

## AD 2 AERODROMES

## RJNK AD 2.1 AERODROME LOCATION INDICATOR AND NAME

## RJNK - KOMATSU

## RJNK AD 2.2 AERODROME GEOGRAPHICAL AND ADMINISTRATIVE DATA

1	ARP coordinates and site at AD	362338N/1362427E
2	Direction and distance from (city)	4.2km(2.6nm) WSW from Komatsu City (Komatsu Station)
3	Elevation/ Reference temperature	22FT / -
4	Geoid undulation at AD ELEV PSN	Nil
5	MAG VAR/ Annual change	8°W (2006)/
6	AD Administration, address, telephone, telefax, telex, AFS, e-mail and/or Web-site addresses	Japan Air Self Defense Force. Public AD.
7	Types of traffic permitted(IFR/VFR)	IFR/VFR
8	Remarks	KOMATSU AIRPORT OFFICE(Civil Aviation Bureau) Ukiyanagi-machi Yo 21, Komatsu-shi, Ishikawa Pref. Tel:0761-24-0828 Fax:0761-22-4632

## RJNK AD 2.3 OPERATIONAL HOURS

1	AD Administration	H24
2	Customs and immigration	Customs: 2330-0815 Immigration: INTL SKED FLT hours only
3	Health and sanitation	Quarantine(human): (MON, TUE, WED, FRI)2330-1000 (THU, SUN)2330-0815 (SAT)0115-1000 Quarantine(animal): 2330-0800 Quarantine(plant): 2340-1030
4	AIS Briefing Office	H24 (CAB:Nil)
5	ATS Reporting Office(ARO)	Nil
6	MET Briefing Office	H24 (TOKYO)
7	ATS	H24
8	Fuelling	2230-1330 (Scheduled FLT only)
9	Handling	2230-1330
10	Security	2230-1330
11	De-icing	Nil
12	Remarks	HR of service at CAB OPS section 2230 - 1330 (Daily)

**RJNK AD 2.4 HANDLING SERVICES AND FACILITIES**

1	Cargo-handling facilities	All the modern institutions that deal with weight thing to B744 type freighter
2	Fuel/ oil types	JET A1
3	Fuelling facilities/ capacity	Fuel truck refueling
4	De-icing facilities	Nil
5	Hangar space for visiting aircraft	Nil
6	Repair facilities for visiting aircraft	Nil
7	Remarks	Nil

**RJNK AD 2.5 PASSENGER FACILITIES**

1	Hotels	Hotels in the city
2	Restaurants	At airport
3	Transportation	Buses and Taxis
4	Medical facilities	Hospital in the city
5	Bank and Post Office	Bank and post office in the city
6	Tourist Office	Tourist offices in the city
7	Remarks	Nil

**RJNK AD 2.6 RESCUE AND FIRE FIGHTING SERVICES**

1	AD category for fire fighting	To be issued later
2	Rescue equipment	(JSDF) To be issued later (CAB) Emergency medical equipments conveyance truck x 1 Lighting power supply truck x 1
3	Capability for removal of disabled aircraft	To be issued later
4	Remarks	Nil

**RJNK AD 2.7 SEASONAL AVAILABILITY-CLEARING**

1	Types of clearing equipment	Snow remove equipments (JSDF): To be issued later (CAB): Snow sweeper X 2, Snow plow X 3, Rotary X 2, Anti-freezing sprayer X 1, Tractor shovel X 3, Truck X 1, Swamp bulldozer and Dump truck
2	Clearance priorities	(JSDF): To be issued later (CAB): 1.TWY C1,C5, CIVIL PARALLEL and APRON 2.TWY C4,C2 and C3
3	Remarks	(CAB) Seasonal availability : All seasons Snow removal will be commenced, in the case of the snow depth is greater than or equal to the prohibited depth for scheduled flight

## RJNK AD 2.8 APRONS, TAXIWAYS AND CHECK LOCATIONS DATA

1	Apron surface and strength	Surface: Asphalt concrete and Concrete Strength: Spot NR3: PCN 74/R/B/X/T Spot NR4 - NR8: PCN 62/R/B/X/T
2	Taxiway width, surface and strength	Width: C1, C5: 26.5m C2, C3: 30m C4: 34m CIVIL PARALLEL TWY: 23m Surface: Asphalt concrete Strength: C1: PCN 58/F/B/X/T C2: PCN 63/F/B/X/T C3: PCN 52/F/B/X/T C4: PCN 63/F/B/X/T C5: PCN 80/F/B/X/T CIVIL PARALLEL TWY: PCN 58/F/B/X/T
3	ACL and elevation	Not Available
4	VOR checkpoints	Not Available
5	INS checkpoints	Spot NR 3: 362409.47N 1362457.78E 4: 362408.26N 1362455.61E 5: 362406.89N 1362453.50E 6: 362405.61N 1362451.19E 7: 362404.32N 1362448.87E 8: 362403.03N 1362446.55E
6	Remarks	Nil

## RJNK AD 2.9 SURFACE MOVEMENT GUIDANCE AND CONTROL SYSTEM AND MARKINGS

1	Use of aircraft stand ID signs, TWY guide lines and Visual docking/ parking guidance system of aircraft stands	ACFT stand ID signs: Spot NR5, 6, 7, 8 Visual docking/ parking guidance system: Nil
2	RWY and TWY markings and LGT	RWY: RWY06/24: (Marking):RWY designation, RWY CL, RWY THR, Fixed DIST, TDZ, RWY side stripe (LGT):REDL, RTHL, RENL  TWY: (C1 THRU C5) (Marking):TWY CL, TWY side stripe, Mandatory instruction (LGT):TWY edge LGT, TWY CL LGT, Taxiing guidance sign (CIVIL PARALLEL) (Marking):TWY CL, TWY side stripe, Intermediate holding position (LGT):TWY edge LGT, TWY CL LGT(not installed from spot NR3 to NR8), Intermediate holding position
3	Stop bars	Nil
4	Remarks	(Marking):Overrun area (LGT):Apron flood LGT

## GP HOLD LINE

The "GP HOLD LINE" is installed on CIVIL PARALLEL TWY, consists of Intermediate holding position lights and marking. (see below figure, and AD2-24.1 AD CHART)



## RJNK AD 2.10 AERODROME OBSTACLES

RWY/Area affected	Obstacle type	Coordinates	Elevation	Markings/ LGT	Remarks
Nil					

## RJNK AD 2.11 METEOROLOGICAL INFORMATION PROVIDED

1	Associated MET Office	TOKYO
2	Hours of service MET Office outside hours	H24(TOKYO)
3	Office responsible for TAF preparation Periods of validity	TOKYO 30 Hours
4	Trend forecast Interval of issuance	Nil
5	Briefing/ consultation provided	Briefing is available upon inquiry at TOKYO
6	Flight documentation Language(s) used	C En
7	Charts and other information available for briefing or consultation	S <sub>6</sub> , U <sub>85</sub> , U <sub>7</sub> , U <sub>5</sub> , U <sub>3</sub> , U <sub>25</sub> , U <sub>2</sub> /T <sub>r</sub> , P <sub>s</sub> , P <sub>5</sub> , P <sub>3</sub> , P <sub>25</sub> , P <sub>SWE</sub> , P <sub>SWF</sub> , P <sub>SWG</sub> , P <sub>SWI</sub> , P <sub>SWM</sub> , P <sub>SW(domestic)</sub> , E, C, W <sub>E</sub> , W <sub>F</sub> , W <sub>G</sub> , W <sub>I</sub> , W, N
8	Supplementary equipment available for providing information	Doppler Radar for Airport Weather(See below figure)
9	ATS units provided with information	TWR, APP
10	Additional information (limitation of service, etc.)	Observation is made by the Ministry of Defense.

Airspace for the advisory service  
concerning low level wind shear



UPPER LIMIT : 1600ft above FIELD ELEV LEVEL  
LOWER LIMIT : FIELD ELEV LEVEL

## RJNK AD 2.12 RUNWAY PHYSICAL CHARACTERISTICS

Designations RWY NR	TRUE BRG	Dimensions of RWY(M)	Strength(PCN) and surface of RWY	THR coordinates THR geoid undulation	THR elevation and highest elevation of TDZ of precision APP RWY
1	2	3	4	5	6
06	055°	2700 × 45	PCN 77/R/A/X/T SW66000kg (145460lbs)	To be issued later	THR ELEV: 38.1FT
24	235°	2700 × 45	DW100000kg (220500lbs) DTW396000kg (872780lbs) TTTW330000kg (727650lbs) Concrete		THR ELEV: 18.4FT

Slope of RWY	Strip Dimensions (M)	Remarks
7	10	12
See below figure	3300 × 450 3300 × 450	RWY grooving: 2700m × 30m

Slope of RWY

RWY 06

RWY 24



## RJNK AD 2.13 DECLARED DISTANCES

RWY Designator	TORA (m)	TODA (m)	ASDA (m)	LDA (m)	Remarks
1	2	3	4	5	6
06	2700	2700	2700	2700	Nil
24	2700	2700	2700	2700	Nil

## RJNK AD 2.14 APPROACH AND RUNWAY LIGHTING

RWY Designator	APCH LGT type LEN INTST	RTHL Color WBAR	PAPI (VASIS) Angle DIST FM THR MEHT	RTZL LEN	RCLL LEN Spacing Color INTST	REDL LEN Spacing Color INTST	RENL Color WBAR	STWL LEN Color
1	2	3	4	5	6	7	8	9
06	PALS (CAT I) 839m LIH	Green	PAPI 3.0°/LEFT 454.43m 66ft	Nil	Nil	2700m 60.0m Coded color (White/Yellow) LIH	Red	Nil
24	PALS (CAT I) 597m LIH	Green	PAPI 3.0°/LEFT 408.06m 66ft	Nil	Nil	2700m 60.0m Coded color (White/Yellow) LIH	Red	Nil
Remarks								
10								
Nil								

## RJNK AD 2.15 OTHER LIGHTING, SECONDARY POWER SUPPLY

1	ABN/IBN location, characteristics and hours of operation	ABN: 362335N/1362500E, White/Green EV6sec, HO
2	LDI location and LGT Anemometer location and LGT	Nil
3	TWY edge and centerline lighting	(TWY C1 THRU C5 and CIVIL PARALLEL TWY) TWY edge LGT: Blue TWY CL LGT: Green
4	Secondary power supply/ switch-over time	Within 15 sec: TWY edge LGT, TWY CL LGT(TWY C1 THRU C5 and CIVIL PARALLEL TWY), Taxiing guidance sign(TWY C1 THRU C5), Apron flood LGT, OBST LGT
5	Remarks	WDI LGT, OBST LGT

## RJNK AD 2.16 HELICOPTER LANDING AREA

Nil
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## RJNK AD 2.17 ATS AIRSPACE

Designation and lateral limits		Vertical limits (ft)	Airspace classification	ATS unit call sign Language	Remarks
1		2	3	4	6
KOMATSU CTR	Area within a radius of 5nm of KOMATSU ARP (36°24'N/136°24'E).	6000 or below	D	KOMATSU TOWER En	
KOMATSU ACA	See attached chart		E	KOMATSU APP KOMATSU RADAR KOMATSU DEP En	
KOMATSU TCA	See attached chart			KOMATSU TCA En	



小松進入管制区  
Komatsu Approach Control Area



小松ターミナルコントロールエリア  
KOMATSU TERMINAL CONTROL AREA



## RJNK AD 2.18 ATS COMMUNICATION FACILITIES

Service designation	Call sign	Frequency	Hours of operation	Remarks
1	2	3	4	5
APP/ASR	Komatsu Approach/ Komatsu Radar	261.2MHz 120.1 MHz 121.25 MHz 243.0 MHz(E) 121.5 MHz(E)	H24	
DEP	Komatsu Departure	362.3MHz 120.1MHz 121.25MHz 121.5MHz(E) 243.0MHz(E)	H24	
TCA	Komatsu TCA	127.95MHz 292.2MHz	2300 - 1100 SUN - THU (EXC HOL)	
TWR	Komatsu Tower	236.8MHz 126.2MHz 304.8MHz 118.25MHz 247.0MHz(1)(2) 138.05MHz(1) 123.1MHz(1)(2) 243.0MHz(E) 121.5MHz(E)	H24	(1)For rescue only. (2)AVBL on request.
GND	Komatsu Ground	275.8MHz 121.7MHz	H24	
GCA-ASR -PAR	Komatsu Radar	335.6 MHz 270.8 MHz 134.1 MHz 125.3 MHz 315.0 MHz 300.7 MHz 304.6 MHz 247.3 MHz 302.2 MHz 319.0 MHz 243.0 MHz(E) 121.5 MHz(E)	H24	ASR RWY 06, PAR RWY 06/24.  Glide path 3.0°

## RJNK AD 2.19 RADIO NAVIGATION AND LANDING AIDS

Type of aid (VOR declination)	ID	Frequency	Hours of operation	Position of transmitting antenna coordinates	Elevation of DME transmitting antenna	Remarks
1	2	3	4	5	6	7
VOR (8°W /2018)	KMC	112.0MHz	H24	362347.29N/ 1362415.31E		VOR Unusable: 100°-110° beyond 30nm BLW 8000ft. 130°-150° beyond 30nm BLW 11000ft. 150°-170° beyond 30nm BLW 8000ft.
TACAN	KMC	1018MHz (CH-57X)	H24	362347.36N/ 1362418.49E		TACAN Unusable: R080-090 beyond 25nm BLW 8000ft. R090-110 beyond 27nm BLW 9000ft. R110-130 beyond 33nm BLW 11000ft. R130-140 beyond 27nm BLW 11000ft. R140-150 beyond 30nm BLW 11000ft. R150-160 beyond 36nm BLW 11000ft. R160-180 beyond 25nm BLW 8000ft. R180-190 beyond 35nm BLW 8000ft. R190-200 beyond 32nm BLW 8000ft. R210-220 beyond 33nm BLW 5000ft.
ILS-LOC 06	IKM	110.1MHz	2230 - 1330	362411.09N/ 1362526.06E		LOC: 439m (1440ft) FM RWY 24 THR on the extended RCL. BRG (MAG) 063°.
ILS-GP 06	-	334.4MHz	2230 - 1330	362323.29N/ 1362350.88E		GP: 351m (1152ft) FM RWY 06 THR. 130m (427ft) NW of RCL. HGT of ILS Ref datum 16.5m (54ft). Angle 3.0°.
ILS-DME 06	IKM	999 MHz (CH-38X)	2230 - 1330	362323.72N/ 1362350.72E	46ft	DME : 355m (1165ft) FM RWY 06 THR. 143m (469ft) NW of RCL.
MSAS		1575.42MHz	H24			Transmitting antennas are satellite based



- REMARKS :
1. ILS-LOC beam BRG(MAG) 063°
  2. HGT of ILS REF datum 16.5m(54ft)
  3. ILS-GP Angle 3.0°
  4. ELEV of ILS-DME 13.8m(46ft)

## RJNK AD 2.20 LOCAL TRAFFIC REGULATIONS

1. Airport regulations

PPR for transient civil ACFT (ext HEL) to use this AD.

2. Taxiing to and from stands

Nil

3. Parking area for small aircraft(General aviation)

Nil

4. Parking area for helicopters

Nil

5. Apron - taxiing during winter conditions

Nil

6. Taxiing - limitations

Nil

7. School and training flights - technical test flights - use of runways

Nil

8. Helicopter traffic - limitation

Nil

9. Removal of disabled aircraft from runways

Nil

## RJNK AD 2.21 NOISE ABATEMENT PROCEDURES

Nil

**RJNK AD 2.22 FLIGHT PROCEDURES****1. TAKE OFF MINIMA**

	RWY	REDL AVBL		REDL OUT	
		CEIL-RVR	CEIL-VIS	CEIL-RVR	CEIL-VIS
TKOF ALTN AP FILED	06	0'-600m	0'-600m	0'-800m	0'-800m
	24	0'-600m	0'-600m	0'-800m	0'-800m
OTHER	06	AVBL LDG MINIMA			
	24				

NOTE: SIDs are designed in accordance with provisional standards for FLIGHT PROCEDURE DESIGN.

**TAKE OFF MINIMA for RNAV DEPARTURE**

	RWY	ACFT CAT	REDL & RCLL		REDL or RCLL or RCL marking		NIL (DAYTIME ONLY)	
			RVR	VIS	RVR	VIS	RVR	VIS
Multi-Engine ACFT with TKOF ALTN AP Filed	06	A,B, C,D	-	-	400m	400m	-	500m
	24	A,B, C,D	-	-	400m	400m	-	500m
OTHER	06	A,B, C,D	AVBL LDG MINIMA					
	24							

**2. WX MINIMA CONCERNING PAR/ASR APCH PROCEDURE**

PAR RWY 06

MINIMA		THR ELEV: 38	AD ELEV: 22	
CAT			CIRCLING	
	DA(H)	RVR/ CMV	MDA(H)	VIS
A	238(200)	750	520(498)	1600
B				2400
C				
D			640(618)	3200

PAR RWY 24

MINIMA		THR ELEV: 18	AD ELEV: 22	
CAT			CIRCLING	
	DA(H)	RVR/ CMV	MDA(H)	VIS
A	222(204)	750	520(498)	1600
B				2400
C				
D			640(618)	3200

ASR RWY 06

MINIMA		THR ELEV: 38	AD ELEV: 22	
CAT			CIRCLING	
	MDA(H)	RVR/ CMV	MDA(H)	VIS
A	500(478)	1000	500(478)	1600
B		1200		2400
C				
D		1600		3200

**3. Lost communication procedures for arrival aircraft under radar navigational guidance**

If radio communications with KOMATSU Radar/GCA are lost for 1 minute or 5 seconds (PAR)/15 seconds (ASR) on final approach, squawk Mode A/3 Code 7600 and,

- (I)
1. Contact KOMATSU Radar /Tower.
  2. If unable, proceed in accordance with Visual Flight Rules.
  3. If unable, proceed to TACAN IAF or KOMATSU VOR at last assigned altitude or 4,000 feet whichever is higher, and execute instrument approach.
- (II) Procedures other than above will be issued when situation required.

**4. Automated Radar Terminal System (ARTS)**

Aircraft flying within the approach control area under the control of Komatsu terminal control will be instructed to reply with discrete code on Mode A/3 and Mode C.

If an aircraft with non-discrete code capability be instructed to reply with the discrete code, it shall report a controller accordingly.

小松ターミナル管制所の指示のもとに、当該進入管制区を飛行する航空機は、モード A / 3 の二次レーダー個別コード及びモード C による応答を指示される。

二次レーダー個別コードを搭載していない航空機が当該コードによる応答を指示された場合は、管制官に対しその旨を通報すること。

**RJNK AD 2.23 ADDITIONAL INFORMATION**

Nil

**RJNK AD 2.24 CHARTS RELATED TO AN AERODROME****Aerodrome Chart**

Standard Departure Chart - Instrument (MANAH, GINJO, SONBU-RNAV)

Standard Departure Chart - Instrument (NOTO, MIYAZU, KOMATSU, KAGA)\*

Standard Arrival Chart - Instrument (KOMATSU, HIMMY, IMIZU, YARII, SONBU-RNAV)

Instrument Approach Chart (ILS Z or LOC Z RWY06)

Instrument Approach Chart (ILS Y or LOC Y RWY06)

Instrument Approach Chart (VOR RWY06)

Instrument Approach Chart (RNAV(GNSS) RWY24)

Instrument Approach Chart (TACAN NR1)\*

Instrument Approach Chart (TACAN NR2)\*

Instrument Approach Chart (TACAN NR3)\*

Instrument Approach Chart (TACAN NR4)\*

Other Chart (LDG CHART)

Other Chart (MVA CHART)

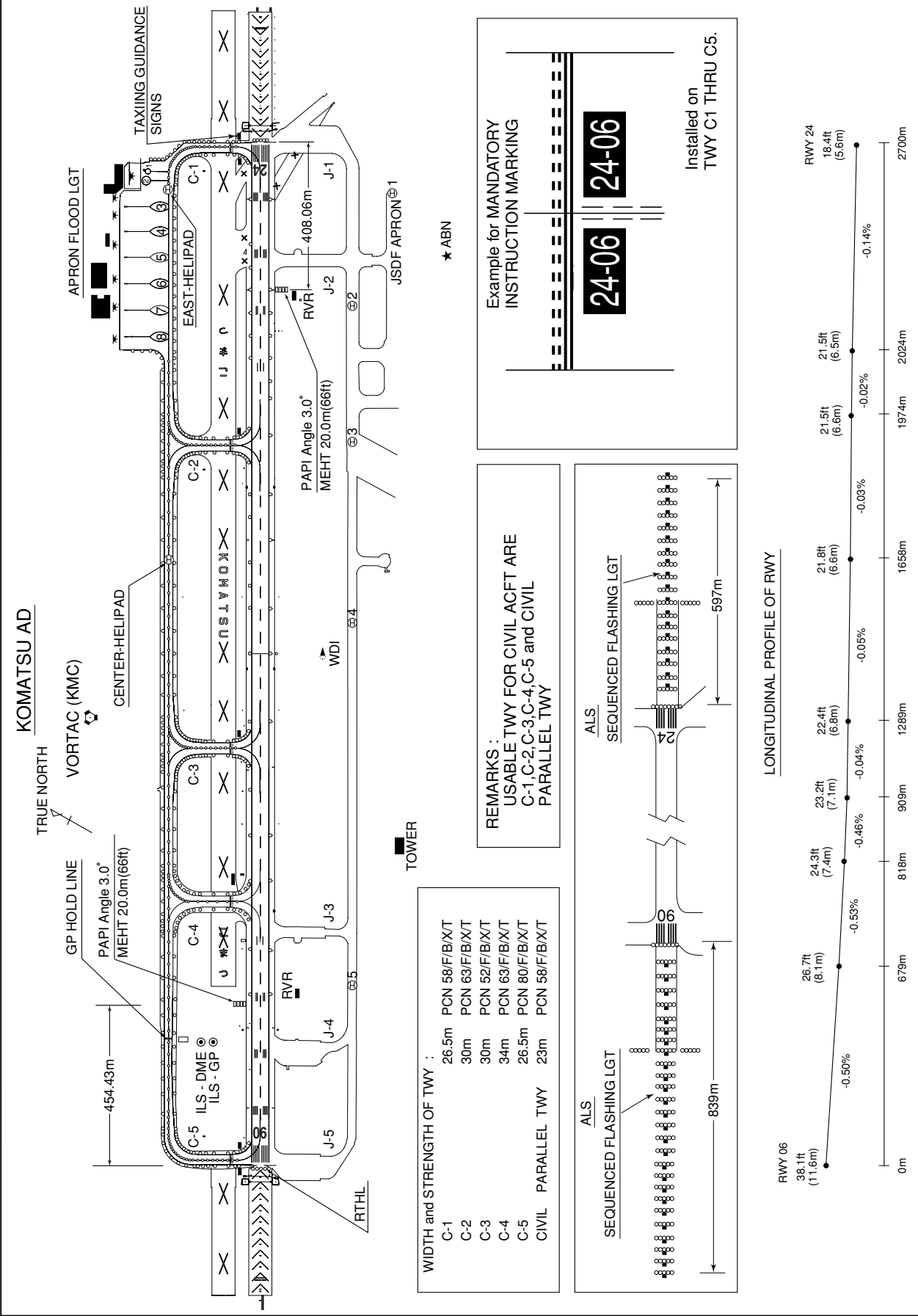
\*: Designed in accordance with provisional standards for FLIGHT PROCEDURE DESIGN.

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RJNK / KOMATSU

AD CHART



## STANDARD DEPARTURE CHART -INSTRUMENT

RJNK / KOMATSU

RNAV SID and TRANSITION

MANAH TWO DEPARTURE		RNAV1
Note 1 ) DME/DME/IRU or GNSS required. ※The aircraft equipped with only DME/DME/IRU must be able to update its position without delay at the starting point of take-off roll. 2 ) RADAR service required.	Critical DME	RWY06 KMC, YME: 10NM to KAETU - 30NM to MANAH, 23NM to MANAH - 3NM to MANAH RWY24 KMC, YME: 23NM to MANAH - 3NM to MANAH
	DME GAP	RWY06 06DER - 10NM to KAETU 30NM to MANAH - 23NM to MANAH RWY24 24DER - 23NM to MANAH
	Inappropriate Navaids	See AD1.1.6.10.3. Inappropriate NAVAIDs for RNAV1

VAR 8° W(2014)

**MANAH TWO DEPARTURE**

RWY06 : Climb on HDG063° at or above 500FT, turn left direct to KAETU, to MANAH.

RWY24 : Climb on HDG243° at or above 500FT, direct to AWAZU, to MANAH.

NOTE RWY06 : 4.1% climb gradient required up to 3900FT.

OBST ALT 3215FT located at 13.0NM 200° FM end of RWY06.

RWY24 : 4.8% climb gradient required up to 3900FT.

OBST ALT 3215FT located at 12.0NM 195° FM end of RWY24.

**KOMAKI TRANSITION**

From MANAH to KCC.

CHANGE : Minor change

## STANDARD DEPARTURE CHART -INSTRUMENT

## RJNK / KOMATSU

## RNAV SID and TRANSITION

MANAH TWO DEPARTURE

## RWY06

Serial Number	Path Descriptor	Waypoint Identifier	Fly Over	Course °M(°T)	Magnetic Variation	Distance (NM)	Turn Direction	Altitude (FT)	Speed (KIAS)	Vertical Angle	Navigation Specification
001	VA	—	—	063 (055.0)	-7.7	—	—	+500	—	—	RNAV1
002	DF	KAETU	—	—	-7.7	—	L	—	—	—	RNAV1
003	TF	MANAH	—	162 (154.3)	-7.7	32.9	—	—	—	—	RNAV1

## RWY24

Serial Number	Path Descriptor	Waypoint Identifier	Fly Over	Course °M(°T)	Magnetic Variation	Distance (NM)	Turn Direction	Altitude (FT)	Speed (KIAS)	Vertical Angle	Navigation Specification
001	VA	—	—	243 (235.0)	-7.7	—	—	+500	—	—	RNAV1
002	DF	AWAZU	Y	—	-7.7	—	—	—	—	—	RNAV1
003	TF	MANAH	—	162 (154.7)	-7.7	28.0	—	—	—	—	RNAV1

KOMAKI TRANSITION

Serial Number	Path Descriptor	Waypoint Identifier	Fly Over	Course °M(°T)	Magnetic Variation	Distance (NM)	Turn Direction	Altitude (FT)	Speed (KIAS)	Vertical Angle	Navigation Specification
001	IF	MANAH	—	—	-7.7	—	—	—	—	—	RNAV1
002	TF	KCC	—	162 (154.5)	-7.7	42.7	—	—	—	—	RNAV1

## STANDARD DEPARTURE CHART -INSTRUMENT

RJNK / KOMATSU

RNAV SID and TRANSITION



## STANDARD DEPARTURE CHART -INSTRUMENT

RJNK / KOMATSU

RNAV SID and TRANSITION

GINJO TWO DEPARTURE

## RWY06

Serial Number	Path Descriptor	Waypoint Identifier	Fly Over	Course °M(°T)	Magnetic Variation	Distance (NM)	Turn Direction	Altitude (FT)	Speed (KIAS)	Vertical Angle	Navigation Specification
001	VA	—	—	063 (055.0)	-7.7	—	—	+500	—	—	RNAV1
002	DF	HAKUI	—	—	-7.7	—	L	—	—	—	RNAV1
003	TF	GINJO	—	014 (006.5)	-7.7	23.3	—	—	—	—	RNAV1
004	TF	NTE	—	064 (056.0)	-7.7	15.0	—	—	—	—	RNAV1

## RWY24

Serial Number	Path Descriptor	Waypoint Identifier	Fly Over	Course °M(°T)	Magnetic Variation	Distance (NM)	Turn Direction	Altitude (FT)	Speed (KIAS)	Vertical Angle	Navigation Specification
001	VA	—	—	243 (235.0)	-7.7	—	—	+500	—	—	RNAV1
002	DF	HAKUI	—	—	-7.7	—	R	—	—	—	RNAV1
003	TF	GINJO	—	014 (006.5)	-7.7	23.3	—	—	—	—	RNAV1
004	TF	NTE	—	064 (056.0)	-7.7	15.0	—	—	—	—	RNAV1

KINZAN TRANSITION

Serial Number	Path Descriptor	Waypoint Identifier	Fly Over	Course °M(°T)	Magnetic Variation	Distance (NM)	Turn Direction	Altitude (FT)	Speed (KIAS)	Vertical Angle	Navigation Specification
001	IF	NTE	—	—	-7.7	—	—	—	—	—	RNAV1
002	TF	GOLDO	—	063 (055.4)	-7.7	83.0	—	—	—	—	RNAV1

## STANDARD DEPARTURE CHART -INSTRUMENT

RJNK / KOMATSU

RNAV SID

## SONBU TWO DEPARTURE

RNAV1

Note 1 ) DME/DME/IRU or GNSS required.

※The aircraft equipped with only DME/DME/IRU must be able to update its position without delay at the starting point of take-off roll.

2 ) RADAR service required.

Critical DME

RWY06

YME: 30NM to SONBU - 6NM to SONBU

RWY24

YME: 23NM to SONBU - 6NM to SONBU

DME GAP

RWY06

06DER - 44.5NM to SONBU

RWY24

24DER - 23NM to SONBU

Inappropriate Navaids

See AD1.1.6.10.3. Inappropriate NAVAIDs for RNAV1

VAR 8°W(2014)

## SONBU TWO DEPARTURE



## SONBU TWO DEPARTURE

RWY06 : Climb on HDG063° at or above 500FT, turn left direct to SONBU.

RWY24 : Climb on HDG243° at or above 500FT, turn right direct to SONBU.

## STANDARD DEPARTURE CHART -INSTRUMENT

RJNK / KOMATSU

RNAV SID

SONBU TWO DEPARTURE

## RWY06

Serial Number	Path Descriptor	Waypoint Identifier	Fly Over	Course °M(°T)	Magnetic Variation	Distance (NM)	Turn Direction	Altitude (FT)	Speed (KIAS)	Vertical Angle	Navigation Specification
001	VA	—	—	063 (055.0)	-7.7	—	—	+500	—	—	RNAV1
002	DF	SONBU	—	—	-7.7	—	L	—	—	—	RNAV1

## RWY24

Serial Number	Path Descriptor	Waypoint Identifier	Fly Over	Course °M(°T)	Magnetic Variation	Distance (NM)	Turn Direction	Altitude (FT)	Speed (KIAS)	Vertical Angle	Navigation Specification
001	VA	—	—	243 (235.0)	-7.7	—	—	+500	—	—	RNAV1
002	DF	SONBU	—	—	-7.7	—	R	—	—	—	RNAV1

STANDARD DEPARTURE CHART -INSTRUMENT

RJNK / KOMATSU

SID

NOTO TWO DEPARTURE

RWY06: Turn left,...

RWY24: Turn right,...

... climb via KMC R016 to intercept and proceed via NTE R244 to NTE VOR/DME.

Cross KMC R016/10.0DME at or below 7000FT, cross NTE R244/15.0DME at assigned altitude.



CHANGE : SID renamed



## STANDARD DEPARTURE CHART -INSTRUMENT

RJNK / KOMATSU

SID

MIYAZU FOUR DEPARTURE

RWY 06 : Turn left,...

RWY 24 : Turn right,...

...climb via KMC R286 to intercept and proceed via YME R040 to YME VOR/DME.

Cross KMC R286/10.0DME (YME R050) at or below 7000FT ( \*at 7000FT), cross YME R040/48.0DME (KMC R256) at assigned altitude.

\*YME R050 MRA 7000FT

KOMATSU REVERSAL THREE DEPARTURE

RWY 06 : Turn left,...

RWY 24 : Turn right,...

...climb via KMC R351, turn left to intercept and proceed via KMC R331 to KMC VORTAC within KMC 30.0DME.

Cross KMC R351/8.0DME at or below 7000FT, cross KMC R331/10.0DME at assigned altitude.

KAGA FOUR DEPARTURE

RWY 06 : Turn left,...

RWY 24 : Turn right,...

...climb via KMC R331 to intercept and proceed via KMC 30.0DME counterclockwise ARC, turn right to intercept and proceed via KMC R261 to SAKYU.

Cross KMC R331/8.0DME at or below 7000FT, cross KMC R275 at assigned altitude.

CHANGE : SID renamed

STANDARD DEPARTURE CHART -INSTRUMENT



## STANDARD ARRIVAL CHART-INSTRUMENT

RJNK / KOMATSU

RNAV STAR RWY06

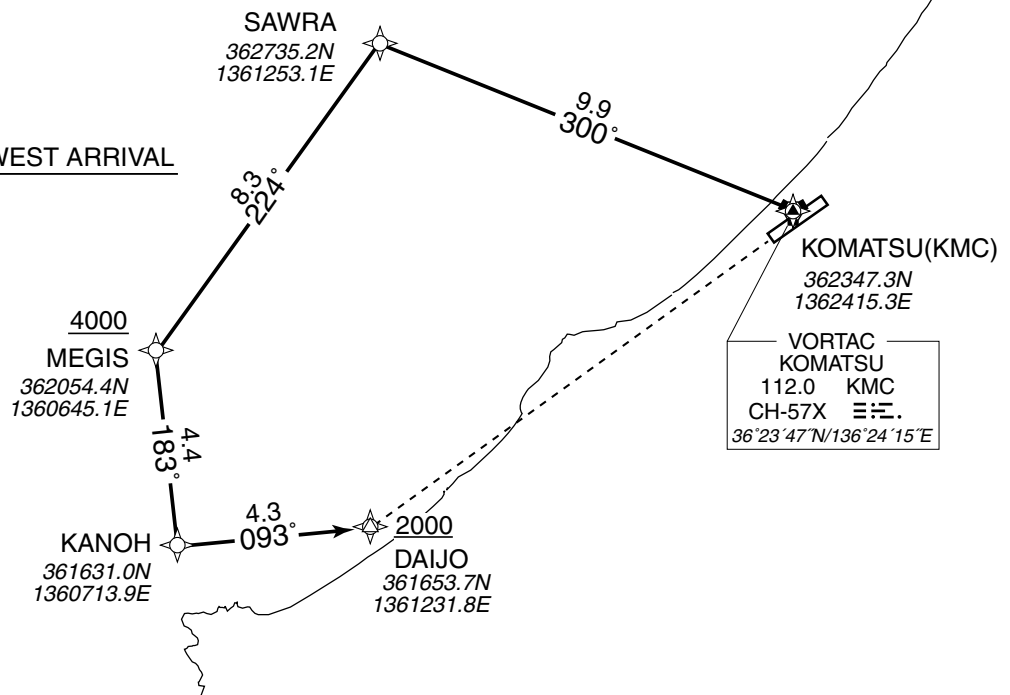
## KOMATSU WEST ARRIVAL

RNAV 1

Note 1 ) DME/DME/IRU or GNSS required.  
2 ) RADAR service required.

VAR 8°W (2014)

## KOMATSU WEST ARRIVAL



## KOMATSU WEST ARRIVAL

From KMC, to SAWRA, to MEGIS at or above 4000FT, to KANOH, to DAIJO at or above 2000FT.

Critical DME	KMC : 6.9nm to SAWRA - 5.0nm to SAWRA KMC : 2.0nm to SAWRA - 5.0nm to MEGIS KMC : MEGIS - 3.0nm to KANOH YME : 6.9nm to SAWRA - 5.0nm to SAWRA YME : 2.0nm to SAWRA - 5.0nm to MEGIS YME : MEGIS - 3.0nm to KANOH
DME GAP	KMC - 6.9nm to SAWRA 5.0nm to SAWRA - 2.0nm to SAWRA 5.0nm to MEGIS - MEGIS 3.0nm to KANOH - DAIJO
Inappropriate Navaids	See AD1.1.6.10.3 Inappropriate NAVAIDS for RNAV1

Serial Number	Path Descriptor	Waypoint Identifier	Fly Over	Course °M(°T)	Magnetic Variation	Distance (NM)	Turn Direction	Altitude (FT)	Speed (KIAS)	Vertical Angle	Navigation Specification
001	IF	KMC	—	—	-7.7	—	—	—	—	—	RNAV1
002	TF	SAWRA	—	300 (292.6)	-7.7	9.9	—	—	—	—	RNAV1
003	TF	MEGIS	—	224 (216.5)	-7.7	8.3	—	+4000	—	—	RNAV1
004	TF	KANOH	—	183 (175.0)	-7.7	4.4	—	—	—	—	RNAV1
005	TF	DAIJO	—	093 (084.9)	-7.7	4.3	—	+2000	—	—	RNAV1

## STANDARD ARRIVAL CHART-INSTRUMENT

RJNK / KOMATSU

RNAV STAR RWY06

## HIMMY WEST ARRIVAL

RNAV 1

Note 1 ) DME/DME/IRU or GNSS required.  
2 ) RADAR service required.

VAR 8°W (2014)



## HIMMY WEST ARRIVAL

From HIMMY, to BURRI at or above 8000FT, to MEGIS at or above 4000FT, to KANOH, to DAIJO at or above 2000FT.

Critical DME	TOE : HIMMY - 11.0nm to BURRI TOE : 8.0nm to MEGIS - 7.0nm to MEGIS KMC : HIMMY - 30.0nm to BURRI KMC : 24.0nm to BURRI - 22.0nm to BURRI KMC : 17.0nm to BURRI - 15.0nm to BURRI KMC : 8.0nm to MEGIS - 7.0nm to MEGIS KMC : MEGIS - 3.0nm to KANOH YME : MEGIS - 3.0nm to KANOH
DME GAP	7.0nm to MEGIS - MEGIS 3.0nm to KANOH - DAIJO
Inappropriate Nav aids	See AD1.1.6.10.3 Inappropriate NAVAIDs for RNAV1

Serial Number	Path Descriptor	Waypoint Identifier	Fly Over	Course °M(°T)	Magnetic Variation	Distance (NM)	Turn Direction	Altitude (FT)	Speed (KIAS)	Vertical Angle	Navigation Specification
001	IF	HIMMY	—	—	-7.7	—	—	—	—	—	RNAV1
002	TF	BURRI	—	248 (239.9)	-7.7	34.8	—	+8000	—	—	RNAV1
003	TF	MEGIS	—	224 (216.5)	-7.7	13.5	—	+4000	—	—	RNAV1
004	TF	KANOH	—	183 (175.0)	-7.7	4.4	—	—	—	—	RNAV1
005	TF	DAIJO	—	093 (084.9)	-7.7	4.3	—	+2000	—	—	RNAV1

## STANDARD ARRIVAL CHART-INSTRUMENT

RJNK / KOMATSU

RNAV STAR RWY06

## IMIZU WEST ARRIVAL

RNAV 1

Note 1 ) DME/DME/IRU or GNSS required.  
2 ) RADAR service required.

VAR 8°W (2014)

**IMIZU WEST ARRIVAL**

From IMIZU, to JYOZO, to BURRI at or above 8000FT, to MEGIS at or above 4000FT, to KANO, to DAIJO at or above 2000FT.

Critical DME	TOE : IMIZU - 10.0nm to BURRI KMC : 4.0nm to JYOZO - JYOZO KMC : 24.0nm to BURRI - 22.0nm to BURRI KMC : 17.0nm to BURRI - 15.0nm to BURRI KMC : 7.0nm to MEGIS - 5.0nm to MEGIS KMC : MEGIS - 3.0nm to KANO YME : 7.0nm to MEGIS - 5.0nm to MEGIS YME : MEGIS - 3.0nm to KANO
DME GAP	5.0nm to MEGIS - MEGIS 3.0nm to KANO - DAIJO
Inappropriate Navaids	See AD1.1.6.10.3 Inappropriate NAVAIDS for RNAV1

Serial Number	Path Descriptor	Waypoint Identifier	Fly Over	Course °M(°T)	Magnetic Variation	Distance (NM)	Turn Direction	Altitude (FT)	Speed (KIAS)	Vertical Angle	Navigation Specification
001	IF	IMIZU	—	—	-7.7	—	—	—	—	—	RNAV1
002	TF	JYOZO	—	293 (285.1)	-7.7	9.0	—	—	—	—	RNAV1
003	TF	BURRI	—	248 (239.8)	-7.7	29.7	—	+8000	—	—	RNAV1
004	TF	MEGIS	—	224 (216.5)	-7.7	13.5	—	+4000	—	—	RNAV1
005	TF	KANO	—	183 (175.0)	-7.7	4.4	—	—	—	—	RNAV1
006	TF	DAIJO	—	093 (084.9)	-7.7	4.3	—	+2000	—	—	RNAV1

## STANDARD ARRIVAL CHART-INSTRUMENT

RJNK / KOMATSU

RNAV STAR RWY06

## YARII WEST ARRIVAL

RNAV 1

Note 1 ) DME/DME/IRU or GNSS required.  
2 ) RADAR service required.

VAR 8°W (2014)



## YARII WEST ARRIVAL

From YARII, to HESEN at or above 11000FT, to EIHEI at or above 6000FT, to DAIAN at or above 5000FT, to SAIKO at or above 3500FT, to DAIJO at or above 2000FT.

Critical DME	KMC : 14.0nm to HESEN -EIHEI YME : HESEN-EIHEI
DME GAP	EIHEI - DAIJO
Inappropriate Navaids	See AD1.1.6.10.3 Inappropriate NAVAIDs for RNAV1

Serial Number	Path Descriptor	Waypoint Identifier	Fly Over	Course °M(°T)	Magnetic Variation	Distance (NM)	Turn Direction	Altitude (FT)	Speed (KIAS)	Vertical Angle	Navigation Specification
001	IF	YARII	—	—	-7.7	—	—	—	—	—	RNAV1
002	TF	HESEN	—	269 (261.6)	-7.7	31.7	—	+11000	—	—	RNAV1
003	TF	EIHEI	—	269 (261.3)	-7.7	9.4	—	+6000	—	—	RNAV1
004	TF	DAIAN	—	269 (261.1)	-7.7	5.7	—	+5000	—	—	RNAV1
005	TF	SAIKO	—	319 (311.3)	-7.7	5.7	—	+3500	—	—	RNAV1
006	TF	DAIJO	—	033 (024.9)	-7.7	4.3	—	+2000	—	—	RNAV1

## STANDARD ARRIVAL CHART-INSTRUMENT

RJNK / KOMATSU

RNAV STAR RWY06

## SONBU WEST ARRIVAL

RNAV 1

Note 1 ) DME/DME/IRU or GNSS required.  
2 ) RADAR service required.

VAR 8°W (2014)

SONBU WEST ARRIVAL

From SONBU, to KRAKE at or above 5000FT, to KOAJI at or above 3500FT, to DAIJO at or above 2000FT.

Critical DME	KMC : SONBU - 8.0nm to KRAKE YME : SONBU - 8.0nm to KRAKE
DME GAP	8.0nm to KRAKE - DAIJO
Inappropriate Navaids	See AD1.1.6.10.3 Inappropriate NAVAIDs for RNAV1

Serial Number	Path Descriptor	Waypoint Identifier	Fly Over	Course °M(°T)	Magnetic Variation	Distance (NM)	Turn Direction	Altitude (FT)	Speed (KIAS)	Vertical Angle	Navigation Specification
001	IF	SONBU	—	—	-7.7	—	—	—	—	—	RNAV1
002	TF	KRAKE	—	116 (108.5)	-7.7	16.2	—	+5000	—	—	RNAV1
003	TF	KOAJI	—	062 (054.7)	-7.7	10.0	—	+3500	—	—	RNAV1
004	TF	DAIJO	—	063 (054.8)	-7.7	8.3	—	+2000	—	—	RNAV1

## STANDARD ARRIVAL CHART-INSTRUMENT

RJNK / KOMATSU

RNAV STAR RWY24

## KOMATSU EAST ARRIVAL

RNAV 1

Note 1 ) DME/DME/IRU or GNSS required.  
2 ) RADAR service required.

VAR 8°W (2014)



## KOMATSU EAST ARRIVAL

From KMC, to YAMJI, to ZEBRA at or above 4000FT, to HIMRO at or above 2600FT.

Critical DME	KMC : 6.6nm to YAMJI - YAMJI YME : 6.6nm to YAMJI - YAMJI
DME GAP	KMC - 6.6nm to YAMJI YAMJI - HIMRO
Inappropriate Navaids	See AD1.1.6.10.3 Inappropriate NAVAIDs for RNAV1

Serial Number	Path Descriptor	Waypoint Identifier	Fly Over	Course °M(°T)	Magnetic Variation	Distance (NM)	Turn Direction	Altitude (FT)	Speed (KIAS)	Vertical Angle	Navigation Specification
001	IF	KMC	—	—	-7.7	—	—	—	—	—	RNAV1
002	TF	YAMJI	—	360 (352.5)	-7.7	9.6	—	—	—	—	RNAV1
003	TF	ZEBRA	—	080 (072.2)	-7.7	4.5	—	+4000	—	—	RNAV1
004	TF	HIMRO	—	083 (075.6)	-7.7	5.0	—	+2600	—	—	RNAV1



## STANDARD ARRIVAL CHART-INSTRUMENT

RJNK / KOMATSU

RNAV STAR RWY24

## HIMMY EAST ARRIVAL

RNAV 1

Note 1 ) DME/DME/IRU or GNSS required.  
2 ) RADAR service required.

VAR 8°W (2014)

HIMMY EAST ARRIVAL

From HIMMY, to GINRE at or above 7000FT, to KINKA at or above 5000FT.

Critical DME	TOE : HIMMY - GINRE TOE : 12.0nm to KINKA - 9.0nm to KINKA KMC : HIMMY - 7.0nm to GINRE KMC : 6.0nm to GINRE - 2.0nm to GINRE YME : 12.0nm to KINKA - 9.0nm to KINKA
DME GAP	GINRE - 12.0nm to KINKA 9.0nm to KINKA - KINKA
Inappropriate Nav aids	See AD1.1.6.10.3 Inappropriate NAVAIDs for RNAV1

Serial Number	Path Descriptor	Waypoint Identifier	Fly Over	Course °M(°T)	Magnetic Variation	Distance (NM)	Turn Direction	Altitude (FT)	Speed (KIAS)	Vertical Angle	Navigation Specification
001	IF	HIMMY	—	—	-7.7	—	—	—	—	—	RNAV1
002	TF	GINRE	—	178 (170.4)	-7.7	10.7	—	+7000	—	—	RNAV1
003	TF	KINKA	—	247 (239.1)	-7.7	12.7	—	+5000	—	—	RNAV1

## STANDARD ARRIVAL CHART-INSTRUMENT

RJNK / KOMATSU

RNAV STAR RWY24

## IMIZU EAST ARRIVAL

RNAV 1

Note 1 ) DME/DME/IRU or GNSS required.  
2 ) RADAR service required.

VAR 8°W (2014)



## IMIZU EAST ARRIVAL

From IMIZU, to GINRE at or above 7000FT, to KINKA at or above 5000FT.

Critical DME	TOE : IMIZU - GINRE TOE : 12.0nm to KINKA - 9.0nm to KINKA KMC : IMIZU - 2.0nm to GINRE YME : 12.0nm to KINKA - 9.0nm to KINKA
DME GAP	GINRE - 12.0nm to KINKA 9.0nm to KINKA - KINKA
Inappropriate Nav aids	See AD1.1.6.10.3 Inappropriate NAVAIDS for RNAV1

Serial Number	Path Descriptor	Waypoint Identifier	Fly Over	Course °M(°T)	Magnetic Variation	Distance (NM)	Turn Direction	Altitude (FT)	Speed (KIAS)	Vertical Angle	Navigation Specification
001	IF	IMIZU	—	—	-7.7	—	—	—	—	—	RNAV1
002	TF	GINRE	—	211 (203.4)	-7.7	6.2	—	+7000	—	—	RNAV1
003	TF	KINKA	—	247 (239.1)	-7.7	12.7	—	+5000	—	—	RNAV1

## STANDARD ARRIVAL CHART-INSTRUMENT

RJNK / KOMATSU

RNAV STAR RWY24

## YARII EAST ARRIVAL

RNAV 1

Note 1 ) DME/DME/IRU or GNSS required.  
2 ) RADAR service required.

VAR 8°W (2014)



## YARII EAST ARRIVAL

From YARII, to HIDAH at or above 11000FT, to GINRE at or above 7000FT, to KINKA at or above 5000FT.

Critical DME	TOE : 8.0nm to HIDAH - 8.0nm to GINRE TOE : 1.0nm to GINRE - GINRE TOE : 12.0nm to KINKA - 9.0nm to KINKA KMC : 2.0nm to HIDAH - 8.0nm to GINRE YME : 1.0nm to GINRE - GINRE YME : 12.0nm to KINKA - 9.0nm to KINKA
DME GAP	8.0nm to GINRE - 1.0nm to GINRE GINRE - 12.0nm to KINKA 9.0nm to KINKA - KINKA
Inappropriate Nav aids	See AD1.1.6.10.3 Inappropriate NAVAIDS for RNAV1

Serial Number	Path Descriptor	Waypoint Identifier	Fly Over	Course °M(°T)	Magnetic Variation	Distance (NM)	Turn Direction	Altitude (FT)	Speed (KIAS)	Vertical Angle	Navigation Specification
001	IF	YARII	—	—	-7.7	—	—	—	—	—	RNAV1
002	TF	HIDAH	—	337 (329.5)	-7.7	16.7	—	+11000	—	—	RNAV1
003	TF	GINRE	—	337 (329.4)	-7.7	9.4	—	+7000	—	—	RNAV1
004	TF	KINKA	—	247 (239.1)	-7.7	12.7	—	+5000	—	—	RNAV1

## STANDARD ARRIVAL CHART-INSTRUMENT

RJNK / KOMATSU

RNAV STAR RWY24

## SONBU EAST ARRIVAL

RNAV 1

Note 1 ) DME/DME/IRU or GNSS required.  
2 ) RADAR service required.

VAR 8°W (2014)



## SONBU EAST ARRIVAL

From SONBU, to BURRI at or above 8000FT, to ZEBRA at or above 4000FT, to HIMRO at or above 2600FT.

Critical DME	YME : SONBU - 8.0nm to BURRI KMC : 34.0nm to BURRI - 8.0nm to BURRI KMC : 7.0nm to BURRI - 5.0nm to BURRI KMC : BURRI - 7.0nm to ZEBRA KMC : 6.0nm to ZEBRA - 5.0nm to ZEBRA TOE : 7.0nm to BURRI - 5.0nm to BURRI TOE : BURRI - 7.0nm to ZEBRA TOE : 6.0nm to ZEBRA - 5.0nm to ZEBRA
DME GAP	8.0nm to BURRI - 7.0nm to BURRI 5.0nm to ZEBRA - HIMRO
Inappropriate Nav aids	See AD1.1.6.10.3 Inappropriate NAVAIDS for RNAV1

Serial Number	Path Descriptor	Waypoint Identifier	Fly Over	Course °M(°T)	Magnetic Variation	Distance (NM)	Turn Direction	Altitude (FT)	Speed (KIAS)	Vertical Angle	Navigation Specification
001	IF	SONBU	—	—	-7.7	—	—	—	—	—	RNAV1
002	TF	BURRI	—	066 (058.8)	-7.7	39.2	—	+8000	—	—	RNAV1
003	TF	ZEBRA	—	080 (072.1)	-7.7	9.6	—	+4000	—	—	RNAV1
004	TF	HIMRO	—	083 (075.6)	-7.7	5.0	—	+2600	—	—	RNAV1

## INSTRUMENT APPROACH CHART

RJNK / KOMATSU

ILS Z or LOC Z RWY06



## INSTRUMENT APPROACH CHART

RJNK / KOMATSU

ILS Y or LOC Y RWY06



## INSTRUMENT APPROACH CHART

RJNK / KOMATSU

VOR RWY06



## INSTRUMENT APPROACH CHART

RJNK / KOMATSU

RNAV(GNSS) RWY24



## MISSED APPROACH

Turn right, direct to GOZEN  
and hold at 3000FT.  
Contact KOMATSU APP.

(For using VORTAC)

Climb to 3000FT via KMC R286  
to GOZEN and hold.  
Contact KOMATSU APP.



## MINIMA

THR elev. 18

AD elev. 22

CAT	LNAV/VNAV		LNAV		CIRCLING	
	DA(H)	RVR/CMV	MDA(H)	RVR/CMV	MDA(H)	VIS
A	420 (402)	1200	420 (398)	1200	510 (488)	1600
B		1300		1300		
C		1400		1400		
D		1600		1600		

CHANGE : Radial



INSTRUMENT APPROACH CHART



## INSTRUMENT APPROACH CHART

RJNK / KOMATSU

TACAN NR.2



CHANGE : VAR, MSA

INSTRUMENT APPROACH CHART



## INSTRUMENT APPROACH CHART

RJNK / KOMATSU

TACAN NR.4



MINIMA

AD elev. 22

CAT	CIRCLING	
	MDA(H)	VIS
A	540 (518)	1600
B		2400
C	580 (558)	3200
D		

CHANGE : VAR, MSA



注： 小松飛行場の本滑走路の供用開始に伴い、着陸する航空機は、運用を廃止した仮設滑走路に誤認着陸しないように注意すること。

Note: With an in-service start of this runway of Komatsu aerodrome, warn a landing aircraft not to land at the out-service temporary runway.

備考：1. 仮設滑走路には禁止標識が設置される（300m以内に1個標準）。

2. 航空機の到着機がある場合は、気象状態にかかわらず着陸滑走路の進入灯が常時点灯される。

3. 管制官からの着陸許可発出後に注意喚起のため、次の用語が通報される場合がある。

用語例：「VERIFY LANDING RUNWAY.」

Rem: 1. A closed marking is installed in a temporary runway (one less than 300m, standard).

2. When there is arrival aircraft, approach lights of a landing runway is always turned on regardless of a weather state.

3. There is the case that the next term is reported to for attention awakening after a landing permission from a ATC.

A term example : 「VERIFY LANDING RUNWAY.」 .

## Minimum Vectoring Altitude CHART

The diagram is a polar plot showing the radiation pattern of an antenna. The radial distance from the center represents the range in NM (Nautical Miles), with concentric circles labeled 5NM, 10NM, 20NM, 30NM, 40NM, 50NM, 60NM, and 80NM. The angular position represents the azimuth angle in degrees, with radial lines every 10 degrees from 030° to 235°. The gain in dBS is indicated by the radial distance from the center, with concentric circles labeled 3000, 4000, 5000, 6000, 7000, 8000, 10000, 12000, 15000, and 20000. The plot shows a main lobe pointing towards 064° and a smaller lobe pointing towards 235°. The gain values are labeled in each sector.

Angle (°)	5NM (dBS)	10NM (dBS)	20NM (dBS)	30NM (dBS)	40NM (dBS)	50NM (dBS)	60NM (dBS)	80NM (dBS)
030°	3000	4000	5000	6000	7000	8000	10000	12000
040°	3000	4000	5000	6000	7000	8000	10000	12000
050°	3000	4000	5000	6000	7000	8000	10000	12000
064°	3000	4000	5000	6000	7000	8000	10000	12000
074°	3000	4000	5000	6000	7000	8000	10000	12000
084°	3000	4000	5000	6000	7000	8000	10000	12000
120°	3000	4000	5000	6000	7000	8000	10000	12000
155°	3000	4000	5000	6000	7000	8000	10000	12000
180°	3000	4000	5000	6000	7000	8000	10000	12000
195°	3000	4000	5000	6000	7000	8000	10000	12000
215°	3000	4000	5000	6000	7000	8000	10000	12000
230°	3000	4000	5000	6000	7000	8000	10000	12000
235°	3000	4000	5000	6000	7000	8000	10000	12000
250°	3000	4000	5000	6000	7000	8000	10000	12000