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# AIP SUPPLEMENT MALAYSIA

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SULTAN ABDUL AZIZ SHAH AIRPORT  
47200 SUBANG  
SELANGOR DARUL EHSAN  
MALAYSIA

01 / 2004  
8 JAN

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## KOTA KINABALU FLIGHT INFORMATION REGION MULU AIRPORT, SARAWAK

### INTRODUCTION OF NEW AIRSPACE STRUCTURE AND IMPLEMENTATION OF INSTRUMENT APPROACH PROCEDURES, STANDARD INSTRUMENT DEPARTURES (SIDs) AND STANDARD ARRIVAL ROUTES (STARs)

#### 1. INTRODUCTION

- 1.1 The extended Mulu Airport in Sarawak will shortly to be available for full IFR operations. The actual date for commencement of these operations will be notified by NOTAM.
- 1.2 The purpose of this AIP Supplement is to notify the aviation industry of the new airspace and instrument procedures and services that will be implemented at the airport.
- 1.3 The information provided in this AIP Supplement is presented in similar ICAO format as applicable for the Aeronautical Information Publication Malaysia.

#### 2. IMPLEMENTATION OF SERVICES AT MULU AIRPORT

- 2.1 In support of scheduled commercial operations at extended Mulu Airport, the following Air Traffic Control Services under the Department of Civil Aviation is available :
  - Approach Control Service
  - Aerodrome Control Service

#### 3. PART 1 - GENERAL

##### 3.1 Air Traffic Services

- 3.1.1 Procedural Aerodrome / Approach Control, Surface Movement Control Services and Flight Information Services will be provided from the Control Tower.

#### 4. PART 2 - AERODROME

4.1 Resulting from the introduction of Air Traffic Control Services at Mulu Airport, the following associated data are published in Appendix A and these supercede the information previously published in AIP Supplement 25/2003 dated 18 September 2003.

- WMBU AD 2.2 AERODROME GEOGRAPHICAL AND ADMINISTRATIVE DATA
- WMBU AD 2.13 DECLARED DISTANCE
- WMBU AD 2.14 APPROACH AND RUNWAY LIGHTING
- WMBU AD 2.17 ATS AIRSPACE
- WMBU AD 2.18 ATS COMMUNICATION FACILITIES
- WMBU AD 2.20 LOCAL TRAFFIC REGULATIONS
- WMBU AD 2.22 FLIGHT PROCEDURES
- WMBU AD 2.24 CHARTS RELATED TO MULU AIRPORT

4.2 Simple Approach Lighting to Runway 03 is provided. The Approach Lighting Chart is depicted at Appendix G.

#### 5. PART 3 - ENROUTE CHARTS, PROCEDURES AND OPERATIONS

**Instrument approaches / departures to / from Mulu Airport** are to be conducted uni-directionally i.e. landings on Runway 03 and departures on Runway 21.

**Departures from Runway 03** are to be conducted visually.

**Landings on Runway 21** are to be conducted visually and restricted to CAT A aircraft only.

##### 5.1 Standard Instrument Departures

5.1.1 Standard Instrument Departures (SIDs) are pre-planned IFR departures routes linking aerodromes with ATS routes. SIDs are introduced at Mulu airport and are designed to :

- a. simplify and standardise departures from the aerodrome
- b. minimise conflict with arriving traffic
- c. maximise traffic handling capacity
- d. provide for shortest track that meet adequate terrain clearance

5.1.2 SIDs for Runway 21 departures are depicted and illustrated in chart shown in Appendix B - 1.

## **5.2 Standard Arrival Routes**

5.2.1 Standard Arrival routes (STARs) are pre-planned IFR arrival routes, linking ATS arrival air routes with the destination aerodrome. STARs are designed and introduced at Mulu airport to :

- a. reduce air traffic controller and pilot workload and air-ground communications.
- b. minimise conflict with departing traffic from Bintulu.
- c. maximise traffic handling capacity.
- d. provide for terrain clearance and uninterrupted descent to take advantage of advanced navigation capabilities of aircraft.

5.2.2 STARs for Runway 03 arrivals are depicted and illustrated in chart shown in Appendix B - 2 to Appendix B - 3.

## **5.3 Instrument Approach Charts**

5.3.1 Instrument Approach Charts for Runway 03 are shown in Appendix B - 4 to Appendix B - 6.

## **5.4 ATS Airspace**

5.4.1 Dimension of the airspace for Mulu Control Zone is as listed in WBMU AD 2 - 17 and as shown in Appendix C, appendix E and Appendix E - 1.

## **5.5 IFR Holding Patterns**

5.5.1 Four IFR Holding Patterns are established to cater for VOR/DME (VZU) and NDB/DME (MZU) procedures as illustrated in Appendix D.

## **5.6 VFR Routes & VFR Holding Area**

5.6.1 A VFR Holding Area catering for the operations of Helicopters and light general aviation aircraft is depicted in Appendix F.

## **6. CANCELLATION**

6.1 This AIP supplement will remain in force until the information is published in AIP Malaysia.

**DATO' IR KOK SOO CHON**  
**Director General**  
**Department of Civil Aviation**  
**Malaysia**

**WBMU AD 2.1 AERODROME LOCATION INDICATOR AND NAME****WBMU - MULU****WBMU AD 2.2 AERODROME GEOGRAPHICAL AND ADMINISTRATIVE DATA**

1	ARP coordinates and site at AD	04° 03' 01.7" N 114° 48' 33.6" E
2	Direction and distance from city	2.4 km West of Royal Mulu Hotel Resort
3	Elevation / Reference temperature	96 FT (29.34 M) / 31° C
4	Geoid Undulation	+ 13.6M (44.62 FT)
5	MAG VAR / Annual change	1°E / 1'
6	AD Administration, address, telephone, telefax, telex, AFS	Operator: <b>Malaysia Airports Sdn Bhd</b> Mulu Airport Mulu Sarawak. Tel : 085-792102, 085-792103 Fax : TBN  ATC Services: <b>Department of Civil Aviation Malaysia</b> Mulu Airport Mulu Sarawak. Tel : 085-792104 Fax : 085-792105
7	Types of traffic permitted (IFR/VFR)	VFR
8	Remarks	Nil.

**WBMU AD 2.13 DECLARED DISTANCES**

RWY Designator	TORA (M)	TODA (M)	ASDA (M)	LDA (M)	Remarks
1	2	3	4	5	6
03	1500	1500	1500	1450	Visual departure only
21	1500	1560	1560	1500	Visual Landing restricted to CAT A aircraft only

**WBMU AD 2.14 APPROACH AND RUNWAY LIGHTING**

RWY Designator	APCH Lgt	THR Lgt	VASIS (MEHT) PAPI	TDZ Lgt	RWY Centre Line Lgt	RWY Edge Lgt	RWY End Lgt WBAR	SWY Lgt	Remarks
1	2	3	4	5	6	7	8	9	10
03	Simple Approach Lights	Nil	PAPI Slope 3°	Nil	Nil	Nil	Nil	Nil	Nil
21	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil

**APPENDIX A**

**WBMU AD 2.17      ATS AIRSPACE**

1	Designation and lateral limits	MULU CTR Area contained within positions commencing clockwise from 041135.9N 1143011.1E, followed by a straight line to 041632.9N 1144106.9E thence along the arc of a circle radius 16NM centred on Mulu DVOR / DME (040158.5N 1144743.3E) to 041202.1N 1150010.8E, thence a straight line to 034619.1N 1150010.8E, thence along the arc of a circle radius 20 nm centred on Mulu DVOR / DME (040158.5N 1144743.3E) to 041135.9N 1143011.1E.
2	Vertical limits	Gnd / MSL to 11500 FT.
3	Airspace classification	C
4	ATS unit callsign Language(s)	Mulu Tower. English.
5	Transition altitude	11000 FT
6	Remarks	Nil

**WBMU AD 2.18      ATS COMMUNICATION FACILITIES**

Service Designation	ID	Frequency	Hours of operation	Remarks
1	2	3	4	5
APPROACH/ AERODROME	MULU TOWER	129.200 MHZ (P) 121.700 MHZ (S)	0000 - 0900 daily	P - Primary S - Secondary
EMERGENCY	MULU TOWER	* 121.5 MHZ		* Emergency frequency

**WBMU AD 2.20      LOCAL TRAFFIC REGULATIONS**

- 1 All aircraft approaching Mulu and intending to hold overhead using procedures VZU DVOR/DME or MZU NDB/DME must cross 8 DME VZU (from W448 or W449) or 16 DME VZU (from W452) at 10,000 FT or enter minimum holding pattern at 10,000 FT due to high terrain east of VZU DVOR.
- 2
  - (a) Circuit patterns are Left Hand Circuit for RWY 03 and Right Hand Circuit for RWY 21. Circuit altitude 1800 FT.
  - (b) Only non-instrument approach i.e. visual approach / landing permitted for Cat. A aircraft only on RWY 21.
  - (c) Only non-instrument i.e. visual departure permitted for aircraft from RWY 03.
- 3 Procedures for VFR flights within Mulu CTR
  - a) A flight plan shall be filed for the flight concerned.
  - b) ATC clearance shall be obtained from Mulu TWR.
  - c) Any deviation from ATC clearance requires prior permission.
  - d) The flight shall be conducted with visual reference to the ground.
  - e) Two-way radio communication shall be established with Mulu TWR on 129.200 MHz(P) and 121.700 Mhz(S) prior to entering Mulu CTR.
  - f) All VFR flights shall follow the established VFR Routes for entry and exit of the Mulu CTR, as shown in Visual Chart. Any deviation outside these routes requires prior ATC permission

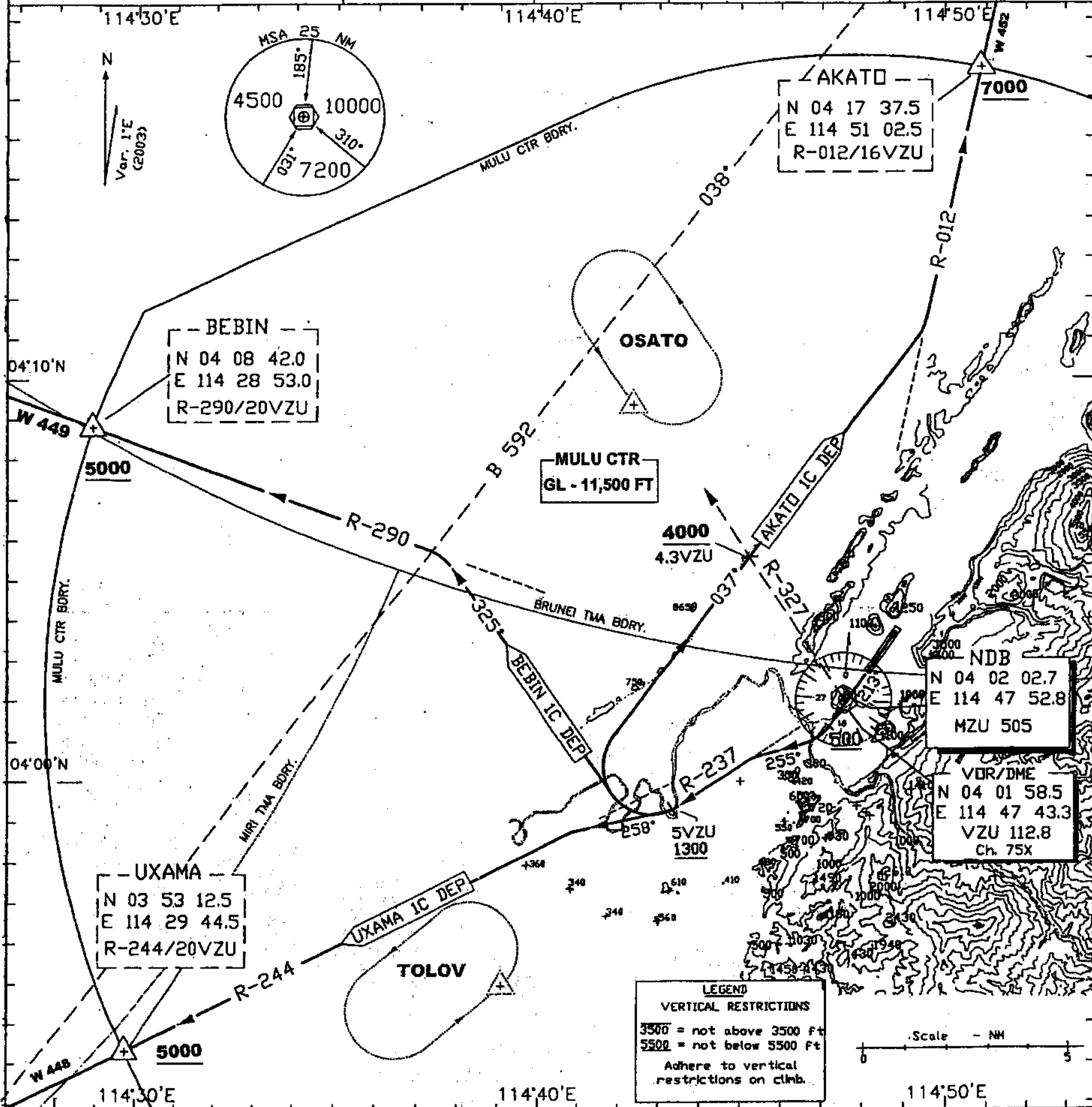
**WBMU AD 2.22      FLIGHT PROCEDURES**

1. Communication failure procedures as per AIP Malaysia, ENR 1.6 - 3 para 2.1

**WBMU AD 2.24****CHARTS RELATED TO MULU AIRPORT**

<b>Chart Name</b>
AERODROME CHART - ICAO
RUNWAY AND TAXIWAY MARKINGS
AERODROME OBSTRUCTION CHART - ICAO TYPE A (OPERATING LIMITATIONS)
MULU CTR
HOLDING AREAS
STANDARD DEPARTURE CHART- INSTRUMENT - ICAO - RWY 21
STANDARD ARRIVAL CHART - INSTRUMENT - ICAO - RWY 03 (RNAV TRACKING)
STANDARD ARRIVAL CHART - INSTRUMENT - ICAO - RWY 03 (VOR/DME)
INSTRUMENT APPROACH CHART - ICAO RWY 03 (VOR/DME) FROM STAR, TOLOV, OSATO HOLDS
INSTRUMENT APPROACH CHART - ICAO RWY 03 (VOR/DME FROM OVERHEAD HOLD)
INSTRUMENT APPROACH CHART - ICAO RWY 03 (NDB/DME)
VFR ROUTES / VFR HOLDING AREA

STANDARD DEPARTURE CHART INSTRUMENT(SID)-ICAO Bank Angle 25° or 3°/sec.	Bearings —MAGNETIC Radials Altitudes — FEET Elevations (AMSL)	TRANSITION ALTITUDE 11,000 FT	TWR - 129.200 (P) - 121.700 (S) Emerg. - 121.5	MULU/MULU SARAWAK RUNWAY 21



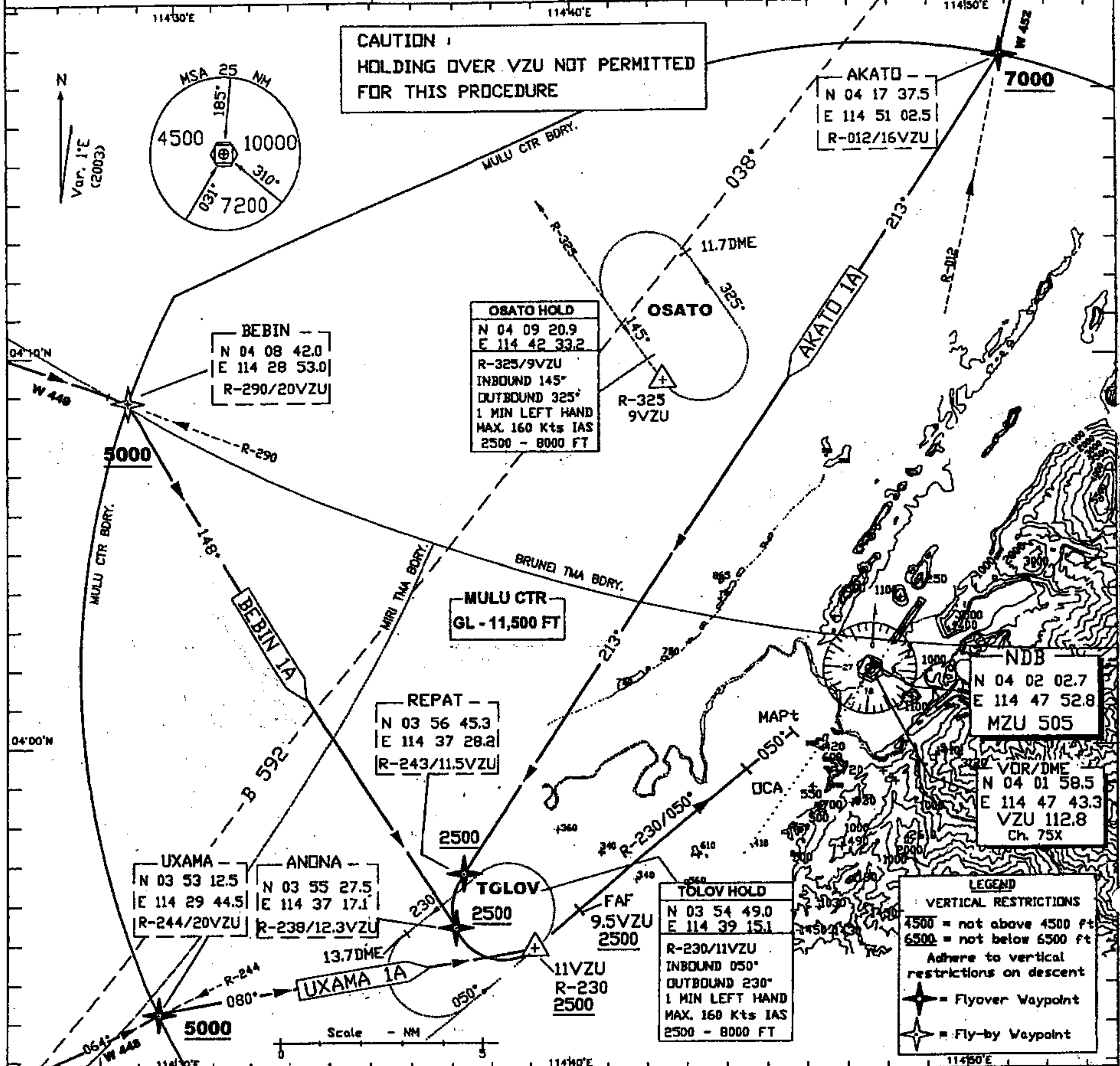
**SID RWY 21**

AKATO ONE CHARLIE DEPARTURE  
BEBIN ONE CHARLIE DEPARTURE  
UXAMA ONE CHARLIE DEPARTURE

**RWY21**

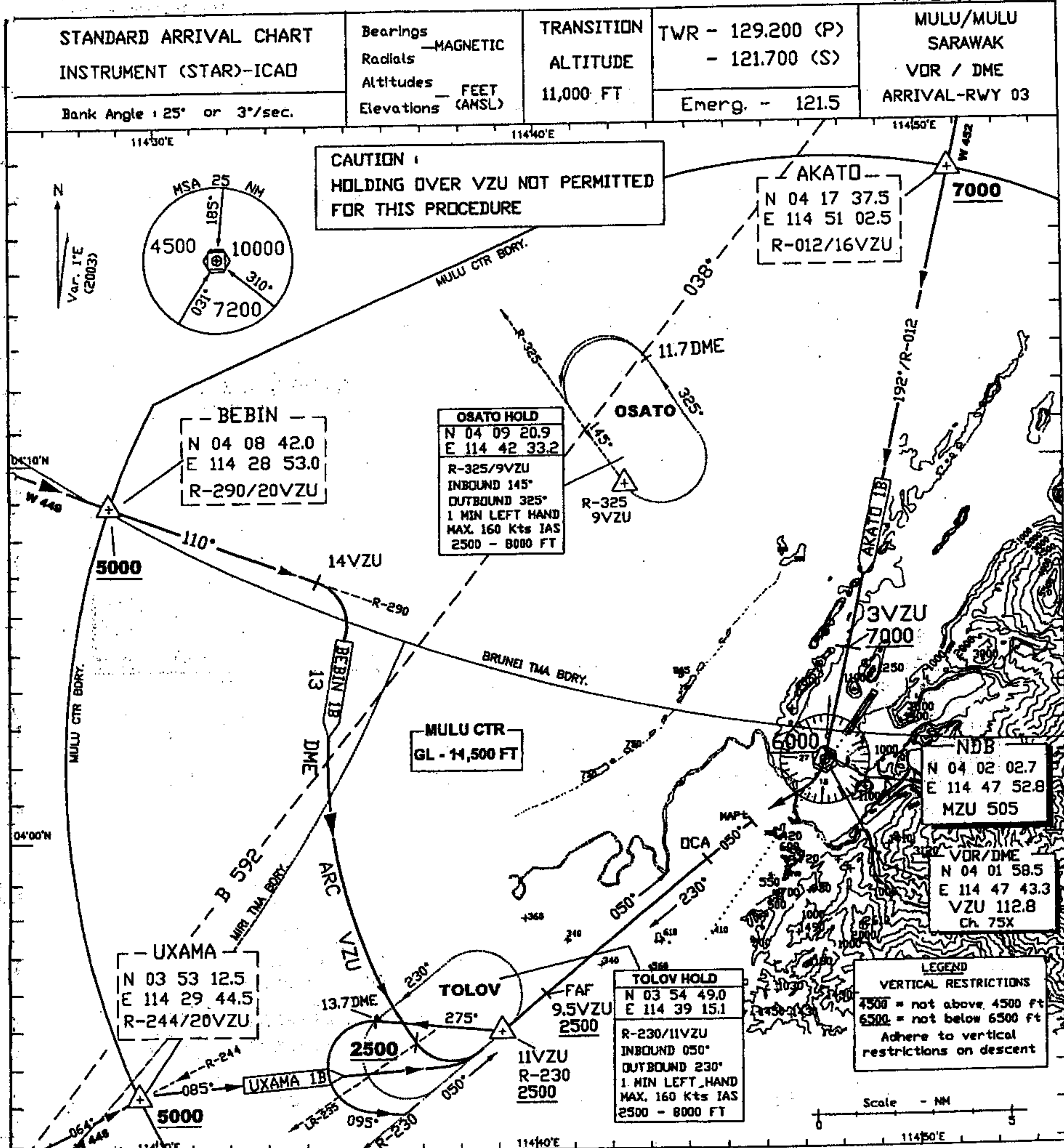
- CLIMB ON TRACK 213°.
- AT 500 FT TURN RIGHT, TRACK 255°
- INTERCEPT R-237 AND CLIMB TO 1300 FT OR ABOVE.
- AT 5 VZU TURN RIGHT,  
FOR AKATO ONE CHARLIE DEPARTURE
- TRACK 037°, CROSS R-327 ABOVE 4000 FT.
- TO INTERCEPT R-012 VZU VOR OUTBOUND  
FOR BEBIN ONE CHARLIE DEPARTURE
- TRACK 325° TO INTERCEPT R-290 VZU VOR OUTBOUND  
FOR UXAMA ONE CHARLIE DEPARTURE
- TRACK 258° TO INTERCEPT R-244 VZU VOR OUTBOUND

STANDARD ARRIVAL CHART INSTRUMENT (STAR)-ICAO	Bearings — MAGNETIC	TRANSITION	TWR - 129.200 (P)	MULU/MULU SARAWAK
	Radials	ALTITUDE	- 121.700 (S)	RNAV TRACKING
Bank Angle 125° or 3°/sec.	Altitudes — FEET	11,000 FT	Emerg. - 121.5	ARRIVAL-RWY 03
	Elevations (AMSL)			



**STAR (RNAV) RWY 03**

- AKATO ONE ALPHA ARRIVAL**
- FROM AKATO TRACK 213° TO REPAT
  - AT REPAT TURN LEFT
  - TO INTERCEPT R-230 FOR VOR/DME APPROACH
- BEBIN ONE ALPHA ARRIVAL**
- FROM BEBIN TRACK 148° TO ANONA,
  - AT ANONA TURN LEFT,
  - TO INTERCEPT R-230 FOR VOR/DME APPROACH
- UXAMA ONE ALPHA ARRIVAL**
- FROM UXAMA TRACK 080°,
  - TO INTERCEPT R-230 FOR VOR/DME APPROACH

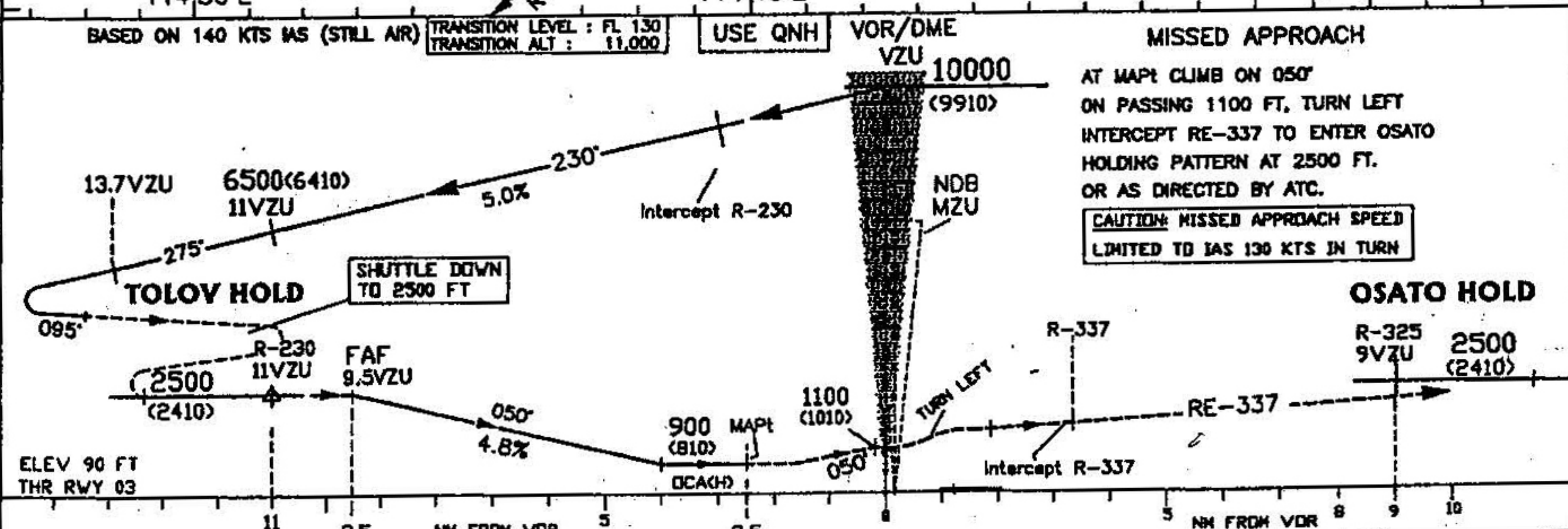
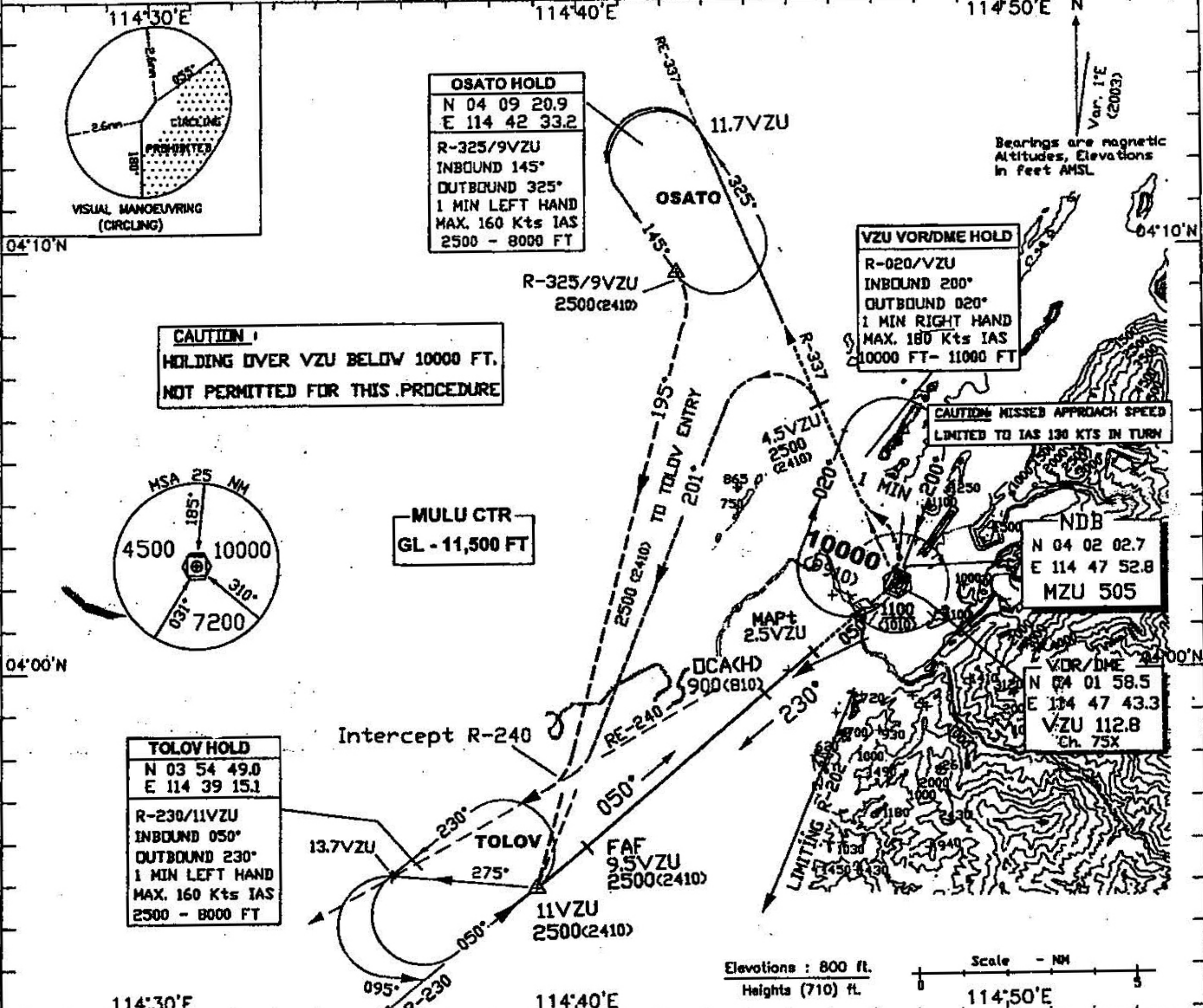


**STAR (VOR/DME) RWY 03**

<p><b>AKATO ONE BRAVO ARRIVAL</b></p> <ul style="list-style-type: none"> <li>• FROM AKATO TRACK ON R-012 TO VZU VOR</li> <li>• CROSS 3 DME VZU NOT BELOW 7000 FT.</li> <li>• AT VZU VOR TRACK ON R-230 TO TOLOV</li> <li>• TO ENTER HOLDING PATTERN OR</li> <li>• TO INTERCEPT R-230 FOR VOR/DME APPROACH.</li> </ul>	<p><b>BEBIN ONE BRAVO ARRIVAL</b></p> <ul style="list-style-type: none"> <li>• AT BEBIN TRACK ON R-290 VZU INBOUND,</li> <li>• AT 14 VZU, TURN RIGHT, TO FOLLOW 13 VZU ARC,</li> <li>• ON CROSSING LR-235 TURN LEFT.</li> <li>• TO INTERCEPT R-230 FOR VOR/DME APPROACH.</li> </ul>	<p><b>UXAMA ONE BRAVO ARRIVAL</b></p> <ul style="list-style-type: none"> <li>• FROM UXAMA TRACK ON 085°,</li> <li>• TO INTERCEPT R-230 FOR VOR/DME APPROACH.</li> </ul>
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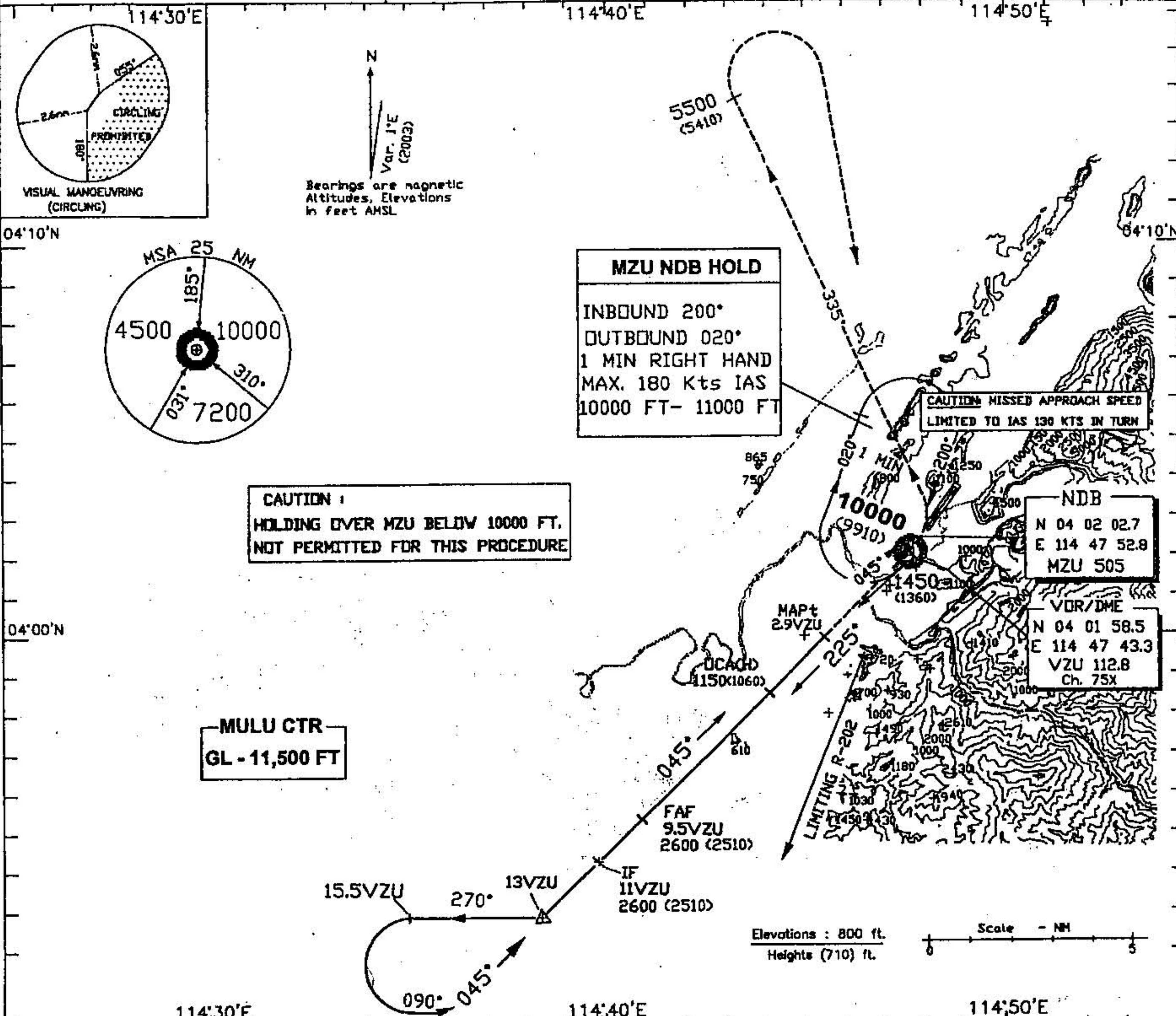


INSTRUMENT APPROACH CHART - ICAO	AD. ELEV. 98 FT.	TRANSITION ALTITUDE	TWR - 129.200 (P) - 121.700 (S)	MULU/MULU SARAWAK
	HEIGHTS RELATED TO THR RWY 03 ELEV 90 FT.	11,000 FT	Emerg. 121.5	FROM OVERHEAD VZU VOR/DME RWY 03



ACFT. CAT.	A		B		
	VOR/DME (Straight-in)	900 (810) / 2.5 VZU			
CIRCLING (ft.)	1800 (1710)				
DME Distance (VZU)	8 DME	7 DME	6 DME	5 DME	4 DME
Altitude (ft.)	2062(1972)	1770(1680)	1478(1388)	1188(1096)	900(810)
TIME TO THR RWY 03 FROM FAF DIST. 10.7 NM.					
GROUND SPEED(KTS)	70	90	120	150	
MIN : SEC	9:10	7:09	5:21	4:17	
4.9% DESC.(FT./MIN)	339	438	582	727	

INSTRUMENT APPROACH CHART - ICAO	AD. ELEV. 98 FT.	TRANSITION ALTITUDE	TWR - 129,200 (P) - 121,700 (S)	MULU/MULU SARAWAK
	HEIGHTS RELATED TO THR RWY 03 ELEV 90 FT.	11,000 FT	Emerg. 121.5	NDB/DME RWY 03



**CAUTION:**  
HOLDING OVER MZU BELOW 10000 FT.  
NOT PERMITTED FOR THIS PROCEDURE

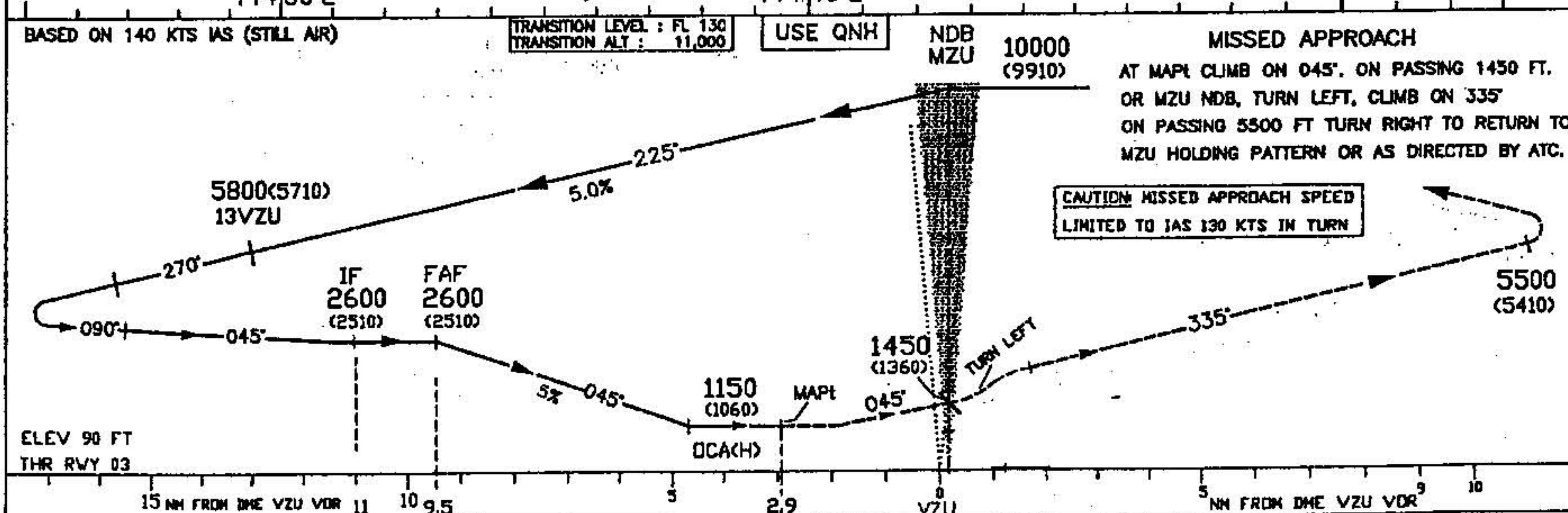
**MZU NDB HOLD**  
INBOUND 200°  
OUTBOUND 020°  
1 MIN RIGHT HAND  
MAX. 180 Kts IAS  
10000 FT- 11000 FT

**CAUTION MISSED APPROACH SPEED**  
LIMITED TO IAS 130 KTS IN TURN

**NDB**  
N 04 02 02.7  
E 114 47 52.8  
MZU 505  
**VOR/DME**  
N 04 01 58.5  
E 114 47 43.3  
VZU 112.8  
Ch. 75X

**MULU CTR**  
GL - 11,500 FT

Elevations : 800 ft.  
Heights (710) ft.



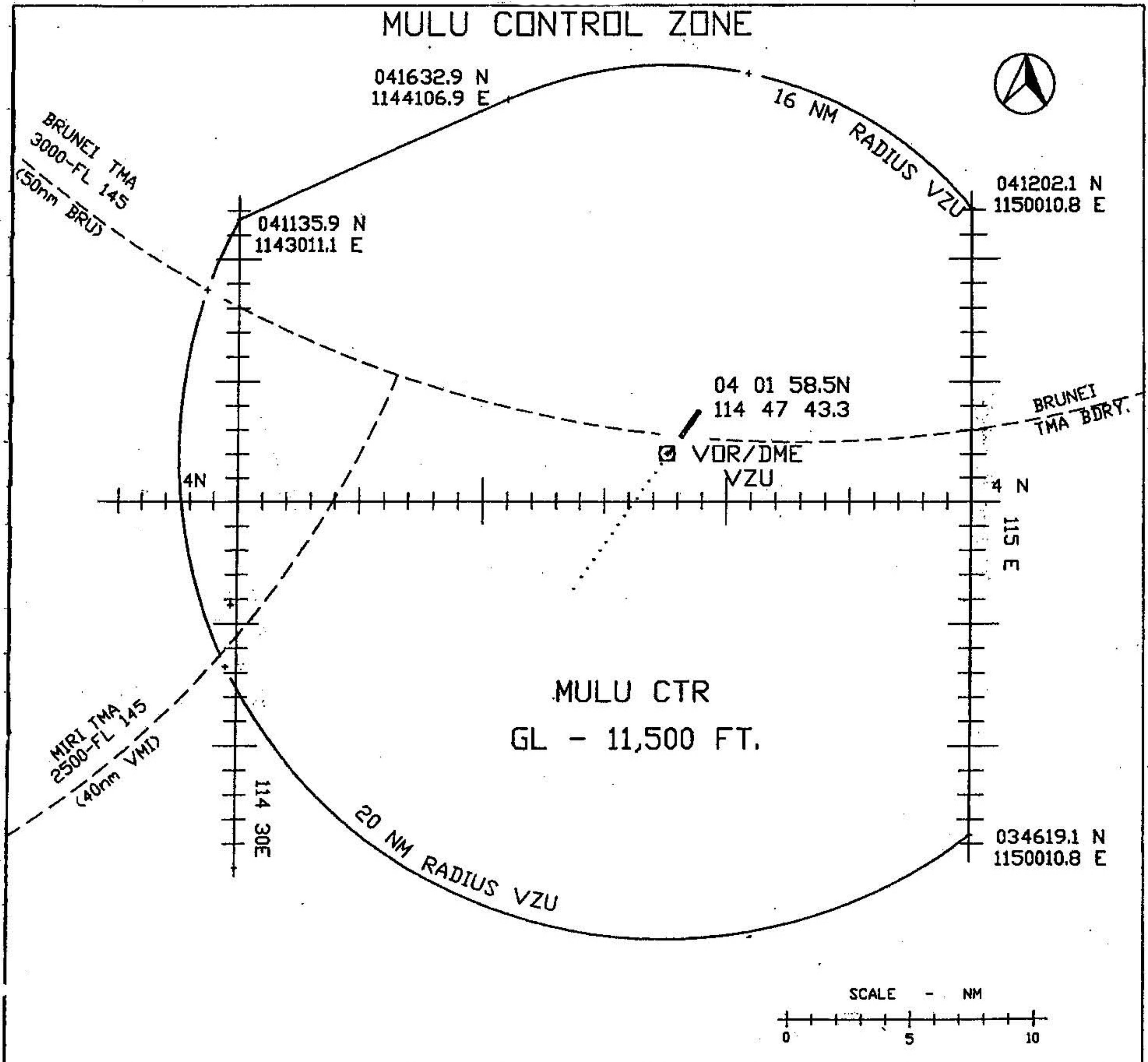
TRANSITION LEVEL : FL 130  
TRANSITION ALT : 11,000

USE QNH

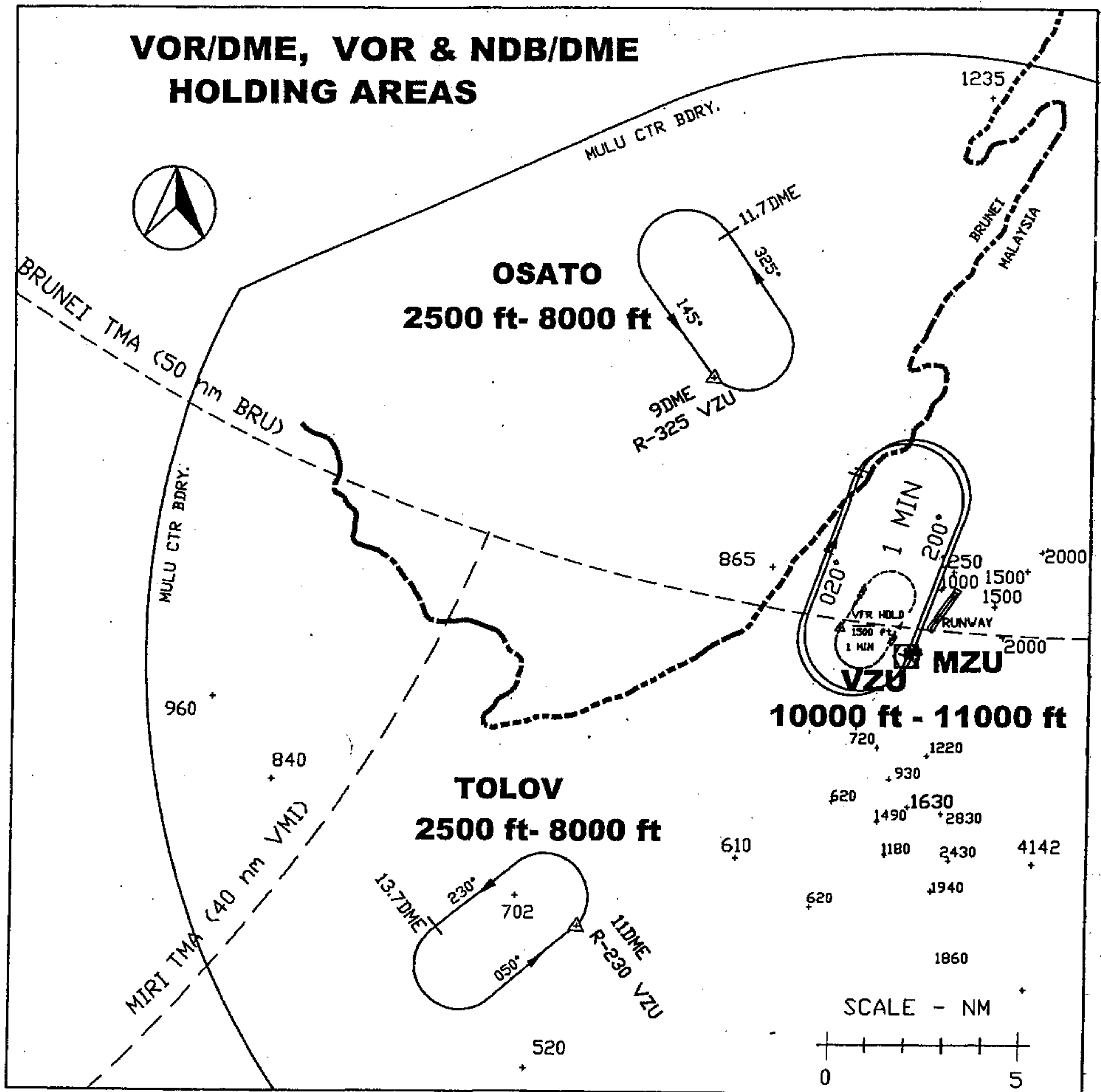
**MISSED APPROACH**  
AT MAPt CLIMB ON 045°. ON PASSING 1450 FT.  
OR MZU NDB, TURN LEFT, CLIMB ON 335°  
ON PASSING 5500 FT TURN RIGHT TO RETURN TO  
MZU HOLDING PATTERN OR AS DIRECTED BY ATC.

**CAUTION MISSED APPROACH SPEED**  
LIMITED TO IAS 130 KTS IN TURN

ACFT. CAT.	A		B		
NDB/DME(Straight-in)	1150 (1060) / 2.9 DME/VZU				
CIRCLING (ft.)	1800 (1710)				
DME Distance (VZU)	8 DME	7 DME	6 DME	5 DME	4 DME
Altitude (ft)	2123(2033)	1805(1715)	1487(1397)	1169(1079)	1150(1060)
TIME TO THR RWY 03 FROM FAF DIST. 10.7 NM.					
GROUND SPEED(KTS)	70	90	120	150	
MIN : SEC	9:10	7:09	5:21	4:17	
5% DESC.(FT./MIN)	362	463	617	771	



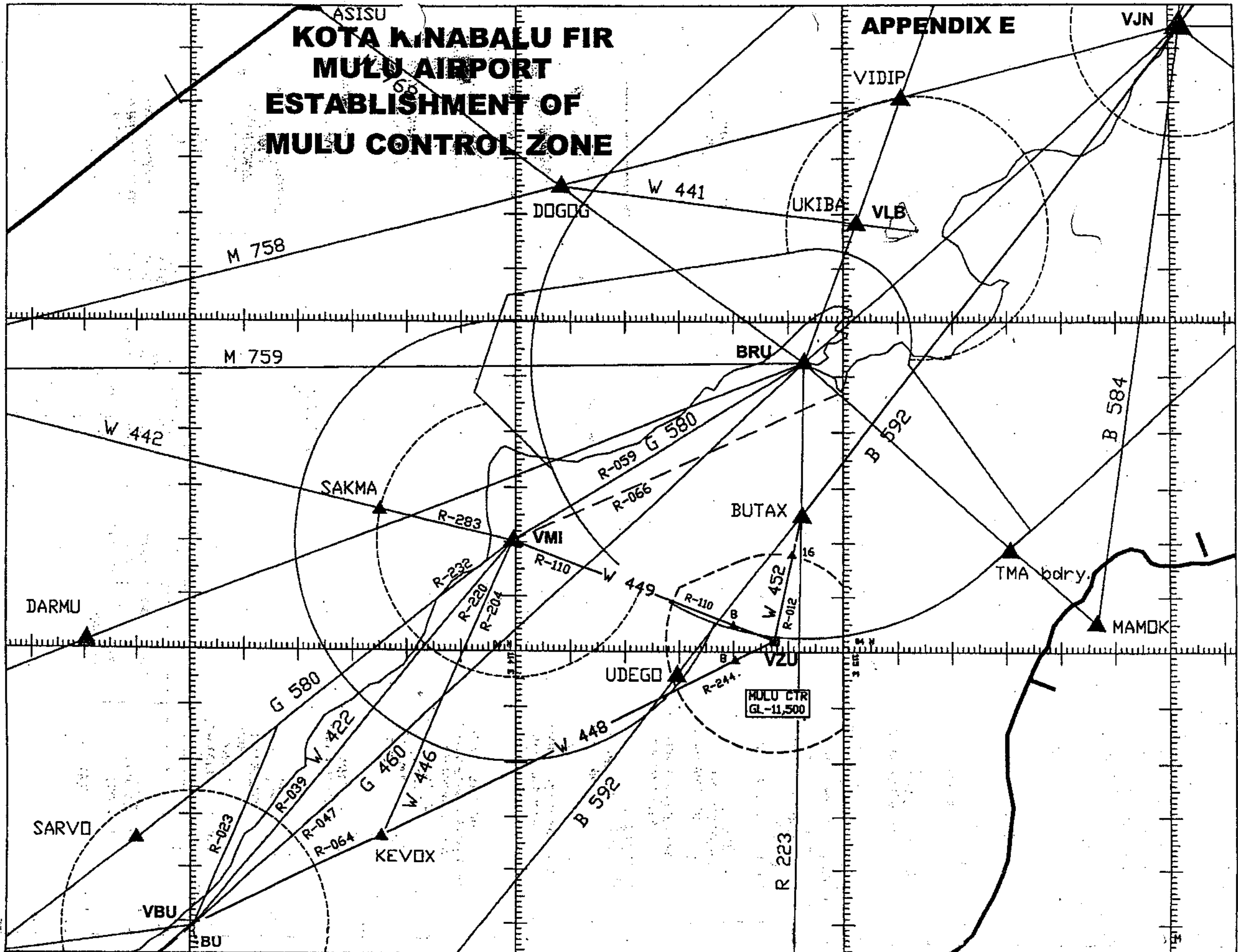
# VOR/DME, VOR & NDB/DME HOLDING AREAS



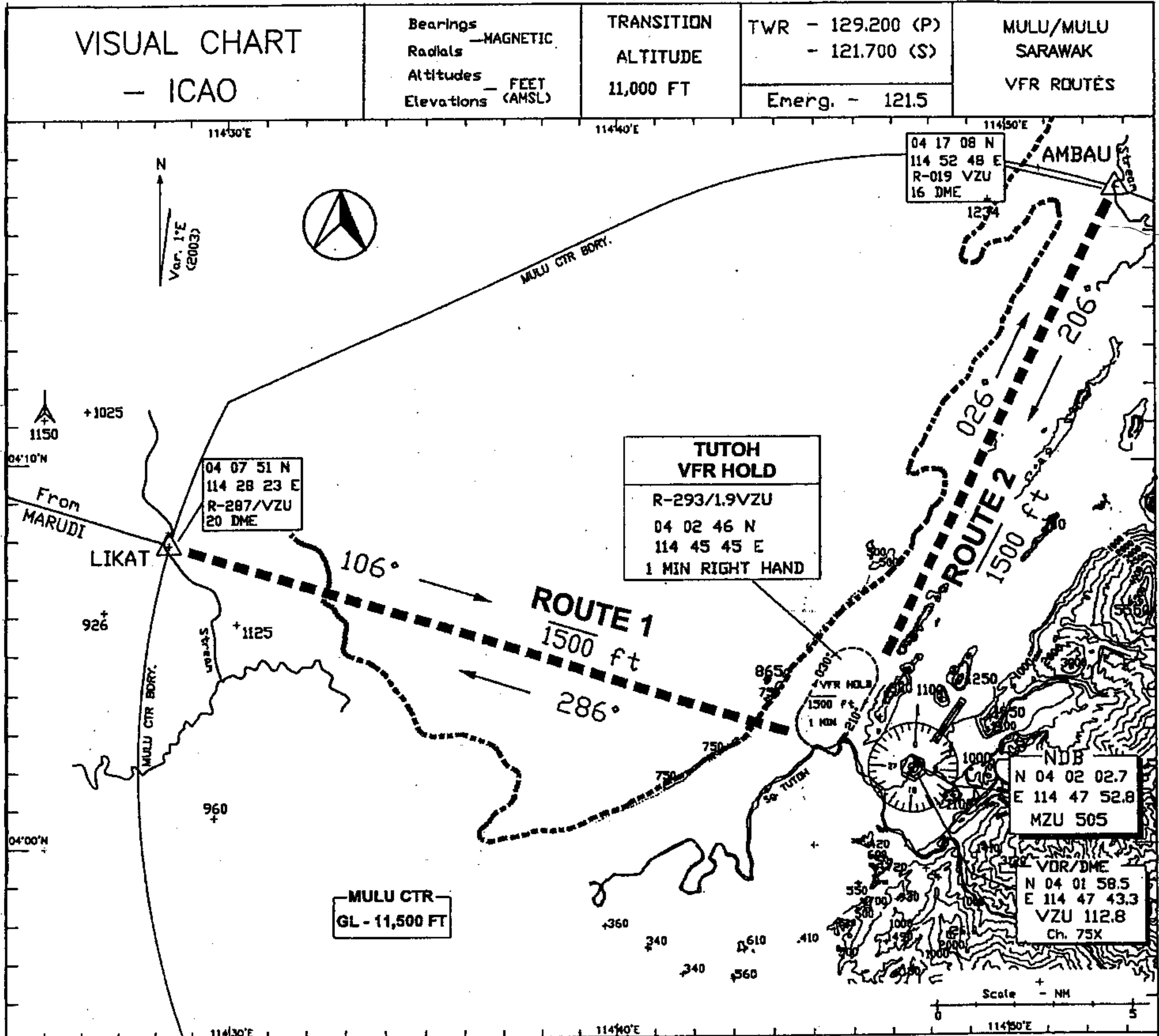
ASISU  
**KOTA KINABALU FIR  
MULU AIRPORT  
ESTABLISHMENT OF  
MULU CONTROL ZONE**

**APPENDIX E**

VJN



Route Designator Significant Points Coordinates	Track (Mag) DIST (NM)	Upper limits Lower limits Min Flight Altitude Airspace Class Refer ENR 1.4-1	Lateral Limits (NM)	Direction of Cruising Levels		Remarks Controlling Unit
				Odd	Even	
1	2	3	4	5		6
<b>W448</b>						
▲ BINTULU DVOR/DME (VBU) 030914N 1130047E	<u>064</u> 244	<u>FL 245</u> 4 500 FT ALT	20	↓	↑	<b>Controlling Authority :</b> Kinabalu ACC - 128.3 MHz except Within Miri TMA Miri APP : 129.9 MHz (P) 122.7 MHz (S) Within Mulu CTR Mulu TWR : 129.200 MHz (P) 121.7 MHz (S) <b>Caution</b> Acft intending to hold over VZU DVOR/DME or DVOR must <b>cross 8 DME VZU at 10000 FT</b> or enter minimum holding pat- tern at 10000 FT due to high ter- rain east of VZU DVOR.
▲ KEVOX 032624N 1133550E	39 NM	MNM 5 000 FT				
▲ 8 DME VZU 035826N 1144032E	<u>064</u> 244 72 NM	<u>FL 245</u> 9 500 FT ALT				
▲ MULU DVOR/DME (VZU) 040158N 1144743E	8 NM	MNM 10 000 FT				
<b>W452</b>						
▲ MULU DVOR/DME (VZU) 040158N 1144743E	<u>012</u> 192	<u>FL 245</u> 9 500 FT ALT	20	↓	↑	<b>Controlling Authority :</b> Kinabalu ACC - 128.3 MHz except Within Brunei TMA Miri APP : 129.9 MHz(P) 122.7 MHz(S) Within Brunei TMA Brunei APP : 127.1 MHz Within Mulu CTR Mulu TWR : 129.200 MHz(P) 121.7 MHz(S) <b>Caution</b> Acft intending to hold over VZU DVOR/DME or DVOR must <b>cross 16 DME VZU at 10000</b> <b>FT</b> or enter minimum holding pattern at 10000 FT due to high terrain east of VZU DVOR.
▲ 16 DME VZU	16 NM	MNM 10 000 FT				
DVOR/DME (VZU) 041740N 1145104E	<u>012</u> 192	<u>FL 245</u> 7 000 FT ALT				
▲ BUTAX 042613N 1145232E	9 NM	MNM 7 000 FT				
<b>W449</b>						
▲ MIRI DVOR/DME (VMI) 042016N 1135939E	<u>110</u> 290	<u>FL 245</u> 4 500 FT ALT	20	↓	↑	<b>Controlling Authority :</b> Kinabalu ACC - 128.3 MHz except Within Miri TMA Miri APP : 129.9 MHz (P) 122.7 MHz (S) Within Brunei TMA Brunei APP : 127.1 MHz Within Mulu CTR Mulu TWR : 129.200 MHz(P) 121.7 MHz(S) <b>Caution</b> Acft intending to hold over VZU DVOR/DME or DVOR must <b>cross 8 DME VZU at 10000 FT</b> or enter minimum holding pattern at 10000 FT due to high terrain east of VZU DVOR.
▲ 8 DME VZU 040449N 1144014E	43 NM	MNM 5 000 FT				
▲ MULU DVOR/DME (VZU) 040158N 1144743E	<u>110</u> 290	<u>FL 245</u> 9 500 FT ALT				
	8 NM	MNM 10 000 FT				



**VFR ROUTES**

**ROUTE 1**

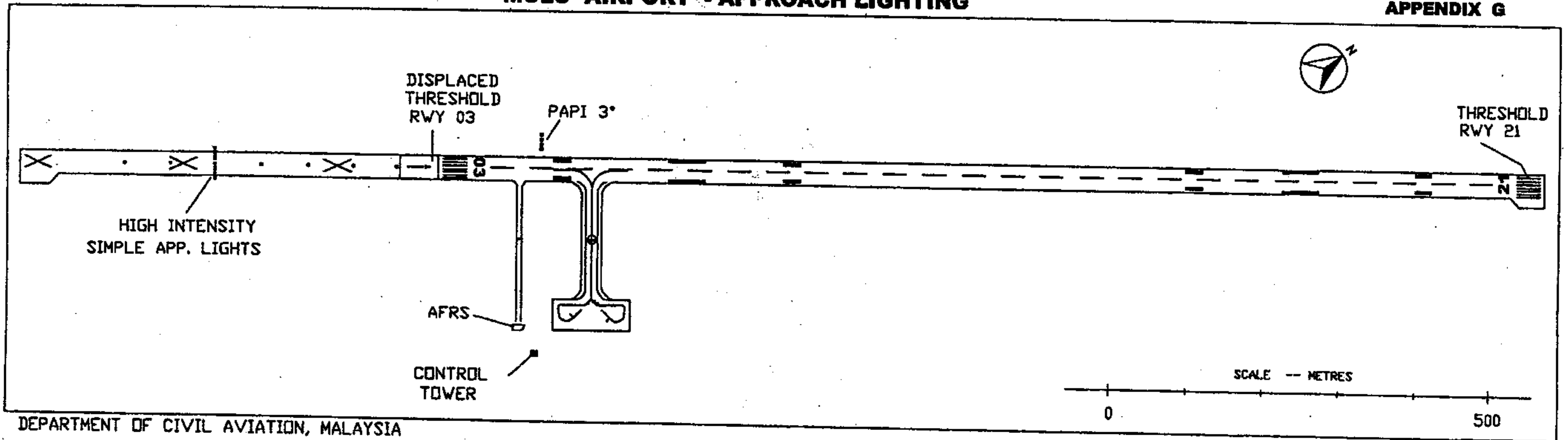
FROM LIKAT TRACK 106°, ALT. BELOW 1500 FT TO TUTOH VFR HOLD

**ROUTE 2**

FROM AMBAU TRACK 206°, ALT. BELOW 1500 FT TO TUTOH VFR HOLD

# MULU AIRPORT - APPROACH LIGHTING

APPENDIX G



DEPARTMENT OF CIVIL AVIATION, MALAYSIA

8 JAN 2004  
AIP SUPP 1/2004