

Garuda Indonesia



ARMI

(Airport and Route Manual Information)

MANADO WAMM / MDC

DOMESTIC

I. Airport Data

Name	ICAO	IATA	ARP	Magnetic Variation	Airport Elevation (Feet)	Local time (UTC +/-)
Ratulangi Airport	WAMM	MDC	N 01°32.7' E124°55.5'	01° E	270	+ 8

Runways designator	length	strength	VASIS	limitations
RWY 18-36	8694 x 148 ft (2650 x 45 m)	Asphalt Concrete PCN 72 F/C/X/T	PAPI RWY 18 : 3.25° RWY 36 : 3.25°	RWY 18 : 270 ft RWY 36 : 264 ft

II. Communication & Navigation Aids facilities

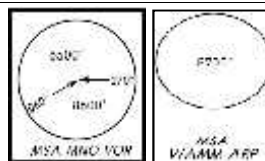
APP Manado Approach	119.0	ILS RWY 18	IMNO	111.1
TWR Ratulangi Tower	118.1	ILS RWY 36	ITDO	110.5
ATIS	126.4	NDB	PN	290
FSS Manado Information	8918, 11309, 5550, 6554	NDB	MD	255
		VOR	MNO	114.2
		VOR	MWB	114.8
		RNAV	RWY 18-36	

III. Airport location

- 7 NM Northeast of the city of Manado
- Civil operation hrs 23.00-13.00z.

IV. Minimum Safe / Sector Altitude (MSA)

- The highest MSA are 8600 ft South(R090-240), 6500 ft North(R240-090) based on “**MNO**” VOR/ DME or “**ND**” NDB.
- MSA is 8700 ft based on ARP



V. Climate / Weather Condition

The hottest months from May to Oct with peak temperature around 30°C, the lowest temperature 26°C from Nov to Apr. The wettest months from Nov to Mar, with Southeasterly winds prevail.

VI. Ground/ Taxi maneuvering

- Aircraft after landing must turn at the end of runway.
- Aircraft bound for MANADO must have health book IVC.
- Caution for flocks of birds in vicinity of airfield.

VII. Parking

- Parking guide by marshaller.
- Nose in park into aerobridge, push back required.

VIII. Ground Handling & Agents

PT. Gapura Angkasa
SITA ADDR5 MDCKOXH
Company channel: 131.75MHz
call sign: Gapura Manado,
Phone/fax: 62-431-814320 ext -566/ 62-431-714352.
HRS of SERVICE 23.00 – 10.00Z.

IX. Servicing

- PERTAMINA
- AES Facilities CAT.VIII
- GPU and GTC available provided by PT Gapura Angkasa.

X. Medical Facilities

- Hospitals in Town.

XI. Accommodation

- Hotels in Town.

XII. Immigration Procedures

- Available.

XIII. Entry Procedures - Arrival Procedures

STANDARD ARRIVAL ROUTES (STAR)	
BANTENAH ONE	Arriving aircraft from the SOUTHWEST (W-32) over LUANG proceed to MWB on heading 040 ⁰ .
BIARO TWO	Arriving aircraft from the NORTHEAST after PEDNO MAINTAIN heading 192 ⁰ until BONDA, and then proceed to MWB via MWB R-352.
BINTAUNA ONE	Arriving aircraft from the WEST (W-51) over GONTA proceed to MWB on heading 070 ⁰ .
TUMPAAN ONE	Arriving aircraft from the WEST (W-15) over TOSTY proceed to MWB on heading 075 ⁰ .
GUEDA ONE	Arriving aircraft from the EAST (W-67) over SOSOK proceed to MWB on heading 287 ⁰ .
MAYU ONE	Arriving aircraft from the EAST (W-61) over HALMO proceed to MWB on heading 279 ⁰ .
WEMBENG ONE	Arriving aircraft from the SOUTHEAST (W-55) over RUMBO proceed to MWB ON heading 324 ⁰ .

XIV. Departure procedures and conditions from Manado

STANDARD INSTRUMENT DEPARTURE RWY 18	
BIARO ONE	Immediate RIGHT turn to MD, MAINTAIN 268 [^] bearing from MD to at or above 4000' turn RIGHT to intercept MNO R-009. Proceed to BIARO, join airway R-342.
GONTA ONE	Immediate RIGHT turn to MD, climb on 268 [^] bearing from MD until D60 MNO. Proceed to GONTA, join airway W-51.
LUANG ONE	Turn RIGHT to MD, climb overhead and leave MD on 229 [^] bearing from MD until D30 MNO. Turn LEFT to join airway W-32. MAINTAIN 8000' until D30 MNO
MANADO ONE	Immediate RIGHT turn to MD, then proceed to MNO and leave MNO on MNO R-088 until D30 MNO. W-55. Proceed to

	HALMO to join airway W-61, SOSOK to join airway W-67, or RUMBO to join airway
MIKE DELTA ONE	Immediate RIGHT turn to MD. Proceed to TOSTY to join airway W-15 or to GONTA to join airway W-51.
TOSTY ONE	Immediate RIGHT turn to MD, climb on 268 [^] bearing from MD until D60 MNO. Proceed to TOSTY to join airway W-15.

XV. Search and Rescue

- In general, Search and Rescue procedures are in conformity with the Standards, Recommended Practices and Procedures contain in ICAO.
- The following Emergency / distress frequencies are provided:
 - a. VHF – 121.5 MHz.
 - b. UHF – 243.0 MHz.
 - c. HF – 500 kHz, 2.182 kHz, 8.364 kHz.

XVI. ATC Flight plans routes and distances

WIII – WAMM (CGK - MDC)

WIII - WAMM R 01

WIII ... DKI2C ... CR ...DKI...LEPAS ...W15...ALAMO ...SABIL ...KOBAS ...PKY ...HAMOL ... BPN ...LADOP ...TOSTY ...MWB ... MNO ...MNO336 ...MNO179 ...WAMM. Distance 1234 NM

Enroute Mora CGK – MDC

The highest MSA at CENGKARENG are 4,500 ft to South and 2,000 ft to the North based on CL, CR, GL, GR NDB, the Highest Grid Mora On this Route is 12.400 ft from point LADOP to MNO (MANADO) VOR and The highest MSA at Manado are 8,600 ft to South (start from bearing 090⁰ to 240⁰), 6.500 ft to North (start from bearing 241⁰ to 089⁰) based on MNO VOR / MD NDB.

WAMM - WIII (MDC - CGK)

WAMM – WIII R01A

WAMM ... MD1 ... MD ... TOSTY ... W15 ... LADOP ... BPN ... HAMOL ... PKY ... KOBAS ... SABIL ... ALAMO ... LEPAS ... LEPAS2 ... PW190 ... HL055 ... ESALA ... DKI ... DKI28 ... DKI42 ... CKG8.5 ... GL ... WIII.Distance 1241 NM.

Enroute Mora MDC – CGK

The highest MSA at Manado are 8,600 ft to South (start from bearing 090⁰ to

240^o), 6.500 ft to North (start from bearing 241^o to 089^o) based on MNO VOR / MD NDB. The highest Grid Mora is 12.400 ft from point MNO (MANADO) VOR to LADOP, and The highest MSA at CENGKARENG are 4,500 ft to South and 2,000 ft to the North based on CL, CR, GL, GR NDB.

XVII. ALTERNATE

Destination	Alternate	Loc.	Ind.	B737 classic	B737 NG	TT	NM	Ground Handling
Manado WAMM/ MDC	U. Pandang	WAAA	UPG	+	+	219	524	PT. Gapura
	Balikpapan	WALL	BPB	+	+	250	523	PT. Gapura
	Gorontalo	WAMG	GTO	+	-	246	150	-

Note: refer to MISCELLANEOUS DOMESTIC 3.3.3 Destination Alternate List
 + : alternate airport adequate for indicated aircraft type
 - : alternate airport NOT adequate for indicated aircraft type

U. Pandang

Alternate Flight plan route and distance

WAMM – WAAA (MDC - MKS) R 01

WAMM ... LUANG1 ... MD ... MD ... MNO30 ... LUANG ... W32 ... TAPIR ...

DIOLA ... KANIP ... BRAVO ... MKS ... WAAA. Distance 526 NM.

Enroute Mora MDC – UPG

The highest MSA at Manado are 8,600 ft to South (start from bearing 090^o to 240^o), 6.500 ft to North (start from bearing 241^o to 089^o) based on MNO VOR / MD NDB, the highest Grid Mora On this Route is 13.700 ft from point LUANG to DIOLA and The highest MSA at Ujung Pandang are 10.500 ft to the Southeast,

2800 ft to the Southwest, 3000 ft to the Northwest and 7600 to the Northeast based on MKS VOR/DME / OJ NDB.

Balikpapan

Alternate Flight plan route and distance

WAMM – WALL (MDC – BPN) R 01

WAMM ... MD1 ... MD ... GONTA ... GTL ... PAL ... ECHO ... DORIA ... BP082 ... BPN ... WALL. Distance 519 NM.

Enroute Mora MDC – BPN

The highest MSA at Manado are 8,600 ft to South (start from bearing 090° to 240°), 6,500 ft to North (start from bearing 241° to 089°) based on MNO VOR / MD NDB, the highest Grid Mora on the Route is 13,700 ft from point GTL to PAL and The highest MSA at Balikpapan are 3000 ft to North, 2000 ft to Southwest, 1500 ft to Southeast based on Sepinggan VOR/DME.

Gorontalo

Alternate Flight plan route and distance

WAMM – WAMG (MDC – GTO) A 01

WAMM ... GONTA1 ... MD ... MNO60 ... GONTA ... W51 ... X25NM ... EGLIN ... EGLIA ... EGLFA ... EGLMA ... GTL ... WAMG . Distance 159 NM.

Enroute Mora MDC – GTO

The highest MSA at Manado are 8,600 ft to South (start from bearing 090° to 240°), 6,500 ft to North (start from bearing 241° to 089°) based on MNO VOR / MD NDB, the highest Grid Mora on the Route is 12,400 ft from point GONTA to

GTL and The highest MSA at Gorontalo are 4.900 ft to East (bearing 250° to 340° clock wise), 4.700 ft to South and Southwest (bearing 341° to 120°), 4.500 ft to North and Northeast (bearing 121° to 249°) based on WGLIN (N 00.34.5 E 122.37.3).

XVIII. Remarks

- NDB circling approach couple with Visual Guidance Light for Rwy 36.
- High terrain to the North, West and South-east area.
- Specific departure procedure West bound

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