

AIRAC AIP SUPPLEMENT

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This Supplement is issued for information, guidance and necessary action.

**V.P. AGRAWAL
CHAIRMAN****AIRPORTS AUTHORITY OF INDIA**

[Effective Date: 22 October 2009]**RNAV-1 (GNSS or DME/DME/IRU) SIDs AND STARs
CHENNAI INTERNATIONAL, INDIA****1. INTRODUCTION**

- 1.1. For RNAV (GNSS or DME/DME/IRU) SIDs and STARs operations, the aircraft shall be GNSS or DME/DME/IRU equipped and the navigation systems shall meet ICAO RNAV-1 standard of accuracy or equivalent.
- 1.2. Operators/pilots who are not approved to fly the RNAV (GNSS or DME/DME/IRU) SIDs and STARs shall inform ATC and expect conventional SIDs where applicable or expect radar vectors.
- 1.3. Pilots shall comply with an ATC assigned level. Pilots shall also adhere to the vertical and speed restrictions depicted on the cleared RNAV (GNSS or DME/DME/IRU) SIDs and STARs. ATC clearance will take precedence when the ATC clearance does not allow the pilots to adhere to the vertical and speed restrictions depicted on the RNAV (GNSS or DME/DME/IRU) SIDs and STARs.
- 1.4. Aircraft may be radar vectored off a RNAV SID/STAR. Such aircraft will subsequently be given instruction to intercept the appropriate RNAV SID/STAR.

2. ARRIVALS

- 2.1. STARs are presented in diagrammatic format on a chart which comprises two main elements:
- A TRANSITION route; and
 - An ARRIVAL route.
- 2.2. A TRANSITION route starts at a waypoint on the ATS route and then requires VOR/DME or RNAV tracking to position the aircraft for the ARRIVAL route.
- 2.3. RNAV 1 equipped Arrivals to Chennai Airport will be cleared on the appropriate RNAV STARs by ATC.
- 2.4. All arriving aircraft are required to follow the appropriate TRANSITION and ARRIVAL routes for the RNAV STARS as follows:

ATS ROUTE	TRANSITION	TRANSITION ROUTE	RNAV STAR	REMARK
B211, W72	ANIRO	ANIRO-GUANI	GUANI ARRIVAL	
P574	OPAMO	OPAMO-ANIRO-GUANI		
A465 (Southbound)	DOKET	DOKET-HYDOK	HYDOK ARRIVAL	
V004, W47N	HITAS	HITAS-HYDOK		
W25, V007	TANGO	TANGO-RESMA-BACOM	BACOM ARRIVAL	
W114	RESMA	RESMA-BACOM		
W116	TEBAM	TEBAM- BACOM		
V003, V006, V008	AVGIR	AVGIR-GAVID	GAVID ARRIVAL	

TABLE 1

NOTE:

- West bound aircraft via P574, N571, and B466 landing at Chennai shall flight plan only via V006, V003 and V008 after GIRNA, IDASO & AVNOS respectively.
- South bound aircraft from HIA landing at Chennai shall flight plan only via V004.
- North bound aircraft via A465 landing at Chennai shall flight plan only via V007 after DABAR.

- 2.5. The following RNAV STARS along with the appropriate TRANSITION and ARRIVAL routes are available only when specifically authorized by Chennai ATC.

ATS ROUTE	TRANSITION	TRANSITION ROUTE	RNAV STAR	REMARKS
A465 (North bound), V005	AKMIL	AKMIL-ARDAB	ARDAB ARRIVAL	For RW 25, 30 only
A465 (North bound)	AKMIL	AKMIL-TRYCO	TRYCO ARRIVAL	
V005 , V007	TAPAS	TAPAS-TRYCO		
W25, V007	TANGO	TANGO-RESMA-BACOM	ACUBU ARRIVAL	For RW 30 only
W114	RESMA	RESMA-BACOM		
W116	TEBAM	TEBAM- BACOM		
V003, V006, V008	AVGIR	AVGIR-GAVID	RAAGA ARRIVAL	For RW 07 only

TABLE 2

NOTE:

1. West bound aircraft via P574, N571, and B466 landing at Chennai shall flight plan only via V006, V003 and V008 after GIRNA, IDASO & AVNOS respectively.
2. South bound aircraft from HIA landing at Chennai shall flight plan only via V004.
3. North bound aircraft via A465 landing at Chennai shall flight plan only via V007 after DABAR.

2.6. The following conditional STARs are available only when Tambaram VOR 183(A) is not active.

- a. TRYCO RNAV ARRIVAL
- b. ACUBU RNAV ARRIVAL
- c. RAAGA RNAV ARRIVAL

2.7. Additional elements on the STAR chart include the following:

- a. Vertical restrictions – designed to contain aircraft in controlled airspace and to separate aircraft from obstacles and to avoid, to the degree possible, conflict with departing aircraft.
- b. Speed restrictions – designed for flow control purposes.

2.8. At the end of the STARs, Arrivals can expect radar vectors to intercept the localizer for an ILS approach or Final approach Track for other available instrument approach.

2.9. STARs shall be issued by ATC in the following order:

- a. ARRIVAL identifier;
- b. TRANSITION identifier;
- c. Runway-in-use;
- d. An assigned level

Ex: <Call sign> Cleared to CHENNAI via GUANI ARRIVAL, ANIRO TRANSITION, RWY07, report for descent/maintain/descend to FL ONE ZERO ZERO.

3. RNAV HOLDING PROCEDURES

3.1. For the purpose of holding the arriving aircraft during period of congestion the following RNAV holding waypoints and their associated RNAV holding procedures are listed below:

Fix Ident	Lat-Long	Inbound course ° M (° T)	Leg Dist (NM)	Turn direction	Min altitude	Max altitude
ARDAB	122024.97N-0801916.82E	005.0° (003.2°)	10.0	RIGHT	FL90	FL180
BACOM	125055.08N-0793002.48E	071.1° (069.3°)	10.0	LEFT	FL90	FL180
GAVID	124819.72N-0804933.10E	291.7° (289.9°)	10.0	RIGHT	FL90	FL180
GUANI	132532.20N-0793853.33E	122.6° (120.9°)	10.0	RIGHT	FL90	FL180
HYDOK	133832.58N-0802020.02E	193.8° (192.1°)	10.0	LEFT	FL90	FL180
TRYCO*	122359.87N-0795155.70E	015.0° (013.2°)	10.0	RIGHT	FL90	FL180

TABLE 3

NOTE:

1. TRYCO RNAV holding available only when Tambaram VOR183 (A) is not active.
2. The maximum holding speed shall be 250 Kts (IAS).

3.2. RNAV holding for RNAV systems without holding functionality or for manual holding the outbound time is;

- a. 1min up to FL140 and
- b. 1.5 min above FL140

4. DEPARTURES

4.1. All departing aircraft shall normally be cleared by SMC (121.9 MHz) on the Appropriate RNAV (GNSS or DME/DME/IRU) SIDs before pushback or startup detailed in 4.2.

4.2. The RNAV (GNSS or DME/DME/IRU) SIDs along with appropriate Transitions and Airways are listed below:

ATS ROUTE	TRANSITION	TRANSITION ROUTE	RNAV SID	REMARKS
W115	KKP	COLTY-KKP	COLTY	RW 25,30
W25,V007	TANGO	COLTY-KKP-TANGO		
W115	XILAS	DAMAD-AKMIL-TANGO-XILAS	DAMAD	RW 07, 12, RW 25*
A465 (South bound)	DABAR	DAMAD-LOCSSO-DABAR		
V005	AKMIL	DAMAD-AKMIL		
N571,B466	DORAM	DOHIA-MM610-RAMDO-BOGRA-DORAM	DOHIA	
W20, W47N	BODEL	DOHIA-MM611-BODEL		
W115	KKP	ELPOX-KKP	ELPOX	RW 07
W117	XIVIL	HALCO-XIVIL	HALCO	
P574	GULAM	HALCO-XIVIL-TUPIN-GULAM		
A465 (North bound)	DOKET	KOLCA-POLOK-DOKET	KOLCA	
B466	AVNOS	OXENA-GETOR-AVNOS	OXENA	RW 07, 12 RW 25*, 30*
P574	GIRNA	OXENA-GETOR-GIRNA		
W115	LAXIK	PATTY-LAXIK	PATTY	RW 07*, 12*
W25	TANGO	PATTY-TANGO		
P574, B466	AVGIR	SIDAT-AVGIR	SIDAT	
N571	IDASO	SIDAT-BAROT-IDASO		

TABLE 4

NOTE:

1. RW xx* denotes RNAV SIDs available only when Tambaram VOR183 (A) is not active.
2. DAMAD SID shall not be issued to Departure on Airway W115 and V005 when RW 25 is in use.

- 4.3. A Transition will be issued by ATC in conjunction with the RNAV (GNSS or DME/DME/IRU) SID. For example a departure from Chennai to Mumbai via Airway B466 will be as below:

Ex: <Call sign> Cleared TO Mumbai via DOHIA Departure Transition DORAM, Airway B466, Flight Plan Route, maintain FL340 squawk 0234 On departure.

5. RADIO COMMUNICATIONS FAILURE PROCEDURES

5.1. Pilots of RNAV 1 equipped Arrival shall;

- a. When Arrival clearance has been received from ATC follow the RCF procedure corresponding to that STAR as mentioned in respective chart.
- b. When Arrival clearance has not been received from ATC follow the appropriate RNAV STAR corresponding to that route specified in 3.4 and the respective RCF procedure.

5.2. Pilots of RNAV 1 equipped Departure shall follow the RCF procedure corresponding to the RNAV SID as mentioned in respective chart.

5.3. Pilots of Non-RNAV 1 equipped aircraft shall follow the RCF procedures mentioned in AIP (INDIA), 6th Ed. ENR1.19.

6. COORDINATES OF SID/STAR WAYPOINTS (WGS84 DATUM)

No	Fix Identifier (Waypoint Name)	LATITUDE	LONGITUDE	RADIAL	DME
1.	ACUBU	125800.57N	0794923.10E	267.4	20.4
2.	AKMIL	115135.40N	0800654.60E	184.5	67.8
3.	ANIRO	140209.76N	0783630.20E	306.3	110.5
4.	ARDAB	122024.97N	0801916.82E	169.0	40.0
5.	AVGIR	123326.84N	0820041.18E	105.1	111.0
6.	AVNOS	114528.49N	0832135.13E	112.9	201.2
7.	BACOM	125055.08N	0793002.48E	259.4	40.2
8.	BAROT	125943.33N	0822337.60E	091.5	130.2
9.	BODEL	145830.51N	0792511.82E	341.6	126.2
10.	BOGRA	141747.50N	0784925.04E	316.6	110.7
11.	COLTY	125400.16N	0795547.71E	250.2	15.2
12.	DABAR	100000.55N	0800501.52E	183.4	178.9
13.	DAMAD	123741.58N	0802146.51E	154.4	24.6
14.	DOHIA	131229.96N	0800904.74E	356.7	12.9
15.	DOKET	153324.41N	0815024.71E	034.0	181.4
16.	DORAM	154304.30N	0772055.80E	316.8	231.3
17.	ELPOX	130432.80N	0794809.09E	284.7	22.1
18.	FANER	131051.77N	0800412.86E	334.1	12.7
19.	GANAN	124044.09N	0795557.64E	218.4	23.4
20.	GAVID	124819.72N	0804933.10E	108.0	40.0
21.	GETOR	114535.92N	0822337.68E	121.0	149.9
22.	GIRNA	113505.50N	0831853.10E	115.9	202.9
23.	GUANI	132532.20N	0793853.33E	312.0	40.0
24.	GULAM	150819.40N	0755956.40E	300.1	275.0
25.	HALCO	131125.50N	0792020.19E	285.5	50.1
26.	HITAS	153435.92N	0795652.77E	357.0	154.9
27.	HYDOK	133832.58N	0802020.02E	016.0	40.0

No	Fix Identifier (Waypoint Name)	LATITUDE	LONGITUDE	RADIAL	DME
28.	IDASO	123935.30N	0833323.00E	097.1	199.5
29.	KKP	124715.10N	0794244.73E	247.2	29.5
30.	KOLCA	131821.47N	0802558.70E	041.2	24.2
31.	LAXIK	123009.32N	0792713.09E	237.0	51.3
32.	LOC SO	103052.65N	0801652.59E	179.3	148.2
33.	METEM	124355.64N	0800501.04E	199.9	16.4
34.	MM501	125315.26N	0801052.66E	176.2	6.4
35.	MM502	125230.31N	0800848.88E	192.9	7.2
36.	MM503	130318.59N	0800315.17E	300.2	07.8
37.	MM504	130420.01N	0801639.04E	054.8	007.8
38.	MM505	130754.57N	0801547.72E	035.0	09.9
39.	MM506	125710.04N	0795948.75E	258.4	10.5
40.	MM507	125828.36N	0795725.28E	266.7	12.6
41.	MM508	131408.05N	0801356.53E	015.8	14.9
42.	MM509	124816.42N	0802030.67E	140.1	15.1
43.	MM510	131023.30N	0802210.62E	049.1	15.8
44.	MM511	131238.73N	0800049.67E	326.5	15.9
45.	MM512	125916.46N	0802641.43E	092.9	16.1
46.	MM513	125933.37N	0795325.96E	271.7	16.4
47.	MM514	124815.32N	0795743.51E	229.1	16.6
48.	MM515	131536.91N	0795510.95E	319.1	21.7
49.	MM516	130313.50N	0794823.82E	281.4	21.6
50.	MM601	130336.29N	0800747.36E	330.8	4.7
51.	MM602	130049.51N	0801533.89E	078.6	5.3
52.	MM603	130611.64N	0801117.83E	010.7	6.6
53.	MM604	125552.27N	0801812.93E	117.3	8.6
54.	MM605	130419.55N	0800128.79E	300.6	9.8
55.	MM606	125129.14N	0800249.79E	223.7	10.9
56.	MM607	124825.61N	0801748.17E	148.2	13.4
57.	MM608	124437.41N	0801111.51E	178.2	14.9
58.	MM609	125201.63N	0802559.50E	117.9	17.1

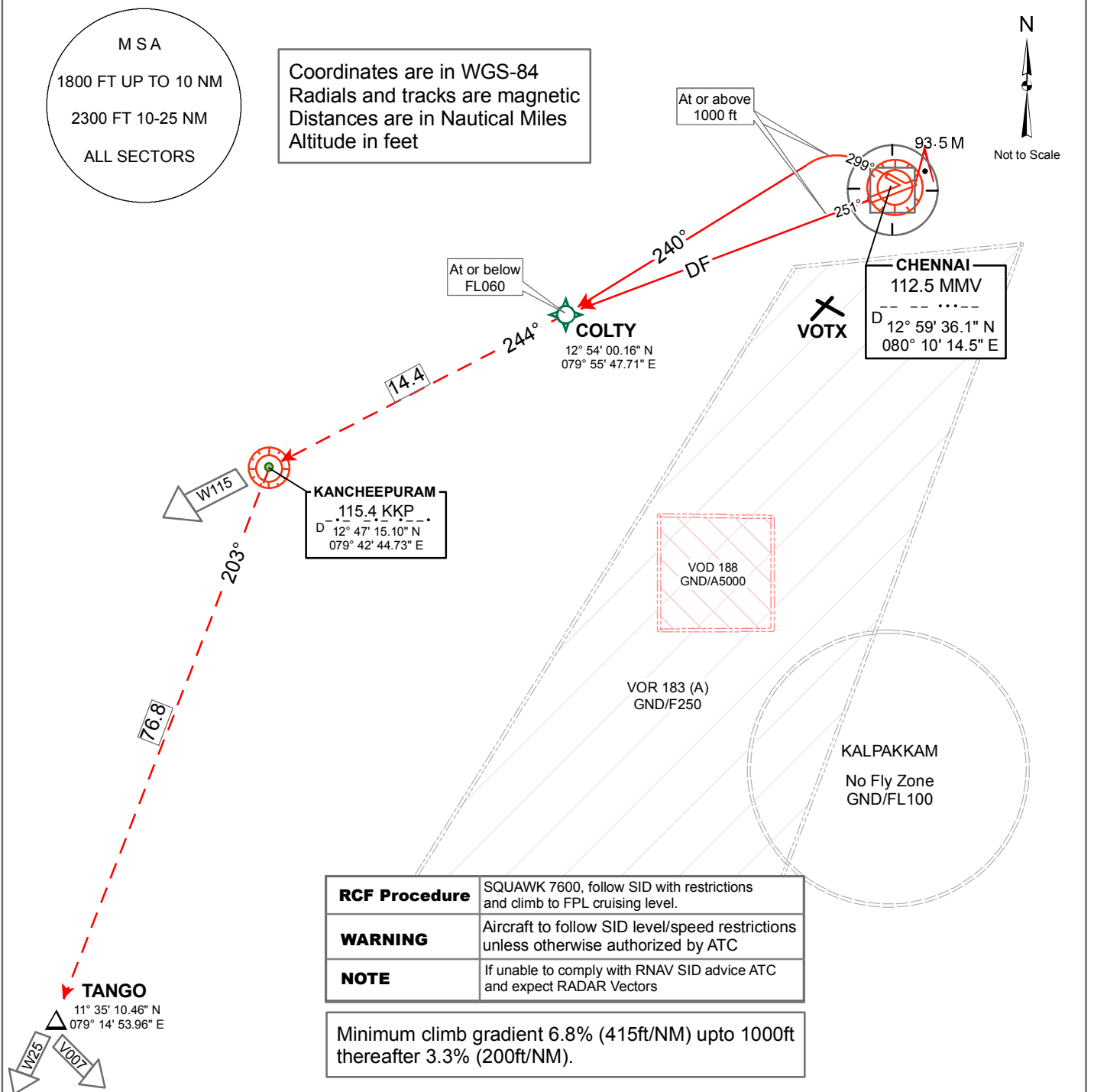
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59.	MM610	131729.28N	0800446.56E	345.1	18.6
60.	MM611	131855.46N	0800841.51E	357.3	19.3
61.	MM612	130933.80N	0795139.76E	300.5	20.7
62.	MM613	130431.12N	0803118.76E	078.4	21.1
63.	MM614	123816.60N	0794856.97E	226.2	29.7
64.	OPAMO	143534.60N	0770525.90E	300.1	203.6
65.	OXENA	122347.79N	0805906.62E	128.4	59.6
66.	PATTY	123343.12N	0793601.25E	234.2	42.2
67.	POLOK	150815.34N	0815049.45E	038.9	161.1
68.	RAAGA	125850.76N	0802532.91E	094.6	15.0
69.	RADAB	125003.36N	0802206.76E	131.1	15.0
70.	RAMDO	133410.98N	0794750.66E	329.4	40.8
71.	RESMA	123255.97N	0792059.50E	243.0	55.0
72.	SIDAT	130745.98N	0805011.82E	079.9	39.8
73.	TANGO	113510.46N	0791453.96E	214.7	100.0
74.	TAPAS	111804.21N	0792356.99E	206.0	110.8
75.	TEBAM	125758.06N	0782751.29E	271.0	100.0
76.	TRYCO	122359.87N	0795155.70E	208.6	39.7
77.	TUPIN	135718.46N	0775132.61E	295.1	146.9
78.	WISAT	130640.50N	0801239.26E	020.3	7.4
79.	XILAS	113105.50N	0783355.30E	228.9	129.1
80.	XIVIL	131739.68N	0785509.64E	285.7	75.4

COLTY RNAV DEPARTURE

RWY 25, 30

RNAV₁(GNSS or DME/DME/IRU)

AD Elev. 52'	SMC / TWR	121.9 / 118.1
Trans Alt 4000'	APP	127.9 / 124.45
	ACC	118.9 / 125.3
VAR 1° 45' W (1995)	DATIS	127.45

RADAR REQUIRED

ROUTE DESCRIPTION			Fix Identifier (Waypoint Name)	DEGREE, MINUTES & SECONDS		MMV	
Take off RWY	ROUTING			LATITUDE	LONGITUDE	RADIAL	DME
25	[HDG M251, A1000+] → COLTY [F060-]		COLTY	125400.16N	0795547.71E	250.2	15.2
30	[HDG M299, A1000+] - COLTY [M240; F060-]		KKP	124715.10N	0794244.73E	247.2	29.5
TRANSITION	ROUTING	AIRWAY					
TANGO	COLTY[F060-] – KKP [L]- TANGO	W25/V007	TANGO	113510.46N	0791453.96E	214.7	100.0
KKP	COLTY[F060-] – KKP	W115					

TABULAR DESCRIPTION**COLTY RNAV DEPARTURE**

Path Descriptor	Fix Identifier (Waypoint Name)	Fly Over	Course °M (° T)	Turn Direction	Altitude	Speed Limit (kts)	Distance (NM)
Rwy Transition Data 25							
VA		-	HDG 250.8(249.0)	-	A1000+	-	-
DF	COLTY	-	-	-	F060-	-	-
Rwy Transition Data 30							
VA		-	HDG 299.4(297.6)	-	A1000+	-	-
CF	COLTY	-	240.0(238.2)	L	F060-	-	-
Enroute Transition Data KKP							
IF	COLTY	-	-	-	F060-	-	-
TF	KKP	-	244.0(242.2)	-	-	-	14.4
Enroute Transition Data TANGO							
IF	COLTY	-	-	-	F060-	-	-
TF	KKP	-	244.0(242.2)	-	-	-	14.4
TF	TANGO	-	202.6(200.9)	L	-	-	76.8

DAMAD RNAV DEPARTURE

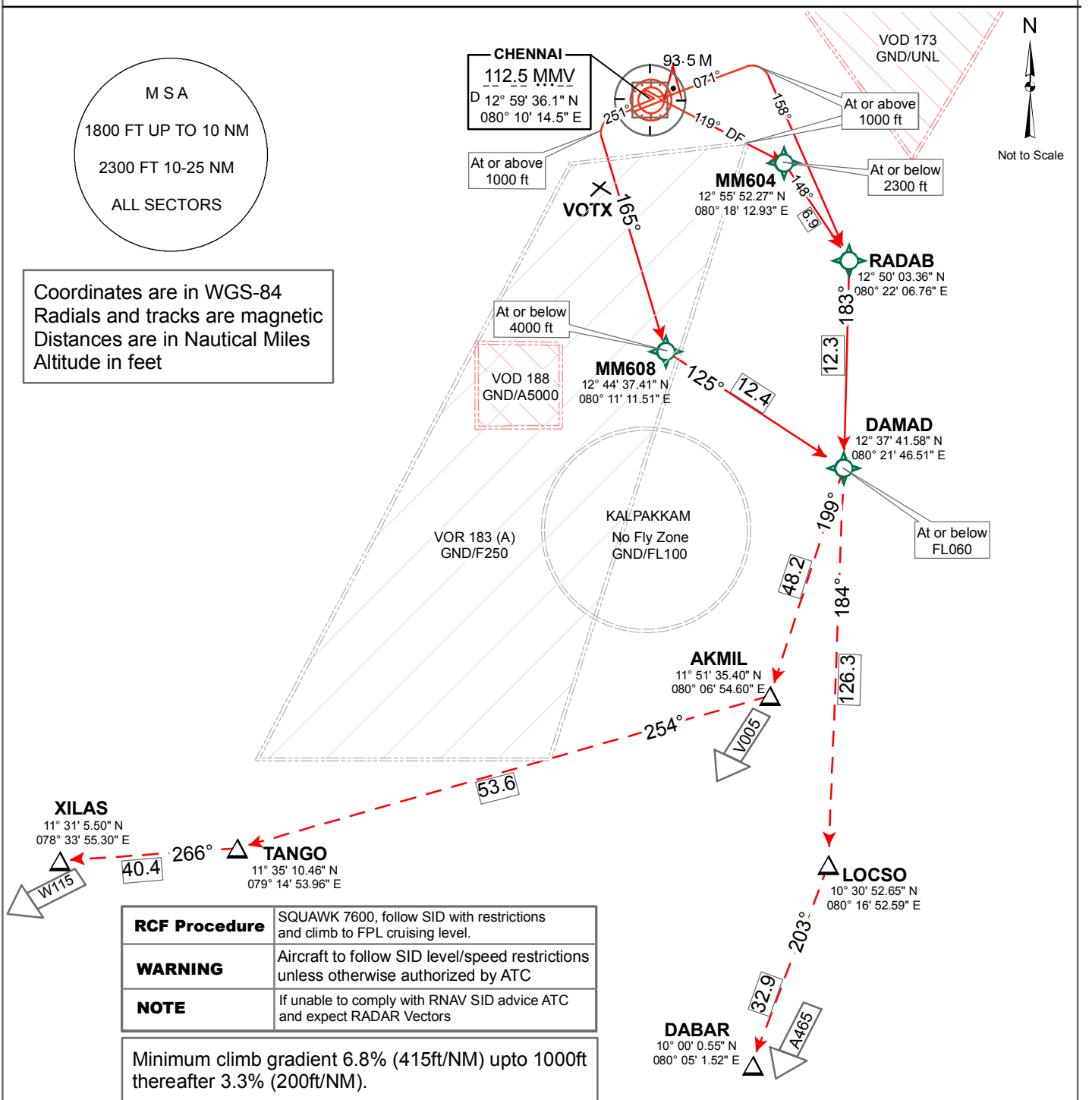
RWY 07, 12, 25*

RNAV₁ (GNSS or DME/DME/IRU)

[* Conditional SID - Avbl when VOR 183(A) Not active]

RADAR REQUIRED

AD Elev. 52'	SMC / TWR	121.9 / 118.1
Trans Alt 4000'	APP	127.9 / 124.45
	ACC	118.9 / 125.3
VAR 1° 45' W (1995)	DATIS	127.45



ROUTE DESCRIPTION		
Take off RWY	ROUTING	
07	[HDG M071, A1000+, R] - RADAB [M158,R]-DAMAD[F060-]	
12	[HDG M119, A1000+] → MM604[A2300-,R] - RADAB[R] - DAMAD[F060-]	
25*	[HDG M251, A1000+,L] - MM608[M165;A4000-,L] - DAMAD[F060-]	
TRANSITION	ROUTING	AIRWAY
XILAS	DAMAD[F060-] - AKMIL[R] - TANGO[R] - XILAS	W115
DABAR	DAMAD[F060-] - LOC SO[R] - DABAR	A465
AKMIL	DAMAD[F060-] - AKMIL	V005

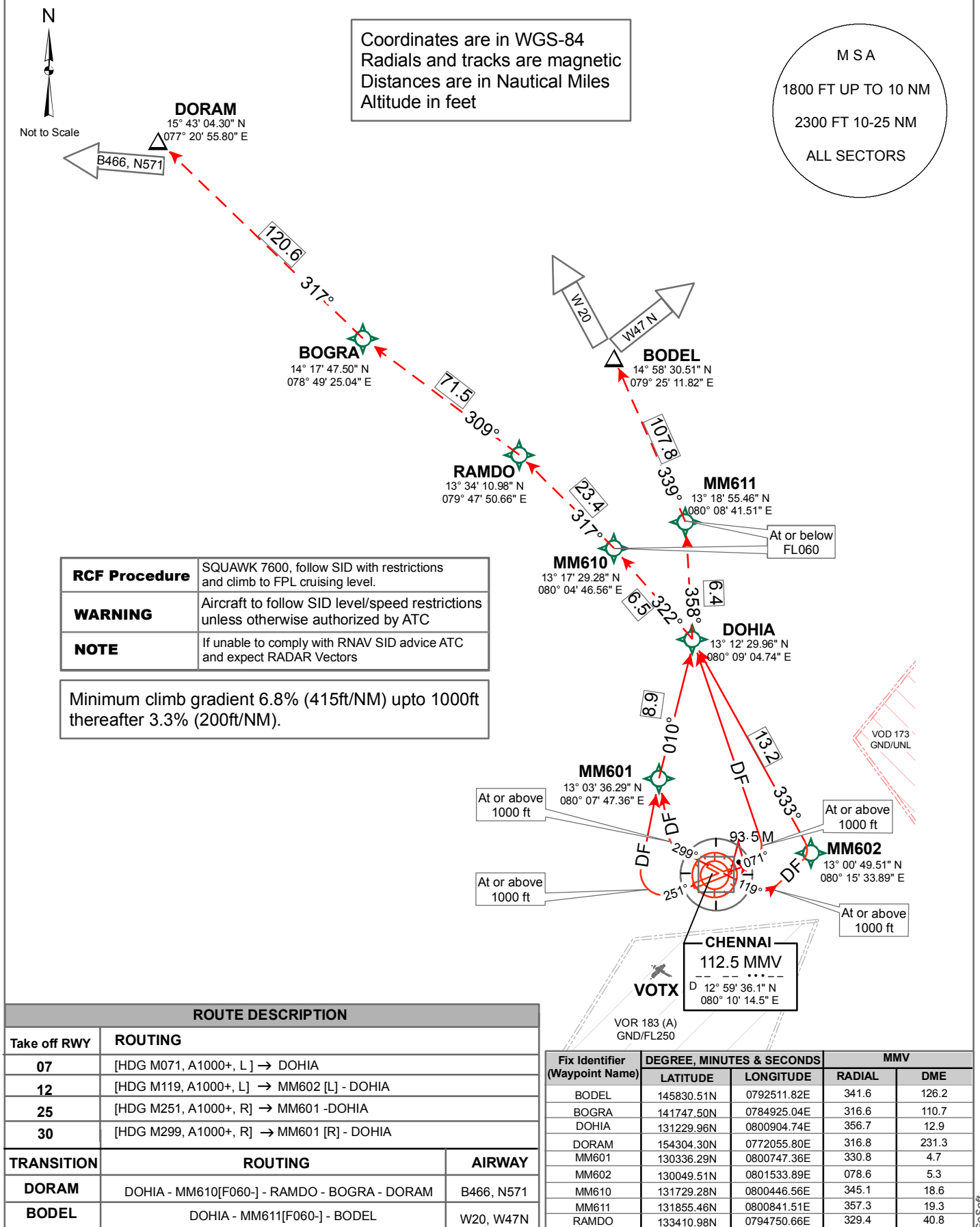
Fix Identifier (Waypoint Name)	DEGREE, MINUTES & SECONDS		MMV	
	LATITUDE	LONGITUDE	RADIAL	DME
AKMIL	115135.40N	0800654.60E	184.5	67.8
DABAR	100000.55N	0800501.52E	183.4	178.9
DAMAD	123741.58N	0802146.51E	154.4	24.6
LOC SO	103052.65N	0801652.59E	179.3	148.2
MM604	125552.27N	0801812.93E	117.3	8.6
MM608	124437.41N	0801111.51E	178.2	14.9
RADAB	125003.36N	0802206.76E	131.1	15.0
TANGO	113510.46N	0791453.96E	214.7	100.0
XILAS	113105.50N	0783355.30E	228.9	129.1

TABULAR DESCRIPTION**DAMAD RNAV DEPARTURE**

Path Descriptor	Fix Identifier (Waypoint Name)	Fly Over	Course °M (° T)	Turn Direction	Altitude	Speed Limit (kts)	Distance (NM)
Rwy Transition Data 07							
VA		-	HDG 070.8(069.0)	-	A1000+	-	-
CF	RADAB	-	158.1(156.3)	R	-	-	-
TF	DAMAD	-	183.3(181.5)	R	F060-	-	12.3
Rwy Transition Data 12							
VA		-	HDG 119.4(117.6)	-	A1000+	-	-
DF	MM604	-	119.4(117.6)	-	A2300-	-	-
TF	RADAB	-	148.5(146.7)	R	-	-	06.9
TF	DAMAD	-	183.3(181.5)	R	F060-	-	12.3
Rwy Transition Data 25(Conditional)							
VA		-	HDG 250.8(249.0)	-	A1000+	-	-
CF	MM608	-	165.0(163.2)	L	A4000-	-	-
TF	DAMAD	-	125.5(123.7)	L	F060-	-	12.4
Enroute Transition Data XILAS							
IF	DAMAD	-	-	-	-	-	-
TF	AKMIL	-	199.4(197.6)	-	-	-	48.2
TF	TANGO	-	254.1(252.3)	R	-	-	53.6
TF	XILAS	-	266.1(264.3)	R	-	-	40.4
Enroute Transition Data DABAR							
IF	DAMAD	-	-	-	-	-	-
TF	LOCSO	-	184.0(182.2)	-	-	-	126.3
TF	DABAR	-	202.6(200.8)	R	-	-	32.9
Enroute Transition Data AKMIL							
IF	DAMAD	-	-	-	-	-	-
TF	AKMIL	-	199.4(197.6)	-	-	-	48.2

DOHIA RNAV DEPARTURERWY 07, 12, 25, 30
RNAV1_(GNSS or DME/DME/IRU)

AD Elev. 52'	SMC / TWR	121.9 / 118.1
Trans Alt 4000'	APP	127.9 / 124.45
	ACC	118.9 / 125.3
VAR 1° 45' W (1995)	DATIS	127.45

RADAR REQUIRED

TABULAR DESCRIPTION**DOHIA RNAV DEPARTURE**

Path Descriptor	Fix Identifier (Waypoint Name)	Fly Over	Course °M (° T)	Turn Direction	Altitude	Speed Limit (kts)	Distance (NM)
Rwy Transition Data 07							
VA		-	HDG 070.8(069.0)	-	A1000+	-	-
DF	DOHIA	-	-	L	-	-	-
Rwy Transition Data 12							
VA		-	HDG 119.4(117.6)	-	A1000+	-	-
DF	MM602	-	-	L	-	-	-
TF	DOHIA	-	333.2(331.4)	L	-	-	13.2
Rwy Transition Data 25							
VA		-	HDG 250.8(249.0)	-	A1000+	-	-
DF	MM601	-	-	R	-	-	-
TF	DOHIA	-	009.9(008.1)	-	-	-	8.9
Rwy Transition Data 30							
VA		-	HDG 299.4(297.6)	-	A1000+	-	-
DF	MM601	-	-	R	-	-	-
TF	DOHIA	-	009.9(008.1)	R	-	-	8.9
Enroute Transition Data DORAM							
IF	DOHIA	-	-	-	-	-	-
TF	MM610	-	321.6(319.8)	-	F060-	-	6.5
TF	RAMDO	-	317.0(315.2)	-	-	-	23.4
TF	BOGRA	-	309.3(307.5)	L	-	-	71.5
TF	DORAM	-	316.7(315.0)	R	-	-	120.6
Enroute Transition Data BODEL							
IF	DOHIA	-	-	-	-	-	-
TF	MM611	-	358.4(356.6)	-	F060-	-	06.4
TF	BODEL	-	338.8(337.0)	L	-	-	107.8

AD Elev. 52' Trans Alt 4000' VAR 1° 45' W (1995)	SMC / TWR	121.9 / 118.1
	APP	127.9 / 124.45
	ACC	118.9 / 125.3
	DATIS	127.45

M S A

1800 FT UP TO 10 NM
2300 FT 10-25 NM
ALL SECTORS

KANCHEEPURAM
115.4 KKP
D 12° 47' 15.10" N
079° 42' 44.73" E

ELPOXT
13° 04' 32.80" N
079° 48' 09.09" E
At or below FL060

RCF Procedure	SQUAWK 7600, follow SID with restrictions and climb to FPL cruising level.
WARNING	Aircraft to follow SID level/speed restrictions unless otherwise authorized by ATC
NOTE	If unable to comply with RNAV SID advice ATC and expect RADAR Vectors

Minimum climb gradient 6.8% (415ft/NM) upto 1000ft thereafter 3.3% (200ft/NM).

CHENNAI
112.5 MMV
D 12° 59' 36.1" N
080° 10' 14.5" E

FANER
13° 10' 51.77" N
080° 04' 12.86" E

MM603
13° 06' 11.64" N
080° 11' 17.83" E

VOD 173 GND/UNL

VOR 183 (A)
GND/FL250

VOTX

At or above 1000 ft

Not to Scale

N

Coordinates are in WGS-84
Radials and tracks are magnetic
Distances are in Nautical Miles
Altitude in feet

Fix Identifier (Waypoint Name)	DEGREE, MINUTES & SECONDS		MMV	
	LATITUDE	LONGITUDE	RADIAL	DME
ELPOX	130432.80N	0794809.09E	284.7	22.1
FANER	131051.77N	0800412.86E	334.1	12.7
KKP	124715.10N	0794244.73E	247.2	29.5
MM603	130611.64N	0801117.83E	010.7	6.6

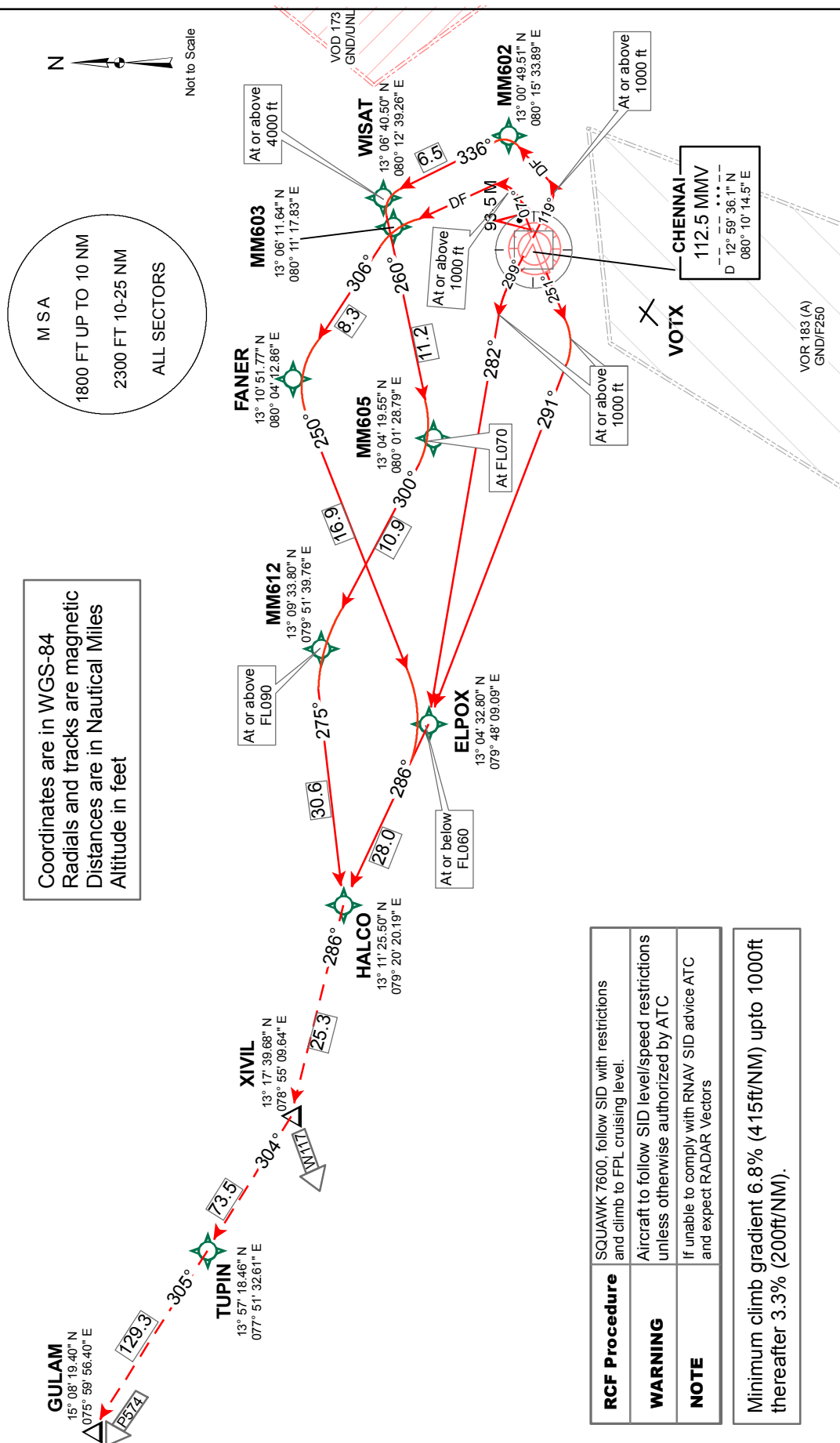
ROUTE DESCRIPTION		
Take off RWY	ROUTING	
07	[HDG M071, A1000+, L] - MM603 [M343, L] - FANER [L] ELPOX [F060 -]	
TRANSITION	ROUTING	AIRWAY
KKP	ELPOX-KKP	W115

TABULAR DESCRIPTION**ELPOX RNAV DEPARTURE**

Path Descriptor	Fix Identifier (Waypoint Name)	Fly Over	Course °M (° T)	Turn Direction	Altitude	Speed Limit (kts)	Distance (NM)
wy Transition Data 07							
VA		-	HDG 070.8(069.0)	-	A1000+	-	-
CF	MM603	-	343.0(341.2)	L	-	-	-
TF	FANER	-	305.7(303.9)	L	-	-	8.3
TF	ELPOX	-	250.0(248.2)	L	F060-	-	16.9
Enroute Transition Data KKP							
IF	ELPOX	-	-	-	F60-	-	-
TF	KKP	-	198.8(197.1)	-	-	-	18.0

RWY 07, 12, 25, 30
RNAV1_(GNSS or DME/DME/IRU)

RADAR REQUIRED



Fix Identifier (Waypoint Name)	DEGREE, MINUTES & SECONDS			MMV
	LATITUDE	LONGITUDE	RADIAL	
ELPOX	130432.80N	0794809.09E	284.7	22.1
FANER	131051.77N	0800412.88E	334.1	12.7
GULAM	150819.40N	0759566.40E	300.1	275.0
HALCO	131125.50N	0792020.19E	285.5	50.1
MM602	130049.51N	0801533.89E	078.6	5.3
MM603	130611.64N	0801117.83E	010.7	6.6
MM605	130419.55N	0800128.79E	300.6	9.8
MM612	130933.80N	07956139.76E	300.5	20.7
TUPIN	135718.46N	0775132.61E	295.1	146.9
WISAT	130640.50N	0801239.26E	020.3	7.4
XVIL	131739.68N	0785509.64E	285.7	75.4

Take off RWY		ROUTING	ROUTE DESCRIPTION
07		[HDG M071, 1000+,L] → MM603[L] - FANER[L] - ELPOX[F060 - R] - HALCO	
12		[HDG M119, A1000+,L] → MM602[L] - WISAT[A4000+,L] - MM605[F070 ,R] - MM612[F090+,L] - HALCO	
25		[HDG M251, A1000+,R] - ELPOX[M291,F60-,L] - HALCO	
30		[HDG M299, A1000+,L] - ELPOX[M282,F60-,R] - HALCO	
TRANSITION		ROUTING	AIRWAY
XIVIL		HALCO - XIVIL	W117
GULAM		HALCO - XIVIL - TUPIN - GULAM	P574

GoSoft

TABULAR DESCRIPTION**HALCO RNAV DEPARTURE**

Path Descriptor	Fix Identifier (Waypoint Name)	Fly Over	Course °M (° T)	Turn Direction	Altitude	Speed Limit (kts)	Distance (NM)
Rwy Transition Data 07							
VA		-	HDG 070.8(069.0)	-	A1000+	-	-
CF	MM603	-	343.0(341.2)	L	-	-	-
TF	FANER	-	305.7(303.9)	L	-	-	8.3
TF	ELPOX	-	250.0(248.2)	L	F060-	-	16.9
TF	HALCO	-	286.0(284.2)	R	-	-	28.0
Rwy Transition Data 12							
VA		-	HDG 119.4(117.6)	-	A1000+	-	-
DF	MM602	-	-	L	-	-	-
TF	WISAT	-	335.8(334.0)	L	A4000+	-	6.5
TF	MM605	-	259.7(257.9)	L	F070	-	11.2
TF	MM612	-	300.4(298.6)	R	F090+	-	10.9
TF	HALCO	-	275.3(273.5)	L	-	-	30.6
Rwy Transition Data 25							
VA		-	HDG 250.8(249.0)	-	A1000+	-	-
CF	ELPOX	-	291.0(289.2)	R	F060-	-	-
TF	HALCO	-	286.0(284.2)	L	-	-	28.0
Rwy Transition Data 30							
VA		-	HDG 299.4(297.6)	-	A1000+	-	-
CF	ELPOX	-	281.6(279.8)	L	F060-	-	-
TF	HALCO	-	286.0(284.2)	R	-	-	28.0

TABULAR DESCRIPTION**HALCO RNAV DEPARTURE**

Enroute Transition Data XIVIL							
IF	HALCO	-	-	-	-	-	-
TF	XIVIL	-	286.0(284.2)	-	-	-	25.3
Enroute Transition Data GULAM							
IF	HALCO	-	-	-	-	-	-
TF	XIVIL	-	286.0(284.2)	-	-	-	25.3
TF	TUPIN	-	304.4(302.6)	R	-	-	73.5
TF	GULAM	-	305.2(303.4)	-	-	-	129.3

AD Elev. 52'	SMC / TWR	121.9 / 118.1
Trans Alt 4000'	APP	127.9 / 124.45
	ACC	118.9 / 125.3
VAR 1° 45' W (1995)	DATIS	127.45

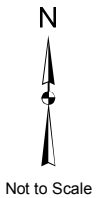
KOLCA RNAV DEPARTURE

RWY 07, 12, 25, 30
RNAV1_(GNSS or DME/DME/IRU)

RADAR REQUIRED

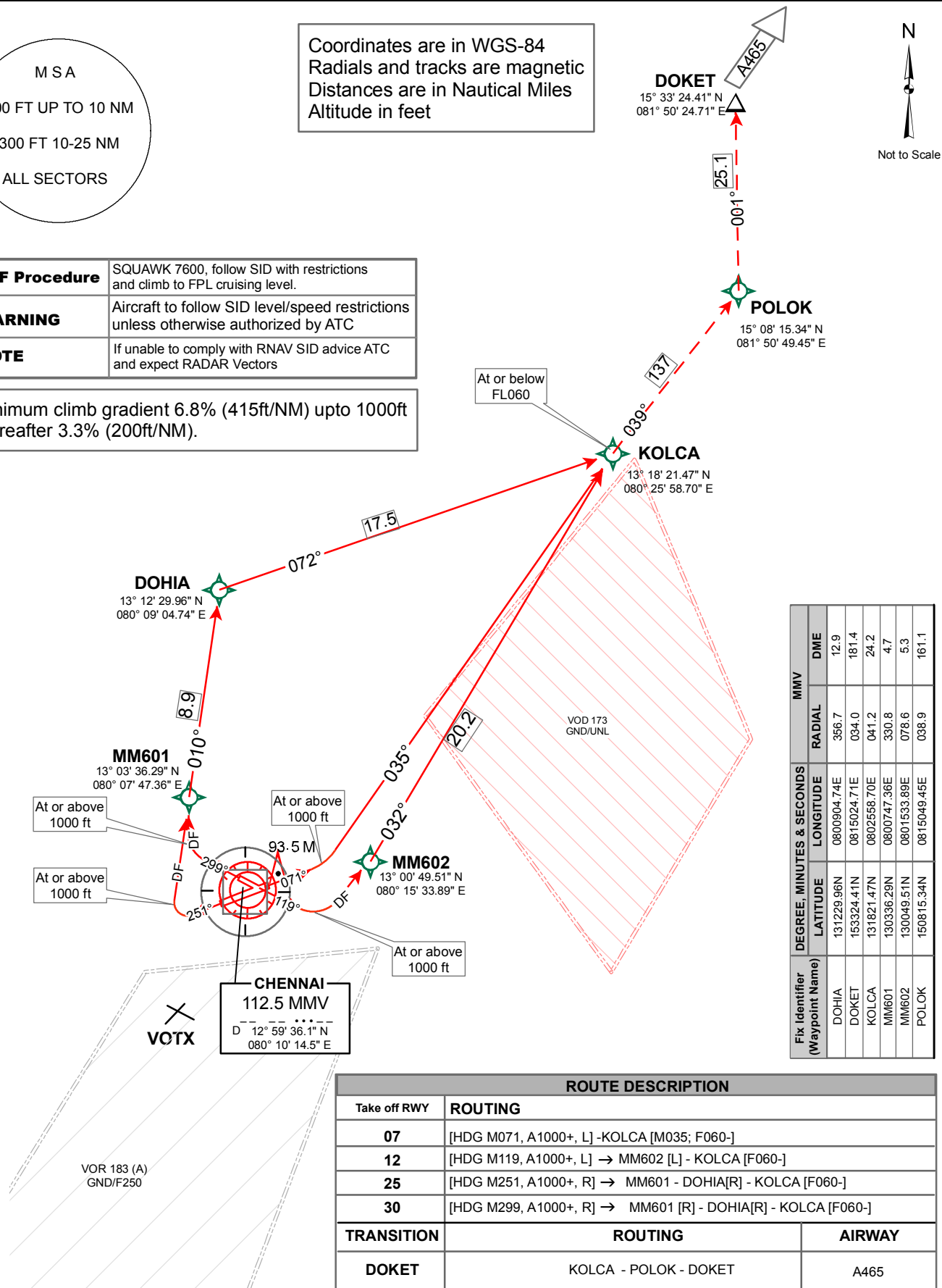
MSA
1800 FT UP TO 10 NM
2300 FT 10-25 NM
ALL SECTORS

Coordinates are in WGS-84
Radials and tracks are magnetic
Distances are in Nautical Miles
Altitude in feet



RCF Procedure	SQUAWK 7600, follow SID with restrictions and climb to FPL cruising level.
WARNING	Aircraft to follow SID level/speed restrictions unless otherwise authorized by ATC
NOTE	If unable to comply with RNAV SID advice ATC and expect RADAR Vectors

Minimum climb gradient 6.8% (415ft/NM) upto 1000ft thereafter 3.3% (200ft/NM).



TABULAR DESCRIPTION**KOLCA RNAV DEPARTURE**

Path Descriptor	Fix Identifier (Waypoint Name)	Fly Over	Course °M (° T)	Turn Direction	Altitude	Speed Limit (kts)	Distance (NM)
Rwy Transition Data 07							
VA		-	HDG 070.8(069.0)	-	A1000+	-	-
CF	KOLCA	-	035.0(033.2)	L	F060-	-	-
Rwy Transition Data 12							
VA		-	HDG 119.4(117.6)	-	A1000+	-	-
DF	MM602	-	-	L	-	-	-
TF	KOLCA	-	032.0(030.2)	L	F060-	-	20.2
Rwy Transition Data 25							
VA		-	HDG 250.8(249.0)	-	A1000+	-	-
DF	MM601	-	-	R	-	-	-
TF	DOHIA	-	009.9(008.1)	-	-	-	8.9
TF	KOLCA	-	072.3(070.5)	R	F060-	-	17.5
Rwy Transition Data 30							
VA		-	HDG 299.4(297.6)	-	A1000+	-	-
DF	MM601	-	-	R	-	-	-
TF	DOHIA	-	009.9(008.1)	R	-	-	8.9
TF	KOLCA	-	072.3(070.5)	R	F060-	-	17.5
Enroute Transition Data DOKET							
IF	KOLCA	-	-	-	-	-	-
TF	POLOK	-	038.6(036.8)	-	-	-	137.0
TF	DOKET	-	000.9(359.1)	L	-	-	25.1

AD Elev. 52' Trans Alt 4000'	SMC / TWR	121.9 / 118.1
	APP	127.9 / 124.45
	ACC	118.9 / 125.3
	DATIS	127.45
VAR 1° 45' W (1995)		

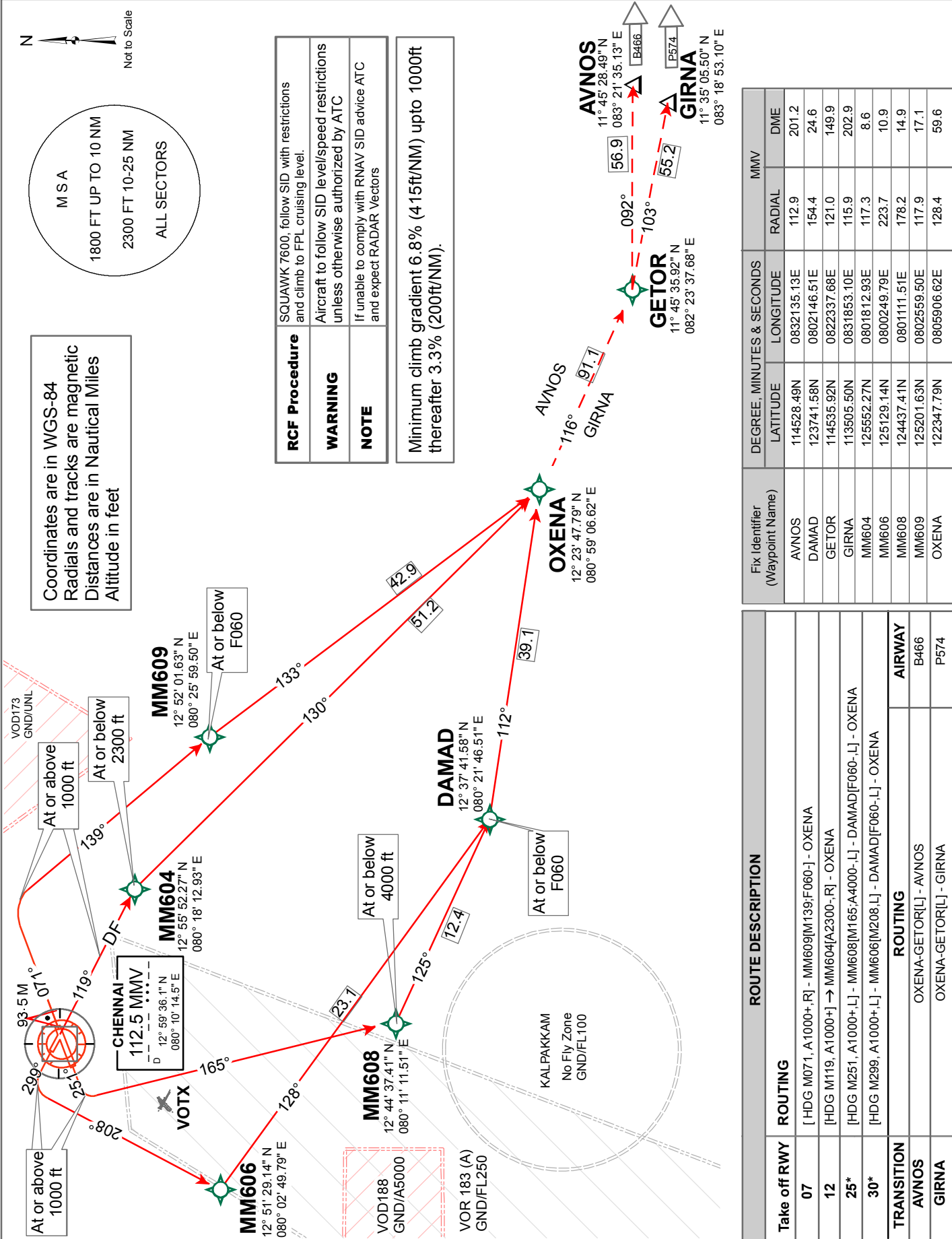
OXENA RNAV DEPARTURE

RWY 07, 12, 25*, 30*

RNAV1_(GNSS or DME/DME/IRU)

[* Conditional SIDs - Avbl when VOR 183(A) Not active]

RADAR REQUIRED



TABULAR DESCRIPTION**OXENA RNAV DEPARTURE**

Path Descriptor	Fix Identifier (Waypoint Name)	Fly Over	Course °M (° T)	Turn Direction	Altitude	Speed Limit (kts)	Distance (NM)
Rwy Transition Data 07							
VA		-	HDG 070.8(069.0)	-	A1000+	-	-
CF	MM609	-	139.4(137.7)	R	F060-	-	-
TF	OXENA	-	132.7(130.9)	L	-	-	42.9
Rwy Transition Data 12							
VA		-	HDG 119.4(117.6)	-	A1000+	-	-
DF	MM604	-	119.4(117.6)	-	A2300-	-	-
TF	OXENA	-	130.3(128.5)	R	-	-	51.2
Rwy Transition Data 25 (Conditional)							
VA	-	-	HDG 250.8(249.0)	-	A1000+	-	-
CF	MM608	-	165.0(163.2)	L	A4000-	-	-
TF	DAMAD	-	125.5(123.7)	L	F060-	-	12.4
TF	OXENA	-	112.5(110.7)	L	-	-	39.1
Rwy Transition Data 30 (Conditional)							
VA		-	HDG 299.4(297.6)	-	A1000+	-	-
CF	MM606	-	208.0(206.2)	L	-	-	-
TF	DAMAD	-	128.3(126.5)	L	F060-	-	23.1
TF	OXENA	-	112.5(110.7)	L	-	-	39.1
Enroute Transition Data AVNOS							
IF	OXENA	-	-	-	-	-	-
TF	GETOR	-	116.3(114.5)	-	-	-	91.1
TF	AVNOS	-	091.8(090.0)	L	-	-	56.9
Enroute Transition Data GIRNA							
IF	OXENA	-	-	-	-	-	-
TF	GETOR	-	116.3(114.5)	-	-	-	91.1
TF	GIRNA	-	102.6(100.8)	L	-	-	55.2

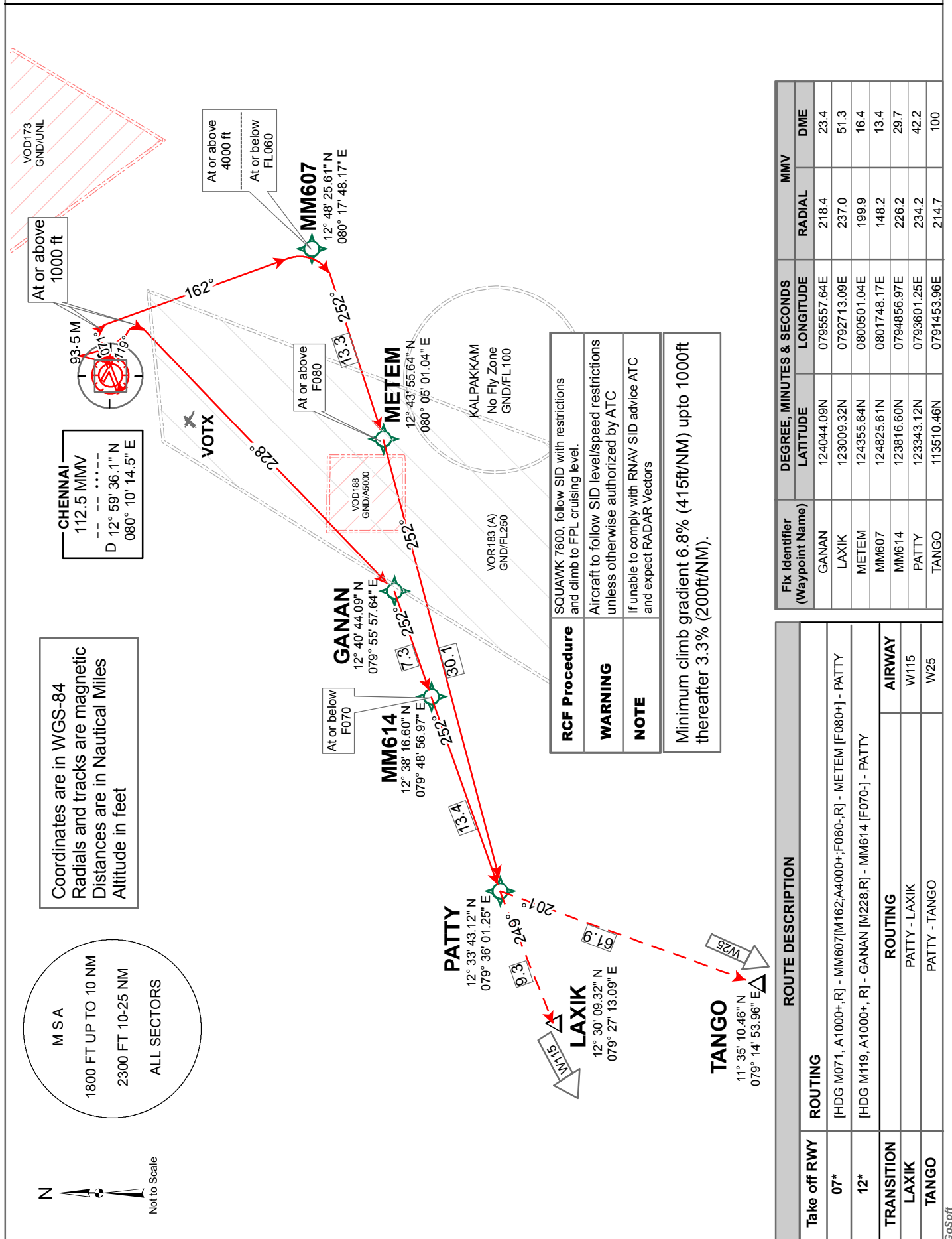
PATTY RNAV DEPARTURE

RWY 07*, 12*

RNAV₁(GNSS or DME/DME/IRU)

[* Conditional SIDs - Avbl when VOR 183(A) Not active]

AD Elev. 52'	SMC / TWR	121.9 / 118.1
Trans Alt 4000'	APP	127.9 / 124.45
	ACC	118.9 / 125.3
VAR 1° 45' W (1995)	DATIS	127.45

RADAR REQUIRED

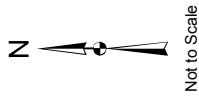
TABULAR DESCRIPTION**PATTY RNAV DEPARTURE**

Path Descriptor	Fix Identifier (Waypoint Name)	Fly Over	Course °M (° T)	Turn Direction	Altitude	Speed Limit (kts)	Distance (NM)
Rwy Transition Data 07 (Conditional)							
VA	-	-	HDG 070.8(069.0)	-	A1000+	-	-
CF	MM607	-	162.0(160.2)	R	A4000+; F060-	-	-
TF	METEM	-	252.1(250.3)	R	F080+	-	13.3
TF	PATTY	-	252.1(250.3)	-	-	-	30.1
Rwy Transition Data 12 (Conditional)							
VA		-	HDG 119.4(117.6)	-	A1000+	-	-
CF	GANAN	-	228.0(226.2)	R	-	-	-
TF	MM614	-	252.1(250.4)	R	F070-	-	7.3
TF	PATTY	-	252.1(250.3)	-	-	-	13.4
Enroute Transition Data – LAXIK							
IF	PATTY	-	-	-	-	-	-
TF	LAXIK	-	249.4(247.6)	-	-	-	9.3
Enroute Transition Data –TANGO							
IF	PATTY	-	-	-	-	-	-
TF	TANGO	-	201.4(199.6)	-	-	-	61.9

AD Elev. 52' Trans Alt 4000'	SMC / TWR	121.9 / 118.1
	APP	127.9 / 124.45
	ACC	118.9 / 125.3
	DATIS	127.45
VAR 1° 45' W (1995)		

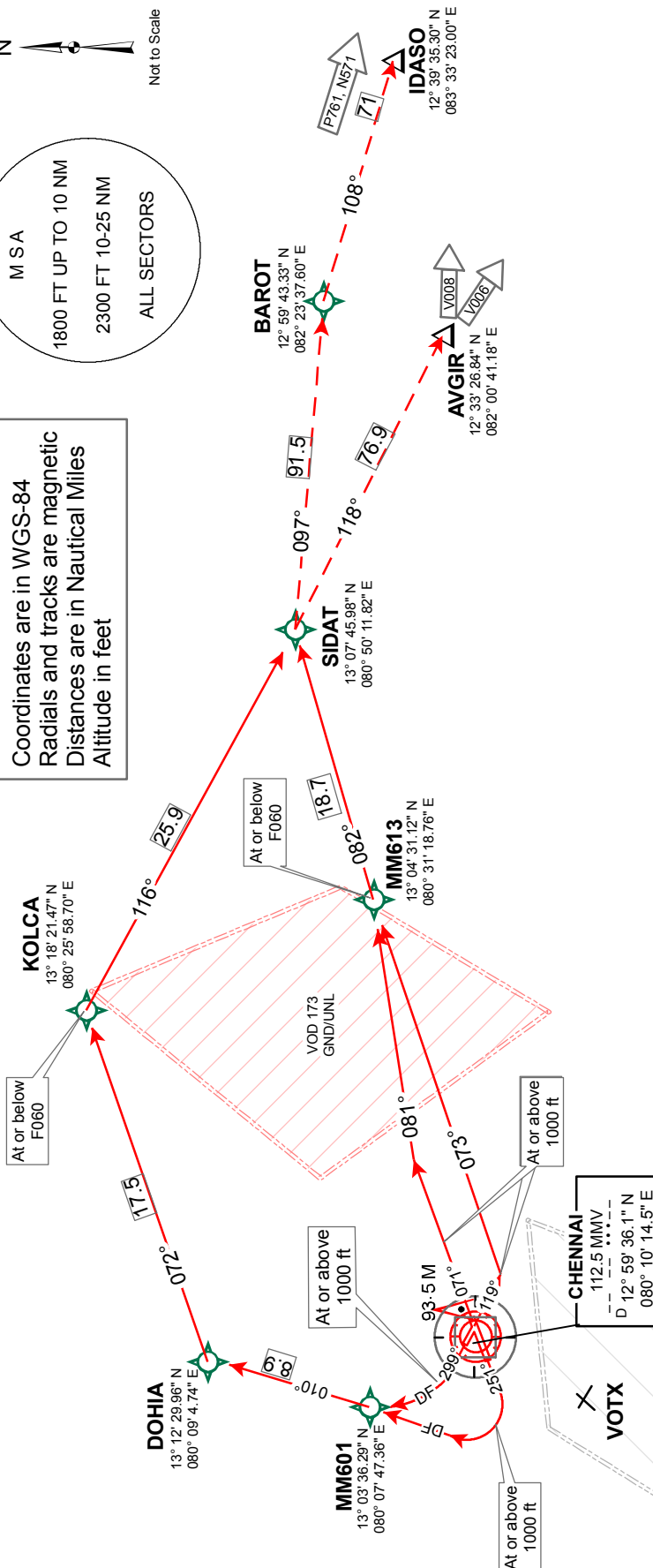
SIDAT RNAV DEPARTURE

RWY 07, 12, 25, 30
RNAV1_(GNSS or DME/DME/IRU)

RADAR REQUIRED

M S A
1800 FT UP TO 10 NM
2300 FT 10-25 NM
ALL SECTORS

Coordinates are in WGS-84
Radials and tracks are magnetic
Distances are in Nautical Miles
Altitude in feet



RCF Procedure	SQUAWK 7600, follow SID with restrictions and climb to FPL cruising level.
WARNING	Aircraft to follow SID level/speed restrictions unless otherwise authorized by ATC
NOTE	If unable to comply with RNAV SID advice ATC and expect RADAR Vectors

Minimum climb gradient 6.8% (415ft/NM) upto 1000ft thereafter 3.3% (200ft/NM).

Fix Identifier (Waypoint Name)	DEGREE, MINUTES & SECONDS			MMV	
	LATITUDE	LONGITUDE	RADIAL	RADIAL	DME
AVGIR	123326.84N	0820041.18E	105.1	111.0	
BAROT	125943.33N	0822337.60E	091.5	130.2	
DOHIA	131229.96N	0800904.74E	356.7	12.9	
IDASO	123935.30N	0833323.00E	097.1	199.5	
KOLCA	131821.47N	0802558.70E	041.2	24.2	
MM601	130336.29N	0800747.36E	330.8	4.7	
MM613	130431.12N	0803118.76E	078.4	21.1	
SIDAT	130745.98N	0805011.82E	079.9	39.8	

ROUTE DESCRIPTION	
Take off RWY	ROUTING
07	[HDG M071, A1000+, R] - MM613 [M081; F060-1] - SIDAT
12	[HDG M119, A1000+, L] - MM613 [M073; F060-, R] - SIDAT
25	[HDG M251, A1000+, R] → MM601 - DOHIA [R] - KOLCA [F060-, R] - SIDAT
30	[HDG M299, A1000+, R] → MM601 - DOHIA [R] - KOLCA [F060-, R] - SIDAT
TRANSITION	ROUTING
AVGIR	SIDAT - AVGIR SIDAT - BAROT - IDASO
IDASO	

TABULAR DESCRIPTION**SIDAT RNAV DEPARTURE**

Path Descriptor	Fix Identifier (Waypoint Name)	Fly Over	Course °M (° T)	Turn Direction	Altitude	Speed Limit (kts)	Distance (NM)
Rwy Transition Data 07							
VA		-	HDG 070.8(069.0)	-	A1000+	-	-
CF	MM613	-	081.4(079.6)	R	F060-	-	-
TF	SIDAT	-	081.8(080.0)	-	-	-	18.7
Rwy Transition Data 12							
VA		-	HDG 119.4(117.6)	-	A1000+	-	-
CF	MM613	-	073.0(071.2)	L	F060-	-	-
TF	SIDAT	-	081.8(080.0)	R	-	-	18.7
Rwy Transition Data 25							
VA		-	HDG 250.8(249.0)	-	A1000+	-	-
DF	MM601	-	-	R	-	-	-
TF	DOHIA	-	009.9(008.1)	-	-	-	8.9
TF	KOLCA	-	072.3(070.5)	R	F060-	-	17.5
TF	SIDAT	-	115.8(114.0)	R	-	-	25.9
Rwy Transition Data 30							
VA		-	HDG 299.4(297.6)	-	A1000+	-	-
DF	MM601	-	-	R	-	-	-
TF	DOHIA	-	009.9(008.1)	R	-	-	8.9
TF	KOLCA	-	072.3(070.5)	R	F060-	-	17.5
TF	SIDAT	-	115.8(114.0)	R	-	-	25.9

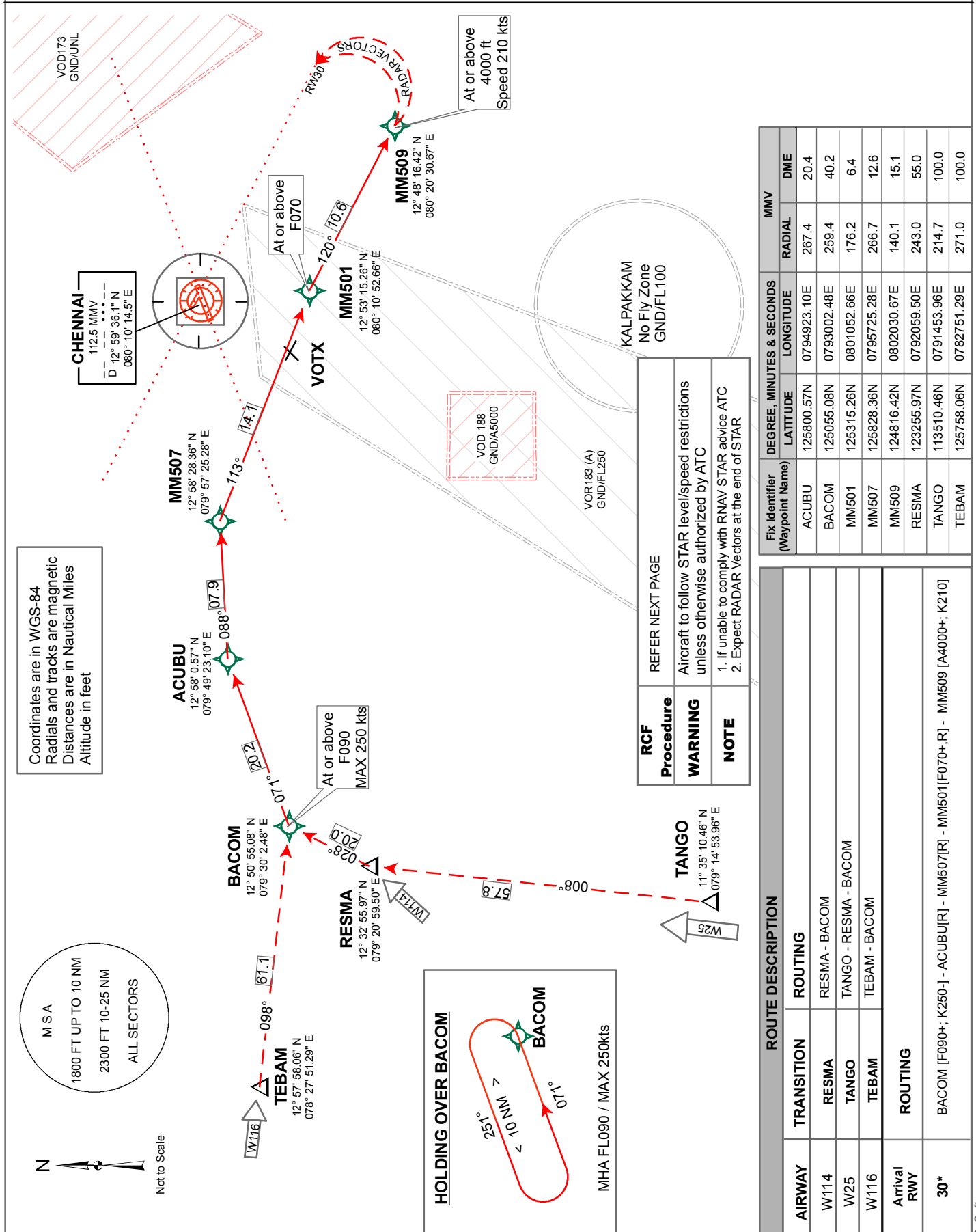
TABULAR DESCRIPTION**SIDAT RNAV DEPARTURE**

Enroute Transition Data – AVGIR							
IF	SIDAT	-	-	-	-	-	-
TF	AVGIR	-	118.0(116.3)	-	-	-	76.9
Enroute Transition Data –IDASO							
IF	SIDAT	-	-	-	-	-	-
TF	BAROT	-	096.6(094.8)	-	-	-	91.5
TF	IDASO	-	108.0(106.3)	R	-	-	71.0

RNAV1_(GNSS or DME/DME/IRU)

[* Conditional STAR - Subject to ATC Clearance due VOR 183(A)]

RADAR REQUIRED



ACUBU RNAV ARRIVAL**RADIO COMMUNICATIONS FAILURE PROCEDURE**

1	SET TRANSPONDER TO MODE A/C CODE 7600.
2	Maintain the last assigned level and proceed on ACUBU arrival to BACOM.
3	From BACOM, a. if the last assigned level is lower than or equal to FL110, follow the Arrival with lateral and vertical restriction. b. if the last assigned level is greater than FL110, descend in BACOM hold to FL110 and follow the Arrival with lateral and vertical restriction.
4	At the end of STAR, make a convenient turn to intercept localizer or final approach track for Runway in use.

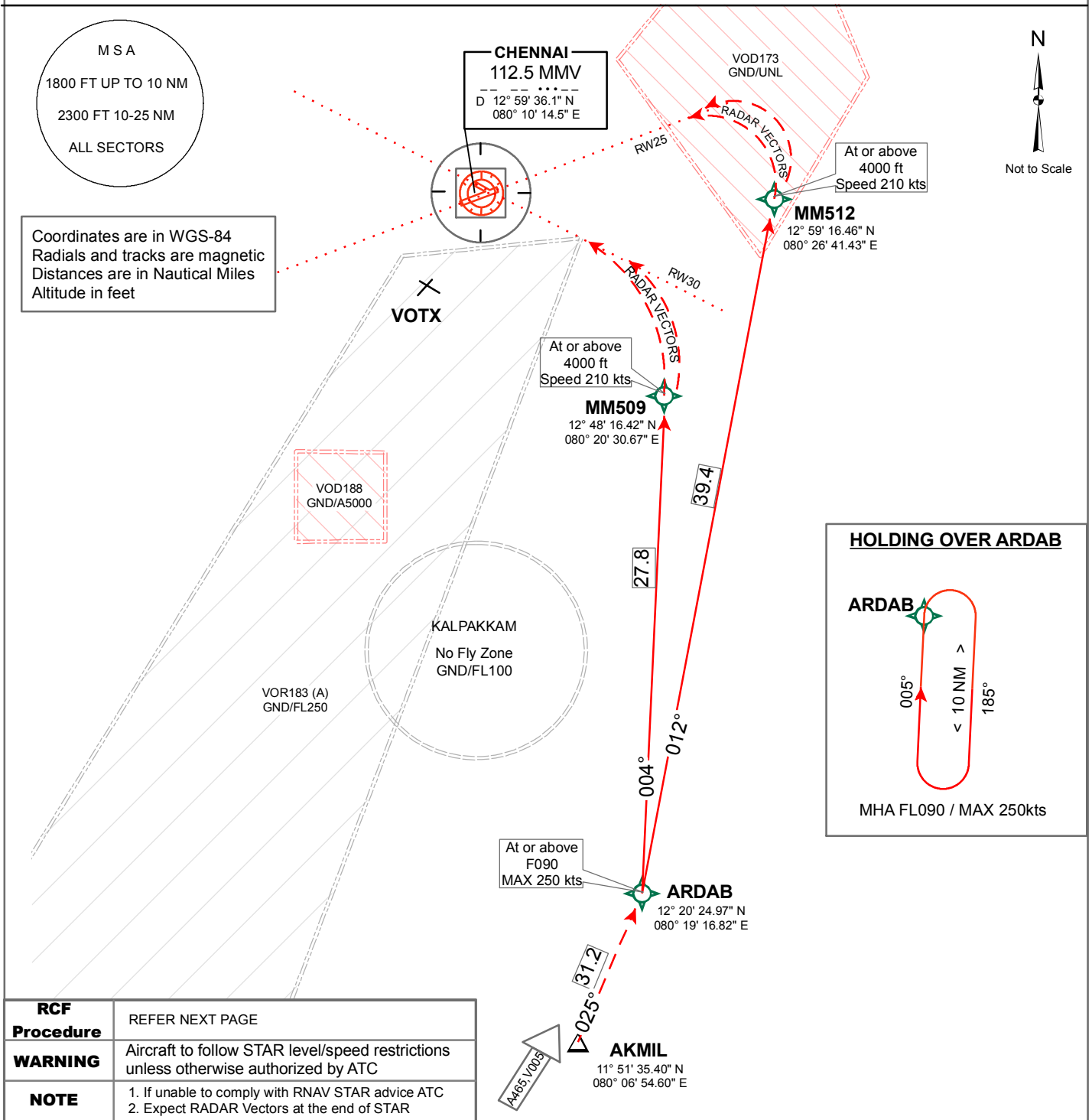
TABULAR DESCRIPTION**ACUBU RNAV ARRIVAL**

Path Descriptor	Fix Identifier (Waypoint Name)	Fly Over	Course °M (° T)	Turn Direction	Altitude	Speed Limit (kts)	Distance (NM)
ENROUTE Transition Data RESMA							
IF	RESMA	-	-	-	-	-	-
TF	BACOM	-	028.1(026.3)	-	F090+	K250-	20.0
ENROUTE Transition Data TANGO							
IF	TANGO	-	-	-	-	-	-
TF	RESMA	-	007.7(005.9)	R	-	-	57.8
TF	BACOM	-	028.1(026.3)	-	F090+	K250-	20.0
ENROUTE Transition Data TEBAM							
IF	TEBAM	-	-	-	-	-	-
TF	BACOM	-	098.3(096.5)	-	F090+	K250-	61.1
RWY Transition Data 30 Conditional							
IF	BACOM	-	-	-	F090+	K250-	-
TF	ACUBU	-	071.3(069.5)	-	-	-	20.2
TF	MM507	-	088.4(086.6)	R	-	-	7.9
TF	MM501	-	113.3(111.6)	R	F070+	-	14.1
TF	MM509	-	119.6(117.8)	R	A4000+	K210	10.6

AD Elev. 52' Trans Alt 4000'	SMC / TWR	121.9 / 118.1
	APP	127.9 / 124.45
	ACC	118.9 / 125.3
	DATIS	127.45
VAR 1° 45' W (1995)		

ARDAB RNAV ARRIVAL

RWY 25, 30
RNAV1_(GNSS or DME/DME/IRU)

RADAR REQUIRED

ROUTE DESCRIPTION		
AIRWAY	TRANSITION	ROUTING
V005, A465	AKMIL	AKMIL - ARDAB
Arrival RWY	ROUTING	
25	ARDAB [F090+; K250-] - MM512 [A4000+; K210]	
30	ARDAB [F090+; K250-] - MM509 [A4000+; K210]	

Fix Identifier (Waypoint Name)	DEGREE, MINUTES & SECONDS		MMV	
	LATITUDE	LONGITUDE	RADIAL	DME
AKMIL	115135.40N	0800654.60E	184.5	67.8
ARDAB	122024.97N	0801916.82E	169.0	40.0
MM509	124816.42N	0802030.67E	140.1	15.1
MM512	125916.46N	0802641.43E	092.9	16.1

ARDAB RNAV ARRIVAL**RADIO COMMUNICATIONS FAILURE PROCEDURE**

1	SET TRANSPONDER TO MODE A/C CODE 7600.
2	Maintain the last assigned level and proceed on ARDAB arrival to ARDAB.
3	From ARDAB,
a.	if the last assigned level is lower than or equal to FL110, follow the Arrival with lateral and vertical restriction.
b.	if the last assigned level is greater than FL110, descend in ARDAB hold to FL110 and follow the Arrival with lateral and vertical restriction.
4	At the end of STAR, make a convenient turn to intercept localizer or final approach track for Runway in use.

TABULAR DESCRIPTION**ARDAB RNAV ARRIVAL**

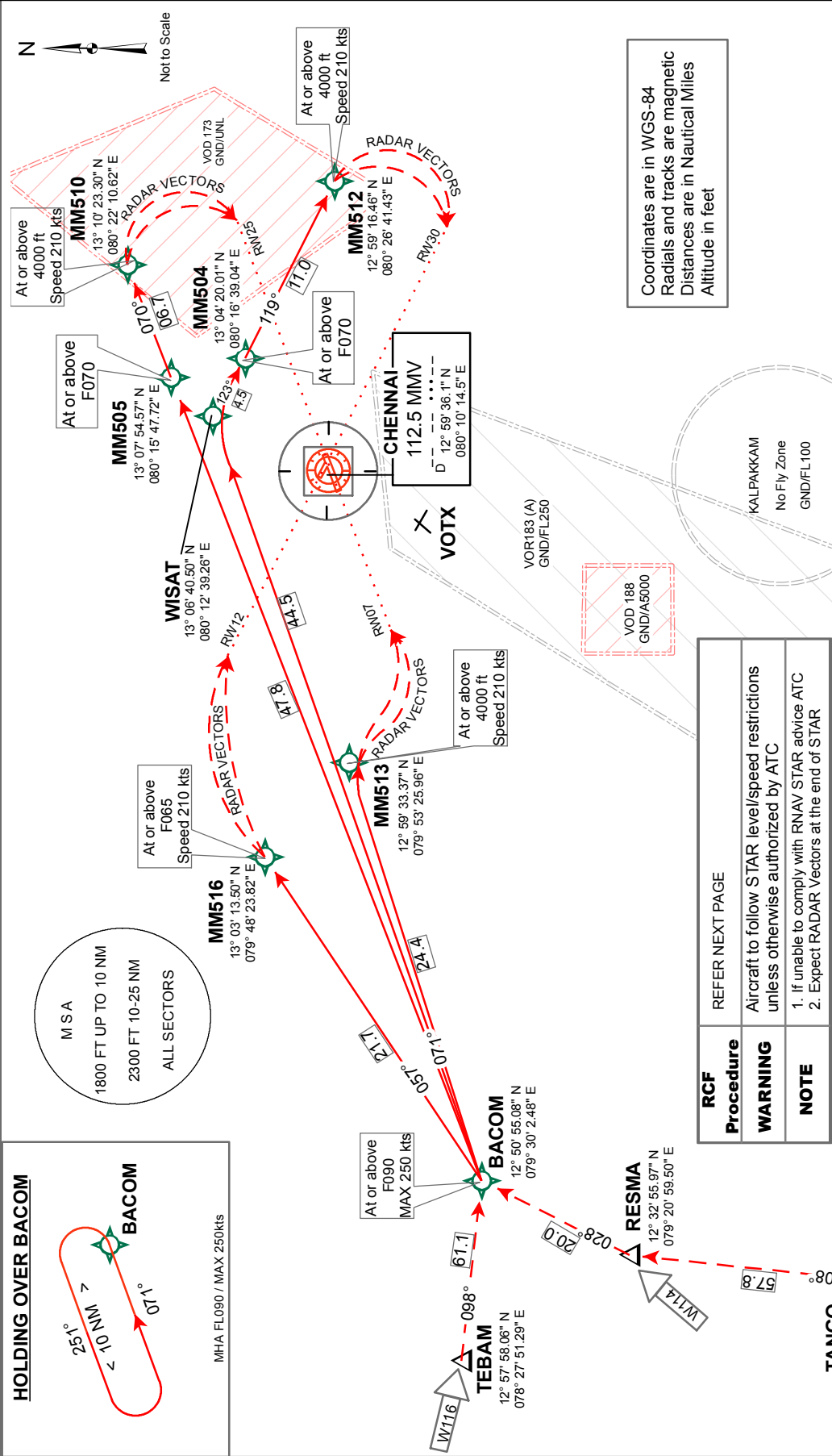
Path Descriptor	Fix Identifier (Waypoint Name)	Fly Over	Course °M (° T)	Turn Direction	Altitude	Speed Limit (kts)	Distance (NM)
ENROUTE Transition Data AKMIL							
IF	AKMIL	-	-	-	-	-	-
TF	ARDAB	-	024.7(022.9)	-	F090+	K250-	31.2
RWY Transition Data 25							
IF	ARDAB	-	-	-	F090+	K250-	-
TF	MM512	-	012.4(010.6)	-	A4000+	K210	39.4
RWY Transition Data 30							
IF	ARDAB	-	-	-	F090+	K250-	-
TF	MM509	-	004.3(002.5)	-	A4000+	K210	27.8

BACOM RNAV ARRIVAL

RWY 07, 12, 25, 30
RNAV1 (GNSS or DME/DME/IRU)

AD Elev. 52' Trans Alt 4000' VAR 1° 45' W (1995)	SMC / TWR	121.9 / 118.1
	APP	127.9 / 124.45
	ACC	118.9 / 125.3
	DATIS	127.45

RADAR REQUIRED



RCF	Procedure	REFER NEXT PAGE
WARNING	Aircraft to follow STAR level/speed restrictions unless otherwise authorized by ATC	
NOTE	1. If unable to comply with RNAV STAR advise ATC 2. Expect RADAR Vectors at the end of STAR	

ROUTE DESCRIPTION									
AIRWAY		TRANSITION	ROUTING		Fix Identifier (Waypoint Name)	DEGREE, MINUTES & SECONDS	RADIAL	DME	MMV
W114		RESMA	RESMA - BACOM		BACOM	125055.08N	0793002.48E	259.4	40.2
W116		TEBAM	TEBAM - BACOM		MM504	130420.01N	0801639.04E	054.8	07.8
W25, V007		TANGO	TANGO - RESMA - BACOM		MM505	130754.57N	0801547.72E	035.0	09.9
Arrival RWY		ROUTING		MM510		131023.30N	0802210.62E	049.1	15.8
				MM512		125916.46N	0802641.43E	092.9	16.1
				MM513		125933.37N	0795325.96E	271.7	16.4
				MM516		130313.50N	0794823.82E	281.4	21.6
				RESMA		123255.97N	0792059.50E	243.0	55
				TANGO		113510.46N	0791453.96E	214.7	100
25		BACOM [F090+; K250] - MM505 [F070+; K210]		TEBAM	125758.06N	0782751.29E	271.0	100	
30		BACOM [F090+; K250] - WISAT[R] - MM504 [F070+; K210]		WISAT	130640.50N	0801239.26E	020.3	7.4	

BACOM RNAV ARRIVAL**RADIO COMMUNICATIONS FAILURE PROCEDURE**

1	SET TRANSPONDER TO MODE A/C CODE 7600.
2	Maintain the last assigned level and proceed on BACOM arrival to BACOM.
3	From BACOM, a. if the last assigned level is lower than or equal to FL110, follow the Arrival with lateral and vertical restriction. b. if the last assigned level is greater than FL110, descend in BACOM hold to FL110 and follow the Arrival with lateral and vertical restriction.
4	At the end of STAR, make a convenient turn to intercept localizer or final approach track for Runway in use.

TABULAR DESCRIPTION**BACOM RNAV ARRIVAL**

Path Descriptor	Fix Identifier (Waypoint Name)	Fly Over	Course °M (° T)	Turn Direction	Altitude	Speed Limit (kts)	Distance (NM)
ENROUTE Transition Data RESMA							
IF	RESMA	-	-	-	-	-	-
TF	BACOM	-	028.1(026.3)	-	F090+	K250-	20.0
ENROUTE Transition Data TANGO							
IF	TANGO	-	-	-	-	-	-
TF	RESMA	-	007.7(005.9)	-	-	-	57.8
TF	BACOM	-	028.1(026.3)	R	F090+	K250-	20.0
ENROUTE Transition Data TEBAM							
IF	TEBAM	-	-	-	-	-	-
TF	BACOM	-	098.3(096.5)	-	F090+	K250-	61.1
RWY Transition Data 07							
IF	BACOM	-	-	-	F090+	K250-	-
TF	MM513	-	071.1(069.3)	-	A4000+	K210	24.4
RWY Transition Data 12							
IF	BACOM	-	-	-	F090+	K250-	-
TF	MM516	-	057.4(055.6)	-	F065+	K210	21.7
RWY Transition Data 25							
IF	BACOM	-	-	-	F090+	K250-	-

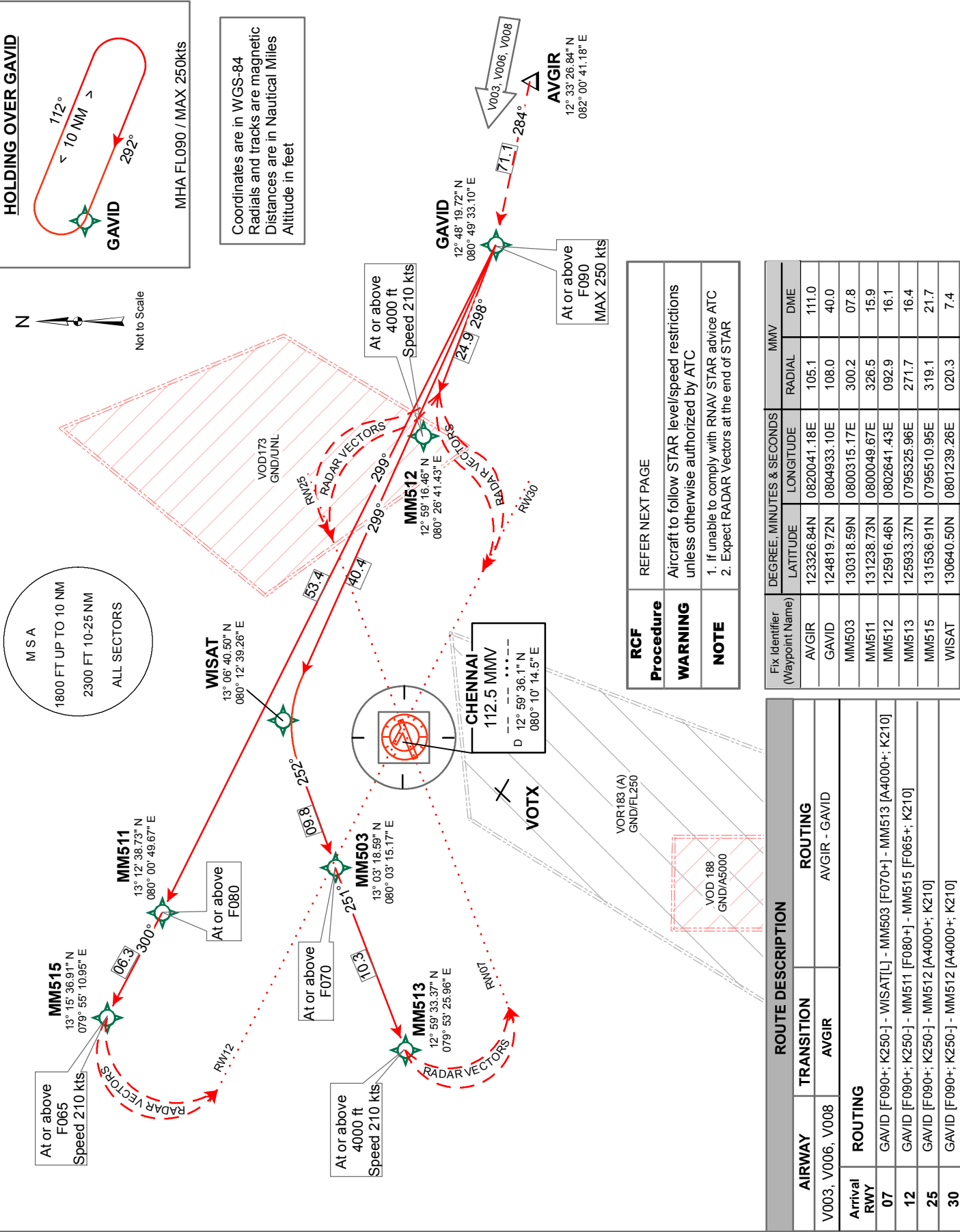
TF	MM505	-	071.0(069.2)	-	F070+	-	47.8
TF	MM510	-	070.2(068.4)	-	A4000+	K210	06.7
RWY Transition Data 30							
IF	BACOM	-	-	-	F090+	K250-	-
TF	WISAT	-	071.0(069.3)	-	-	-	44.5
TF	MM504	-	122.6(120.9)	R	F070+	-	04.5
TF	MM512	-	119.0(117.2)	-	A4000+	K210	11.0

GAVID RNAV ARRIVAL

RWY 07, 12, 25, 30
RNAV1 (GNSS or DME/DME/IRU)

AD Elev. 52'	SMC / TWR	121.9 / 118.1
Trans Alt 4000'	APP	127.9 / 124.45
	ACC	118.9 / 125.3
VAR 1° 45' W (1995)	DATIS	127.45

RADAR REQUIRED



GAVID RNAV ARRIVAL**RADIO COMMUNICATIONS FAILURE PROCEDURE**

1	SET TRANSPONDER TO MODE A/C CODE 7600.
2	Maintain the last assigned level and proceed on GAVID arrival to GAVID.
3	From GAVID, a. if the last assigned level is lower than or equal to FL110, follow the Arrival with lateral and vertical restriction. b. if the last assigned level is greater than FL110, descend in GAVID hold to FL110 and follow the Arrival with lateral and vertical restriction.
4	At the end of STAR, make a convenient turn to intercept localizer or final approach track for Runway in use.

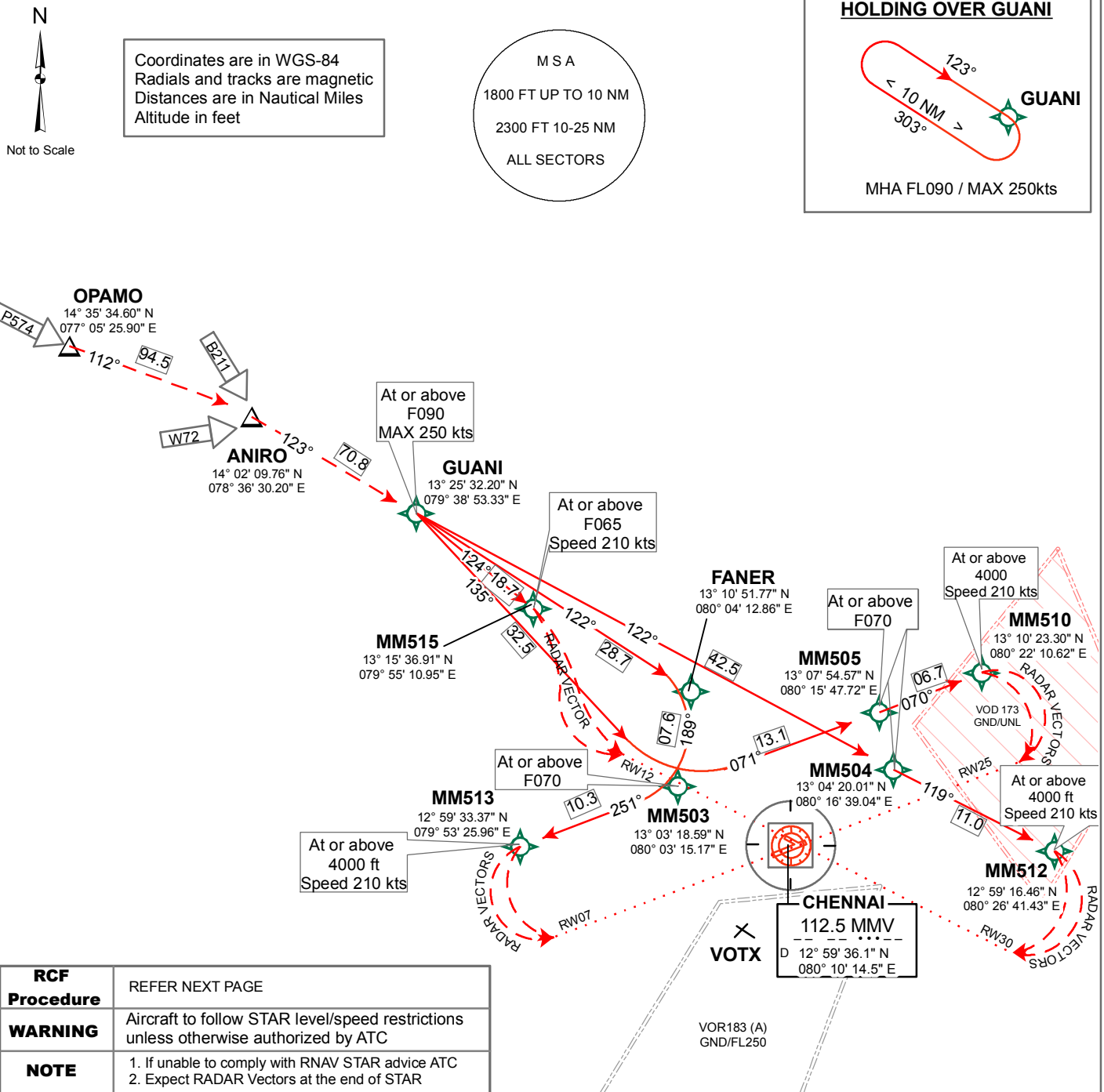
TABULAR DESCRIPTION**GAVID RNAV ARRIVAL**

Path Descriptor	Fix Identifier (Waypoint Name)	Fly Over	Course °M (° T)	Turn Direction	Altitude	Speed Limit (kts)	Distance (NM)
ENROUTE Transition Data AVGIR							
IF	AVGIR	-	-	-	-	-	-
TF	GAVID	-	283.9(282.2)	-	F090+	K250-	71.1
RWY Transition Data 07							
IF	GAVID	-	-	-	F090+	K250-	-
TF	WISAT	-	298.7(297.0)	-	-	-	40.4
TF	MM503	-	251.7(250.0)	L	F070+	-	9.8
TF	MM513	-	250.5(248.7)	-	A4000+	K210	10.3
RWY Transition Data 12							
IF	GAVID	-	-	-	F090+	K250-	-
TF	MM511	-	298.8(297.1)	-	F080+	-	53.4
TF	MM515	-	300.0(298.3)	-	F065+	K210	6.3
RWY Transition Data 25							
IF	GAVID	-	-	-	F090+	K250-	-
TF	MM512	-	297.8(296.1)	-	A4000+	K210	24.9
RWY Transition Data 30							
IF	GAVID	-	-	-	F090+	K250-	-
TF	MM512	-	297.8(296.1)	-	A4000+	K210	24.9

AD Elev. 52' Trans Alt 4000'	SMC / TWR	121.9 / 118.1
	APP	127.9 / 124.45
	ACC	118.9 / 125.3
	DATIS	127.45
VAR 1° 45' W (1995)		

GUANI RNAV ARRIVAL

RWY 07, 12, 25, 30
RNAV1(GNSS or DME/DME/IRU)

RADAR REQUIRED**ROUTE DESCRIPTION**

AIRWAY	TRANSITION	ROUTING
P574	OPAMO	OPAMO[L] - ANIRO[R] - GUANI
W72, B211	ANIRO	ANIRO[L] - GUANI
Arrival RWY	ROUTING	
07	GUANI [F090+; K250-] - FANER[R] - MM503 [F070+, R] -MM513 [A4000+; K210]	
12	GUANI [F090+; K250-] - MM515 [F065+; K210]	
25	GUANI [F090+; K250-] - MM503[L] - MM505 [F070+] - MM510 [A4000+; K210]	
30	GUANI [F090+; K250-] - MM504 [F070+] - MM512 [A4000+; K210]	

Fix Identifier (Waypoint Name)	DEGREE, MINUTES & SECONDS		MMV	
	LATITUDE	LONGITUDE	RADIAL	DME
ANIRO	140209.76N	0783630.20E	306.3	110.5
FANER	131051.77N	0800412.86E	334.1	12.7
GUANI	132532.20N	0793853.33E	312.0	40.0
MM503	130318.59N	0800315.17E	300.2	07.8
MM504	130420.01N	0801639.04E	054.8	07.8
MM505	130754.57N	0801547.72E	035.0	09.9
MM510	131023.30N	0802210.62E	049.1	15.8
MM512	125916.46N	0802641.43E	092.9	16.1
MM513	125933.37N	0795325.96E	271.7	16.4
MM515	131536.91N	0795510.95E	319.1	21.7
OPAMO	143534.60N	0770525.90E	300.1	203.6

GUANI RNAV ARRIVAL**RADIO COMMUNICATIONS FAILURE PROCEDURE**

1	SET TRANSPONDER TO MODE A/C CODE 7600.
2	Maintain the last assigned level and proceed on GUANI arrival to GUANI.
3	From GUANI, a. if the last assigned level is lower than or equal to FL110, follow the Arrival with lateral and vertical restriction. b. if the last assigned level is greater than FL110, descend in GUANI hold to FL110 and follow the Arrival with lateral and vertical restriction.
4	At the end of STAR, make a convenient turn to intercept localizer or final approach track for Runway in use.

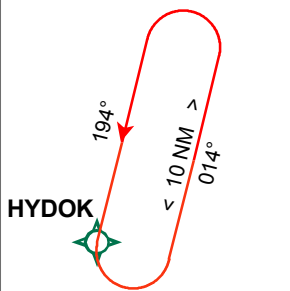
TABULAR DESCRIPTION**GUANI RNAV ARRIVAL**

Path Descriptor	Fix Identifier (Waypoint Name)	Fly Over	Course °M (° T)	Turn Direction	Altitude	Speed Limit (kts)	Distance (NM)
Path Descriptor							
IF	OPAMO	-	-	-	-	-	-
TF	ANIRO	-	112.2(110.4)	L	-	-	94.5
TF	GUANI	-	122.6(120.9)	R	F090+	K250-	70.8
ENROUTE Transition Data ANIRO							
IF	ANIRO	-	-	-	-	-	-
TF	GUANI	-	122.6(120.9)	L	F090+	K250-	70.8
RWY Transition Data 07							
IF	GUANI	-	-	-	F090+	K250-	-
TF	FANER	-	122.3(120.6)	-	-	-	28.7
TF	MM503	-	188.9(187.1)	R	F070+	-	07.6
TF	MM513	-	250.5(248.7)	R	A4000+	K210	10.3
RWY Transition Data 12							
IF	GUANI	-	-	-	F090+	K250-	-
TF	MM515	-	123.6(121.8)	-	F065+	K210	18.7
RWY Transition Data 25							
IF	GUANI	-	-	-	F090+	K250-	-
TF	MM503	-	134.7(132.9)	-	-	-	32.5

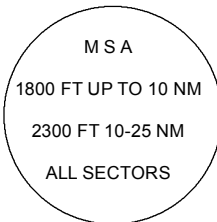
TF	MM505	-	071.2(069.5)	L	F070+	-	13.1
TF	MM510	-	070.2(068.4)	-	A4000+	K210	06.7
RWY Transition Data 30							
IF	GUANI	-	-	-	F090+	K250-	-
TF	MM504	-	121.5(119.8)	-	F070+	-	42.5
TF	MM512	-	119.0(117.2)	-	A4000+	K210	11.0

RWY 07, 12, 25, 30
RNAV1_(GNSS or DME/DME/IRU)

HOLDING OVER HYDOK



MHA FL090 / MAX 250kts



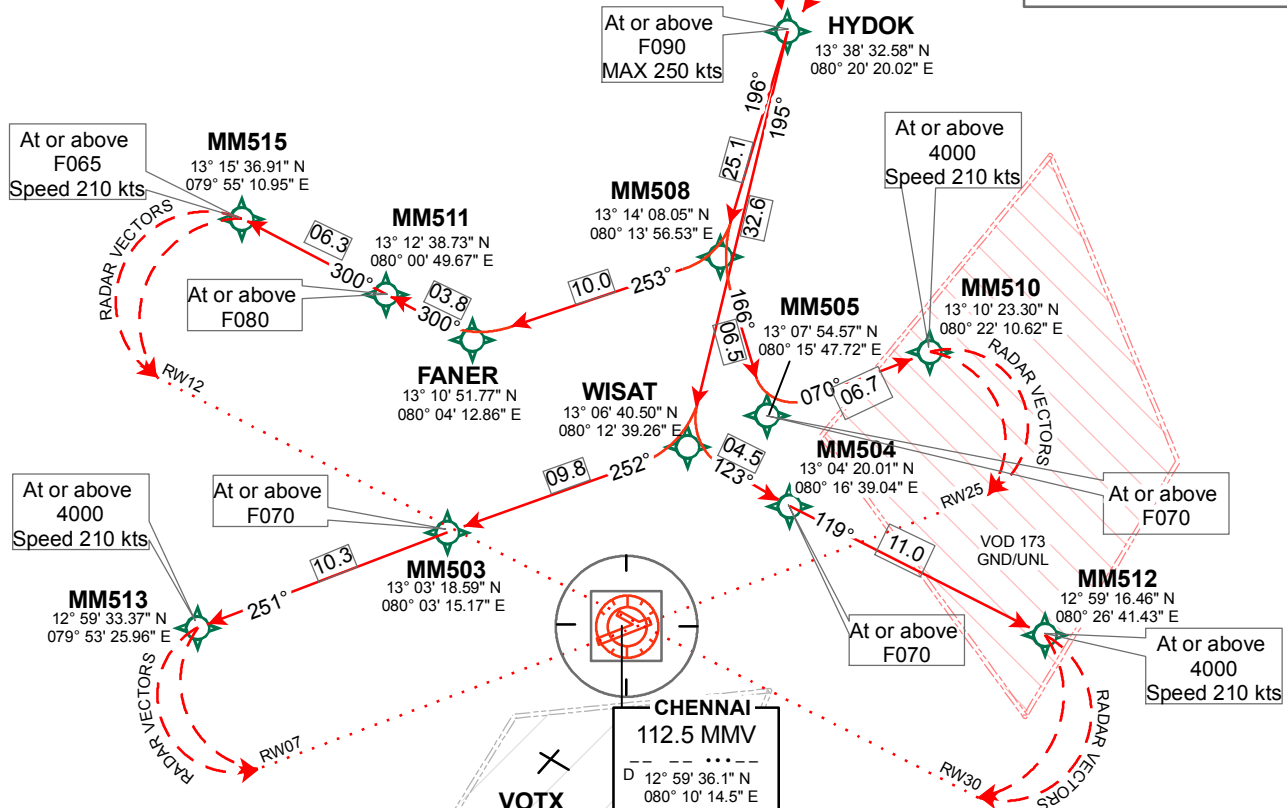
HITAS ▲
15° 34' 35.92" N
079° 56' 52.77" E



 **DOKET**
15° 33' 24.41" N
081° 50' 24.71" E



Coordinates are in WGS-84
 Radials and tracks are magnetic
 Distances are in Nautical Miles
 Altitude in feet



RCF Procedure	REFER NEXT PAGE
WARNING	Aircraft to follow STAR level/speed restrictions unless otherwise authorized by ATC
NOTE	1. If unable to comply with RNAV STAR advice ATC 2. Expect RADAR Vectors at the end of STAR

ROUTE DESCRIPTION		
AIRWAY	TRANSITION	ROUTING
V004, W47N	HITAS	HITAS - HYDOK
A465	DOKET	DOKET - HYDOK

Arrival RWY	ROUTING
07	HYDOK [F090+; K250-] - WISAT[R] - MM503 [F070+] - MM513 [A4000+; K210]
12	HYDOK [F090+; K250-] - MM508[R] - FANER [R] - MM511 [F080+; R] - MM515 [F065+; K210]
25	HYDOK [F090+; K250-] - MM508[L] - MM505 [F070+, L] - MM510 [A4000+; K210]
30	HYDOK [F090+; K250-] - WISAT[L] - MM504 [F070+] - MM512 [A4000+; K210]

Fix Identifier (Waypoint Name)	DEGREE, MINUTES & SECONDS		MMV	
	LATITUDE	LONGITUDE	RADIAL	DME
DOKET	153324.41N	0815024.71E	034.0	181.4
FANER	131051.77N	0800412.86E	334.1	12.7
HITAS	153435.92N	0795652.77E	357.0	154.9
HYDOK	133832.58N	0802020.02E	016.0	40.0
MM503	130318.59N	0800315.17E	300.2	07.8
MM504	130420.01N	0801639.04E	054.8	07.8
MM505	130754.57N	0801547.72E	035.0	09.9
MM508	131408.05N	0801356.53E	015.8	14.9
MM510	131023.30N	0802210.62E	049.1	15.8
MM511	131238.73N	0800049.67E	326.5	15.9
MM512	125916.46N	0802641.43E	092.9	16.1
MM513	125933.37N	0795325.96E	271.7	16.4
MM515	131536.91N	0795510.95E	319.1	21.7
WISAT	130640.50N	0801239.26E	020.3	07.4

HYDOK RNAV ARRIVAL**RADIO COMMUNICATIONS FAILURE PROCEDURE**

1	SET TRANSPONDER TO MODE A/C CODE 7600.
2	Maintain the last assigned level and proceed on HYDOK arrival to HYDOK.
3	From HYDOK, a. if the last assigned level is lower than or equal to FL110, follow the Arrival with lateral and vertical restriction. b. if the last assigned level is greater than FL110, descend in HYDOK hold to FL110 and follow the Arrival with lateral and vertical restriction.
4	At the end of STAR, make a convenient turn to intercept localizer or final approach track for Runway in use.

TABULAR DESCRIPTION**HYDOK RNAV ARRIVAL**

Path Descriptor	Fix Identifier (Waypoint Name)	Fly Over	Course °M (° T)	Turn Direction	Altitude	Speed Limit (kts)	Distance (NM)
ENROUTE Transition Data HITAS							
IF	HITAS	-	-	-	-	-	-
TF	HYDOK	-	170.6(168.8)	-	F090+	K250-	117.8
ENROUTE Transition Data DOKET							
IF	DOKET	-	-	-	-	-	-
TF	HYDOK	-	219.3(217.6)	-	F090+	K250-	143.9
RWY Transition Data 07							
IF	HYDOK	-	-	-	F090+	K250-	-
TF	WISAT	-	195.1(193.3)	-	-	-	32.6
TF	MM503	-	251.7(250.0)	R	F070+	-	9.8
TF	MM513	-	250.5(248.7)	-	A4000+	K210	10.3
RWY Transition Data 12							
IF	HYDOK	-	-	-	F090+	K250-	-
TF	MM508	-	196.2(194.4)	-	-	-	25.1
TF	FANER	-	252.9(251.1)	R	-	-	10.0
TF	MM511	-	300.0(298.3)	R	F080+	-	03.8
TF	MM515	-	300.0(298.3)	-	F065+	K210	06.3
RWY Transition Data 25							

IF	HYDOK	-	-	-	F090+	K250-	-
TF	MM508	-	196.2(194.4)	-	-	-	25.1
TF	MM505	-	165.5(163.7)	L	F070+	-	06.5
TF	MM510	-	070.2(068.4)	L	A4000+	K210	06.7
RWY Transition Data 30							
IF	HYDOK	-	-	-	F090+	K250-	-
TF	WISAT	-	195.1(193.3)	-	-	-	32.6
TF	MM504	-	122.6(120.9)	L	F070+	-	04.5
TF	MM512	-	119.0(117.2)	-	A4000+	K210	11.0

[* Conditional STAR - Subject to ATC Clearance due VOR 183(A)]

AD Elev. 52' Trans Alt 4000' VAR 1° 45' W (1995)	SMC / TWR	121.9 / 118.1
	APP	127.9 / 124.45
	ACC	118.9 / 125.3
	DATIS	127.45

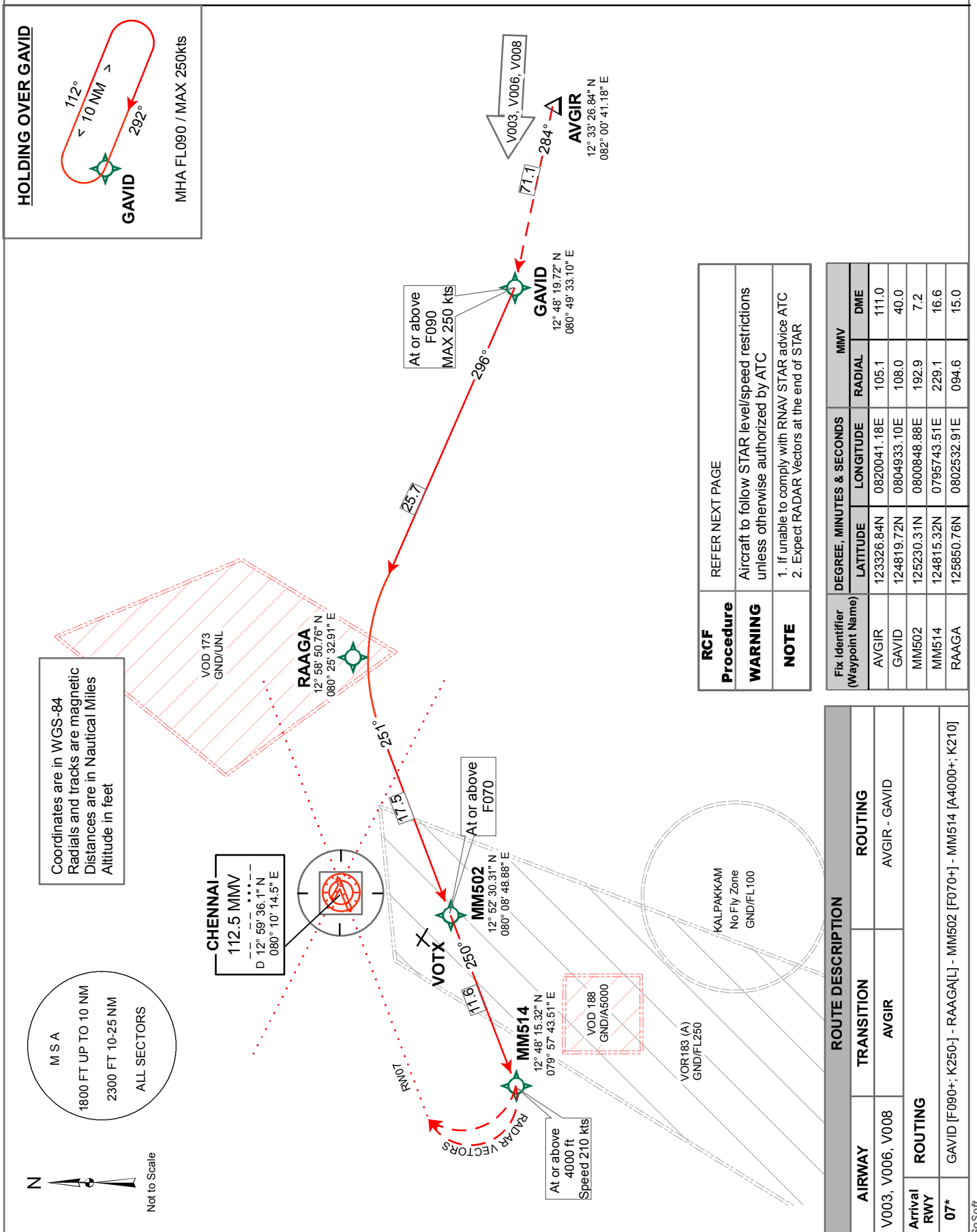
RAAGA RNAV ARRIVAL

RWY 07*

RNAV1_(GNSS or DME/DME/IRU)

[* Conditional STAR - Subject to ATC Clearance due VOR 183(A)]

RADAR REQUIRED



RAAGA RNAV ARRIVAL**RADIO COMMUNICATIONS FAILURE PROCEDURE**

1	SET TRANSPONDER TO MODE A/C CODE 7600.
2	Maintain the last assigned level and proceed on RAAGA arrival to GAVID.
3	From GAVID, a. if the last assigned level is lower than or equal to FL110, follow the Arrival with lateral and vertical restriction. b. if the last assigned level is greater than FL110, descend in GAVID hold to FL110 and follow the Arrival with lateral and vertical restriction.
4	At the end of STAR, make a convenient turn to intercept localizer or final approach track for Runway in use.

TABULAR DESCRIPTION**RAAGA RNAV ARRIVAL**

Path Descriptor	Fix Identifier (Waypoint Name)	Fly Over	Course °M (° T)	Turn Direction	Altitude	Speed Limit (kts)	Distance (NM)
ENROUTE Transition Data AVGIR							
IF	AVGIR	-	-	-	-	-	-
TF	GAVID	-	283.9(282.2)	-	F090+	K250-	71.1
RWY Transition Data 07 Conditional							
IF	GAVID	-	-	-	F090+	K250-	-
TF	RAAGA	-	295.9(294.1)	-	-	-	25.7
TF	MM502	-	250.7(248.9)	L	F070+	-	17.5
TF	MM514	-	250.5(248.7)	-	A4000+	K210	11.6

AD Elev. 52'	SMC / TWR	121.9 / 118.1
Trans Alt 4000'	APP	127.9 / 124.45
	ACC	118.9 / 125.3
VAR 1° 45' W (1995)	DATIS	127.45

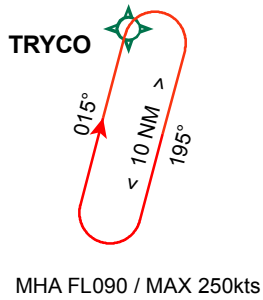
TRYCO RNAV ARRIVAL

RWY 07*, 12*, 25*, 30*

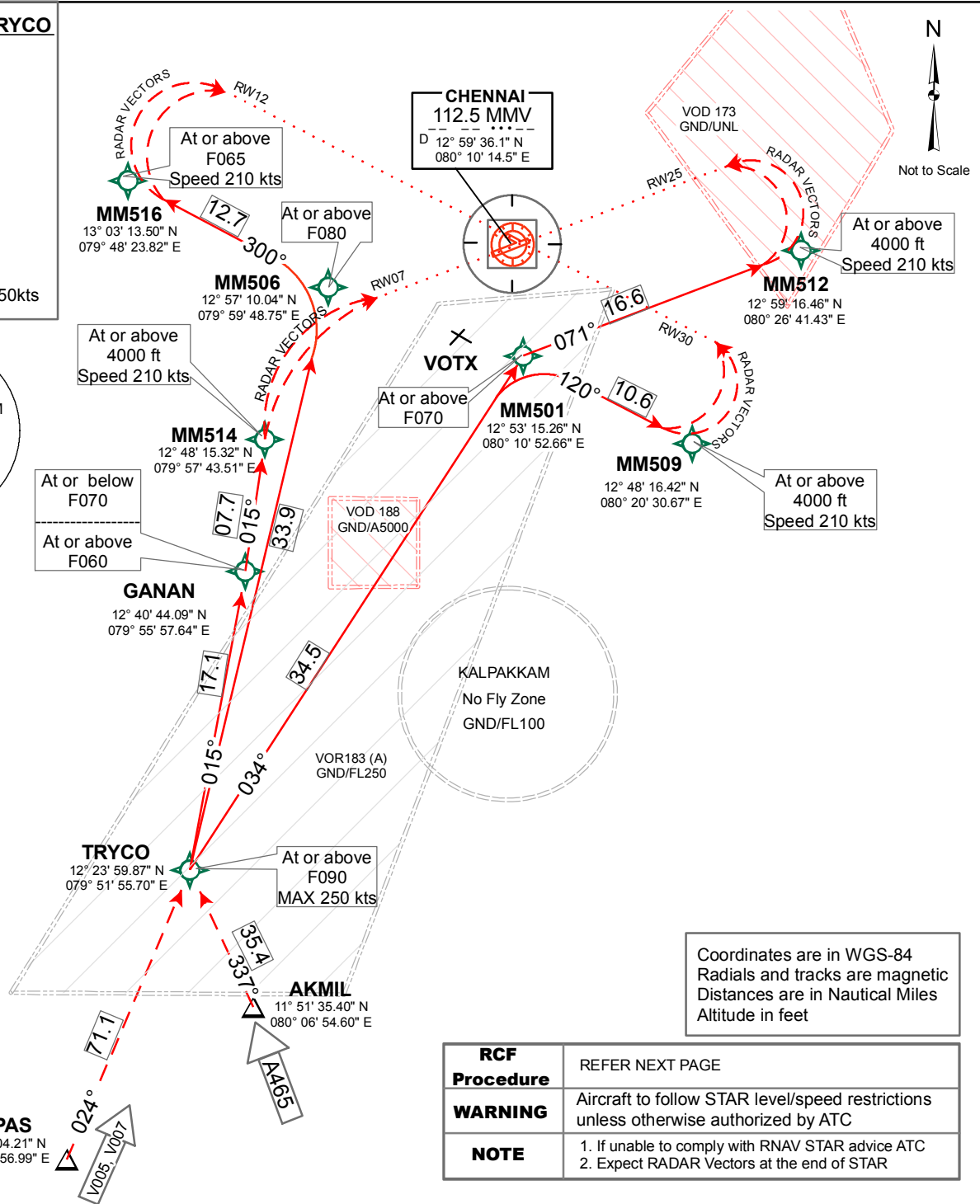
RNAV1(GNSS or DME/DME/IRU)

RADAR REQUIRED

[* Conditional STAR - Subject to ATC Clearance due VOR 183(A)]

HOLDING OVER TRYCO

MSA
1800 FT UP TO 10 NM
2300 FT 10-25 NM
ALL SECTORS



RCF Procedure	REFER NEXT PAGE
WARNING	Aircraft to follow STAR level/speed restrictions unless otherwise authorized by ATC
NOTE	1. If unable to comply with RNAV STAR advice ATC 2. Expect RADAR Vectors at the end of STAR

ROUTE DESCRIPTION

AIRWAY	TRANSITION	ROUTING
A465	AKMIL	AKMIL - TRYCO
V005, V007	TAPAS	TAPAS - TRYCO

Arrival RWY	ROUTING
07	TRYCO [F090+; K250-] - GANAN [F070-; F060+,-] - MM514 [A4000+; K210]
12	TRYCO [F090+; K250-] - MM506 [F080+; L] - MM516 [F065+; K210]
25	TRYCO [F090+; K250-] - MM501 [F070+; R] - MM512 [A4000+; K210]
30	TRYCO [F090+; K250-] - MM501 [F070+; R] - MM509 [A4000+; K210]

Fix Identifier (Waypoint Name)	DEGREE, MINUTES & SECONDS		MMV	
	LATITUDE	LONGITUDE	RADIAL	DME
AKMIL	115135.40N	0800654.60E	184.5	67.8
GANAN	124044.09N	0795557.64E	218.4	23.4
MM501	125315.26N	0801052.66E	176.2	6.4
MM506	125710.04N	0795948.75E	258.4	10.5
MM509	124816.42N	0802030.67E	140.1	15.1
MM512	125916.46N	0802641.43E	092.9	16.1
MM514	124815.32N	0795743.51E	229.1	16.6
MM516	130313.50N	0794823.82E	281.4	21.6
TAPAS	111804.21N	0792356.99E	206.0	110.8
TRYCO	122359.87N	0795155.70E	208.6	39.7

TRYCO RNAV ARRIVAL**RADIO COMMUNICATIONS FAILURE PROCEDURE**

1	SET TRANSPONDER TO MODE A/C CODE 7600.
2	Maintain the last assigned level and proceed on TRYCO arrival to TRYCO.
3	From TRYCO, a. if the last assigned level is lower than or equal to FL110, follow the Arrival with lateral and vertical restriction. b. if the last assigned level is greater than FL110, descend in TRYCO hold to FL110 and follow the Arrival with lateral and vertical restriction.
4	At the end of STAR, make a convenient turn to intercept localizer or final approach track for Runway in use.

TABULAR DESCRIPTION**TRYCO RNAV ARRIVAL**

Path Descriptor	Fix Identifier (Waypoint Name)	Fly Over	Course °M (° T)	Turn Direction	Altitude	Speed Limit (kts)	Distance (NM)
ENROUTE Transition Data AKMIL							
IF	AKMIL	-	-	-	-	-	-
TF	TRYCO	-	337.3(335.6)	-	F090+	K250-	35.4
ENROUTE Transition Data TAPAS							
IF	TAPAS	-	-	-	-	-	-
TF	TRYCO	-	024.4(022.6)	-	F090+	K250-	071.1
RWY Transition Data 07							
IF	TRYCO	-	-	-	F090+	K250-	-
TF	GANAN	-	015.1(013.3)	-	F070-; F060+	-	17.1
TF	MM514	-	014.7(013.0)	-	A4000+	K210	07.7
RWY Transition Data 12							
IF	TRYCO	-	-	-	F090+	K250-	-
TF	MM506	-	014.9(013.1)	-	F080+	-	33.9
TF	MM516	-	300.2(298.4)	L	F065+	K210	12.7
RWY Transition Data 25							
IF	TRYCO	-	-	-	F090+	K250-	-
TF	MM501	-	034.2(032.4)	-	F070+	-	34.5

TF	MM512	-	070.5(068.8)	R	A4000+	K210	16.6
RWY Transition Data 30							
IF	TRYCO	-	-	-	F090+	K250-	-
TF	MM501	-	034.2(032.4)	-	F070+	-	34.5
TF	MM509	-	119.6(117.8)	R	A4000+	K210	10.6

END