing degradation of RNAV capabilities.

Route designator (RNP/RNAV [1]) Name of significant points Coordinates	*Track DEG MAG*	*Geodesic DIST NM*	*Upper Limit Lower Limit Airspace classification*	*Direction of cruising levels*		*Remarks Controlling unit Frequency*
				Odd	*Even*	
1	2	3	4	5		6
UL316						
(RNAV 5)[2,3]						For continuation see AIP Botswana
▲ UTANI 271346.73S 0210034.80E						
▲ IBTOP 270522.14S 0202349.99E	302° 122°	33.9	FL460 FL245			Bidirectional
▲ KELKY 263214.69S 0180649.09E	302° 123°	127.4	Class A			
▲ ETBIR 262256.93S 0173845.31E	307° 127°	26.9		↑	↓	ACC Windhoek 124.7 MHZ
▲ UTVUM 253944.37S 0153204.15E	307° 127°	122.4				
▲ DULGO 250000.00S 0135908.00E	311° 131°	93.4				For continuation see AIP South Africa

1. RNP = Required Navigation Performance; RNAV = area navigation specification
2. RNAV 5 represents aircraft and operating requirements, including a 5NM lateral performance as detailed in the *Performance Based Navigation (PBN) Manual* (Doc 9613)
3. GNSS Required
4. Except in an emergency or due to weather, when flight plan on RNAV 5 route within FYWF FIR, request for direct track not permitted. When deviating for weather, aircraft can expect clearance direct to next en-route waypoint once clear of weather.
5. The flight crew shall advise ATC unit concerned without delay in the event that the aircraft is experiencing degradation of RNAV capabilities.

Route designator (RNP/RNAV [1]) Name of significant points Coordinates	*Track DEG MAG*	*Geodesic DIST NM*	*Upper Limit Lower Limit Airspace classification*	*Direction of cruising levels*		*Remarks Controlling unit Frequency*
				Odd	*Even*	
1	2	3	4	5		6
UL435						
(RNAV 5)[2,3] ▲ BOPAN 222412.00S 0200000.00E	305° 125°	105.6	FL460 FL245 Class A	↑	↓	For continuation see AIP Botswana Bidirectional ACC Windhoek 124.7 MHz For continuation see AIP South Africa
▲ IMPIG 214212.55S 0181606.03E	305° 125°	7				
▲ GETEM 213920.88S 0180909.18E	305° 125°	26				
▲ IMGET 212834.74S 0174310.08E	305° 125°	47				
▲ TIMAB 210925.41S 0165729.01E	305° 126°	212.2				
▲ IXEPA 193921.10S 0133248.32E	306° 126°	119.2				
▲ IBNEV 184706.00S 0114005.00E						

1. RNP = Required Navigation Performance; RNAV = area navigation specification
2. RNAV 5 represents aircraft and operating requirements, including a 5NM lateral performance as detailed in the *Performance Based Navigation (PBN) Manual* (Doc 9613)
3. GNSS Required
4. Except in an emergency or due to weather, when flight plan on RNAV 5 route within FYWF FIR, request for direct track not permitted. When deviating for weather, aircraft can expect clearance direct to next en-route waypoint once clear of weather.
5. The flight crew shall advise ATC unit concerned without delay in the event that the aircraft is experiencing degradation of RNAV capabilities.

Route designator (RNP/RNAV [1]) Name of significant points Coordinates	*Track DEG MAG*	*Geodesic DIST NM*	*Upper Limit Lower Limit Airspace classification*	*Direction of cruising levels*		*Remarks Controlling unit Frequency*
				Odd	*Even*	
1	2	3	4	5		6
UL685						
(RNAV 5)[2,3]						Bidirectional
▲ VEDRY 222838.52S 0172814.07E						
	316° 124°	39.7	FL460 FL245			
▲ OKSUN 220626.00S 0165300.00E						ACC Windhoek 124.7 MHZ
	316° 136°	10.3	Class A	↑	↓	
▲ UTROL 220039.62S 0164355.36E						
	315° 135°	206				
▲ DUGNU 200628.83S 0134134.35E						
	315° 135°	140.1				
▲ IBNEV 184706.00S 0114005.00E						

1. RNP = Required Navigation Performance; RNAV = area navigation specification
2. RNAV 5 represents aircraft and operating requirements, including a 5NM lateral performance as detailed in the *Performance Based Navigation (PBN) Manual* (Doc 9613)
3. GNSS Required
4. Except in an emergency or due to weather, when flight plan on RNAV5 route within FYWF FIR, request for direct track not permitted. When deviating for weather, aircraft can expect clearance direct to next en-route waypoint once clear of weather.
5. The flight crew shall advise ATC unit concerned without delay in the event that the aircraft is experiencing degradation of RNAV capabilities.

Route designator (RNP/RNAV [1]) Name of significant points Coordinates	*Track DEG MAG*	*Geodesic DIST NM*	*Upper Limit Lower Limit Airspace classification*	*Direction of cruising levels*		*Remarks Controlling unit Frequency*
				Odd	*Even*	
1	2	3	4	5		6
UL686						
(RNAV 5)[2,3]						Bidirectional
▲ VEDRY 222838.52S 0172814.07E						
▲ APGIB 233435.40S 0181008.57E	162° 343°	76.8	FL460 FL245 Class A	↓	↑	ACC Windhoek 124.7 MHZ
▲ EPRIS 235700.48S 0182432.66E	163° 343°	26.1				
▲ OKLAV 243535.91S 0184824.59E	164° 345°	44.5				
▲ XANBI 250030.37S 0190354.43E	165° 346°	28.8				
▲ IBTOP 270522.14S 0202349.99E	165° 348°	144.8				For continuation see AIP South Africa
▲ UMTOL 272955.15S 0203940.57E	168° 348°	28.4				

1. RNP = Required Navigation Performance; RNAV = area navigation specification
2. RNAV 5 represents aircraft and operating requirements, including a 5NM lateral performance as detailed in the *Performance Based Navigation (PBN) Manual* (Doc 9613)
3. GNSS Required
4. Except in an emergency or due to weather, when flight plan on RNAV 5 route within FYWF FIR, request for direct track not permitted. When deviating for weather, aircraft can expect clearance direct to next en-route waypoint once clear of weather.
5. The flight crew shall advise ATC unit concerned without delay in the event that the aircraft is experiencing degradation of RNAV capabilities.

Route designator (RNP/RNAV [1]) Name of significant points Coordinates	*Track DEG MAG*	*Geodesic DIST NM*	*Upper Limit Lower Limit Airspace classification*	*Direction of cruising levels*		*Remarks Controlling unit Frequency*
				Odd	*Even*	
1	2	3	4	5		6
UM427						
(RNAV 5)[2,3] ▲ DUNRU 175722.00S 0194314.00E ▲ EVESO 181700.72S 0192801.37E ▲ EGPAD 200606.00S 0182854.00E ▲ IMGET 212834.74S 0174310.08E ▲ APNIN 220112.00S 0172448.00E ▲ ERDES 223627.00S 0170445.00E	224° 044° 215° 037° 217° 039° 219° 039° 219° 040°	24.5 123.2 93.5 36.9 40.0	FL460 FL245 Class A	↑	↓	Bidirectional ACC Windhoek 124.7 MHZ

1. RNP = Required Navigation Performance; RNAV = area navigation specification
2. RNAV 5 represents aircraft and operating requirements, including a 5NM lateral performance as detailed in the *Performance Based Navigation (PBN) Manual* (Doc 9613)
3. GNSS Required
4. Except in an emergency or due to weather, when flight plan on RNAV 5 route within FYWF FIR, request for direct track not permitted. When deviating for weather, aircraft can expect clearance direct to next en-route waypoint once clear of weather.
5. The flight crew shall advise ATC unit concerned without delay in the event that the aircraft is experiencing degradation of RNAV capabilities.

Route designator (RNP/RNAV [1]) Name of significant points Coordinates	*Track DEG MAG*	*Geodesic DIST NM*	*Upper Limit Lower Limit Airspace classification*	*Direction of cruising levels*		*Remarks Controlling unit Frequency*
1	2	3	4	5		6
UM429						
(RNAV 5)[2,3] ▲ OTAVI 190921.00S 0170329.00E ▲ EVAGU 180831.97S 0162039.60E	 335° 154°	 73.5	FL460 FL245 Class A	↑	↓	Bidirectional ACC Windhoek 124.7 MHz

1. RNP = Required Navigation Performance; RNAV = area navigation specification
2. RNAV 5 represents aircraft and operating requirements, including a 5NM lateral performance as detailed in the *Performance Based Navigation (PBN) Manual* (Doc 9613)
3. GNSS Required
4. Except in an emergency or due to weather, when flight plan on RNAV 5 route within FYWF FIR, request for direct track not permitted. When deviating for weather, aircraft can expect clearance direct to next en-route waypoint once clear of weather.
5. The flight crew shall advise ATC unit concerned without delay in the event that the aircraft is experiencing degradation of RNAV capabilities.

Route designator (RNP/RNAV [1]) Name of significant points Coordinates	*Track DEG MAG*	*Geodesic DIST NM*	*Upper Limit Lower Limit Airspace classification*	*Direction of cruising levels*		*Remarks Controlling unit Frequency*
				Odd	*Even*	
1	2	3	4	5		6
UM431						
(RNAV 5)[2,3]						Bidirectional
▲ VEDRY 222838.52S 0172814.07E			FL460 FL245	↑	↓	ACC Windhoek 124.7 MHZ
▲ EGRIX 210511.37S 0140042.78E	305° 126°	211.1				
▲ NEVEP 202000.00S 0121404.44E	306° 126°	110.1	Class A			For continuation see AIP South Africa

1. RNP = Required Navigation Performance; RNAV = area navigation specification
2. RNAV 5 represents aircraft and operating requirements, including a 5NM lateral performance as detailed in the *Performance Based Navigation (PBN) Manual* (Doc 9613)
3. GNSS Required
4. Except in an emergency or due to weather, when flight plan on RNAV 5 route within FYWF FIR, request for direct track not permitted. When deviating for weather, aircraft can expect clearance direct to next en-route waypoint once clear of weather.
5. The flight crew shall advise ATC unit concerned without delay in the event that the aircraft is experiencing degradation of RNAV capabilities.

Route designator (RNP/RNAV [1]) Name of significant points Coordinates	*Track DEG MAG*	*Geodesic DIST NM*	*Upper Limit Lower Limit Airspace classification*	*Direction of cruising levels*		*Remarks Controlling unit Frequency*
				Odd	*Even*	
1	2	3	4	5		6
UM436						
(RNAV 5)[2,3]						Unidirectional North bound
▲ ATUPI 231013.74S 0170755.40E						
▲ OKMOM 223400.00S 0165924.00E	001°	37.3				
▲ IBVOB 222342.00S 0165700.00E	000°	10.6	FL460 FL245			ACC Windhoek 124.7 MHZ
▲ TIGUT 221542.00S 0165506.00E	000°	8.2	Class A		↓	
▲ OKSUN 220626.00S 0165300.00E	000°	9.5				
▲ ESTOV 210106.00S 0163800.00E	000°	67.2				
▲ IMGAG 183330.00S 0160448.00E	358.80°	151.66				For continuation see AIP Angola
▲ ANVAG 172330.12S 0154922.08E	357°	71.9				

1. RNP = Required Navigation Performance; RNAV = area navigation specification
2. RNAV 5 represents aircraft and operating requirements, including a 5NM lateral performance as detailed in the *Performance Based Navigation (PBN) Manual* (Doc 9613)
3. GNSS Required
4. Except in an emergency or due to weather, when flight plan on RNAV 5 route within FYWF FIR, request for direct track not permitted. When deviating for weather, aircraft can expect clearance direct to next en-route waypoint once clear of weather.
5. The flight crew shall advise ATC unit concerned without delay in the event that the aircraft is experiencing degradation of RNAV capabilities.

Route designator (RNP/RNAV [1]) Name of significant points Coordinates	*Track DEG MAG*	*Geodesic DIST NM*	*Upper Limit Lower Limit Airspace classification*	*Direction of cruising levels*		*Remarks Controlling unit Frequency*
				Odd	*Even*	
1	2	3	4	5		6
UM437						
(RNAV 5)[2,3]						Bidirectional
▲ VEDRY 222838.52S 0172814.07E						ACC Windhoek 124.7 MHZ
▲ IBKIN 215011.87S 0180247.85E	052° 231°	50.3	FL460 FL245 Class A	↓	↑	
▲ IMPIG 214212.55S 0181606.03E	068° 248°	14.7				For continuation see AIP Botswana
▲ GEPOP 205138.69S 0193904.94E	068° 247°	92.4				
▲ AVOGU 200107.67S 0210000.88E	067° 245°	91.2				Segment AVOGU – IMDIP in Gaborone FIR
▲ GENIX 181224.00S 0232542.00E	062° 239°	175.8				
▲ IMDIP 175400.00S 0234942.00E	059° 238°	29.5				For continuation see AIP Zambia
▲ XORIN 172800.20S 0242200.00E	057° 237°	40.3				

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2. RNAV 5 represents aircraft and operating requirements, including a 5NM lateral performance as detailed in the *Performance Based Navigation (PBN) Manual* (Doc 9613)
3. GNSS Required
4. Except in an emergency or due to weather, when flight plan on RNAV 5 route within FYWF FIR, request for direct track not permitted. When deviating for weather, aircraft can expect clearance direct to next en-route waypoint once clear of weather.
5. The flight crew shall advise ATC unit concerned without delay in the event that the aircraft is experiencing degradation of RNAV capabilities.

Route designator (RNP/RNAV [1]) Name of significant points Coordinates	*Track DEG MAG*	*Geodesic DIST NM*	*Upper Limit Lower Limit Airspace classification*	*Direction of cruising levels*		*Remarks Controlling unit Frequency*
				Odd	*Even*	
1	2	3	4	5		6
UM438						
(RNAV 5)[2,3]						Bidirectional
▲ VEDRY 222838.52S 0172814.07E						ACC Windhoek 124.7 MHZ
▲ DUNLO 220112.00S 0190230.00E	085° 264°	91.9	FL460 FL245	↓	↑	
▲ IMKED 213112.00S 0204106.00E	084° 263°	96.9	Class A			
▲ XABLO 212524.08S 0210000.00E	083° 263°	18.6				For continuation see AIP Botswana

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2. RNAV 5 represents aircraft and operating requirements, including a 5NM lateral performance as detailed in the *Performance Based Navigation (PBN) Manual* (Doc 9613)
3. GNSS Required
4. Except in an emergency or due to weather, when flight plan on RNAV 5 route within FYWF FIR, request for direct track not permitted. When deviating for weather, aircraft can expect clearance direct to next en-route waypoint once clear of weather.
5. The flight crew shall advise ATC unit concerned without delay in the event that the aircraft is experiencing degradation of RNAV capabilities.

Route designator (RNP/RNAV [1]) Name of significant points Coordinates	*Track DEG MAG*	*Geodesic DIST NM*	*Upper Limit Lower Limit Airspace classification*	*Direction of cruising levels*		*Remarks Controlling unit Frequency*
				Odd	*Even*	
1	2	3	4	5		6
UM439						
(RNAV 5)[2,3]						Bidirectional
▲ VEDRY 222838.52S 0172814.07E						ACC Windhoek 124.7 MHZ
▲ GEPAS 214930.00S 0183342.00E	070° 248°	72.6	FL460 FL245	↓	↑	
▲ OKRED 210042.00S 0195312.00E	068° 247°	89.1	Class A			
▲ TIMED 201848.00S 0210000.00E	067° 246°	75.6				For continuation see AIP Botswana

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2. RNAV 5 represents aircraft and operating requirements, including a 5NM lateral performance as detailed in the *Performance Based Navigation (PBN) Manual* (Doc 9613)
3. GNSS Required
4. Except in an emergency or due to weather, when flight plan on RNAV 5 route within FYWF FIR, request for direct track not permitted. When deviating for weather, aircraft can expect clearance direct to next en-route waypoint once clear of weather.
5. The flight crew shall advise ATC unit concerned without delay in the event that the aircraft is experiencing degradation of RNAV capabilities.

Route designator (RNP/RNAV [1]) Name of significant points Coordinates	*Track DEG MAG*	*Geodesic DIST NM*	*Upper Limit Lower Limit Airspace classification*	*Direction of cruising levels*		*Remarks Controlling unit Frequency*
				Odd	*Even*	
1	2	3	4	5		6
UM731						For continuation see AIP Zambia
(RNP 10)						
▲ EPMAG 173448.00S 0234048.00E						Bidirectional
▲ NERIB 174242.00S 0234441.99E	165° 345°	8.1	UNL FL245	↓	↑	Gaborone Area East 126.1 MHZ
▲ IMDIP 175400.00S 0234942.00E	165° 345°	12.2	Class A			
▲ IMLAM 182054.00S 0240136.00E	165° 345°	28.5				For continuation see AIP Botswana

1. RNP = Required Navigation Performance; RNAV = area navigation specification

2. The flight crew shall advise ATC unit concerned without delay in the event that the aircraft is experiencing degradation of RNAV capabilities.

Route designator (RNP/RNAV [1]) Name of significant points Coordinates	*Track DEG MAG*	*Geodesic DIST NM*	*Upper Limit Lower Limit Airspace classification*	*Direction of cruising levels*		*Remarks Controlling unit Frequency*
				Odd	*Even*	
1	2	3	4	5		6
UM998						
(RNP 10)						Unidirectional South East bound
▲ BUGRO 175012.07S 0222601.41E						
▲ AVIPU 175606.00S 0222847.99E	166° 346°	5.8	UNL FL245	↓		Gaborone Area West 127.1 MHZ
▲ EPRAL 184042.00S 0224812.00E	166° 346°	48.0	Class A			For continuation see AIP Botswana

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2. The flight crew shall advise ATC unit concerned without delay in the event that the aircraft is experiencing degradation of RNAV capabilities.

Route designator (RNP/RNAV [1]) Name of significant points Coordinates	*Track DEG MAG*	*Geodesic DIST NM*	*Upper Limit Lower Limit Airspace classification*	*Direction of cruising levels*		*Remarks Controlling unit Frequency*
				Odd	*Even*	
1	2	3	4	5		6
UN181						
(RNAV 5)[2,3]						Unidirectional East bound
▲ XALVI 225855.59S 0143840.48E						
▲ APDEM 233908.62S 0171234.74E	120°	147.7				ACC Windhoek 124.7 MHZ
▲ UTSAL 234616.34S 0174100.30E	119°	27.1	FL460 FL245	↓		
▲ EPRIS 235700.48S 0182432.66E	119°	41.5	Class A			
▲ GABSI 241947.05S 0200005.54E	119°	90.6				For continuation see AIP Botswana

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3. GNSS Required
4. Except in an emergency or due to weather, when flight plan on RNAV 5 route within FYWF FIR, request for direct track not permitted. When deviating for weather, aircraft can expect clearance direct to next en-route waypoint once clear of weather.
5. The flight crew shall advise ATC unit concerned without delay in the event that the aircraft is experiencing degradation of RNAV capabilities.

Route designator (RNP/RNAV [1]) Name of significant points Coordinates	*Track DEG MAG*	*Geodesic DIST NM*	*Upper Limit Lower Limit Airspace classification*	*Direction of cruising levels*		*Remarks Controlling unit Frequency*
				Odd	*Even*	
1	2	3	4	5		6
UN182						
(RNAV 5)[2,3]						Unidirectional West bound
▲ XAMGA 231005.28S 0200014.62E						
▲ AXODO 224257.21S 0181936.53E	299°	97.1			↓	Segment VEDRY to ETUDU is bidirectional
▲ VEDRY 222838.52S 0172814.07E	299°	49.8				
▲ NETOG 222007.65S 0163539.51E	292° 112°	49.6	FL460 FL245 Class A			ACC Windhoek 124.7 MHz
▲ APGEK 215704.98S 0141755.10E	292° 113°	130.3		↑	↓	
▲ ETUDU 214000.00S 0124321.18E	293° 114°	89.9				For continuation see AIP South Africa

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3. GNSS Required
4. Except in an emergency or due to weather, when flight plan on RNAV 5 route within FYWF FIR, request for direct track not permitted. When deviating for weather, aircraft can expect clearance direct to next en-route waypoint once clear of weather.
5. The flight crew shall advise ATC unit concerned without delay in the event that the aircraft is experiencing degradation of RNAV capabilities.

Route designator (RNP/RNAV [1]) Name of significant points Coordinates	*Track DEG MAG*	*Geodesic DIST NM*	*Upper Limit Lower Limit Airspace classification*	*Direction of cruising levels*		*Remarks Controlling unit Frequency*
				Odd	*Even*	
1	2	3	4	5		6
UN183						
(RNAV 5)[2,3]						For continuation see AIP Botswana
▲ XORAK 235111.24S 0200010.25E						
▲ APGIB 233435.40S 0181008.57E	293°	102.6				Unidirectional West bound XORAK to XALVI
▲ EGRED 232930.82S 0173814.81E	293°	29.8			↓	
▲ XOTEK 232459.07S 0171017.96E	293°	26.1	FL460 FL245			ACC Windhoek 124.7 MHz
▲ UVARA 230814.11S 0153111.17E	293°	93.1	Class A			
▲ XALVI 225855.59S 0143840.48E	294°	49.5				
▲ NIBEK 225831.00S 0131254.00E	284° 104°	80.1		↑	↓	Segment XALVI to NIBEX is bidirectional. For continuation see AIP South Africa

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2. RNAV 5 represents aircraft and operating requirements, including a 5NM lateral performance as detailed in the *Performance Based Navigation (PBN) Manual* (Doc 9613)
3. GNSS Required
4. Except in an emergency or due to weather, when flight plan on RNAV 5 route within FYWF FIR, request for direct track not permitted. When deviating for weather, aircraft can expect clearance direct to next en-route waypoint once clear of weather.
5. The flight crew shall advise ATC unit concerned without delay in the event that the aircraft is experiencing degradation of RNAV capabilities.

Route designator (RNP/RNAV [1]) Name of significant points Coordinates	*Track DEG MAG*	*Geodesic DIST NM*	*Upper Limit Lower Limit Airspace classification*	*Direction of cruising levels*		*Remarks Controlling unit Frequency*
				Odd	*Even*	
1	2	3	4	5		6
UN184						
(RNAV 5)[2,3]						For continuation see AIP Botswana
▲ DUPKI 214300.60S 0210000.50E						
	315° 135°	21.3				
▲ IMKED 213112.00S 0204106.00E						Bidirectional
	315° 135°	54.3				
▲ OKRED 210042.00S 0195312.00E						ACC Windhoek 124.7 MHz
	314° 134°	16.2				
▲ GEPOP 205138.69S 0193904.94E			FL460 FL245			
	314° 134°	51				
▲ EKBOL 202220.34S 0185345.72E			Class A	↑	↓	
	314° 134°	28				
▲ EGPAD 200606.00S 0182854.00E						
	314° 134°	99.0				
▲ OTAVI 190921.00S 0170329.00E						
	311° 131°	40.6				For continuation see AIP Angola
▲ TIKEM 184730.76S 0162717.57E						
	311° 131°	25.5				
▲ IMGAG 183330.00S 0160448.00E						
	313° 133°	120.9				
▲ EVUVI 172410.17S 0142122.15E						

1. RNP = Required Navigation Performance; RNAV = area navigation specification
2. RNAV 5 represents aircraft and operating requirements, including a 5NM lateral performance as detailed in the *Performance Based Navigation (PBN) Manual* (Doc 9613)
3. GNSS Required
4. Except in an emergency or due to weather, when flight plan on RNAV 5 route within FYWF FIR, request for direct track not permitted. When deviating for weather, aircraft can expect clearance direct to next en-route waypoint once clear of weather.
5. The flight crew shall advise ATC unit concerned without delay in the event that the aircraft is experiencing degradation of RNAV capabilities.

Route designator (RNP/RNAV [1]) Name of significant points Coordinates	*Track DEG MAG*	*Geodesic DIST NM*	*Upper Limit Lower Limit Airspace classification*	*Direction of cruising levels*		*Remarks Controlling unit Frequency*
				Odd	*Even*	
1	2	3	4	5		6
UN185						
(RNAV 5)[2,3]						Unidirectional South bound
▲ VEDRY 222838.52S 0172814.07E						
	184°	47.0				
△UVORI 231445.05S 0173549.05E						
	184°	15.0				
△EGRED 232930.82S 0173814.81E			FL460 FL245			Windhoek ACC 124.7 MHz
	185°	17.0			↓	
△UTSAL 234616.34S 0174100.30E			Class A			
	185°	44.0				
△DUTPU 242936.04S 0174805.10E						
	186°	32.2				
△UDPOB 250117.52S 0175311.47E						
	187°	151.1				
▲ KEBAT 273000.00S 0181800.00E						For continuation see AIP of South Africa

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2. RNAV 5 represents aircraft and operating requirements, including a 5NM lateral performance as detailed in the *Performance Based Navigation (PBN) Manual* (Doc 9613)

3. GNSS Required

4. Except in an emergency or due to weather, when flight plan on RNAV 5 route within FYWF FIR, request for direct track not permitted. When deviating for weather, aircraft can expect clearance direct to next en-route waypoint once clear of weather.

5. The flight crew shall advise ATC unit concerned without delay in the event that the aircraft is experiencing degradation of RNAV capabilities.

Route designator (RNP/RNAV [1]) Name of significant points Coordinates	*Track DEG MAG*	*Geodesic DIST NM*	*Upper Limit Lower Limit Airspace classification*	*Direction of cruising levels*		*Remarks Controlling unit Frequency*
				Odd	*Even*	
1	2	3	4	5		6
UN186						
(RNAV 5)[2,3] ▲ NEVAR 273048.34S 0174957.79E	010°	68.9	FL460 FL245 Class A	↓		For continuation see AIP South Africa Unidirectional North bound
▲ ETBIR 262256.93S 0173845.31E	008°	82.8				
▲ EVOMO 250128.20S 0172534.16E	007°	35.4				
▲ EPSAG 242639.91S 0172001.25E	006°	48.3				
▲ APDEM 233908.62S 0171234.74E	005°	14.4				ACC Windhoek 124.7 MHZ
▲ XOTEK 232459.07S 0171017.96E	005°	14.9				
▲ ATUPI 231013.74S 0170755.40E	037°	45.8				
▲ VEDRY 222838.52S 0172814.07E						

1. RNP = Required Navigation Performance; RNAV = area navigation specification
2. RNAV 5 represents aircraft and operating requirements, including a 5NM lateral performance as detailed in the *Performance Based Navigation (PBN) Manual* (Doc 9613)
3. GNSS Required
4. Except in an emergency or due to weather, when flight plan on RNAV 5 route within FYWF FIR, request for direct track not permitted. When deviating for weather, aircraft can expect clearance direct to next en-route waypoint once clear of weather.
5. All flights Transiting FYWF FIR above FL245 are restricted to published routes. Flights planned via UN186/UT943 north bound are required to change from odd to even FL and are to indicate even FL required from position ATUPI to accommodate traffic flow north of Windhoek FIR. South bound traffic to anticipate FL change from odd to even FL at VEDRY (WHV).
6. The flight crew shall advise ATC unit concerned without delay in the event that the aircraft is experiencing degradation of RNAV capabilities.

Route designator (RNP/RNAV [1]) Name of significant points Coordinates	*Track DEG MAG*	*Geodesic DIST NM*	*Upper Limit Lower Limit Airspace classification*	*Direction of cruising levels*		*Remarks Controlling unit Frequency*
				Odd	*Even*	
1	2	3	4	5		6
UN187						
(RNAV 5)[2,3]						
▲ VEDRY 222838.52S 0172814.07E						Bidirectional
▲ ERBIL 214317.86S 0170513.09E	347° 166°	50	FL460 FL245			ACC Windhoek 124.7 MHZ
▲ TIMAB 210925.41S 0165729.01E	359° 179°	34.5	Class A	↑	↓	
▲ TIKEM 184730.76S 0162717.57E	359° 177°	144.2				For continuation see AIP Angola
EVAGU 180831.97S 0162039.60E	359° 179°	39.3				
▲ ANVAG 172330.12S 0154922.08E	334° 154°	53.9				

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2. RNAV 5 represents aircraft and operating requirements, including a 5NM lateral performance as detailed in the *Performance Based Navigation (PBN) Manual* (Doc 9613)
3. GNSS Required
4. Except in an emergency or due to weather, when flight plan on RNAV 5 route within FYWF FIR, request for direct track not permitted. When deviating for weather, aircraft can expect clearance direct to next en-route waypoint once clear of weather.
5. The flight crew shall advise ATC unit concerned without delay in the event that the aircraft is experiencing degradation of RNAV capabilities.

Route designator (RNP/RNAV [1]) Name of significant points Coordinates	*Track DEG MAG*	*Geodesic DIST NM*	*Upper Limit Lower Limit Airspace classification*	*Direction of cruising levels*		*Remarks Controlling unit Frequency*
				Odd	*Even*	
1	2	3	4	5		6
UN188						
(RNAV 5)[2,3]						For continuation see AIP South Africa
▲ XUDAN 273041.21S 0161006.65E						
	001° 180°	60.7				
▲ APGAS 263300.90S 0155000.70E						Bidirectional
	000° 179°	56.0				Traffic routing south bound will fly at an EVEN level
▲ UTVUM 253944.37S 0153204.15E						
	359° 178°	40.5	FL460 FL245	↓	↑	
▲ IMRUG 250107.99S 0151910.81E						Traffic routing north bound will fly at an ODD level
	358° 178°	52.7	Class A			
▲ UNPIN 241054.35S 0150229.10E						
	358° 177°	25.9				
▲ ANSUX 234611.61S 0145422.10E						ACC Windhoek 124.7 MHZ
	357° 176°	49.7				
▲ XALVI 225855.59S 0143840.48E						

1. RNP = Required Navigation Performance; RNAV = area navigation specification
2. RNAV 5 represents aircraft and operating requirements, including a 5NM lateral performance as detailed in the *Performance Based Navigation (PBN) Manual* (Doc 9613)
3. GNSS Required
4. Except in an emergency or due to weather, when flight plan on RNAV 5 route within FYWF FIR, request for direct track not permitted. When deviating for weather, aircraft can expect clearance direct to next en-route waypoint once clear of weather.
5. The flight crew shall advise ATC unit concerned without delay in the event that the aircraft is experiencing degradation of RNAV capabilities.

Route designator (RNP/RNAV [1]) Name of significant points Coordinates	*Track DEG MAG*	*Geodesic DIST NM*	*Upper Limit / Lower Limit / Airspace classification*	*Direction of cruising levels*		*Remarks Controlling unit Frequency*
				Odd	*Even*	
1	2	3	4	5		6
UN190						
(RNAV 5)[2,3]						For continuation see AIP Angola
▲ OKDOL 170748.00S 0124442.00E						
▲ IXEPA 193921.10S 0133248.32E	172° 354°	159.1	FL460 FL245			Bidirectional
▲ DUGNU 200628.83S 0134134.35E	174° 354°	28.5	Class A	↓	↑	
▲ EGRIX 210511.37S 0140042.78E	174° 355°	61.7				ACC Windhoek 124.7 MHZ
▲ APGEK 215704.98S 0141755.10E	174° 355°	54.6				
▲ XALVI 225855.59S 0143840.48E	175° 356°	65.1				

1. RNP = Required Navigation Performance; RNAV = area navigation specification
2. RNAV 5 represents aircraft and operating requirements, including a 5NM lateral performance as detailed in the *Performance Based Navigation (PBN) Manual* (Doc 9613)
3. GNSS Required
4. Except in an emergency or due to weather, when flight plan on RNAV 5 route within FYWF FIR, request for direct track not permitted. When deviating for weather, aircraft can expect clearance direct to next en-route waypoint once clear of weather.
5. The flight crew shall advise ATC unit concerned without delay in the event that the aircraft is experiencing degradation of RNAV capabilities.

Route designator (RNP/RNAV [1]) Name of significant points Coordinates	*Track DEG MAG*	*Geodesic DIST NM*	*Upper Limit Lower Limit Airspace classification*	*Direction of cruising levels*		*Remarks Controlling unit Frequency*
				Odd	*Even*	
1	2	3	4	5		6
UN559						
(RNAV 5)[2,3]						For continuation see AIP South Africa
▲ APDOV 244218.80S 0195959.18E						
▲ OKLAV 243535.91S 0184824.59E	290° 111°	65.7	FL460 FL245 Class A	↑	↓	Bidirectional ACC Windhoek 124.7 MHz
▲ DUTPU 242936.04S 0174805.10E	291° 111°	55.5				
▲ EPSAG 242639.91S 0172001.25E	291° 111°	25.8				
▲ UNPIN 241054.35S 0150229.10E	291° 112°	127.0				For continuation see AIP South Africa
▲ ANTEP 240000.00S 0133604.00E	292° 113°	80.1				

1. RNP = Required Navigation Performance; RNAV = area navigation specification
2. RNAV 5 represents aircraft and operating requirements, including a 5NM lateral performance as detailed in the *Performance Based Navigation (PBN) Manual* (Doc 9613)
3. GNSS Required
4. Except in an emergency or due to weather, when flight plan on RNAV 5 route within FYWF FIR, request for direct track not permitted. When deviating for weather, aircraft can expect clearance direct to next en-route waypoint once clear of weather.
5. The flight crew shall advise ATC unit concerned without delay in the event that the aircraft is experiencing degradation of RNAV capabilities.

Route designator (RNP/RNAV [1]) Name of significant points Coordinates	*Track DEG MAG*	*Geodesic DIST NM*	*Upper Limit / Lower Limit Airspace classification*	*Direction of cruising levels*		*Remarks Controlling unit Frequency*
				Odd	*Even*	
1	2	3	4	5		6
UP301						Unidirectional
(RNAV 5)[2,3]						East bound
▲ VEDRY 222838.52S 0172814.07E						Windhoek ACC
△ EGMAS 225947.23S 0181007.55E	142°	49.6	FL460 FL245	↓		124.7 MHz
▲ USUNO 232906.00S 0200000.00E	119°	105.7	Class A			For continuation see AIP Botswana

1. RNP = Required Navigation Performance; RNAV = area navigation specification
2. RNAV 5 represents aircraft and operating requirements, including a 5NM lateral performance as detailed in the *Performance Based Navigation (PBN) Manual* (Doc 9613)
3. GNSS Required
4. Except in an emergency or due to weather, when flight plan on RNAV 5 route within FYWF FIR, request for direct track not permitted. When deviating for weather, aircraft can expect clearance direct to next en-route waypoint once clear of weather.
5. Aircraft planning FYWH to FBSK FL245 to FL460 must plan the following route: FYWH DCT VEDRY UP301 GENUD DCT ETBED DCT GBV DCT FBSK
6. The flight crew shall advise ATC unit concerned without delay in the event that the aircraft is experiencing degradation of RNAV capabilities.

Route designator (RNP/RNAV [1]) Name of significant points Coordinates	*Track DEG MAG*	*Geodesic DIST NM*	*Upper Limit Lower Limit Airspace classification*	*Direction of cruising levels*		*Remarks Controlling unit Frequency*
				Odd	*Even*	
1	2	3	4	5		6
UP306						
(RNAV 5)[2,3] ▲ OKROP 173803.01S 0241035.99E	266° 086°	25.2	FL460 FL245 Class A	↑	↓	For continuation see AIP Botswana
▲ NERIB 174242.00S 0234441.99E	266° 086°	73.8				Bidirectional
▲ AVIPU 175606.00S 0222847.99E	267° 087°	44.3				
▲ EPTAR 180354.00S 0214311.99E	268° 088°	9.8				ACC Windhoek 124.7 MHZ
▲ EXERA 180530.00S 0213305.99E	267° 088°	32.1				
▲ NETEN 181106.00S 0210000.00E	288° 108°	46				
▲ IBTAG 180240.68S 0201233.72E	288° 108°	28				
▲ DUNRU 175722.00S 0194314.00E						

1. RNP = Required Navigation Performance; RNAV = area navigation specification
2. RNAV 5 represents aircraft and operating requirements, including a 5NM lateral performance as detailed in the *Performance Based Navigation (PBN) Manual* (Doc 9613)
3. GNSS Required
4. Except in an emergency or due to weather, when flight plan on RNAV 5 route within FYWF FIR, request for direct track not permitted. When deviating for weather, aircraft can expect clearance direct to next en-route waypoint once clear of weather.
5. The flight crew shall advise ATC unit concerned without delay in the event that the aircraft is experiencing degradation of RNAV capabilities.

Route designator (RNP/RNAV [1]) Name of significant points Coordinates	*Track DEG MAG*	*Geodesic DIST NM*	*Upper Limit Lower Limit Airspace classification*	*Direction of cruising levels*		*Remarks Controlling unit Frequency*
				Odd	*Even*	
1	2	3	4	5		6
UP684						
(RNAV 5)[2,3] ▲ IMLAN 245907.98S 0201941.19E	284° 104°	69.1	FL460 FL245 Class A	↑	↓	For continuation see AIP Botswana
▲ XANBI 250030.37S 0190354.43E	284° 105°	64.4				Bidirectional
▲ UDPOB 250117.52S 0175311.47E	285° 105°	25.2				ACC Windhoek 124.7 MHZ
▲ EVOMO 250128.20S 0172534.16E	285° 106°	115.1				
▲ IMRUG 250107.99S 0151910.81E	286° 107°	72.9				For continuation see AIP South Africa
▲ DULGO 250000.00S 0135908.00E						

1. RNP = Required Navigation Performance; RNAV = area navigation specification
2. RNAV 5 represents aircraft and operating requirements, including a 5NM lateral performance as detailed in the *Performance Based Navigation (PBN) Manual* (Doc 9613)
3. GNSS Required
4. Except in an emergency or due to weather, when flight plan on RNAV 5 route within FYWF FIR, request for direct track not permitted. When deviating for weather, aircraft can expect clearance direct to next en-route waypoint once clear of weather.
5. The flight crew shall advise ATC unit concerned without delay in the event that the aircraft is experiencing degradation of RNAV capabilities.

Route designator (RNP/RNAV [1]) Name of significant points Coordinates	*Track DEG MAG*	*Geodesic DIST NM*	*Upper Limit Lower Limit Airspace classification*	*Direction of cruising levels*		*Remarks Controlling unit Frequency*
				Odd	*Even*	
1	2	3	4	5		6
UQ83						
(RNAV 5)[2,3]						For continuation see AIP Angola
▲ EPNON 175242.00S 0201806.00E	215° 035°	11.3				
▲ IBTAG 180240.68S 0201233.72E	215° 036°	45.00	FL460 FL245	↑	↓	Bidirectional
▲ EXIRI 184232.34S 0195019.92E	216° 038°	112.9	Class A			ACC Windhoek 124.7 MHz
▲ EKBOL 202220.34S 0185345.72E	218° 040°	87.3				
▲ GETEM 213920.88S 0180909.18E	220° 040°	12.3				
▲ IBKIN 215011.87S 0180247.85E						

1. RNP = Required Navigation Performance; RNAV = area navigation specification
2. RNAV 5 represents aircraft and operating requirements, including a 5NM lateral performance as detailed in the *Performance Based Navigation (PBN) Manual* (Doc 9613)
3. GNSS Required
4. Except in an emergency or due to weather, when flight plan on RNAV 5 route within FYWF FIR, request for direct track not permitted. When deviating for weather, aircraft can expect clearance direct to next en-route waypoint once clear of weather.
5. The flight crew shall advise ATC unit concerned without delay in the event that the aircraft is experiencing degradation of RNAV capabilities.

Route designator (RNP/RNAV [1]) Name of significant points Coordinates	*Track DEG MAG*	*Geodesic DIST NM*	*Upper Limit / Lower Limit Airspace classification*	*Direction of cruising levels*		*Remarks Controlling unit Frequency*
				Odd	*Even*	
1	2	3	4	5		6
UT941						For continuation see AIP Angola/ Botswana
(RNAV 5)[2,3] ▲ AGRAM 180004.02S 0213958.33E ▲ EXEDU 185600.00S 0222800.00E	331°	72	FL460 FL245 Class A		↑	Unidirectional North-West bound

1. RNP = Required Navigation Performance; RNAV = area navigation specification
2. RNAV 5 represents aircraft and operating requirements, including a 5NM lateral performance as detailed in the *Performance Based Navigation (PBN) Manual* (Doc 9613)
3. GNSS Required
4. Except in an emergency or due to weather, when flight plan on RNAV 5 route within FYWF FIR, request for direct track not permitted. When deviating for weather, aircraft can expect clearance direct to next en-route waypoint once clear of weather.
5. The flight crew shall advise ATC unit concerned without delay in the event that the aircraft is experiencing degradation of RNAV capabilities.

Route designator (RNP/RNAV [1]) Name of significant points Coordinates	*Track DEG MAG*	*Geodesic DIST NM*	*Upper Limit / Lower Limit Airspace classification*	*Direction of cruising levels*		*Remarks Controlling unit Frequency*
				Odd	*Even*	
1	2	3	4	5		6
UT942 **(RNAV 5)[2,3]** ▲ EPNON 175242.00S 0201806.00E ▲ DUMPO 184248.00S 0210000.00E	148°	63.8	FL460 FL245 Class A	↓		For continuation see AIP Angola/ Botswana Unidirectional South-East bound

1. RNP = Required Navigation Performance; RNAV = area navigation specification
2. RNAV 5 represents aircraft and operating requirements, including a 5NM lateral performance as detailed in the *Performance Based Navigation (PBN) Manual* (Doc 9613)
3. GNSS Required
4. Except in an emergency or due to weather, when flight plan on RNAV 5 route within FYWF FIR, request for direct track not permitted. When deviating for weather, aircraft can expect clearance direct to next en-route waypoint once clear of weather.
5. The flight crew shall advise ATC unit concerned without delay in the event that the aircraft is experiencing degradation of RNAV capabilities.

Route designator (RNP/RNAV [1]) Name of significant points Coordinates	*Track DEG MAG*	*Geodesic DIST NM*	*Upper Limit Lower Limit Airspace classification*	*Direction of cruising levels*		*Remarks Controlling unit Frequency*
				Odd	*Even*	
1	2	3	4	5		6
UT943 **(RNAV 5)[2,3]** ▲ VEDRY 222838.52S 0172814.07E △ OMATA 204858.00S 0171544.00E △ OTAVI 190921.00S 0170329.00E ▲ UNLOK 172330.00S 0165108.09E	005° 184° 004° 182° 003° 181°	100.0 100.0 106.0	FL460 FL245 Class A	↓	↑	Bidirectional ACC Windhoek 124.7MHz For continuation See AIP Angola

1. RNP = Required Navigation Performance; RNAV = area navigation specification

2. RNAV 5 represents aircraft and operating requirements, including a 5NM lateral performance as detailed in the *Performance Based Navigation (PBN) Manual* (Doc 9613)

3. GNSS Required

4. Except in an emergency or due to weather, when flight plan on RNAV 5 route within FYWF FIR, request for direct track not permitted. When deviating for weather, aircraft can expect clearance direct to next en-route waypoint once clear of weather.

5. All flights Transiting FYWF FIR above FL245 are restricted to published routes. Flights planned via UN186/UT943 north bound are required to change from odd to even FL and are to indicate even FL required from position ATUPI to accommodate traffic flow north of Windhoek FIR. South bound traffic to anticipate FL change from odd to even FL at VEDRY (WHV).

6. The flight crew shall advise ATC unit concerned without delay in the event that the aircraft is experiencing degradation of RNAV capabilities.

Route designator (RNP/RNAV [1]) Name of significant points Coordinates	*Track DEG MAG*	*Geodesic DIST NM*	*Upper Limit Lower Limit Airspace classification*	*Direction of cruising levels*		*Remarks Controlling unit Frequency*
				Odd	*Even*	
1	2	3	4	5		6
UT945 **(RNAV 5)[2,3]** ▲XALVI 225855.59S 0143840.48E △ UVKIK 225334.00S 0151011.00E △ UVGEN 223425.00S 0165724.00E △ VEDRY 222838.52S 0172814.07E ▲ TAVAS 210100.00S 0210000.00E	094° 273° 092° 272° 092° 272° 079° 256°	30.0 101.0 29.0 216.5	FL460 FL245 Class A	↓	↑	Bidirectional ACC Windhoek 124.7MHz For continuation See AIP Botswana

1. RNP = Required Navigation Performance; RNAV = area navigation specification
2. RNAV 5 represents aircraft and operating requirements, including a 5NM lateral performance as detailed in the *Performance Based Navigation (PBN) Manual* (Doc 9613)
3. GNSS Required
4. Except in an emergency or due to weather, when flight plan on RNAV 5 route within FYWF FIR, request for direct track not permitted. When deviating for weather, aircraft can expect clearance direct to next en-route waypoint once clear of weather.
5. The flight crew shall advise ATC unit concerned without delay in the event that the aircraft is experiencing degradation of RNAV capabilities.

Route designator (RNP/RNAV [1]) Name of significant points Coordinates	*Track DEG MAG*	*Geodesic DIST NM*	*Upper Limit / Lower Limit Airspace classification*	*Direction of cruising levels*		*Remarks Controlling unit Frequency*
				Odd	*Even*	
1	2	3	4	5		6
UY719 **(RNAV 5)[2,3]** ▲ERDES 223627.00S 0170445.00E ▲ IBKIN 215011.87S 0180247.85E	061° 240°	71.3	FL460 FL245 Class A	↓	↑	Bidirectional ACC Windhoek 124.7MHz

1. RNP = Required Navigation Performance; RNAV = area navigation specification
2. RNAV 5 represents aircraft and operating requirements, including a 5NM lateral performance as detailed in the *Performance Based Navigation (PBN) Manual* (Doc 9613)
3. GNSS Required
4. Except in an emergency or due to weather, when flight plan on RNAV 5 route within FYWF FIR, request for direct track not permitted. When deviating for weather, aircraft can expect clearance direct to next en-route waypoint once clear of weather.
5. The flight crew shall advise ATC unit concerned without delay in the event that the aircraft is experiencing degradation of RNAV capabilities.

Route designator (RNP/RNAV [1]) Name of significant points Coordinates	*Track DEG MAG*	*Geodesic DIST NM*	*Upper Limit Lower Limit Airspace classification*	*Direction of cruising levels*		*Remarks Controlling unit Frequency*
				Odd	*Even*	
1	2	3	4	5		6
UZ438						
(RNAV 5)[2,3]						Bidirectional
▲ KELKY 263214.69S 0180649.09E			FL460 FL245			ACC Windhoek 124.7 MHZ
▲ APGAS 263300.90S 0155000.70E	286° 107°	123.0	Class A	↑	↓	
▲ NIGAM 263356.20S 0143710.00E	286° 106°	65.5				For continuation see AIP South Africa

1. RNP = Required Navigation Performance; RNAV = area navigation specification
2. RNAV 5 represents aircraft and operating requirements, including a 5NM lateral performance as detailed in the *Performance Based Navigation (PBN) Manual* (Doc 9613)
3. GNSS Required
4. Except in an emergency or due to weather, when flight plan on RNAV 5 route within FYWF FIR, request for direct track not permitted. When deviating for weather, aircraft can expect clearance direct to next en-route waypoint once clear of weather.
5. The flight crew shall advise ATC unit concerned without delay in the event that the aircraft is experiencing degradation of RNAV capabilities.

ENR 3.4 HELICOPTER ROUTES

Not applicable in Namibia.

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ENR 3.5 OTHER ROUTES

1. Introduction:

In support of the global PBN initiatives the Atlantic Ocean Random Routing Area (AORRA) has been established to improve safety, efficiency and economics of operations over the high sea in the Southern Atlantic Ocean.

In order to enhance access to and from the AORRA, Namibia have implemented additional entry and exit points to the AORRA within its areas of responsibility as well as establishing continental routes to facilitate the access.

Operators are to note that other than in emergency access/exit to/from the AORRA are restricted to the published entry and exit gates.

2. AORRA gates:

2.1 The following AORRA entry/exit gates have been implemented in the Windhoek Flight Information Region (FIR)

POSITION 5LNC	LATITUDE	LONGITUDE
IBNEV	184706.00S	0114005.00E
NEVEP	202000.00S	0121404.44E
ETUDU	214000.00S	0124321.18E
NIBEK	225831.00S	0131254.00E
ANTEP	240000.00S	0133604.00E
DULGO	250000.00S	0135908.00E
NIGAM	263356.20S	0143710.00E

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ENR 3.6 EN-ROUTE HOLDING

HOLD ID/FIX/WPT *Coordinates*	*INBD TR* *(OMAG)*	*Direction of* *PTN*	*MAX IAS* *(KT)*	*MNM-MAX HLDG LVL* *FL/FT(MSL)*	*TIME (MIN) or DIST* *OUBD*	*Controlling unit* *and Frequency*
1	2	3	4	5	6	7
ATUPI 231013.74S 0170755.40E	036	L	315	FL 200- FL 460	1	Windhoek Radar 124.700 MHz
AXODO 224257.21S 0181936.53E	300	R	315	FL 200- FL460	1	Windhoek Radar 124.700 MHz

1. En-route holding positions are identified on AIP aeronautical charts.
2. Further details regarding:
    a) En-route holding may be found in *ENR 1.5 Section 4*.
    b) Air Traffic Flow Management (ATFM) procedures are contained in *ENR 1.9.*

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ENR 4. RADIO NAVIGATION AIDS/SYSTEMS

ENR 4.1 RADIO NAVIGATION AIDS - EN ROUTE

Name of station (VOR/VAR)	*ID*	*Frequency (CH)*	*Hours of operation*	*Co-ordinates*	*ELEV DME antenna*	*Remarks*
1	**2**	**3**	**4**	**5**	**6**	**7**
Keetmanshoop VOR/DME	KTV	112.9 MHz Channel 76X	H24	263214.69S 0180649.09E		
UHF/DME	KTV	Channel 76X	H24	263214.69S 0180649.09E		
Grootfontein VOR/DME	GFV	115.7 MHz Channel 104X	H24	193617.70S 0180707.00E		Power output 25 W
Luderitz VOR/DME (17°W /2016)	LZV	115.6 MHz Channel 103X	H24	264057.20S 0151448.23E	492 FT	NIL
Ondangwa VOR/DME	OAV	116.3 MHz Channel 110X	H24	175243.33S 0155652.98E		Expected range: 120NM
Walvis Bay VOR/DME	WBV	113.6 MHz Channel 83X	H24	225855.59S 0143840.48E		
Windhoek VOR	WHV	114.5 MHz	H24	222838.52S 0172814.07E		
ATIS	WHV	126.2 MHz	H24			
UHF/DME	WHV	Channel 92X	H24	222838.52S 0172814.07E		

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ENR 4.2 SPECIAL NAVIGATION SYSTEMS

Nil information

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ENR 4.3 GLOBAL NAVIGATION SATELLITE SYSTEMS

Name of GNSS element	*Frequency*	*Co-ordinates* *Nominal SVC Area* *Coverage Area*	*Remarks*
1	2	3	4
GPS	SPS L1 (1575.42 MHz)	Statewide	EN-route, terminal and RNP APCH

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ENR 4.4 NAME-CODE DESIGNATORS FOR SIGNIFICANT POINTS

Name-code designator	Co-ordinates	ATS route or other route
1	2	3
ABAPU	174938.36S 0190201.59E	UL307
AGRAM	180004.02S 0213958.33E	UT941
ANSUX	234611.61S 0145422.10E	UN188
ANTEP	240000.00S 0133604.00E	Entry/Exit AORRA/ UN559
ANTOR	230444.55S 0200000.00E	G653
ANVAG	172330.12S 0154922.08E	R987/ UN187/ UM436
APDEM	233908.62S 0171234.74E	UN181/ UN186
APDOV	244218.80S 0195959.18E	UN559
APGAS	263300.90S 0155000.70E	UZ438/ UN188
APGEK	215704.98S 0141755.10E	UN182/ UN190
APGIB	233435.40S 0181008.57E	UL686/UN183
APNIN	220112.00S 0172448.00E	UM427
ATUPI	231013.74S 0170755.40E	UN186/UM436
AVIPU	175606.00S 0222847.99E	UP306/ UM998
AVOGU	200107.67S 0210000.88E	UL307/ UM437
AXODO	224257.21S 0181936.53E	UN182
BOPAN	222412.00S 0200000.00E	UL435

Name-code designator	Co-ordinates	ATS route or other route
1	2	3
BUGRO	175012.07S 0222601.41E	UM998
DIMIX	174648.00S 0103000.00E	FIR BOUNDARY POINTS
DUGNU	200628.83S 0134134.35E	UL685 / UN190
DULGO	250000.00S 0135908.00E	Entry/Exit AORRA/ UP684/ UL316
DUMPO	184248.00S 0210000.00E	UT942
DUNLO	220112.00S 0190230.00E	UM438
DUNRU	175722.00S 0194314.00E	UM427/UP306
DUPKI	214300.60S 0210000.50E	UN184
DUTPU	242936.04S 0174805.10E	UN559/ UN185
EGMAS	225947.23S 0181007.55E	UP301
EGPAD	200606.00S 0182854.00E	UM427/ UN184
EGRED	232930.82S 0173814.81E	UN183/ UN185
EGRIX	210511.37S 0140042.78E	UM431/ UN190
EKBOL	202220.34S 0185345.72E	UQ83/ UN184
EPMAG	173448.00S 0234048.00E	UM731
EPNON	175242.00S 0201806.00E	UT942/ UQ83
EPRIS	235700.48S 0182432.66E	UL686/ UN181
EPSAG	242639.91S 0172001.25E	UN559/ UN186

Name-code designator	Co-ordinates	ATS route or other route
1	2	3
EPTAR	180354.00S 0214311.99E	UP306
ERBIL	214317.86S 0170513.09E	UN187
ERDES	223627.00S 0170445.00E	UM427/UY719
ESTAX	223925.35S 0150324.57E	J211
ESTOV	210106.00S 0163800.00E	UM436
ETBIR	262256.93S 0173845.31E	UL316/ UN186
ETUDU	214000.00S 0124321.18E	Entry/Exit/ AORRA/ UN182
EVAGU	180831.97S 0162039.60E	UM429/ UN187
EVESO	181700.72S 0192801.37E	UL307/ UM427
EVOMO	250128.20S 0172534.16E	UP684/ UN186
EVUVI	172410.17S 0142122.15E	UN184
EXEDU	185600.00S 0222800.00E	UT941
EXERA	180530.00S 0213305.99E	UP306
EXIRI	184232.34S 0195019.92E	UQ83/ UL307
GABSI	241947.05S 0200005.54E	UN181
GENIX	181224.00S 0232542.00E	UM437
GEPAS	214930.00S 0183342.00E	UM439
GEPOP	205138.69S 0193904.94E	UM437/ UN184
GETEM	213920.88S 0180909.18E	UQ83/ UL435

Name-code designator	Co-ordinates	ATS route or other route
1	2	3
GUBAG	180000.00S 0094000.00E	FIR BOUNDRY POINTS
IBKIN	215011.87S 0180247.85E	UM437/ UY719/ UQ83
IBNEV	184706.00S 0114005.00E	Entry / Exit AORRA/ UL435/ UL685
IBTAG	180240.68S 0201233.72E	UQ83/ UP306
IBTOP	270522.14S 0202349.99E	UL316/ UL686
IBVOB	222342.00S 0165700.00E	UM436
IMDIP	175400.00S 0234942.00E	UM731/ UM437
IMGAG	183330.00S 0160448.00E	UM436/ UN184
IMGET	212842.00S 0174306.00E	UM427
IMKED	213112.00S 0204106.00E	UN184
IMLAN	245907.98S 0201941.19E	UP684
IMPIG	214212.55S 0181606.03E	UL435/ UM437
IMRUG	250107.99S 0151910.81E	UP684/ UN188
IMSOK	222622.55S 0163419.03E	J211
IXEPA	193921.10S 0133248.32E	UL435/ UN190
KEBAT	273000.00S 0181800.00E	UN185 R987
KELKY	263214.69S 0180649.09E	R987/UL316/ UZ438
LONOD	231800.00S 0173600.00E	R987

Name-code designator	Co-ordinates	ATS route or other route
1	2	3
NERIB	174242.00S 0234441.99E	UP306/ UM731
NETEN	181106.00S 0210000.00E	UP306
NETOG	222007.65S 0163539.51E	UN182
NEVAR	273048.34S 0174957.79E	UN186
NEVEP	202000.00S 0121404.44E	
NIBEK	225831.00S 0131254.00E	Entry / Exit AORRA/ UN183
NIGAM	263356.20S 0143710.00E	Entry / Exit AORRA/UZ438
ODOTU	171000.00S 0115800.00E	FIR Boundary points
OKDOL	170748.00S 0124442.00E	UN190
OKLAV	243535.91S 0184824.59E	UN559/ UL686
OKMOM	223400.00S 0165924.00E	UM436
OKRED	210042.00S 0195312.00E	UM439/UN184
OKROP	173803.01S 0241035.99E	Enroute waypoint on UP306
OKSUN	220626.00S 0165300.00E	UL685/ UM436
OMATA	204858.00S 0171544.00E	UT943
OTAVI	190921.00S 0170329.00E	UT943/ UM429/ UN184
PARAG	250700.00S 0175400.00E	R987
TAVAS	210100.00S 0210000.00E	A404/UT945
TIGUT	221542.00S 0165506.00E	UM436

Name-code designator	Co-ordinates	ATS route or other route
1	2	3
TIKEM	184730.76S 0162717.57E	UN184/UN187
TIMAB	210925.41S 0165729.01E	UL435/ UN187
TIMED	201848.00S 0210000.00E	UM439
UDKOP	264057.20S 0151448.23E	
UDPOB	250117.52S 0175311.47E	UP684/UN185
UMTOL	272955.15S 0203940.57E	FIR waypoint/UL686
UNDON	175236.00S 0155657.00E	
UNLOK	172330.00S 0165108.09E	UT943
UNPIN	241054.35S 0150229.10E	UN559/UN188
USUNO	232906.00S 0200000. 00E	UP301
UTANI	271346.73S 0210034.80E	UL316
UTROL	220039.62S 0164355.36E	UL685
UTSAL	234616.34S 0174100.30E	UN185/UN181
UTVUM	253944.37S 0153204.15E	UL316/UN188
UVARA	230814.11S 0153111.17E	UN183
UVGEN	223425.00S 0165724.00E	W398/UT945
UVKIK	225334.00S 0151011.00E	W398/UT945
UVORI	231445.05S 0173549.05E	TMA waypoint/UN185

Name-code designator	Co-ordinates	ATS route or other route
1	2	3
VEDRY	222838.52S 0172814.07E	A404/G653/R987/ UL685/UL686/UM 431/UM438/UM43 9/UN182/UN185/ UN186/UN187/U P301/UT943/UT9 45/J211/UM437/ W398
XABEB	224200.00S 0182035.00E	TMA waypoint/ G653
XABLO	212524.08S 0210000.00E	FIR waypoint/UM438
XALVI	225855.59S 0143840.48E	UN181/ UN183/UN188/ UN190/UT945/W 398/J211

Name-code designator	Co-ordinates	ATS route or other route
1	2	3
XAMGA	231005.28S 0200014.62E	FIR waypoint/UN182
XANBI	250030.37S 0190354.43E	Enroute waypoint UP684/ UL686
XORAK	235111.24S 0200010.25E	UN183
XOTEK	232459.07S 0171017.96E	UN183/UN186
XORIN	172800.20S 0242200.00E	FIR Boundary point UM437
XUDAN	273041.21S 0161006.65E	UN188

1. The following VFR waypoints were established for use in the FYWE (EROS) CTR as VFR Entry/Exit points.

Name-code Designator	Co-ordinates	Description
ANGOS	222721.33S 0165935.90E	VFR waypoint
ARRIS	224504.38S 0170807.70E	VFR waypoint
DAVIL	223217.24S 0165705.69E	VFR waypoint
GORNG	223142.97S 0170031.00E	VFR waypoint
HAVIS	223425.28S 0170750.20E	VFR waypoint
HEJAL	223210.82S 0171140.29E	VFR waypoint
HTONI	223409.79S 0170000.64E	VFR waypoint
HUNAM	223641.64S 0170324.92E	VFR waypoint
KUPFE	223925.67S 0170003.35E	VFR waypoint
MAAST	224027.74S 0170639.92E	VFR waypoint
OTJIS	222531.68S 0171028.99E	VFR waypoint
POWSN	223043.48S 0170444.15E	VFR waypoint

REF: Visual Approach Chart – ICAO in the AIP FYWE AD 2-23

2. The following VFR waypoints are established for use at FYLZ (Luderitz) CTR as VFR entry/exit points

Name-code Designator	Co-ordinates	Description
1	2	3
BOOAY	262733.00S 0150653.00E	VFR waypoint
LIZPO	265528.00S 0151126.00E	VFR waypoint
KOPOW	264222.00S 0152150.00E	VFR waypoint
KOICH	262555.00S 0152909.00E	VFR waypoint

3. The following VFR waypoints are established for use at FYWB (Walvis Bay) as VFR entry/exit and tracking points:

Name-code Designator	Coordinates	Description
1	2	3
ABLAN	224834S 0143534E	VFR entry/exit waypoint
LANGA	224834S 0143238E	VFR waypoint
PELIC	225542S 0142606E	VFR waypoint
ROIBA	231046S 0143858E	VFR entry/exit waypoint
SALTY	230045S 0142429E	VFR waypoint
SANDY	232228S 0142828E	VFR entry/exit waypoint
TERMI	225418S 0143118E	VFR waypoint
TOWER	225838S 0143841E	VFR waypoint
VOGEL	230305S 0145951E	VFR entry/exit waypoint
WALMU	224600S 0144416E	VFR entry/exit waypoint

4. The following waypoints are Terminal Waypoints:

Name-code Designator	Coordinates	Description
1	2	3
ANTAV	224032.11S 0172229.78E	TERM/STAR
APLIN	230230.44S 0142253.39E	IAF
APNAV	265221.19S 0151639.12E	IAF
APNUL	223657.00S 0171031.00E	IAF
COOEE	224446.40S 0173010.99E	TERM/SID
DINKM	222639.90S 0174933.71E	TERM/STAR
DUDRU	282334.44S 0163232.56E	IAF
DUMSO	222330.24S 0170803.99E	IAF
DUNBA	223739.32S 0172803.15E	TERM/STAR

Name-code Designator	Coordinates	Description
1	2	3
EGLIK	225109.07S 0171713.67E	TERM/STAR
EGVEM	175236.32S 0154440.53E	IAF
ESVAB	175914.99S 0154203.83E	IAF
ETLAX	231536.47S 0144230.16E	IAF
ETOPA	264926.26S 0150557.26E	IAF/HLDG
FIDLA	180222.36S 0192718.65E	IAF
GETET	222405.06S 0174450.72E	TERM/STAR
GLAMA	222902.57S 0174527.12E	TERM/STAR
GUNDU	225409.29S 0145404.80E	IAF
HERSH	262615.30S 0151937.92E	IAF
IBLAS	174608.34S 0161214.57E	IAF
IBMUX	180144.91S 0154900.53E	IAF/HLDG
IBREX	284635.97S 0162059.97E	IAF/HLDG
IBSAD	223239.16S 0171017.90E	IAF/HLDG
IMLIK	230639.14S 0143008.09E	IAF
IMPEP	222325.18S 0173953.96E	IAF/HLDG
IMTES	175247.10S 0160938.23E	IAF
ISAAC	225212.08S 0170723.55E	IAF
JOWEE	221441.45S 0172627.58E	IAF
KAPPI	221918.88S 0170154.57E	IAF
KM09A	174553.04S 0235959.50E	IAF/HLDG
KM09B	174056.84S 0235244.82E	IAF
KM27E	173507.13S 0242829.71E	IAF
KM27G	174204.40S 0242321.78E	IAF/HLDG
KT04A	264351.33S 0180851.44E	IAF/HLDG

Name-code Designator	Coordinates	Description
1	2	3
KT04B	264718.35S 0180157.35E	IAF
KT04C	264106.48S 0175807.07E	IAF
KT22D	262048.60S 0180433.71E	IAF
KT22E	261721.75S 0181126.33E	IAF
KT22G	262333.46S 0181516.19E	IAF/HLDG
NEXET	230227.80S 0145641.80E	IAF
NIKAN	262935.63S 0151240.83E	IAF/HLDG
NIKER	223517.77S 0173258.90E	TERM/STAR
OKBUT	285138.96S 0162638.96E	IAF
OKROP	173803.01S 0241035.99E	IAF
OKTIV	224050.95S 0173825.15E	TERM/SID
PABLO	175844.32S 0195539.76E	IAF/HLDG
PASAN	284640.17S 0163222.74E	IAF
PERCY	225706.57S 0142647.08E	IAF
PIERE	225045.32S 0144754.13E	IAF
SCANO	225402.31S 0145300.97E	IAF/HLDG
SUDOG	223114.95S 0174117.37E	TERM/STAR
TESUM	265541.69S 0150940.55E	IAF
TETUR	224145.87S 0171929.59E	TERM/STAR
TEXET	222502.35S 0165724.10E	IAF
TIGOG	282330.24S 0162112.28E	IAF/HLDG
TILLY	224800.56S 0170113.00E	IAF
TUPPY	180534.47S 0193356.11E	IAF/HLDG
UNBIT	174338.51S 0160518.45E	IAF/HLDG
UNDID	224341.21S 0171619.49E	TERM/STAR

Name-code Designator	Coordinates	Description
1	2	3
UNDUN	263230.56S 0152320.84E	IAF
WILLI	175602.22S 0193039.47E	IAF
XABUS	223948.57S 0171546.04E	IAF

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ENR 4.5 AERONAUTICAL GROUND LIGHTS - EN ROUTE

Name IDENT (Coordinates)	*Type and intensity (1 000 Candelas)*	*Characteristics*	*Operating hours*	*Remarks*
1	2	3	4	5
Mowe Point D5480 1922.8S 01242.5E	Marine 18.1	FLG EV 20S	HN	Nil
Terrace D5485 2002.9S 01303.2E	Marine 13.6	FLG (3) W EV 60S	HN	Nil
Toscanini D5490 2049.9S 01323.8E	Marine 13.6	FLG (2) W 30S	HN	Nil
Cape Cross D5500 2146.3S 01357.3E	Marine 22.1	FLG W 10S	HN	Nil

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ENR 5. NAVIGATION WARNINGS

ENR 5.1 PROHIBITED, RESTRICTED AND DANGER AREAS

Identification, name and lateral limits	*Upper limit* *Lower limit*	*Remarks* *(time of activity, type of restriction, nature of hazard, risk of interception)*
1	2	3
Prohibited Areas		
FYP 93 - Seal Colony at Wolfs Bay Circle of 2 NM radius centred on the point 264919S 0150730E	1000FT AGL GND	
FYP 94 - Bird Island at Walvis Bay Circle of 1 NM radius centred on the point 225236S 0143212E	1000FT AGL GND	Nature reserves No person shall, in any aircraft whatsoever, fly into these areas
FYP 95 - Seal Colony and Bird Platforms at Cape Cross A strip 1 NM seaward 3 NM inland and 9 NM long, south of a point 2146S 01358E	1000FT AGL GND	
FYP 96- State House in EROS CTR A circle with a radius of 0.5NM centred at a point 223528S 0170603E	8500FT AMSL GND	No aircraft shall overfly this area below 8500FT AMSL
Restricted areas		
FYR 97 - Walvis Bay Harbour	500FT AMSL GND	Harbour area No aircraft shall fly over this harbour area below an altitude of 500 FT, except whilst taking off or landing, or take-off or land therein, without the authorisation of the port authority

Identification, name and lateral limits	*Upper limit* *Lower limit*	*Remarks* *(time of activity, type of restriction, nature of hazard, risk of interception)*
1	2	3
Danger Areas		
FYD 130 - Windhoek/Eros Flying Training Area The flying training area for the Windhoek/Eros Aerodrome is as follows: Lateral limits: From railway crossing, point 220514S 0165706E, along the railway to a point 221102S 0170041E Thence a straight line to S22 18 54 E016 57 27 (Otjisewa farm). Thence along the Otjisewa river to Swakop river at point 220746S 0164755E Thence west along the Swakop river to a point 220854S 0163929E Thence north along the Omusema river to the B2 road at point 215502S 0163807E Thence east along the B2 road to a point 215702S 0164530E Thence a straight line back to the starting point at the railway crossing, point 220514S 0165706E	9000FT AMSL GND	Note: All aircraft entering or leaving this area outside the hours of operation of the Eros ATSU must advise Windhoek Approach accordingly
FYD 135 – Keetmanshoop Flying Training Area The flying training area for Keetmanshoop Aerodrome is as follows: Lateral limits: From Keetmanshoop (VOR) along the Mariental main road in a northerly direction to a point 30NM from KTV (approximately 260400S 0180910E) thence along the 30NM arc clockwise to a point 30NM along the Keetmanshoop / Aroab main road (approximately 263320S 0183930E), thence along the Keetmanshoop / Aroab main road in a westerly direction to Keetmanshoop VOR.	FL095 GND	

ENR 5.2 MILITARY EXERCISE AND TRAINING AREAS

Identification, name and lateral limits	*Upper limit* *Lower limit*	*Remarks* *(time of activity, type of restriction, nature of hazard, risk of interception)*
1	**2**	**3**
FYR 131 – Grootfontein Military Training Area 1820S 01700E – 1829S 01700E (Intersection of Tsumeb Ondangwa road) – anticlockwise along the Tsumeb Ondangwa Road to 1904S 01730E – 1905S 01839E (intersection of Grootfontein Rundu road) – anticlockwise along the Grootfontein Rundu Road to 1820S 01921E – To point of origin	FL 145 GND	Military training area Activation by NOTAM
FYR 132 - Bum Bum 180647S 0194327E – 180644S 0194434E – 181212S 0194403E – 181203S 0194209E – 181130S 0194037E – To point of origin	FL 145 GND	Military Range Tactical Training Area Activation by NOTAM
FYR 133 - Oserikari Weapons Range 214836S 0165706E 214836S 0170812E 220116S 0170812E 220116S 0165706E To point of origin	FL 145 GND	Military firing range Activation by NOTAM

Identification, name and lateral limits	*Upper limit* *Lower limit*	*Remarks* *(time of activity, type of restriction, nature of hazard, risk of interception)*
1	**2**	**3**
FYR 134 – Swart Koppies Field Artillery Shooting Range (Walvis Bay) 224501.45S 0143602.21E- 224501.93S 0143632.61E- 225634.69S 0143930.89E- 225634.20S 0143600.19E to point of origin	6000FT AMSL GND	Activation via NOTAM.
FYM 401 – Etiro Military Operating Area Circle of 30NM radius centered at the point 214511S 0155459E	FL 250 GND	Military Range Tactical Training Area. When active, civilian use to be coordinated through Military liaison officer at +264 67 2491313. Activation by NOTAM.

ENR 5.3 OTHER ACTIVITIES OF A DANGEROUS NATURE AND OTHER POTENTIAL HAZARDS

ENR 5.3.1 OTHER ACTIVITES OF A DANGEROUS NATURE

Nil INFO AVBL

ENR 5.3.2 OTHER POTENTIAL HAZARDS

5.3.2.1- Meteorological sounding balloons

Over the territory of the Republic of Namibia, Namibia Meteorological Service, Section Weather Forecasting, carry out routine upper air soundings of the atmosphere by means of meteorological balloons. These meteorological balloons with the attached radiosonde measure temperature, relative humidity, pressure, wind speed and direction on ascent and free-fall as the balloon bursts approximately 30 km above the surface.

According to specifications given in ENR 5.3.2.1.1 below used meteorological balloons and respective radio sondes fall into the "light" category of unmanned free balloons. These balloons, used exclusively for meteorological purposes, are perceived by ICAO as posing little risk to aircraft and therefore notification and coordination between the operator of meteorological balloons and the appropriate ATS authority is required.

5.3.2.1.1 Sites of release, vertical limit, schedule (standard times of releases), specifications of sondes and balloons

Station Name	Windhoek
Latitude:	22 56 88S
Longitude:	017 09 10E
Elevation:	1720 M
Vertical limit:	100 000 FT (30 KM)
Schedule:	1000, 2200 UTC - daily
Radiosonde (standard)	
Dimensions:	235 x 70 x 30 mm (L x W x H)
Mass:	80 g
Meteorological balloon Parachute	
Dimensions:	up to 190 x 190 x 260 mm
Mass:	80 g

Material:	White Tyvek canopy with cotton rope Lines
Shroud Line (8 lines)	60 cm
Canopy Diameter	85 cm
Plastic String Unwinder	
Load Capacity	60g up to 200g
String	100% virgin cotton
Length	30 m
Balloon:	
Fuel used	Hydrogen or helium filled
Colour	off-white
Mass	300 g

5.3.2.1.2 Procedures concerning special cases of releases of sounding balloons

Special cases of releases of Meteorological balloons, e.g. when making special observations, are notified by NOTAM.

ENR 5.4 AIR NAVIGATION OBSTACLES - EN ROUTE

OBST ID or Designation	*OBST Type*	*OBST Position*	*ELEV/HGT (M)*	*OBST LGT Type/colour*	*Remarks*
1	**2**	**3**	**4**	**5**	**6**
NIL	NIL	NIL	NIL	NIL	NIL

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ENR 5.5 AERIAL SPORTING AND RECREATIONAL ACTIVITIES

Designation and lateral limits	*Vertical limits*	*Operator/ User TEL NR.*	*Remarks and time of ACT*
1	**2**	**3**	**4**
GLIDING AREAS 1. **FYA 136 - Bitterwasser/Pokweni/Kiripotib/Veronica Gliding airspace YBJ/FYPO/FYKH/FYVF and Kalahari National Park activities.** Gliding activivity within the following dimensions in class E airspace: 224900S 0182900E to 222026S 0185815E to 220000S 0200000E straight line along the boundary between FYWF and FBGR to point 244600S 0200000E clockwise along boundary between FBGR AND FAJA to point 264927S 0210136E to point 270000S 0210136E to point 270000S 0153000E to 235043S 0153000E anticlockwise along arc of 70DME centered on WBV to point 230048S 0155442E to 225422S 0162943E anticlockwise on arc 60NM centered on WHV to point of origin. 2. **FYA 137 -Tsumkwe Gliding airspace** Gliding activity within the following dimensions: 224900S 0182900E to a point 221952S 0185824E to a point 220000S 0200000E to a point 220000S 0210000E to a point 210000S 0210000E to a point 210000S 0182500E to a point 220032S 0182509E an arc of 60NM from WHV clockwise to the starting point. 3. **FYA 138 – Otjiwarongo Gliding airspace** Gliding activity within the following dimensions: 220032S 0182509E to a point 210000S 0182500E to a point 210000S 0163000E to a point 220319S 0162954E hence an arc of 60NM from WHV clockwise to the starting point.	FL195 FL145	Soaring Society of Namibia (SSN) +264 81 3356144 +264 81 2356391	a) FYA136 - Annually 01st November to 31st January of following year Airspace downgraded to Class E from FL145 to FL195 and will be activated by means of NOTAM 7 days in advance. b) FYA137, FYA138 and FYA139 downgraded to Class E from FL145 to FL195 and will be activated by means of NOTAM 7 days in advance. c) All gliders in the FYA137, FYA138 and FYA139 shall always squawk #7677 from GND to FL195. d) All associated Lower ATS Routes in the above-mentioned Areas downgraded to Class E from FL145 to FL195. e) Gliders operating in airspace Class G are normal airspace access rules and provisions when operating in General use airspace. f) No Glider operations are allowed in the Windhoek/ Walvis Bay TMAs or in Class A airspace. g) No Glider operations are allowed inside the Windhoek/ Walvis Bay safety buffer zone above FL145. h) All gliders to squawk #7677 within Windhoek/Walvis Bay safety buffer zone between GND and FL145. i) No Glider operations are allowed inside the Karibib FYM401 including the safety buffer zone.

Designation and lateral limits	*Vertical limits*	*Operator/ User TEL NR.*	*Remarks and time of ACT*
1	**2**	**3**	**4**
4. FYA 139 - Karibib Gliding Airspace Gliding activity within the following dimensions: 220311S 0162956E to a point 210000S 0163000E to a point 210000S 0150000E to a point 215150S 0150000E hence an arc of 70NM centered from WBV clockwise to a point 230048S 0155442E to a point 225423S 0162942E hence an arc of 60NM centered from WHV clockwise to the starting point.			
HANG-GLIDING AREAS Circle with radius of 1NM centered on 224200S 0143400E	1500FT AGL GND		
MICROLITE FLYING **Farm OKAPUTA** 200800S 0165600E - 200900S 0165509E – 200300S 0170400E - 200400S 0170100E to point of origin	2000FT AGL GND		Hours of activation HJ
MODEL AIRCRAFT FLYING 223200S 0171210E - 223155S 0171221E – 223216S 0171228E - 223222S 0171217E to point of origin	150FT AGL GND		Windhoek Radio Control Fliers site Approximate bearing 084ºM/0.6NM from Heja Lodge. Pilots to exercise caution.
FARM Speedro 343 Circle with Radius of 200M centered on 220440S 0165234E	130FT AGL GND		Okakango Radio Flyers 12NM North West of FYON. Weekends and Public Holidays
Long Beach Resort 224618S 0143235E	500FT AGL GND	N/A	3NM North of Long Beach Resort

Designation and lateral limits	Vertical limits	Operator/ User TEL NR.	Remarks and time of ACT
1	2	3	4
Drop Zones			
Swakopmund Beach Area: 224043S 0143118E	FL100 GND	Ground Rush Adventures, +264 64 402841	Daily operations, HJ.
Ground Rush Adventures DZ, commonly called "China Town": 223350S 0143434E	FL115 GND	Ground Rush Adventures, +264 64 402841	Daily operations, HJ.
Eldorado: 192437S 0155606E	FL140 GND	Swakopmund Skydiving Club, skyhog@mweb.com.na	Seasonal operations, HJ, PPR, Activated by NOTAM
Garubib: 195815S 0144615E	FL140 GND	Swakopmund Skydiving Club, skyhog@mweb.com.na	Seasonal operations, HJ, PPR, Activated by NOTAM
FYIH, Immenhof Game lodge: 210648S 0155340E	FL140 GND	Swakopmund Skydiving Club, skyhog@mweb.com.na	Seasonal operations, HJ, PPR, Activated by NOTAM
Messum Cratar: 212336S 0141209E	FL110 GND	Swakopmund Skydiving Club, skyhog@mweb.com.na	Seasonal operations, HJ, PPR, Activated by NOTAM
Okutala: 193325S 0154503E	FL145 GND	Swakopmund Skydiving Club, skyhog@mweb.com.na	Seasonal operations, HJ, PPR, Activated by NOTAM
FYGL, Omaruru Game lodge: 212012S 0160452E	FL135 GND	Swakopmund Skydiving Club, skyhog@mweb.com.na	Seasonal operations, HJ, PPR, Activated by NOTAM

Designation and lateral limits	Vertical limits	Operator/ User TEL NR.	Remarks and time of ACT
1	2	3	4
FYOJ, Outjo: 200453S 0160740E	FL140 GND	Swakopmund Skydiving Club, skyhog@mweb.com.na	Seasonal operations, HJ, PPR, Activated by NOTAM
Rhino Camp Ugab River: 205741S 0140759E	FL110 GND	Swakopmund Skydiving Club, skyhog@mweb.com.na	Seasonal operations, HJ, PPR, Activated by NOTAM
Spitzkoppe: 215013S 0151125E	FL130 GND	Swakopmund Skydiving Club, skyhog@mweb.com.na	Seasonal operations, HJ, PPR, Activated by NOTAM
FYTF, Twyfelfontein: 203243S 0142205E	FL120 GND	Swakopmund Skydiving Club, skyhog@mweb.com.na	Seasonal operations, HJ, PPR, Activated by NOTAM
FYVL, Vingerklip: 202244S 0152621E	FL140 GND	Swakopmund Skydiving Club, skyhog@mweb.com.na	Seasonal operations, HJ, PPR, Activated by NOTAM

ENR 5.6 BIRD MIGRATION AND AREAS WITH SENSITIVE FAUNA

1. Major Vulture and Flamingo breeding Areas

1.1 Walvis Bay Lagoon;

1.2 Sandwich Bay and Lagoon

1.3 Tsondap Vlei-between co-ordinates 2354S 01522E and 2401S 01528E and 2NM either side of these points.

2. Other bird activities

2.1 Orange river mouth (birds)

2.2 Lüderitz guano islands (birds)

2.3 Conception bay (wetlands)

2.4 Sandwich harbour wetlands to Swakop river mouth (birds)

2.5 Mile 4 bird platform

2.6 Cape Cross (seals)

2.7 Cunene river mouth (birds)

Note
No aircraft to fly within these areas between GND and 3000 feet

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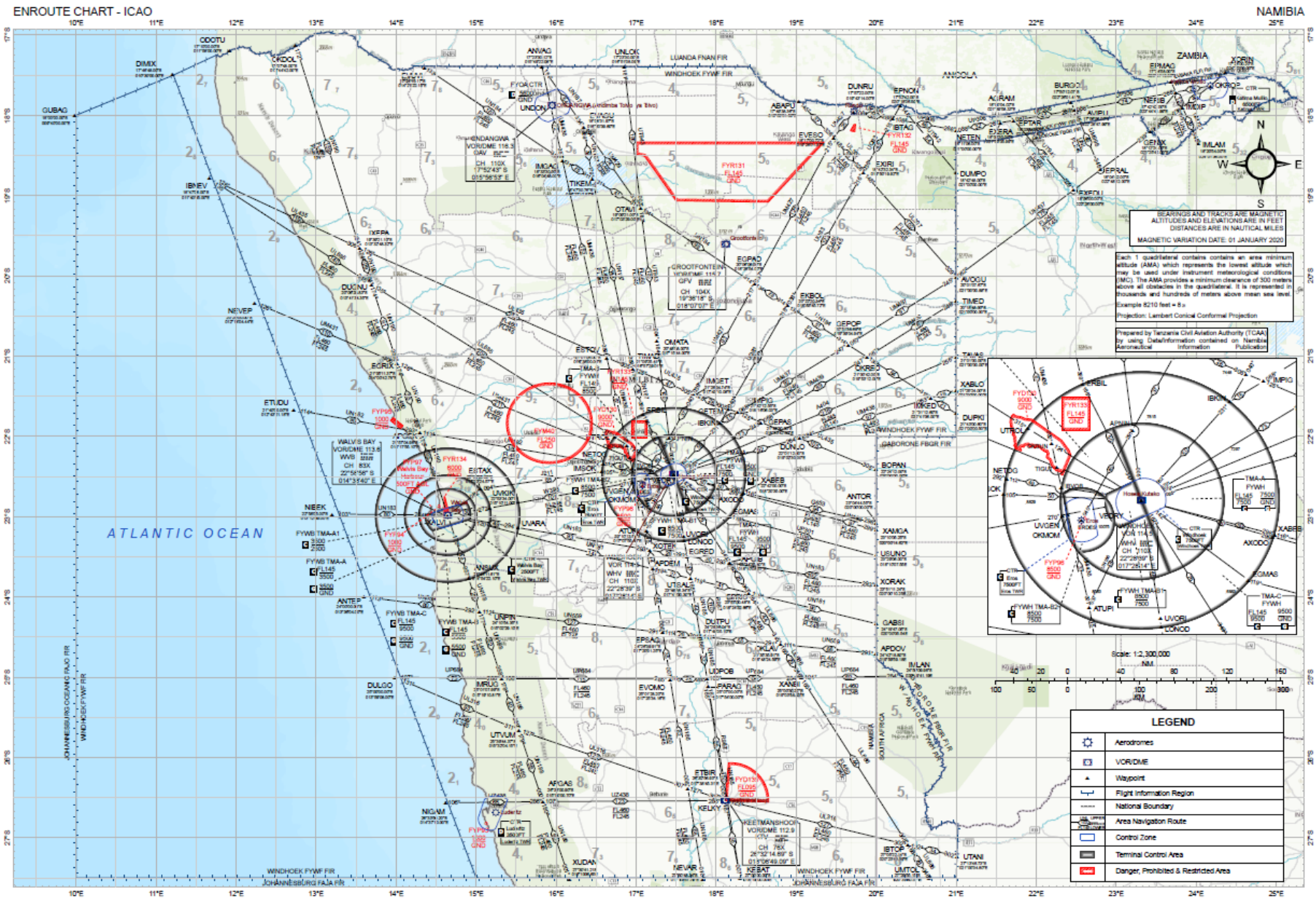
ENROUTE CHART - ICAO
NAMIBIA
ATLANTIC OCEAN
ANGOLA
ZAMBIA
BEARINGS AND TRACKS ARE MAGNETIC
ALTITUDES AND ELEVATIONS ARE IN FEET
DISTANCES ARE IN NAUTICAL MILES
MAGNETIC VARIATION DATE: 01 JANUARY 2020
Each 1 quadrilateral contains contains an area minimum altitude (AMA) which represents the lowest altitude which may be used under instrument meteorological conditions (IMC). The AMA provides a minimum clearance of 300 meters above all obstacles in the quadrilateral. It is represented in thousands and hundreds of meters above mean sea level.
Example 8210 feet = 8»
Projection: Lambert Conical Conformal Projection
Prepared by Tanzania Civil Aviation Authority (TCAA) by using Data/Information contained on Namibia Aeronautical Information Publication
Scale: 1:2,300,000
LEGEND
Aerodromes
VOR/DME
Waypoint
Flight Information Region
National Boundary
Area Navigation Route
Control Zone
Terminal Control Area
Danger, Prohibited & Restricted Area

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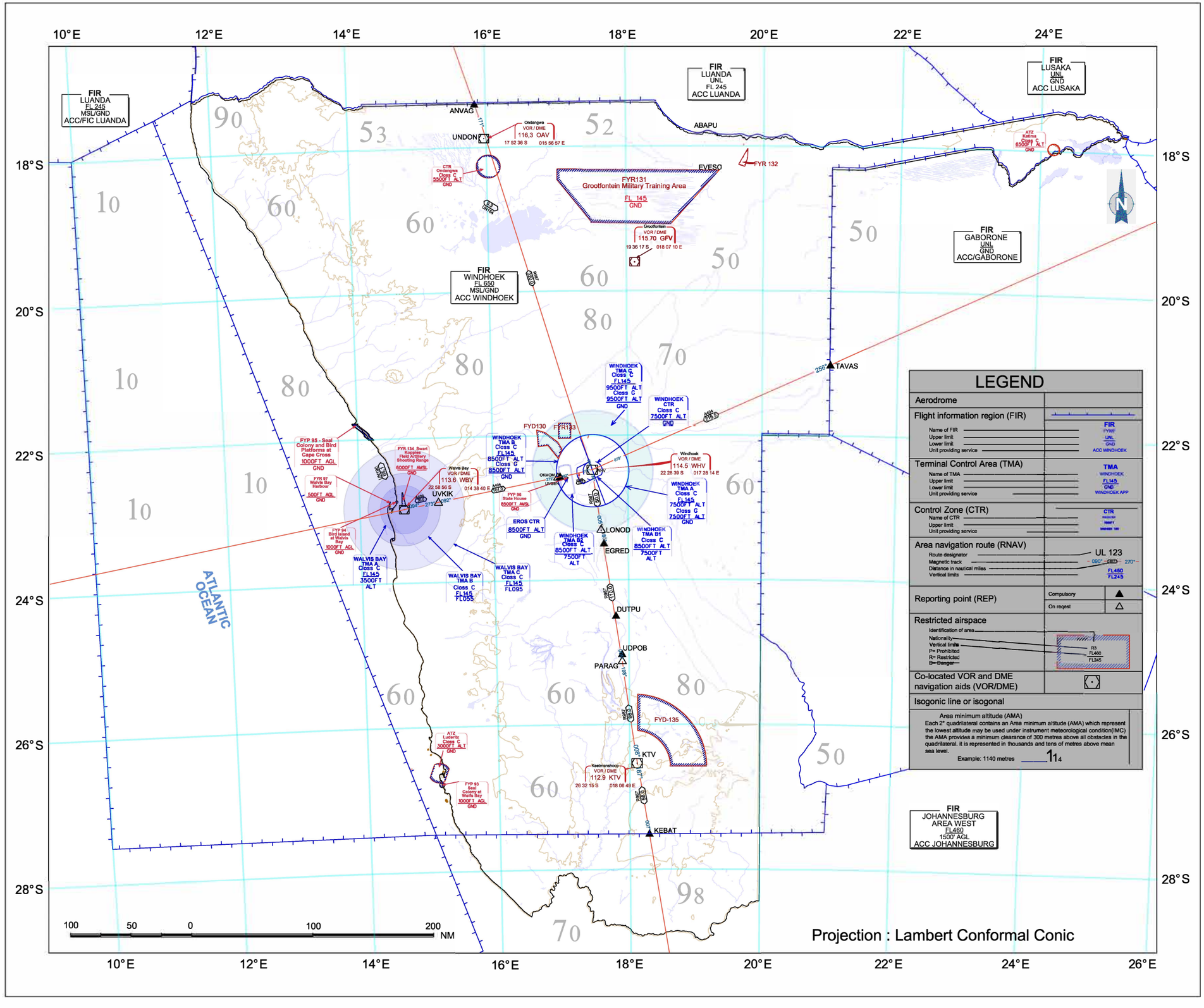
NAMIBIA EN-ROUTE - CHART
ATS ROUTES



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