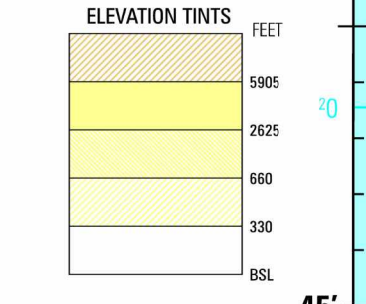


SERIES 1501 AIR  
SHEET NA 51-12  
EDITION 2

NOT TO BE USED FOR SURFACE OR SUBSURFACE NAVIGATION

POPULATED PLACES  
First importance MEDAN  
Second importance BANDA ACEH  
Third importance Rengat  
Fourth importance Calang  
Fifth importance Gink



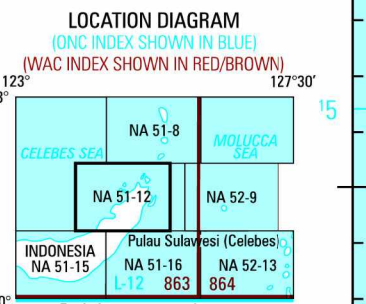
RELIABILITY OF THIS GRAPHIC

GRAPHIC FEATURE	Date of Information
VEGETATION	2005
ALL OTHER FEATURES	2003

Horizontal Datum: World Geodetic System 1984  
Vertical Datum: Mean Sea Level  
Transverse Mercator Projection  
Hydrographic Datum: Mean High Water

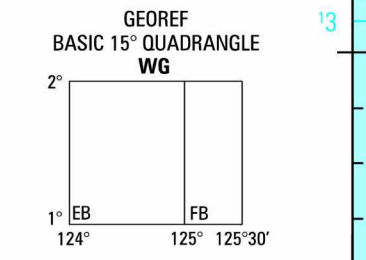
GLOSSARY

Bongkone	hill, mountain
Danu	lake
Dunguan	mountain
Gurung	mountain
Hat	point
Kak	stream
Kentul	hill, mountain
Kuak	stream
Kurung	mountain
Lesuk	bay
Lendob	stream
Propinsi	first-order administrative division
Pulau	island, reef
Reyangan	stream
Selul	marine channel, strait
Socan	stream
Tangai	cape, point
Tekak	bay
Tengaluh	mountain
Toka	hill, mountain
Tonggine	cape, point
Towade	island



CONVERSION OF ELEVATIONS

FEET	METERS	FEET	METERS
1000	305	11000	3353
900	274	10000	3048
800	244	9000	2743
700	213	8000	2438
600	183	7000	2134
500	152	6000	1829
400	122	5000	1524
300	91	4000	1219
200	61	3000	914
100	31	2000	610
50	15	1500	457
0	0	1000	305



CAUTION  
AIR INFORMATION CURRENT THROUGH 04 JUNE 2009  
Consult NOTAMS and Flight Information Publications for the latest air information; the NGA Aeronautical Chart Updating Manual or MDD (U.S.) Aeronautical Chart Amendment document, for other chart revision information.

MAGNETIC VARIATION THROUGHOUT CHART AREA FOR 2005 IS APPROXIMATELY 1°15' EAST (Annual rate of change 2' decrease)

CAUTION  
Vertical obstructions, including powerlines, have been extracted from the most reliable sources available. However, there is no assurance that all are shown, or that their locations or heights are exact.

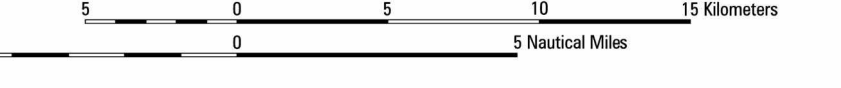
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SCALE 1:250,000  
MANADO, INDONESIA  
SERIES 1501 AIR  
SHEET NA 51-12  
EDITION 2

DEPTHS IN FEET ELEVATIONS IN FEET

### JOINT OPERATIONS GRAPHIC (AIR)

SCALE 1:250,000  
CONTOUR INTERVAL APPROXIMATELY 330 FEET



BLUE NUMBERED LINES INDICATE THE 10,000 METER UNIVERSAL TRANSVERSE MERCATOR GRID ZONE 51, WGS 84 ELLIPSOID.

USERS SHOULD REFER TO CORRECTIONS, ADDITIONS, AND COMMENTS TO THE NGA ENTERPRISE SERVICE DESK: 1-800-454-6899. COMMERCIAL: 202-273-8811; DOD: 202-981-1. UNCLASSIFIED EMAIL: ENTERPRISE@CENTERSFORHOMELANDSECURITY.MIL. SPINTEL: EDC@CSCSIA.NGA.MIL. OR WHITE 10: DIRECTOR, NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY, ATTN: ESC, MAIL STOP D-246, 4600 SANGAMORE ROAD, BETHESDA, MD 20816-5003.

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ROADS

Dual highway	4 LINES
All weather, hard surface	4 LINES
Two or more lanes wide	4 LINES
One lane wide	4 LINES
All weather, loose or light surface	4 LINES
Two or more lanes wide	4 LINES
One lane wide	4 LINES
Fair or dry weather, loose surface	4 LINES
Trail (footpath)	4 LINES
Route marker	4 LINES
Normal gauge 1.067m (3'6")	Single Multiple
Alternate gauge 0.750m (2'5 1/2")	Single Multiple

RAILROADS

International	Single Multiple
First-order administrative division	Single Multiple

BOUNDARIES

International	Single Multiple
First-order administrative division	Single Multiple

VEGETATION

Woodland/Jungle canopy, Scattered trees	Single Multiple
Plantation/Orchard, Mangrove	Single Multiple
Tropical grass; Sand	Single Multiple

MISCELLANEOUS CULTURE

Tank; Mine/Quarry	Single Multiple
School; Mosque; Church	Single Multiple
Landmark object	Single Multiple
Water tower	Single Multiple

HYDROGRAPHY

Stream: Less than 125m wide	Single Multiple
Stream: 125m wide or more	Single Multiple
Ditch	Single Multiple
Lake	Single Multiple
Swamp; Marsh; Rice	Single Multiple
Well: Land subject to inundation	Single Multiple

COASTAL HYDROGRAPHY

Depth contour	Single Multiple
Foreshore flats	Single Multiple
Shoreline: Indefinite; Definite	Single Multiple
Rocks: Uncovering; Awash	Single Multiple
Exposed wreck; Reef	Single Multiple
Pier; Breakwater	Single Multiple
Seawall; Lighthouse	Single Multiple

AIRCRAFT FACILITY (Military or Civil)

Runway pattern known	ENR 50/50 725
ENR 50 - Name	50 - Length of longest runway to nearest hundreds of feet
50 - Soft or unimproved surface	U - Unknown surface
725 - Elevation	
Runway pattern unknown	

HELPOUT/HELIPAD; AT HOSPITAL

VHF OMNI RANGE (VOR)	
VORTAC; TACAN	
VOR with DME; Other facilities	

RADIO FACILITIES

NON-DIRECTIONAL BEACON	
MULTIPLE RADIO FACILITIES	

CONTROLLED AIRSPACE

ADIZ	
Obstruction	1108 (2000)
1108 - Elevation of obstruction top, above sea level	
(2000) - Elevation of obstruction top, above ground level	
Group obstruction	
Radio facility obstruction	
Power transmission line	
Aerial cables < 150 feet above ground level	
Power transmission line	
Aerial cables ≥ 150 feet above ground level	
Visual ground sign	
Aero light; Marine light	

TERRAIN ELEVATIONS

Spot elevation: Normal; Critical; ESAR derived	486 1093 13260
HIGHEST KNOWN elevation is 6526 feet at the following coordinates:	
Geographic	1°27'N, 125°02'E
Grid	YB28261

ATTENTION  
THIS CHART CONTAINS MAXIMUM ELEVATION FIGURES (MEF)  
The Maximum Elevation Figures shown in quadrangles, bounded by ticked lines of latitude and longitude are represented in HUNDREDS and THOUSANDS of feet above mean sea level. The MEF is based on information available concerning the highest known features in each quadrangle, including terrain and obstructions (towers, towers, antennas, etc.).  
EXAMPLE: 12,500 feet  
125  
NOTES  
Powerlines are shown except within populated place limits. Other obstructions are shown if they are 150 feet or more above ground level. See caution note. Road classification should be referred to with caution. Boundary representation is not necessarily authoritative. Grassland is labeled "Tropical grass" or "Tg" when height of grass is ≥ 3 meters (10 feet). The number in parentheses, "(1)" following a populated place name indicates more than one place is so named on this map. Contours are derived from reflective surface (FSAR). Spot elevations are derived from imagery and reflective surface (FSAR) (< italicized value >). Rice paddies are subject to inundation; however, they may be seasonally dry.

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NGA Ref No: 1501ANA5112