

**AD 2 AERODROMES****RJOO AD 2.1 AERODROME LOCATION INDICATOR AND NAME****RJOO - OSAKA International****RJOO AD 2.2 AERODROME GEOGRAPHICAL AND ADMINISTRATIVE DATA**

1	ARP coordinates and site at AD	344704N/1352621E
2	Direction and distance from (city)	10.5km (5.7nm) NW of JR Osaka station
3	Elevation/ Reference temperature	39ft / 34°C (2004-2008)
4	Geoid undulation at AD ELEV PSN	Nil
5	MAG VAR/ Annual change	8°W (2023) / 1'W
6	AD Administration, address, telephone, telefax, telex, AFS, e-mail and/or Web-site addresses	Kansai Airports Osaka International Airport 555, 3-chome, Nishi-machi, Hotarugaike, Toyonakashi, Osaka pref, Japan Tel: 06-4865-9571 Fax: 06-4865-9570 AFS: RJOOYDYX E-mail: itm-ops@kansai-airports.co.jp Web-site: http://www.kansai-airports.co.jp/
7	Types of traffic permitted(IFR/VFR)	IFR/VFR
8	Remarks	Osaka Airport Office (CAB) Osaka International Airport 371, 3-chome, Nishi-machi, Hotarugaike, Toyonakashi, Osaka pref, Japan Tel: 06-6843-1121 (2330-0815UTC MON THRU FRI)

**RJOO AD 2.3 OPERATIONAL HOURS**

1	AD Administration	2200 - 1200
2	Customs and immigration	On request Customs: 06-6576-3104, 06-6576-3123 Immigration: 0570-064259 (210)
3	Health and sanitation	On request Quarantine(human): 06-6571-4312 Quarantine(animal): 072-455-1956 Quarantine(plant): 06-6571-0801
4	AIS Briefing Office	Nil
5	ATS Reporting Office(ARO)	Nil
6	MET Briefing Office	H24 (KANSAI)
7	ATS	2200-1200 (Flight Information Service (except ATIS) and Alerting Service: H24).
8	Fuelling	H24
9	Handling	2100-1330
10	Security	2100-1200
11	De-icing	Nil
12	Remarks	Nil

**RJOO AD 2.4 HANDLING SERVICES AND FACILITIES**

1	Cargo-handling facilities	All the modern institutions that deal with the weight thing to a Boeing 747 type passenger plane.
2	Fuel/ oil types	Fuel grades: JET A-1 Oil grades: All turbine grades
3	Fuelling facilities/ capacity	Hydrant refueling on terminal apron for turbine fuel. Fuel truck refueling. / No limitations
4	De-icing facilities	Nil
5	Hangar space for visiting aircraft	Nil
6	Repair facilities for visiting aircraft	Nil
7	Remarks	Nil

**RJOO AD 2.5 PASSENGER FACILITIES**

1	Hotels	Hotel near the Airport.
2	Restaurants	Available but not continuous 0700-2130 hours
3	Transportation	Monorail, busses and taxies
4	Medical facilities	Toyonaka city hospital
5	Bank and Post Office	Post office at Airport
6	Tourist Office	At Airport
7	Remarks	Nil

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

1	AD category for fire fighting	CAT 9
2	Rescue equipment	Chemical fire fighting truck x 3, Water supply truck, Emergency medical equipments conveyance truck, Lighting power supply truck
3	Capability for removal of disabled aircraft	Nil
4	Remarks	Nil

**RJOO AD 2.7 SEASONAL AVAILABILITY-CLEARING**

1	Types of clearing equipment	Snow removal equipment: Motor graders
2	Clearance priorities	1) RWY 14R/32L 2) TWY A4, B2, B3, B4, C1, C4, C6, E1, E5, W2, W9, W10, Apron TWY BTN E1 and E5 3) RWY 14L/32R 4) TWY A1, A2, A3, A5, B1, W1, W3
3	Remarks	1) Snow removal will be commenced with the order of priority as item 2, if the runways and taxiways are contaminated with 3 cm depth of snow. 2) Seasonal availability: All seasons Any contaminants on RWY centerline, landing strip and other lighting aids shall be removed as and when necessary so as to provide good contact with RWY.

**RJOO AD 2.8 APRONS, TAXIWAYS AND CHECK LOCATIONS DATA**

1	Apron surface and strength	Surface : Concrete Strength : PCR925/R/B/W/T : SPOT NR0, 1 PCR785/R/B/W/T : SPOT NR2-6, 15, 19, 20, 23, 45, 45W, 46-48, 51-53, 77, 80, 83, 84 PCR1132/R/B/W/T : SPOT NR7-14, 16, 18 PCR615/R/B/W/T : SPOT NR17, 21, 22, 24, 25 PCR502/R/B/W/T : SPOT NR26, 27, 41-44, 70-76, 81, 82
2	Taxiway width, surface and strength	Width : 30m : W2-W9(Highspeed Exit) 23m : Others Surface : Asphalt Concrete and Concrete Strength : PCR1222/F/D/X/T : A1-A5, B1-B4, C1-C4, C6, C7, W2-W10 PCR858/R/B/W/T : C5, E-INT, E1-E5, W1, R-INT, R1, R2, R5, R6
3	ACL and elevation	Not available
4	VOR checkpoints	Not available
5	INS checkpoints	Spot NR 0 344705.56N 1352639.86E 41 344739.21N 1352613.76E 1 344706.54N 1352640.26E 42 344740.12N 1352612.66E 1A 344707.98N 1352640.03E 43 344737.95N 1352611.26E 1B 344706.94N 1352639.60E 44 344736.87N 1352609.98E 2 344714.07N 1352647.61E 45 344738.84N 1352608.86E 2A 344712.98N 1352646.11E 45W 344738.84N 1352609.67E 3 344715.89N 1352645.31E 46 344739.34N 1352609.46E 3A 344716.54N 1352644.23E 47 344740.51N 1352610.87E 3B 344715.26N 1352645.42E 48 344741.68N 1352612.29E 4 344718.25N 1352642.65E 4A 344717.32N 1352640.49E 51 344736.12N 1352602.04E 4B 344718.21N 1352641.57E 52 344737.14N 1352600.54E 5 344716.57N 1352638.62E 53 344738.56N 1352558.72E 6 344714.28N 1352637.81E 7 344713.53N 1352636.15E 8 344715.05N 1352634.31E 70 344743.97N 1352603.01E 9 344717.64N 1352635.07E 71 344745.20N 1352604.48E 10 344719.95N 1352632.33E 72 344745.99N 1352605.39E 73 344747.23N 1352606.95E 11 344719.15N 1352629.38E 74 344750.85N 1352603.70E 12 344719.25N 1352626.14E 75 344747.35N 1352559.53E 13 344723.11N 1352628.32E 76 344746.66N 1352558.40E 14 344725.48N 1352625.39E 77 344745.30N 1352557.01E 15 344724.61N 1352622.77E 16 344724.68N 1352619.37E 80 344742.34N 1352555.48E 17 344728.66N 1352621.70E 81 344743.27N 1352554.35E 18 344730.96N 1352618.99E 82 344744.20N 1352553.22E 19 344730.50N 1352615.72E 83 344745.12N 1352552.10E 20 344731.56N 1352611.79E 84 344746.06N 1352550.98E 21 344733.17N 1352613.87E 22 344734.14N 1352615.95E 23 344735.52N 1352618.51E 24 344737.79N 1352619.40E 25 344739.76N 1352618.29E 26 344740.87N 1352616.92E 27 344741.02N 1352615.26E
6	Remarks	Nil

**RJOO 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 sign: NR4A, NR4B, NR5 - 10, NR13, NR14, NR17, NR18, NR21 - 23. ACFT stand taxilane: R1, R2, R5, R6, apron TWY at NR1, NR5, NR6 and NR7 Apron Visual docking guidance system: NR13, NR14 (See attachment)
2	RWY and TWY markings and LGT	<p>RWY: RWY 14R/32L (Marking): RWY designation, RWY CL, RWY THR, Aiming point, TDZ, RWY side stripe, RWY middle point (LGT): RCLL, REDL, RTHL, RENL, RTZL(RWY32L), WBAR(RWY32L)</p> <p>RWY: RWY 14L/32R (Marking): RWY designation, RWY CL, RWY THR, Aiming point, TDZ, RWY side stripe, RWY middle point (LGT): RCLL, REDL, RTHL, RENL, Takeoff Hold LGT(RWY status LGT) (see attached chart)</p> <p>TWY: ALL TWY (Marking): TWY CL, TWY side stripe (LGT): Taxiway edge LGT, Taxiway CL LGT</p> <p>TWY: TWY B4, C1 THRU C7, W1 THRU W10 (Marking): RWY HLDG PSN, Mandatory instruction (LGT): RWY guard LGT</p> <p>TWY: TWY A1, B1 (Marking): Intermediate HLDG PSN (LGT): Intermediate HLDG PSN LGT</p> <p>TWY: TWY W2 (LGT): Stop aiming LGT</p> <p>SFC painted direction sign and SFC painted LCA sign (See attached chart)</p> <p>TWY: TWY B4, C1, C6, C7, W6 THRU W10 (LGT): RWY Entrance LGT (RWY status LGT) (see attached chart)</p>
3	Stop bars	Nil
4	Remarks	(Marking) Overrun area (LGT) APN flood LGT



**AIRCRAFT STAND TAXILANE AND PARKING AREAS**

R1, R2, R5, R6, apron TWY at Apron NR5, NR6, and NR7 :Aircraft stand taxilane  
 Spots 45, 45W, 46, 47, 48, 51 to 53 and Apron NR7 and NR8 :Parking areas  
 R-INT. and E-INT. :Intersections



## Surface Painted Direction Sign and Surface Painted Location Sign

### Type of Surface Painted Markings

#### 1. Type of Surface Painted Markings

##### Surface Painted Direction Sign

This type of marking at a taxiway intersection indicates the designation and direction of taxiway leading out of intersection.

Black inscriptions with an arrow with a yellow background.

2. On each of the Taxiway A3, A4, C4, behind APRON NR4, beside SPOT20, R1, R6, W9 and APRON Taxiway between SPOT43 and SPOT44 surface painted markings are provided (refer attached drawing).



Fig.1

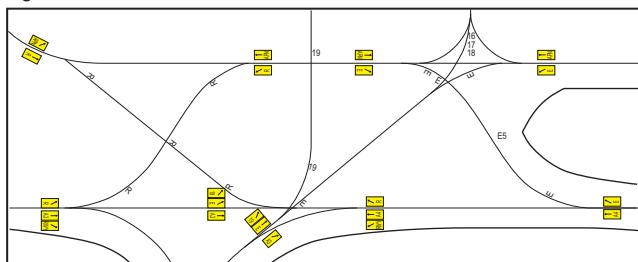


Fig.3

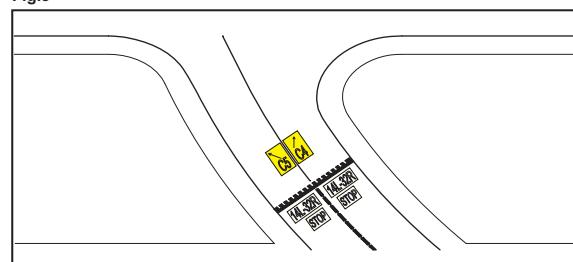


Fig.2

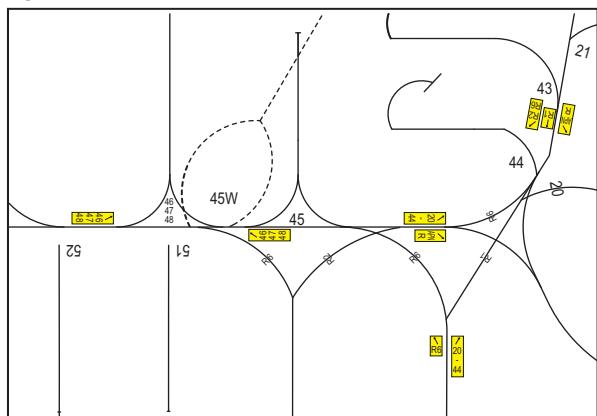
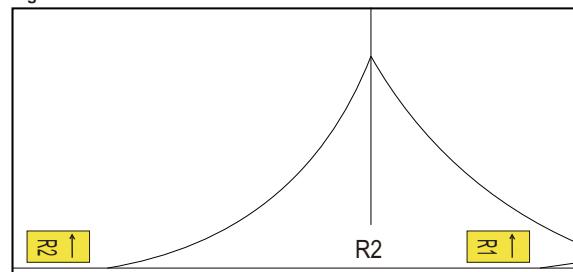


Fig.4



## VISUAL DOCKING GUIDANCE SYSTEM

### 1. General

- (1) Aircraft parking stands NR13, NR14, are equipped with a visual docking guidance system. The pilots of an arriving aircraft assigned to park at one of these parking stands can use this system to be guided and stop the aircraft at the correct parking position.
- (2) This system is operational only in the automatic mode and in an event of a system failure, the aircraft shall be manually guided by a marshaller to the stopping position.
- (3) The visual docking guidance system consists of a display screen for pilots and a laser scanner. The system detects and analyses the aircraft type of an approaching aircraft, tracks it through the laser scanner, and displays these results on the display screen.
- (4) The display screen indicates the following information:
  - a) type of the approaching aircraft
  - b) deviation from the lead-in center line
  - c) distance to the stopping position

The above information is provided equally to the pilots on both left seat and right seat.

### 2. Aircraft Type Indication

- (1) An operator on ground shall input the aircraft type into the system before the aircraft approaches the parking stand. Upon accepting the input, the system carries out internal calibration, starts the laser scanner simultaneously, and indicates the aircraft type according to the input. The system then will begin to indicate yellow lead-in arrows scrolling upwards prompting the aircraft to proceed. (Fig.1, Fig.2)



- (2) When the laser scanner detects the approaching aircraft, the display screen will indicate the aircraft type, a "T" bar, and a lead-in upward arrow in yellow.
- (3) At least until the approaching aircraft arrives at a point 15 meters before the stopping position, the system will identify the aircraft type and will compare with the previously input aircraft type. If these data match, the system will continue its operation. If they do not match, the display screen will indicate "STOP" with a red border, and "ID FAIL" simultaneously. (Fig.3)

NOTE: At this moment, the pilots must stop the aircraft immediately.

When the operator re-input the correct aircraft type into the system and the system finds it correct, it resumes normal operations indicating the correct aircraft type on its display screen.



Fig.3

3. Taxiing and Lateral Center line Guidance

- (1) While taxiing the aircraft using the system, the pilots should maneuver the aircraft at a low speed to the stopping position. In an event when "SLOW" is indicated on the display screen, the pilots should further decelerate the taxiing speed to avoid overshooting. (Fig.4)



Fig.4

- (2) Deviation of an upward yellow arrow from the center line of "T" indicates the deviation of the approaching aircraft relative to the center line of the parking stand either to right or left. Further, an additional flashing red arrow on the either side indicates the required direction for the aircraft to turn(Fig.5, Fig.6) and indicate numerical value of remaining distance. (Fig.7, Fig.8)



Fig.5



Fig.6



Fig.7



Fig.8

## 4. Stop Guidance

- (1) When the approaching aircraft is within 20 meters from the stopping position, the shaft of the illuminated "T" will start to reduce in its length from the bottom to indicate the approaching rate of the aircraft, indicating the remaining distance to the stopping position successively. (Fig.9, Fig.10) As the aircraft approaches the stopping position, the shaft of the illuminated "T" retract one row for every 0.3 m.

At aircraft parking stands when the approaching aircraft is within 30 meters from the stopping position, display of digital countdown will start.

As the aircraft approaches the stopping position, a digital countdown shows the distance to stop position numerically, for every 1.0 meters (from 30 to 5 meters to the stop position), for every 0.5 meters (from 5 to 2 meters to the stop position) or for every 0.1 meters (from 2 to 0 meters to the stop position).

When the approaching aircraft is within 20 meter from the stopping position, the shaft of the illuminated "T" will start to reduce in its length from the bottom to indicate the approaching rate of the aircraft, indicating the remaining distance to the stopping position successively. (Fig.11, Fig.12)



Fig.9



Fig.10



Fig.11



Fig.12

- (2) When the aircraft reaches the stopping position, a message "STOP" will be displayed on the screen with a red border. (Fig.13)



Fig.13

- (3) When the aircraft is stopped at the correct stopping position, a message "OK" will be displayed on the screen in several seconds. (Fig.14)



Fig.14



Fig.15

- (4) When the operator applies chocks, and switches on "CHOCK ON" switch, the display screen will display "CHOCK ON." (Fig.15)

- (5) If the aircraft stops at a position beyond the correct stopping position, a message "TOO FAR" will be displayed on the screen. (Fig.16)



Fig.16

5. Cautions and Safety

- (1) When the system displays an incorrect aircraft type, or when such a message as "STOP", "ID FAIL", or "WAIT" appears on the display screen, the pilots should stop the aircraft immediately. (Fig.3, Fig.13, Fig.17)



Fig.17

- (2) During heavy fog, rain or snow the visibility for the docking system can be reduced. When the system is activated and in capture mode, the display will deactivate the floating arrows and show "SLOW" (Fig.18). The message will be superseded by the closing rate bar as soon as the system detects the approaching aircraft. The pilot must not proceed beyond the bridge, unless the "SLOW" text has been superseded by the closing rate bar.



Fig.18

**RJOO AD 2.10 AERODROME OBSTACLES**

- In Area 2 See Obstacle data
- In Area 3 To be developed

**RJOO AD 2.11 METEOROLOGICAL INFORMATION PROVIDED**

1	Associated MET Office	KANSAI
2	Hours of service MET Office outside hours	H24 (KANSAI)
3	Office responsible for TAF preparation Periods of validity	KANSAI 30 Hours
4	Trend forecast Interval of issuance	Nil
5	Briefing/ consultation provided	Briefing is available upon inquiry at KANSAI
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</sub> (domestic), 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 chart)
9	ATS units provided with information	TWR, ATIS
10	Additional information (limitation of service, etc.)	Nil

## Airspace for the advisory service concerning low level wind shear

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

FIELD ELEV 39ft



## RJOO AD 2.12 RUNWAY PHYSICAL CHARACTERISTICS

Designations RWY NR	TRUE BRG	Dimensions of RWY(M)	Strength(PCR) 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			
14R	135°	3000x60	PCR 1342/F/C/X/T Asphalt Concrete	344728.77N 1352543.34E	THR ELEV: 46ft			
32L	315°	3000x60	PCR 1342/F/C/X/T Asphalt Concrete	344619.92N 1352706.76E	THR ELEV: 31.2ft TDZ ELEV: 30.0ft			
14L	135°	1828x45	PCR 599/F/D/X/T Asphalt Concrete	344742.97N 1352543.27E	THR ELEV: 50ft			
32R	315°	1828x45	PCR 599/F/D/X/T Asphalt Concrete	344701.02N 1352634.11E	THR ELEV: 34ft			
Slope of RWY		Strip Dimensions(M)	RESA(Overrun) Dimensions(M)	Remarks				
7	10	11		14				
See below figure		3120x300	91x(MNM:201 MAX:300)*	RWY grooving: 3000mx40m				
		3120x300	140x(MNM:210 MAX:300)*	RWY grooving: 3000mx40m				
		1950x150	240x(MNM:137 MAX:150)*	RWY grooving: 1828mx30m				
		1950x150	147x(MNM:120 MAX:150)*	RWY grooving: 1828mx30m				
		*For detail, ask airport administrator						
<b>14R</b>		<b>32L</b>						
<b>14L</b>		<b>32R</b>						

## RJOO AD 2.13 DECLARED DISTANCES

RWY Designator	TORA (m)	TODA (m)	ASDA (m)	LDA (m)	Remarks
1	2	3	4	5	6
14R	3000	3000	3000	3000	Nil
TWY:W9	1972	1972	1972		
TWY:W8	1732	1732	1732		
32L	3000	3000	3000	3000	Nil
TWY:W2	2700	2700	2700		
TWY:W3	1972	1972	1972		
TWY:W4	1941	1941	1941		
TWY:W5	1329	1329	1329		
14L	1828	1828	1828	1828	Nil
TWY:C6	1496	1496	1496		
TWY:C5	986	986	986		
32R	1828	1828	1828	1828	Nil
TWY:C2	1531	1531	1531		
TWY:C3	1139	1139	1139		

誘導路の TORA, TODA 及び ASDA は、誘導路中心線と滑走路中心線の交点から滑走路末端までの距離を示す。  
(TORA, TODA and ASDA for TWY indicate distances BTN the point where TWY CL meets RWY CL and RWY THR.)

## RJOO 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
14R	AGL 422m (*1)	Green	PAPI 3.0°/Left 482m 74ft	Nil	3000m 30m Coded color (White/Red) LIH	3000m 60m Coded color (White/Yellow) LIH	Red	Nil (*3)
32L	PALS (CAT I) 450m LIH	Green Green	PAPI 3.0°/Left 422m 64ft	900m	3000m 30m Coded color (White/Red) LIH	3000m 60m Coded color (White/Yellow) LIH	Red	Nil (*3)
14L	AGL 597m	Green	PAPI 3.0°/Left 383m 61ft	Nil	1828m 30m Coded color (White/Red) LIH	1828m 60m Coded color (White/Yellow) LIH	Red	Nil (*3)
32R	SALS 600m (*2) LIH	Green	PAPI 3.0°/Left 309m 52ft	Nil	1828m 30m Coded color (White/Red) LIH	1828m 60m Coded color (White/Yellow) LIH	Red	Nil (*3)
Remarks								
10								
APCH LGT Beacon(570m and 944m FM RWY 14R THR)(*1) SALS with APCH LGT beacon(980m FM RWY 32R THR)(*2) Overrun area edge LGT(Color:Red)(*3) RWY THR ID LGT for RWY14R/14L THR(Color:White) CGL and RLLS for RWY 14R(see below chart) Usable area of PAPI is shown in below chart								

Usable area of PAPI

Usable area of PAPI for Runway 14L and Runway 14R is within approximately 2.4NM from Runway 14L threshold and approximately 2.6NM from Runway 14R threshold(Hankyu Railway, Takarazuka Line) due to obstruction (mountain).

滑走路14L末端側及び14R末端側進入角指示灯（PAPI）の使用範囲は、障害物（山）のため滑走路14L末端及び14R末端からそれぞれ2.4NM及び2.6NM（阪急宝塚線）以内とする。



Runway lead-in lighting system for RWY 14 side  
(Nr.1 to Nr.7, Flashing white)



**RJOO AD 2.15 OTHER LIGHTING, SECONDARY POWER SUPPLY**

1	ABN/IBN location, characteristics and hours of operation	ABN: 344702N/1352605E, White/Green EV4.3sec, HO
2	LDI location and LGT Anemometer location and LGT	LDI : Nil Anemometer : RWY14R : 151m FM RWY 14R THR, LGTD RWY32L : 388m FM RWY 32L THR, LGTD RWY32R : 388m FM RWY 32R THR, LGTD
3	TWY edge and center line lighting	TWY edge and center line lights installed, see AD2.9
4	Secondary power supply/ switch-over time	Within 1 sec : Runway Entrance LGT, Takeoff Hold LGT Within 15 sec : Other LGT
5	Remarks	Nil

**RJOO AD 2.16 HELICOPTER LANDING AREA**

1	Coordinates TLOF or THR of FATO Geoid undulation	APRON-HELIPAD: 344744.56N/1352551.01E, Nil C6-HELIPAD: 344738.58N/1352555.08E, Nil C7-HELIPAD: 344746.17N/1352545.87E, Nil
2	TLOF and/or FATO elevation	APRON-HELIPAD: 52ft C6-HELIPAD, C7-HELIPAD: 51ft
3	TLOF and FATO area dimensions, surface, strength, marking	TLOF and FATO area dimensions: APRON-HELIPAD: 20mx20m C6-HELIPAD: 23mx23m C7-HELIPAD: 16mx16m Surface: APRON-HELIPAD: Concrete C6-HELIPAD, C7-HELIPAD: Asphalt Strength: 7ton Marking: See AIP AD2.24 AD chart
4	True BRG of FATO	APRON-HELIPAD, C7-HELIPAD 135.01 ° / 315.01° 225.01 ° C6-HELIPAD 135.01 ° / 315.01° 045.01 ° / 225.01°
5	Declared distance available	Nil
6	APCH and FATO lighting	Nil
7	Remarks	APRON-HELIPAD, C6-HELIPAD: • MAX helicopter type: A139 • only available to specific operator C7-HELIPAD: • MAX helicopter type: A109 • only available to specific operator

## RJOO AD 2.17 ATS AIRSPACE

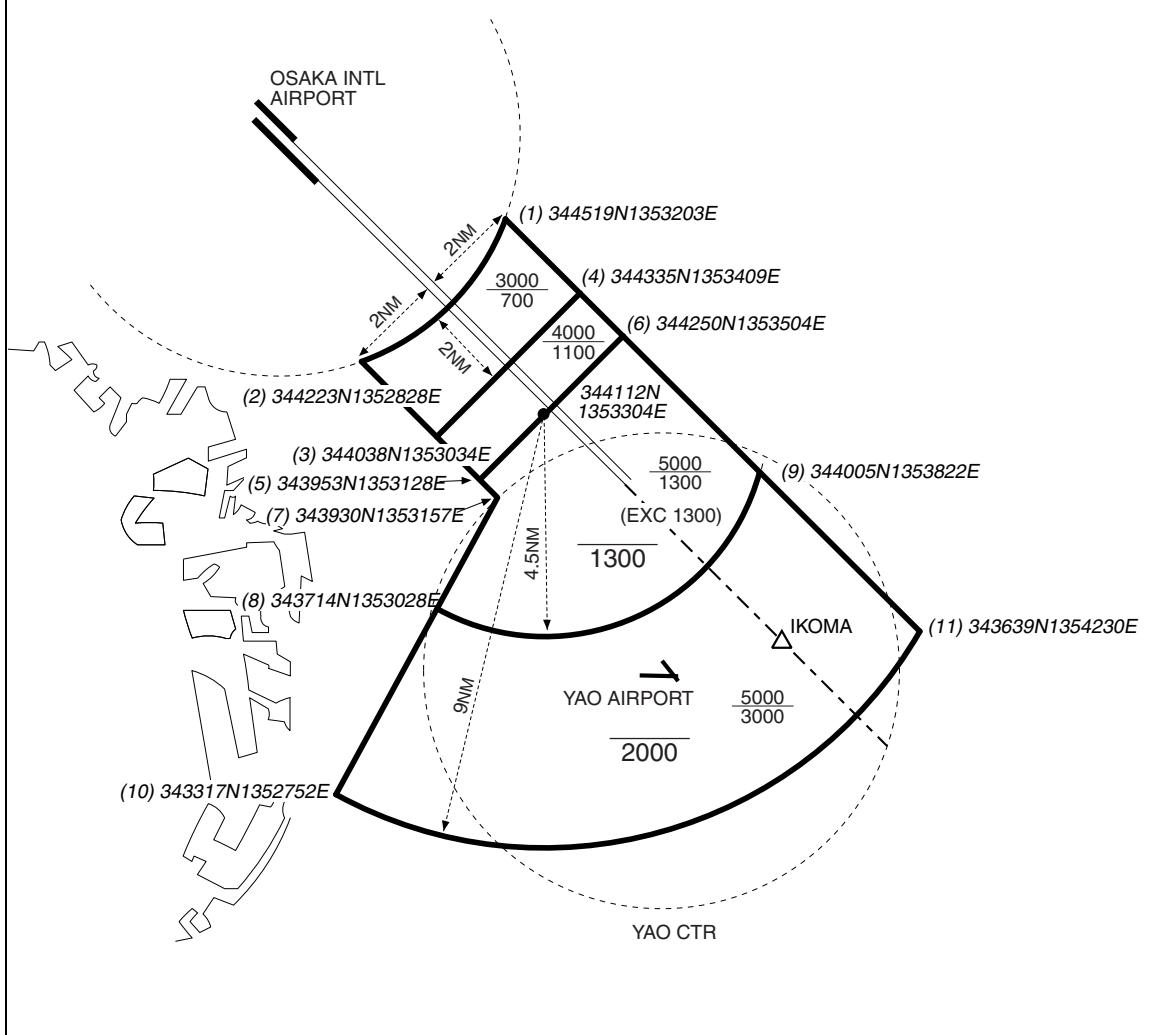
Designation and lateral limits		Vertical limits (ft)	Airspace classification	ATS unit call sign Language	Remarks			
1		2	3	4	5			
OSAKA CTR	Area within a radius of 5NM of OSAKA ARP (3447N/13526E)	----- 3000	D	OSAKA TWR En				
OSAKA PCA	1. The airspace bounded by the lines connecting the following points. (1) 344519N/1353203E, (2) 344223N/1352828E, (3) 344038N/1353034E, (4) 344335N/1353409E thence to point(1) The line connecting point(1) to point(2) is the minor arc with a radius of 5NM OSAKA ARP	3000 ----- 700	C	KANSAI APP KANSAI RADAR KANSAI DEP En	See below chart			
	2. The airspace bounded by the lines connecting the following points. (4) 344335N/1353409E, (3) 344038N/1353034E, (5) 343953N/1353128E, (6) 344250N/1353504E thence to point(4).	4000 ----- 1100						
	3. The airspace bounded by the lines connecting the following points. (6) 344250N/1353504E, (5) 343953N/1353128E, (7) 343930N/1353157E, (8) 343714N/1353028E, (9) 344005N/1353822E thence to point(6). The line connecting point(8) to point(9) is the minor arc with a radius of 4.5NM of 344112N/1353304E.	5000 ----- 1300 (EXC1300)						
	4. The airspace bounded by the lines connecting the following points. (9) 344005N/1353822E, (8) 343714N/1353028E, (10) 343317N/1352752E, (11) 343639N/1354230E thence to point(9). The line connecting point(9) to point(8) is the minor arc with a radius of 4.5NM of 344112N/1353304E. The line connecting point(10) to point(11) is the minor arc with a radius of 9NM of 344112N/1353304E	5000 ----- 3000						
KANSAI ACA	See RJBB attached chart							
KANSAI TCA	See RJBB attached chart							

## Osaka Positive Control Area

大阪特別管制区

NAME	LATERAL LIMITS	UPPER LIMIT (AMSL) ----- LOWER LIMIT (AMSL) M(ft)	UNIT PROVIDING SERVICE	REMARKS
1	2	3	4	5
Osaka	The area shown on the below figure		Primary: Kansai APP Kansai Radar 124.7-120.45 261.2  Secondary: Osaka Tower 118.1-126.2 236.8	Pilot of aircraft operating in this area shall contact KANSAI APP (RADAR) or OSAKA TWR for ATC instructions giving informations on aircraft identification, position, altitude and pilot's intentions.  当該空港を飛行しようとする航空機は、関西アプローチ（レーダー）又は大阪タワーに連絡し、コールサイン、現在位置、高度及び意図を通報し指示を受けること。

OSAKA CTR

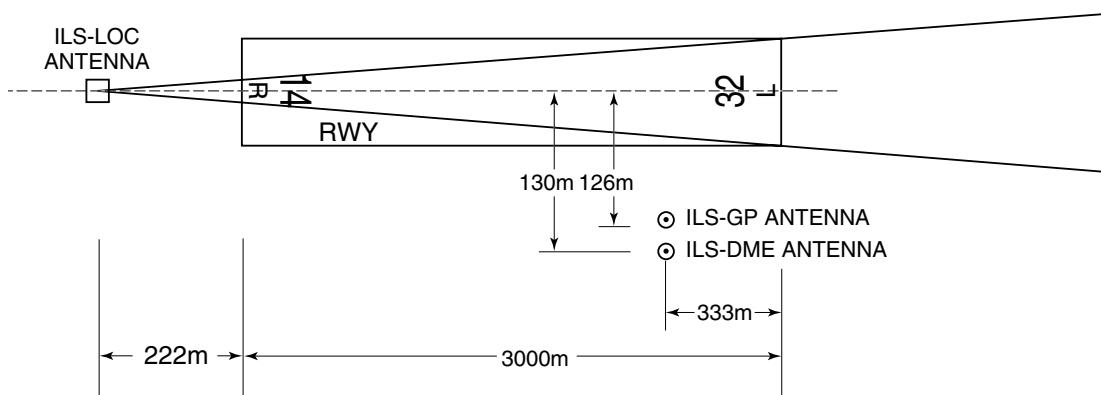


**RJOO AD 2.18 ATS COMMUNICATION FACILITIES**

Service designation	Call sign	Frequency	Hours of operation	Remarks
1	2	3	4	5
APP/ASR	Kansai Approach/ Kansai Radar	120.45MHz(1) 124.7MHz 261.2MHz 121.5MHz(E) 243.0MHz(E)	2200 - 1200	(1) Primary APP service provided by KANSAI APP
DEP	Kansai Departure	119.5MHz 121.5MHz(E) 243.0MHz(E)	2200 - 1200	
TWR	Osaka Tower	118.1MHz 126.2MHz 236.8MHz 121.5MHz(E) 243.0MHz(E)	2200 - 1200	
GND	Osaka Ground	121.7MHz 126.2MHz	2200 - 1200	
DLVRY	Osaka Delivery	118.8MHz	2200 - 1200	
ATIS	Osaka INTL Airport	128.6MHz	2200 - 1200	

## RJOO 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 (7°W / 2014)	ITE	114.75MHz	H24	344819.74N/1352413.18E		Unusable : 000°-010° beyond 20nm BLW 5000ft. 010°-020° beyond 30nm BLW 5000ft.
DME	ITE	1055MHz (CH-94Y)	H24	344819.74N/1352413.18E	176ft	020°-030° beyond 20nm BLW 5000ft. 030°-060° beyond 20nm BLW 6000ft. 060°-070° beyond 20nm BLW 5000ft. 240°-260° beyond 20nm BLW 6000ft. 260°-270° beyond 15nm BLW 6000ft. 270°-290° beyond 20nm BLW 6000ft. 290°-310° beyond 30nm BLW 6000ft. 310°-340° beyond 20nm BLW 6000ft. 340°-360° beyond 20nm BLW 5000ft.
ILS-LOC 32L	ISK	110.1MHz	2200-1200	344733.87N/1352537.16E		LOC : 222m(728ft) away FM RWY 14R THR, BRG(MAG)322°
ILS-GP 32L	-	334.4MHz	2200-1200	344624.67N/1352653.99E		GP : 333m(1092ft) inside FM RWY 32L THR, 126m(413ft) W of RCL. HGT of ILS REF datum 16.5m(54ft). Angle 3.0°
ILS-DME32L	ISK	999MHz (CH-38X)	2200-1200	344624.57N/1352653.86E	48ft	DME: 333m(1092ft) inside FM RWY32L THR, 130m(426ft) W of RCL
MSAS		1575.42MHz	H24			Transmitting antennas are satellite based.

ILS for RWY 32L

REMARKS : 1. ILS-LOC beam BRG(MAG) 322°  
 2. HGT of ILS REF datum 16.5m (54 ft)  
 3. ILS-GP Angle 3.0°  
 4. ELEV of ILS-DME 14.6m (48ft)

**RJOO AD 2.20 LOCAL TRAFFIC REGULATIONS**

## 1. Airport regulations

## 1. On use of this airport

In order to cope with the increasing flight frequencies and to ensure the safety of flight, the following shall apply to an aircraft operators.

- 1.1 Aircraft other than those of scheduled flights being approved by the Minister of Land, Infrastructure, Transport and Tourism and those which come under the para. 1.2 (a) and (b) below specified are all subject to the prior permission of the Administrator Osaka INTL Airport.
- 1.2 In principle, the use of this airport by light fixed wing aircraft having a maximum take off weight of 5700kg or less shall not be permitted excepting the aircraft underspecified:
  - (a) Aircraft used for operations of:
    - (1) Ministry of Land, Infrastructure, Transport and Tourism
    - (2) Japan Coast Guard,
    - (3) Police Agency,
    - (4) Local Government,
    - (5) Police Department,
    - (6) Fire Department.
  - (b) Aircraft belonging to newspaper offices having their own hanger facilities in this airport, including chartered aircraft.
  - (c) Aircraft which have been registered to use this airport as a home base.
  - (d) Aircraft using this airport with the purpose of aircraft maintainance by the reason that the concerned aircraft operator has now been under the maintenance contract with the maintainance factories located in this airport.

Note: Whenever the flight plan bound for this airport is submitted by the aircraft operator to a airport office or a airport branch office before flight is conducted, the concerned airport authority is urged, prior to its acceptance, to ascertain whether or not the advance approval has been given the operator concerned.

## 1.3 On the control of flight frequencies

The flight frequency of aircraft is controlled as specified below:

- (a) The total numbers of IFR aircraft permitted to land and to take off are confined to;
  - (1) 36 aircraft for an hour
  - (2) 93 aircraft within 3 hours on a continuous basis
  - (3) 370 aircraft for a day
- (b) The total numbers of IFR aircraft permitted to land are confined to;
  - (1) 20 aircraft an hour
  - (2) 60 aircraft within 3 hours on a continuors basis.

Note:Aircraft in an emergency situations are exempted from applying any of the foregoing limitations.

## 2. Principal Runway Usage Classification

	Arrival		Departure
RWY 14L/32R	Maximum take-off weight at or less than B737-800 (79,243kg)		Maximum take-off weight at or less than ERJ170 (34,500kg)
RWY 14R/32L	B737-800 B737-700	Other aircraft described left, maximum take-off weight more than B737-800 (79,243kg)	Maximum take-off weight more than ERJ170 (34,500kg)

3. 補助動力装置（APU）の使用制限	3. Restrictions about the use of auxiliary power units(APU)
航空機が固定電源設備付きのスポットを使用する場合は、管理者が特に認める場合を除き、次に掲げる時間を超えて補助動力装置を使用してはならない。	When an aircraft is using an aircraft parking stand with fixed electric power facilities, APU shall not be used outside the time periods specified below except when specifically acknowledged by the authority as necessary.
(1) 出発予定時刻前の 30 分間	(1) 30 minutes prior to the estimated off-block time.
(2) 到着後、固定電源設備が使用可能となるまでに必要とする最小限度の時間	(2) The minimum time required for switching over to the fixed electric power facilities, after arrival at the parking stand.
(3) 航空機が点検整備のため補助動力装置を必要とする場合は最小限度の時間	(3) The minimum time required for aircraft maintenance purposes if needed.
注：スポット 4 及び 5 ~ 27 は固定電源設備が設置されている。	NOTE: Spot 4 and 5-27 are equipped with fixed electric power facilities.

4. ATC Procedure		
CLEARANCE FLOW	(a) Voice RTF	(b) DCL Refer to ENR 1.5.4.1(Operation for Departure Clearance by data link(DCL))
REQUEST CLEARANCE	Call OSAKA DELIVERY(118.8) at 5 minutes before starting engines, with the following information. (1) Call sign (2) Destination (3) Proposed flight level/altitude (alternative flight level/altitude, if any) (4) Parking position(spot number)	- Send RCD message at 5 minutes before starting engines. - Monitor OSAKA DELIVERY(118.8).  NOTE: - Start monitoring OSAKA DELIVERY(118.8) once RCD message is sent. In case coordination is required, OSAKA DELIVERY calls the pilot on Voice RTF.
CALL READY	In case that the engines could not be started within 5 minutes after receiving ATC clearance, pilot shall notify OSAKA DELIVERY(118.8) of its delay.	
FOR ADDITIONAL REQUEST EXCEPT CLEARANCE	Call OSAKA DELIVERY(118.8) on Voice RTF when requesting clearance.	Call OSAKA DELIVERY(118.8) on Voice RTF after receiving an FSM for CDA.

## 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

6.1 Safety measures against jet engine blast. (See attachment)

- 1) In case of holding before taking off from RWY 32R, the aircraft which wing span is at or less than 35.79m shall follow the specific taxiway centerline marking installed on TWY C1.
- 2) In order to avoid effect of the blast on RWY 14L, jet aircraft taxiing via TWY W10 are to follow the specific nose-wheel guide line installed on TWY W10 when taking off from RWY 14R.

6.2 Aircraft using TWY C1 and taking off from RWY 32R may be instructed to hold at No.2 stop line illustrated in attachment.

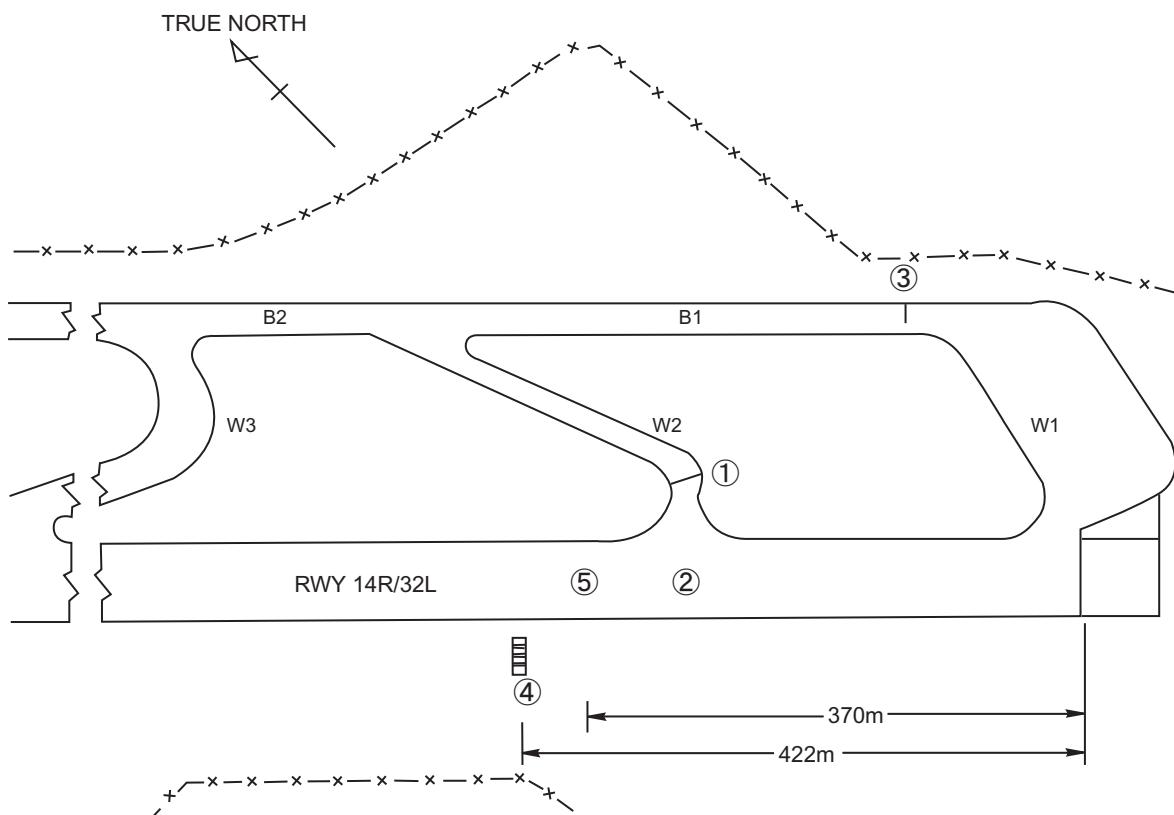
6.3 While operating within aprons, follow strictly yellow nose wheel guide lines.

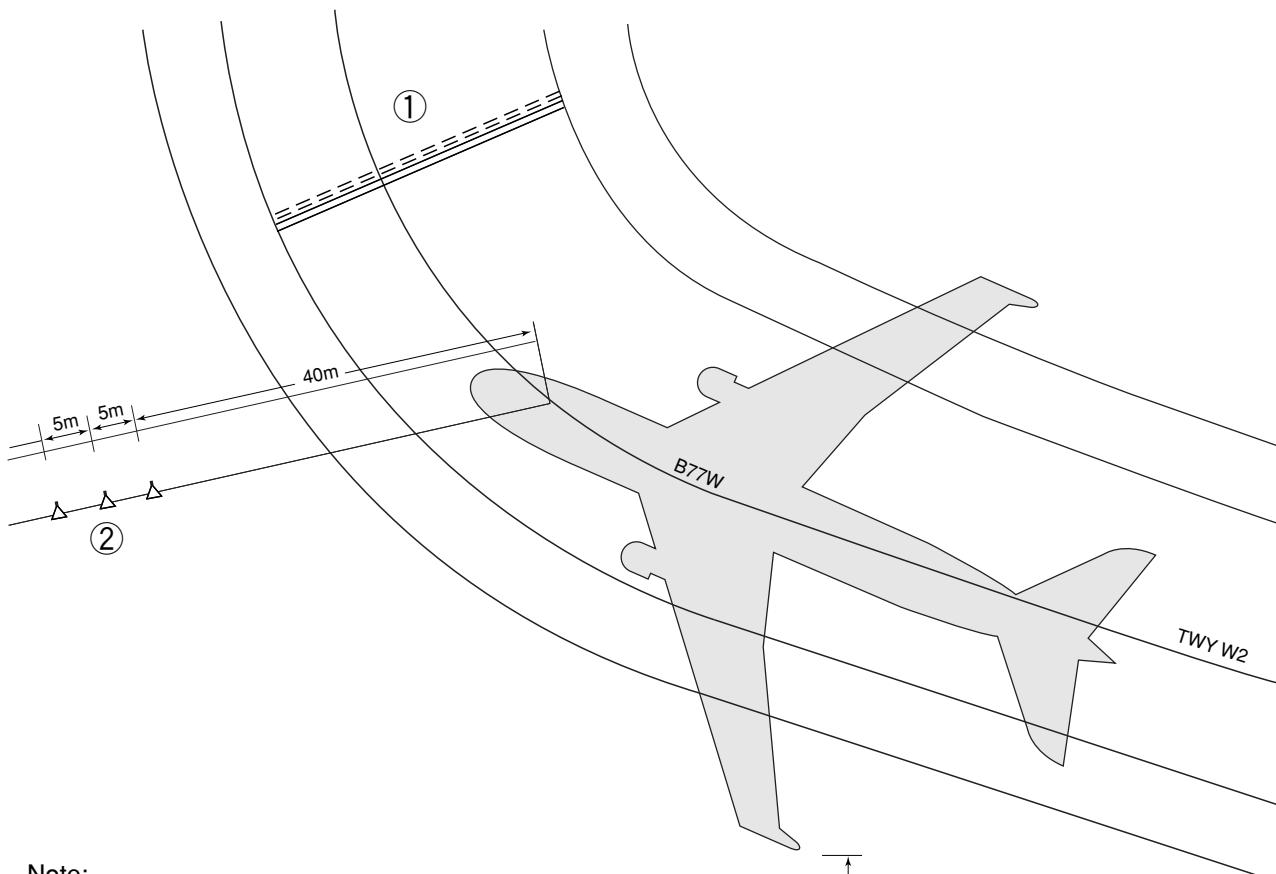
### Taxiing and Taking off Procedure for RWY 32L

Key to the chart below:

- ① Runway holding position marking on TWY W2
- ② 2700m position from RWY 14R THR
- ③ NO.1 Stop line
- ④ PAPI
- ⑤ TKOF power setting position

\*See the back page for more detailed information.



**TAXIING HOLDING POSITION ON TWY W2****Note:**

When instructed by ATC, aircraft shall hold between runway holding position marking and the line formed by stop aiming lights so as to keep wing tip clearance from aircraft on TWY B1.

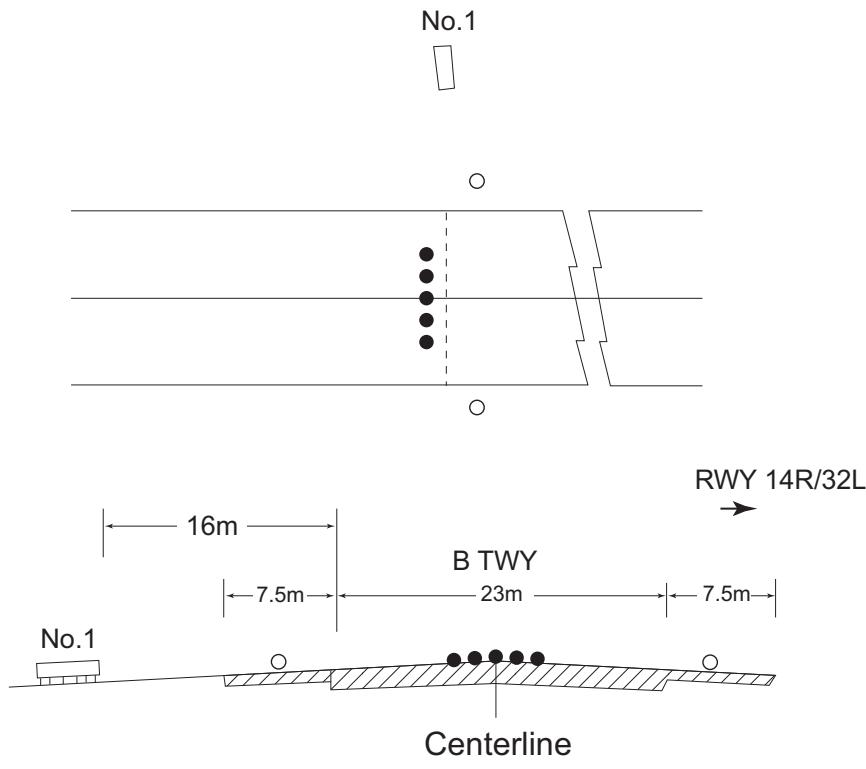
15m wing tip clearance

to RWY 32L THR

B77W

Legend: ① ≡≡≡ Runway holding position marking  
② ΔΔΔ Stop aiming lights (Type : M-1 Red light)

## Intermediate holding position marking (No.1 Stop line) on Taxiway B

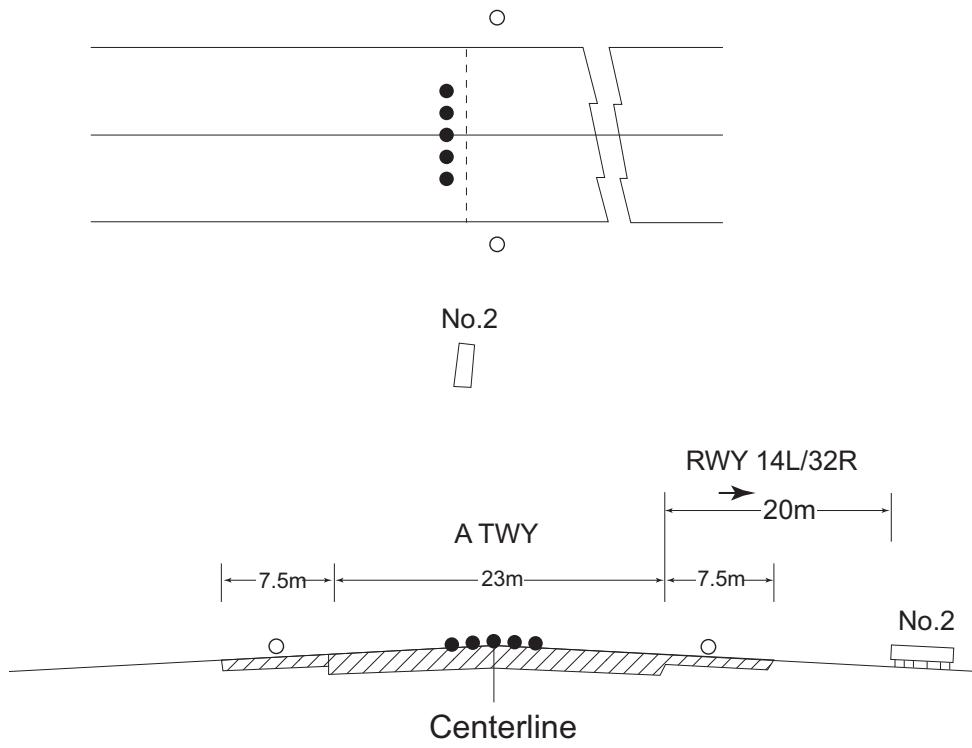


Legend:

- Intermediate holding position light
- Taxiway edge light
- No.1 Taxiing guidance sign
- - - Intermediate holding position marking

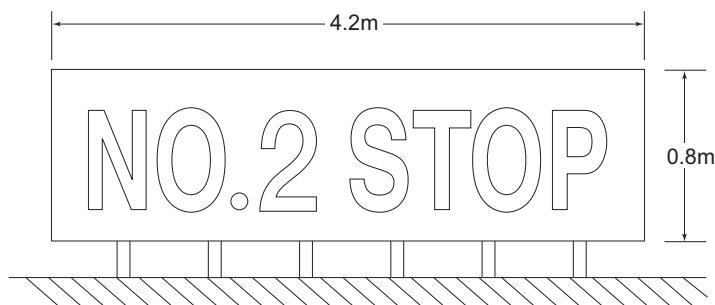


## Intermediate holding position marking (No.2 Stop line) on Taxiway A

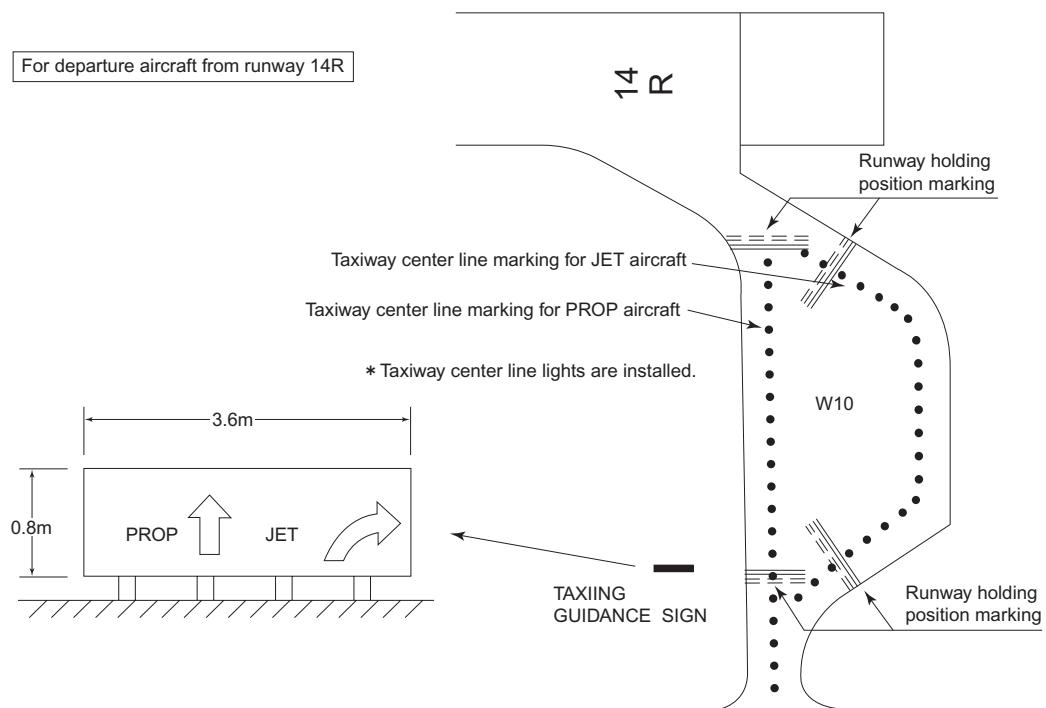
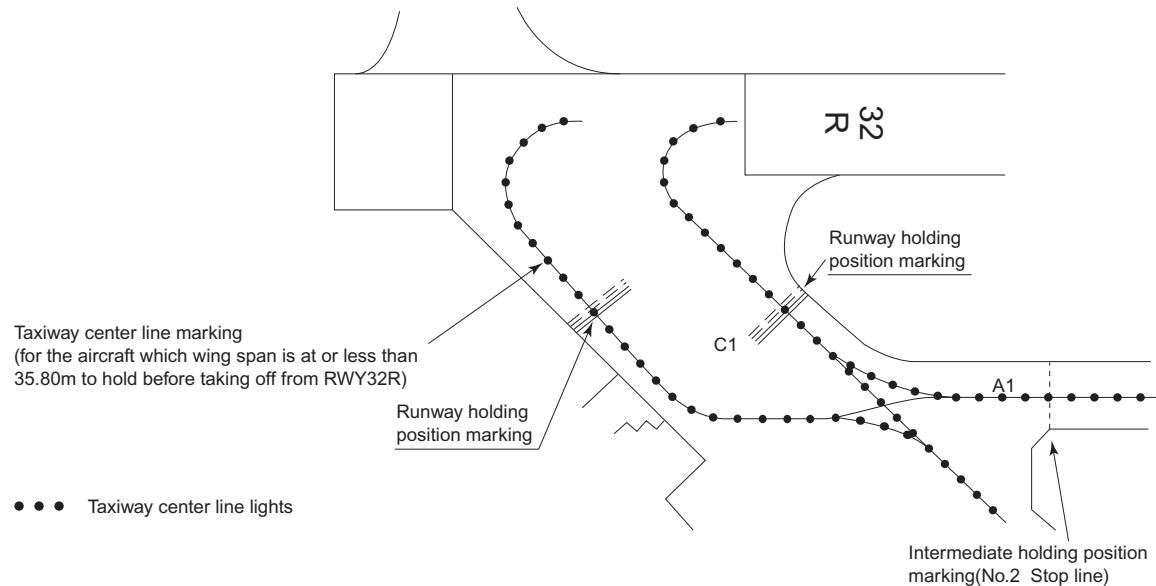


Legend:

- Intermediate holding position light
- Taxiway edge light
- No.2 Taxiing guidance sign
- - - Intermediate holding position marking



Guide line and Guidance sign of TWY C1 & W10

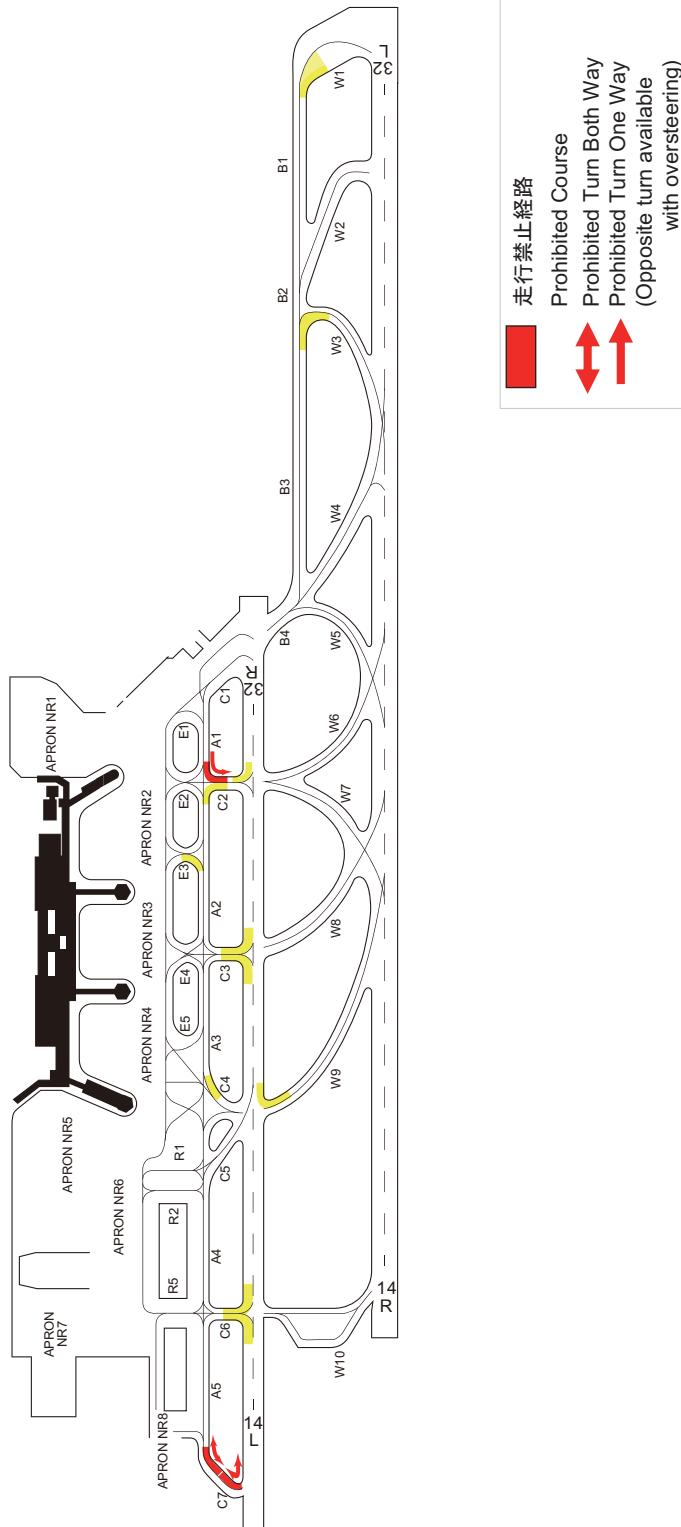


## 6.4 Restricted taxiways

1) A350-900における注意して走行すべき誘導路

1) TWY required to pay special attention for A350-900

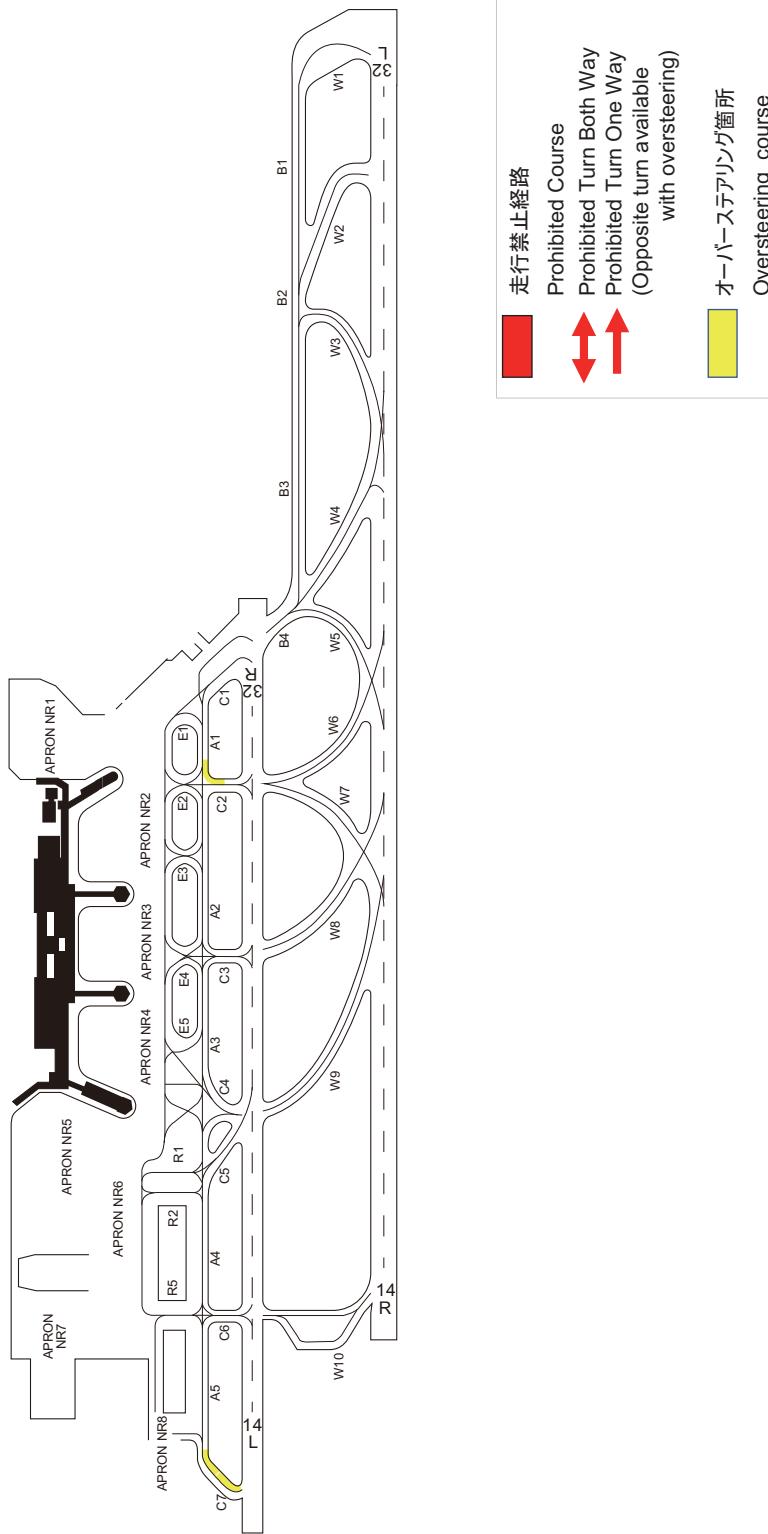
A350-900における注意して走行すべき誘導路  
TWY required to pay special attention for A350-900



## 2) B767-300における注意して走行すべき誘導路

2) TWY required to pay special attention for B767-300

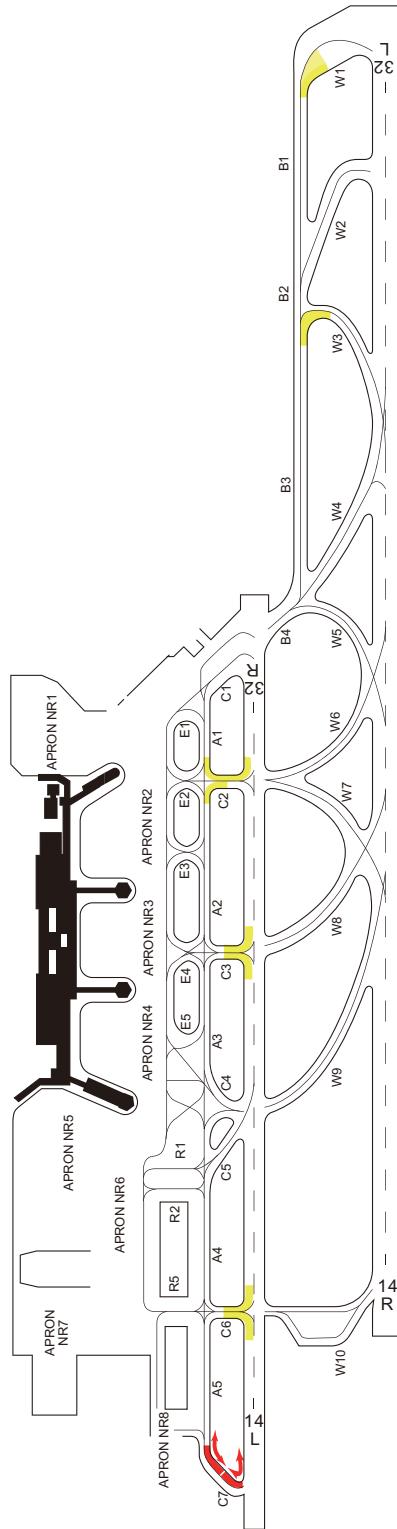
B767-300における注意して走行すべき誘導路  
TWY required to pay special attention for B767-300



3) B777-200 における注意して走行すべき誘導路

3) TWY required to pay special attention for B777-200

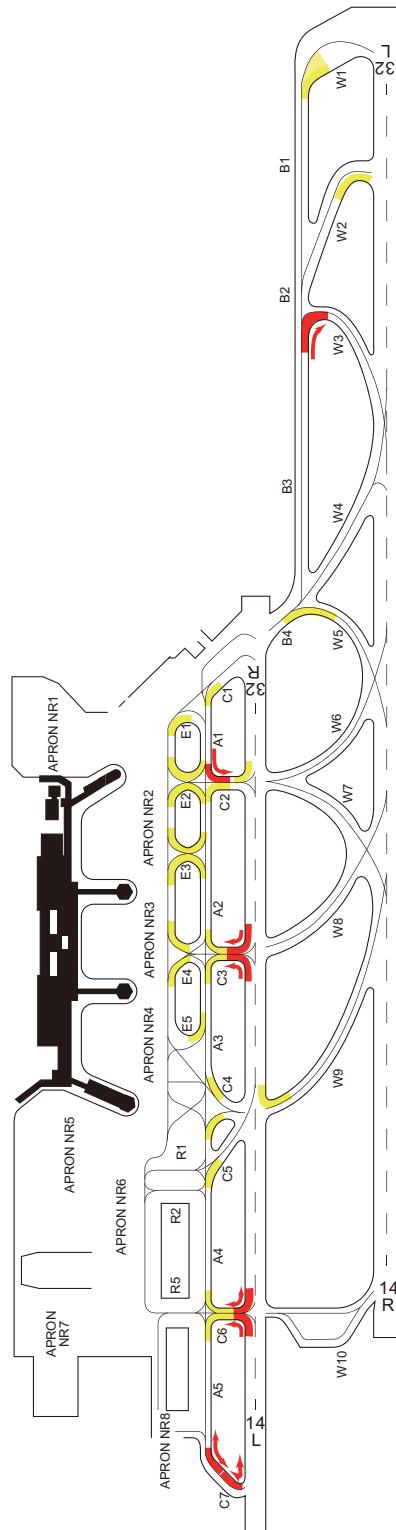
B777-200における注意して走行すべき誘導路  
TWY required to pay special attention for B777-200



4) B777-300における注意して走行すべき誘導路

4) TWY required to pay special attention for B777-300

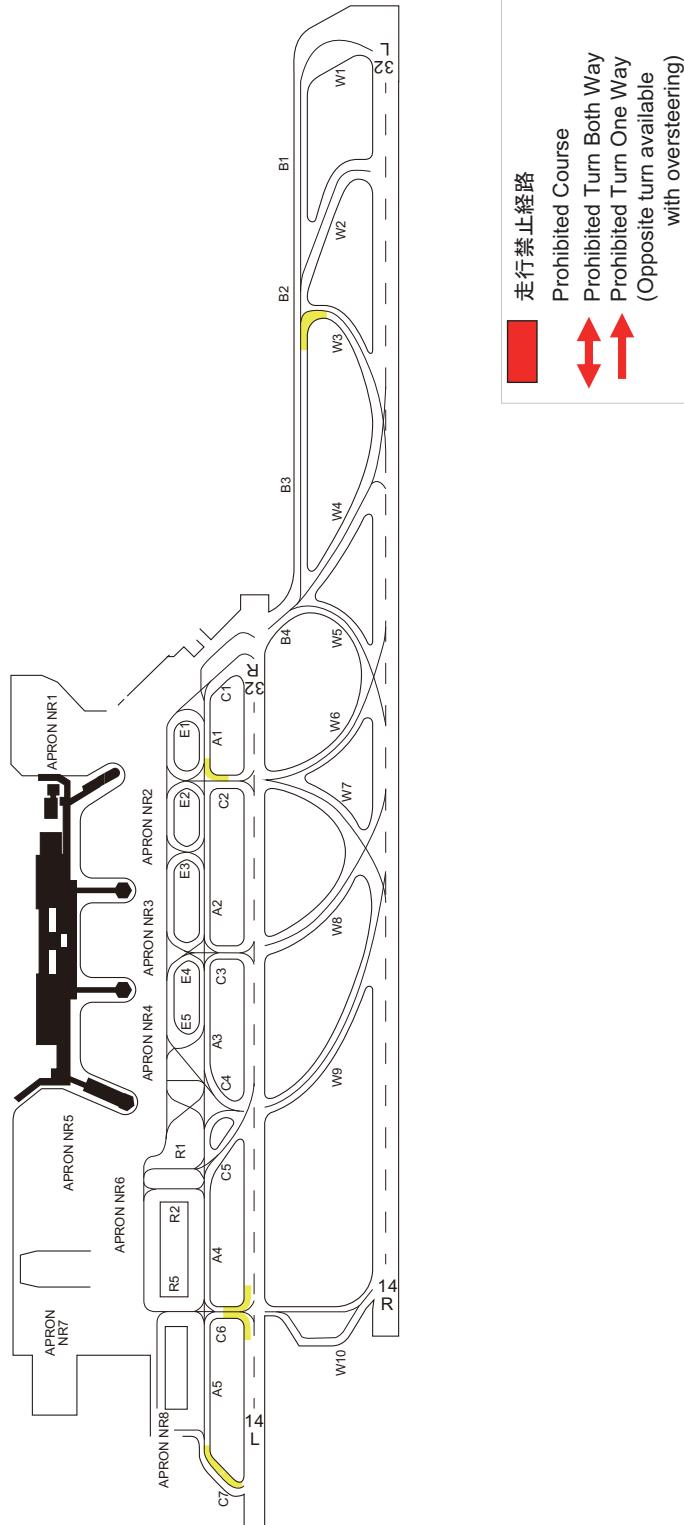
B777-300における注意して走行すべき誘導路  
TWY required to pay special attention for B777-300



5) B787-8における注意して走行すべき誘導路

5) TWY required to pay special attention for B787-8

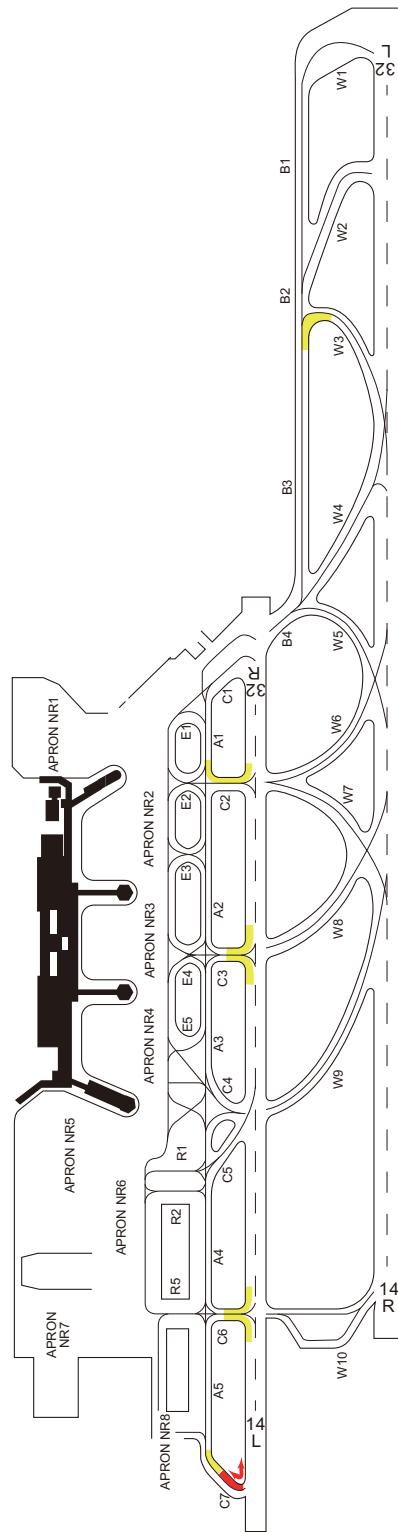
B787-8における注意して走行すべき誘導路  
TWY required to pay special attention for B787-8



6) B787-9における注意して走行すべき誘導路

6) TWY required to pay special attention for B787-9

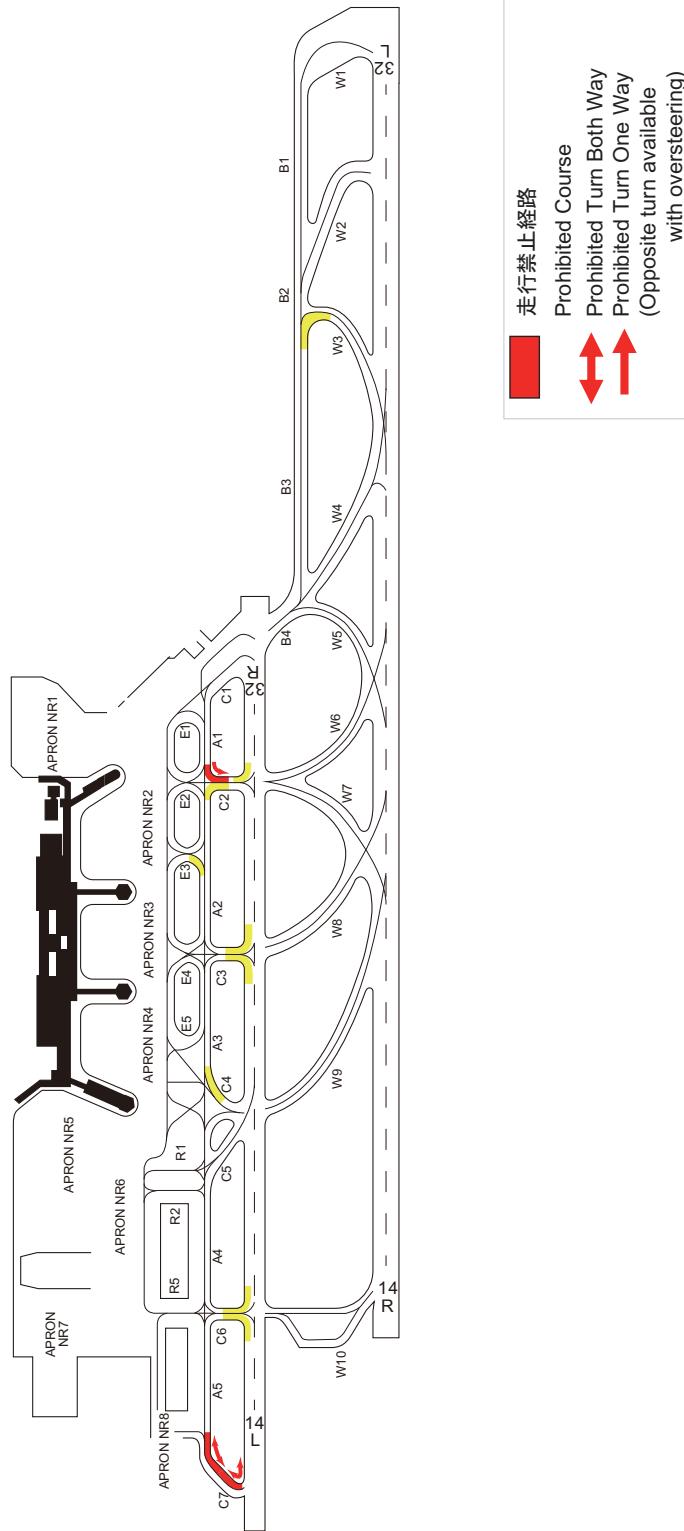
B787-9における注意して走行すべき誘導路  
TWY required to pay special attention for B787-9



7) B787-10における注意して走行すべき誘導路

7) TWY required to pay special attention for B787-10

B787-10における注意して走行すべき誘導路  
 TWY required to pay special attention for B787-10



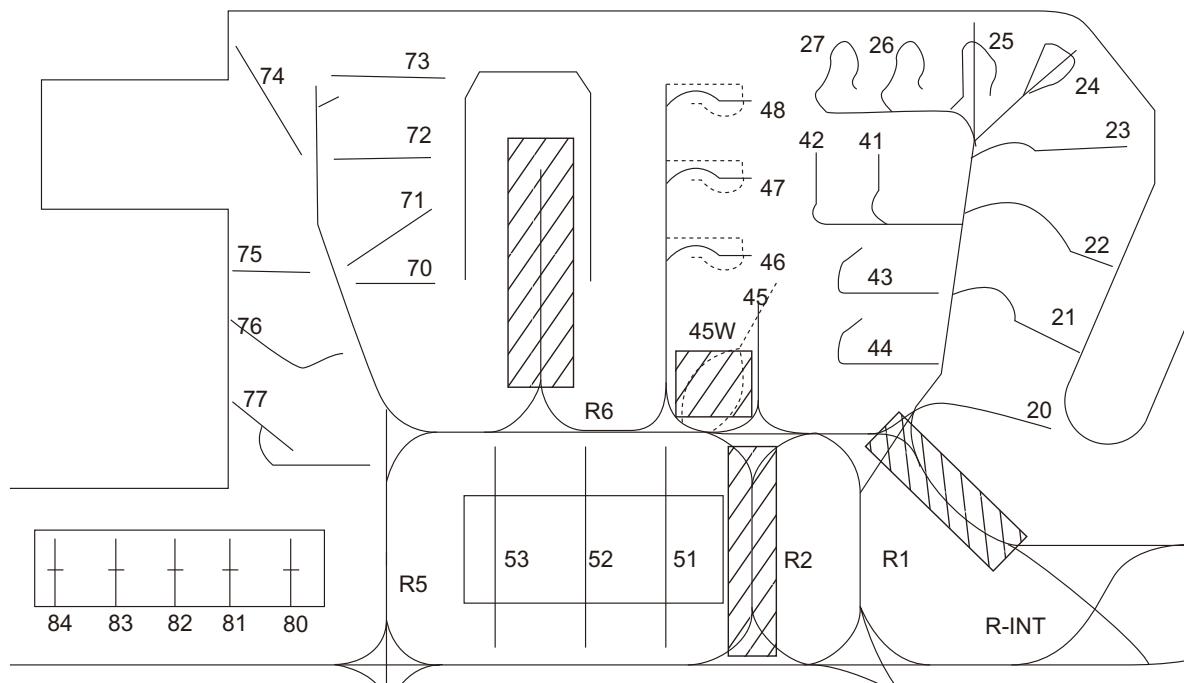
## 8) 航空機重量制限

## 8) Aircraft weight restriction

下図の区域を使用する A350-900 型機においては、航空機重量が下表の値を超えてはならない。

When A350-900 uses area in the figure below, aircraft weight shall not exceed the values listed in the table below.

航空機重量 Aircraft weight	
(lb)	(kg)
578,000	262,000



Restricted area

## 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

**RJOO AD 2.21 NOISE ABATEMENT PROCEDURES**

## 1. Local flying restrictions:

1.1 In order to reduce the noise impact in the vicinity of airport, no jet airplane fitted with three or more engines shall be permitted to operate except in an emergency situation or with prior permission of the airport administrator.

1.2 No aircraft which produce the noise exceeding the maximum allowable levels shown in the following table, shall, except in an emergency situation, be permitted to operate. However, A-300 type of aircraft shall not exceed the noise level 97dB (A) whenever take off from RWY 32L/R.

Time(UTC)	/ Maximum Allowable Noise Level
22:00 - 11:00	/ 107 dB (A)
11:01 - 12:00	/ 100 dB (A) for take off, 107 dB (A) for landing

Note: (a) All aircraft operators are requested to present in advance their "Operation Manuals" to the airport authority, giving there in the detailed information on the following items specified for each time bracket and aircraft type.

- (1) Maximum takeoff weight calculated for each runway to be used, temperature, and headwind component.
- (2) Flap angle.
- (3) Climb speed.

(b) The figures of the noise level shown in the above Table will be the value to be measured by the noise monitoring equipment installed at the position 2,400 meter from the threshold of Runway 14R on 315 DEG magnetic (Kushiro Primary School).

1.3 Aircraft using taxiway B and departing from runway 32L at Osaka International Airport, in principle, shall make Intersection takeoff via taxiway W2. In this case, available runway length is 2700m from runway 14R threshold. In case of having intention of making full length takeoff for the operational requirements, the pilot shall advise ATC to that effect when he initiates call for ATC clearance and shall follow procedures under specified.

- (a) In principle, departing aircraft shall not hold on taxiway W1.
- (b) In principle, aircraft shall hold short of NO.1 stop line until receiving taxi clearance.
- (c) Whenever practicable, pilots are urged to make rolling takeoff without stopping at the threshold and to achieve takeoff power at position 370m from the threshold with gradual advance of power lever after passing the threshold.

1.4 For landing on Runway 32 and 14: A non-instrument or visual approach shall not be made at an angle less than the ILS glide path or PAPI indicates.

1.5 For circling approach to Runway 14: Weather conditions permitting, an aircraft making circling approach is to be requested to maintain an altitude as high as practicable.

## 2. 騒音軽減運航方式

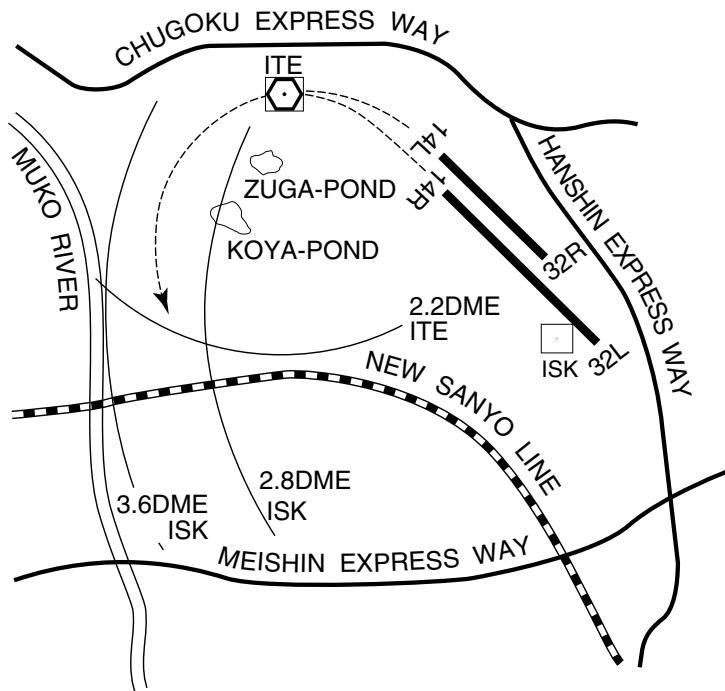
- (1) すべてのジェット機に対して、空港周辺における航空機騒音軽減のため、運航の安全に支障のない範囲で、以下の方式が適用される。ただし、これらの方によることができない航空機は実効的にこれらと同等と認められる代替方式を実施するものとする。
- i) 離陸について  
急上昇方式
  - ii) 着陸について  
ディレイド・フラップ進入方式及び  
低フラップ角着陸方式
  - iii) リバース・スラストについて (RWY32L 着陸時)  
19時から21時までの間、リバース・スラスト使用はアイドルまでに制限する。
- (2) 優先滑走路方式  
なし
- (3) 優先飛行経路  
すべての離陸機を対象に、空港周辺地域における航空機騒音の影響を受ける区域の拡大を防止するため、次のような優先飛行経路が運航の安全に支障がない範囲で適用される。
- i) 滑走路 32R/32L から離陸する場合  
離陸後 ITE VOR/DME 附近上空を通過し、かつ北端を中国縦貫道路、南端を瑞ヶ池及び昆陽池並びに西端を武庫川で囲まれる範囲を飛行するよう左上昇旋回を継続し、ITE VOR/DME 2.2DME を通過した後、標準計器出発方式に従うこと。
  - ii) 滑走路 14R/14L から離陸する場合  
離陸後、阪神高速道路まで直線飛行し、その後旋回上昇に移し、標準計器出発方式に従うこと。

注) 上記地上物標については、付図を参照のこと。

## 2. Noise Abatement Operating Procedures

- (1) For all jet aircraft, in order to reduce aircraft noise in the vicinity of airport, the following procedures shall be applied unless compliance of the procedures adversely affects the safety of aircraft operations. In case that the aircraft is unable to take these procedures, pilots should execute alternative procedures which are considered to be practically equivalent.
- i) For take-off  
Steepest Climb Procedure
  - ii) For landing  
Delayed Flap Approach Procedure and Reduced Flap Setting Procedure
  - iii) Reverse Thrust (landing RWY32L)  
Between 1000UTC (1900JST) and 1200UTC (2100JST), the use of reverse thrust is limited to idle except for safety reasons.
- (2) Preferential Runways Procedures  
Nil
- (3) Noise Preferential Routes  
For all departing aircraft, in order to prevent the enlargement of aircraft noise affected area around the airport, the following noise preferential routes are applied except for safety reasons.
- i) Take-off from runway 32R/32L:  
After take-off, execute continuous left climbing turn so as to pass over near ITE VOR/DME and keep flight track within the area defined by Chugoku Express Way at the north end, ponds of Zuga and Koya at the south end, and Muko River at the west end until crossing ITE VOR/DME 2.2DME, then proceed via SID.
  - ii) Take-off from runway 14R/14L:  
After take-off, strictly follow extended runway centerline until passing Hanshin Express Way and then execute climbing turn so as to proceed via SID.

Note: Refer attached chart for the above mentioned landmarks.



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

	RWY	REDL & RCLL AVBL		REDL or RCLL AVBL		REDL & RCLL OUT	
		CEIL-RVR	CEIL-VIS	CEIL-RVR	CEIL-VIS	CEIL-RVR	CEIL-VIS
TKOF ALTN AP FILED	32R	-	300'-800m	-	300'-800m	-	300'-800m
	14L	-	200'-1600m	-	200'-1600m	-	200'-1600m
	32L	300'-800m	300'-800m	300'-800m	300'-800m	-	300'-800m
	14R	-	200'-800m	-	200'-800m	-	200'-800m
OTHER	32R	AVBL LDG MINIMA					
	14L	AVBL LDG MINIMA					
	32L	AVBL LDG MINIMA					
	14R	AVBL LDG MINIMA					

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

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

If radio communications with Kansai Approach/Radar are lost for 1 minute, squawk Mode A/3 Code 7600 and,

- (I)    1. Contact Osaka Tower.  
 2. If unable, proceed in accordance with Visual Flight Rules.  
 3. If unable, proceed to IZUMI at last assigned altitude or 5,000 feet whichever is higher, and execute instrument approach via IZUMI ARRIVAL.
- (II) Procedures other than above will be issued when situation required.

3. Notwithstanding the requirement as mentioned "JET circling to West only" in each approach minimum column of the instrument approach charts of RJOO AIP, Boeing 727 series 100 or lighter jet ACFT may be instructed by ATC to enter into East side traffic circuit during VMC in the daytime.

4. Operation of Special VFR arrival by fixed wing aircraft NOT authorized except in an emergency situation.

5. For the purpose of preventing disasters to Petroleum Oil Liquid (POL:See AD2.24 AD chart) facilities, all aircraft making take off, landing or missed approach are requested to avoid flying over and in the vicinity of POL facilities.

## RJOO AD 2.23 ADDITIONAL INFORMATION

1. Maintenance works will be in progress all the year round during SR to SS along the edges of RWY 14R/32L and/or 14L/32R and TWY subject to VMC.

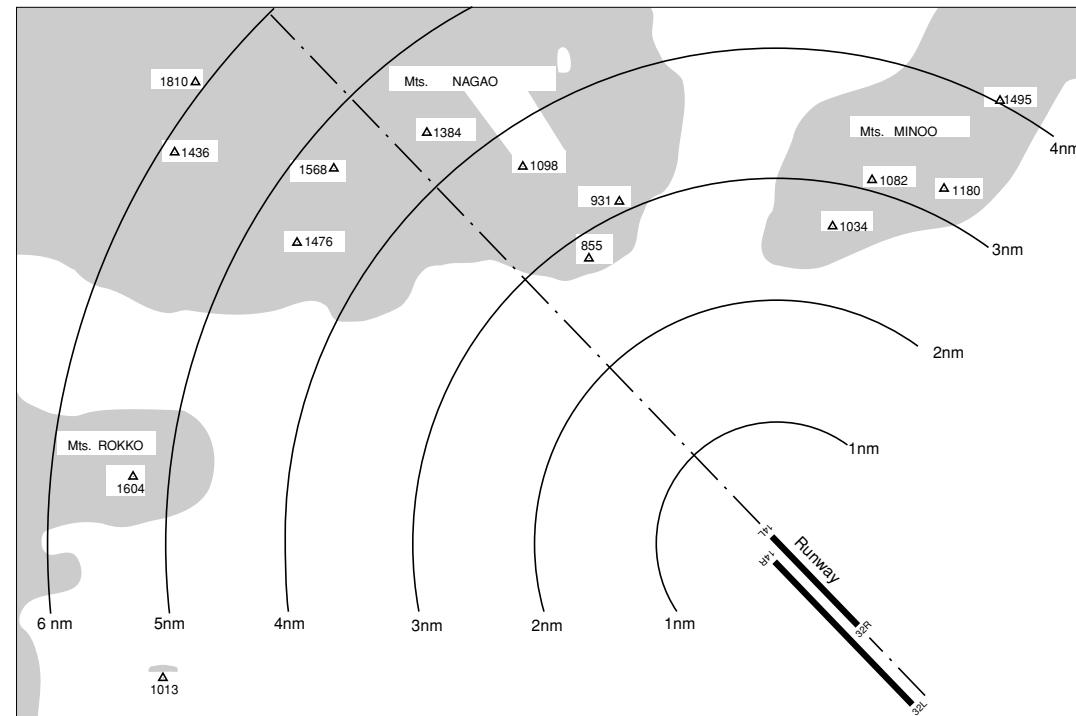
2. Position not visible from control tower.  
1) Spot Nr.4A, 23, 24, 25, 41, 42  
2) Apron Nr.7

3. Avoidance Flight of Mountainous Areas is shown in attached chart.

### Avoidance Flight of Mountainous Areas at OSAKA INTL Airport

For the purpose of avoiding collision at the mountainous area shown on the chart, the aircraft taking off from RWY 32 at OSAKA International Airport should turn to the left as soon as possible with due regard to the noise at the time of climbing, but without sacrificing the flight safety.

Note: The areas of hatching are obstructions which are projecting above the plane surface having a 40:1 slope from RWY 14 threshold.

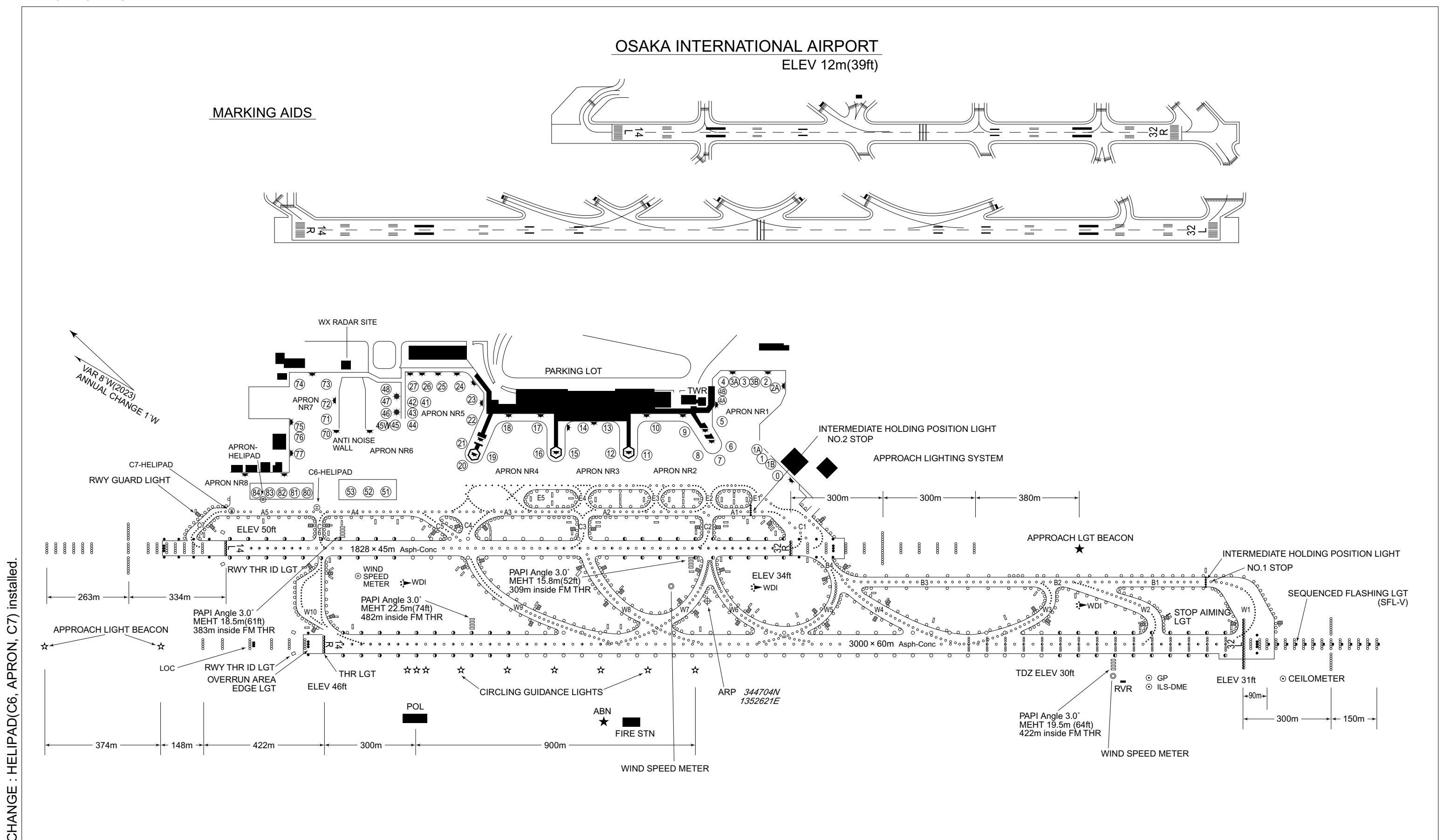


**RJOO AD 2.24 CHARTS RELATED TO AN AERODROME**

Aerodrome/Heliport Chart-1  
Aerodrome/Heliport Chart-2  
Aerodrome Obstacle Chart - ICAO type A (RWY14R)  
Aerodrome Obstacle Chart - ICAO type A (RWY32L)  
Aerodrome Obstacle Chart - ICAO type A (RWY14L)  
Aerodrome Obstacle Chart - ICAO type A (RWY32R)  
Aerodrome Obstacle Chart - ICAO type B  
Standard Departure Chart - Instrument (ASUKA, PANAS)\*  
Standard Departure Chart - Instrument (RNAV TRANSITION1)  
Standard Departure Chart - Instrument (IZUMI)\*  
Standard Departure Chart - Instrument (EAST REVERSAL)\*  
Standard Departure Chart - Instrument (TIGER)\*  
Standard Departure Chart - Instrument (MINAC)\*  
Standard Departure Chart - Instrument (RNAV TRANSITION2)  
Standard Arrival Chart - Instrument (IZUMI, AGPUK)  
Standard Arrival Chart - Instrument (IKOMA EAST, IKOMA NORTH, HABIK-RNAV)  
Instrument Approach Chart (ILS RWY32L)  
Instrument Approach Chart (LOC RWY32L)  
Instrument Approach Chart (VOR A)  
Instrument Approach Chart (RNP RWY32L)  
Instrument Approach Chart (RNP RWY32R)  
Other Chart (HOLDING PATTERN)  
Other Chart (Visual REP)  
Other Chart (LDG CHART)  
Other Chart (MVA CHART)

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

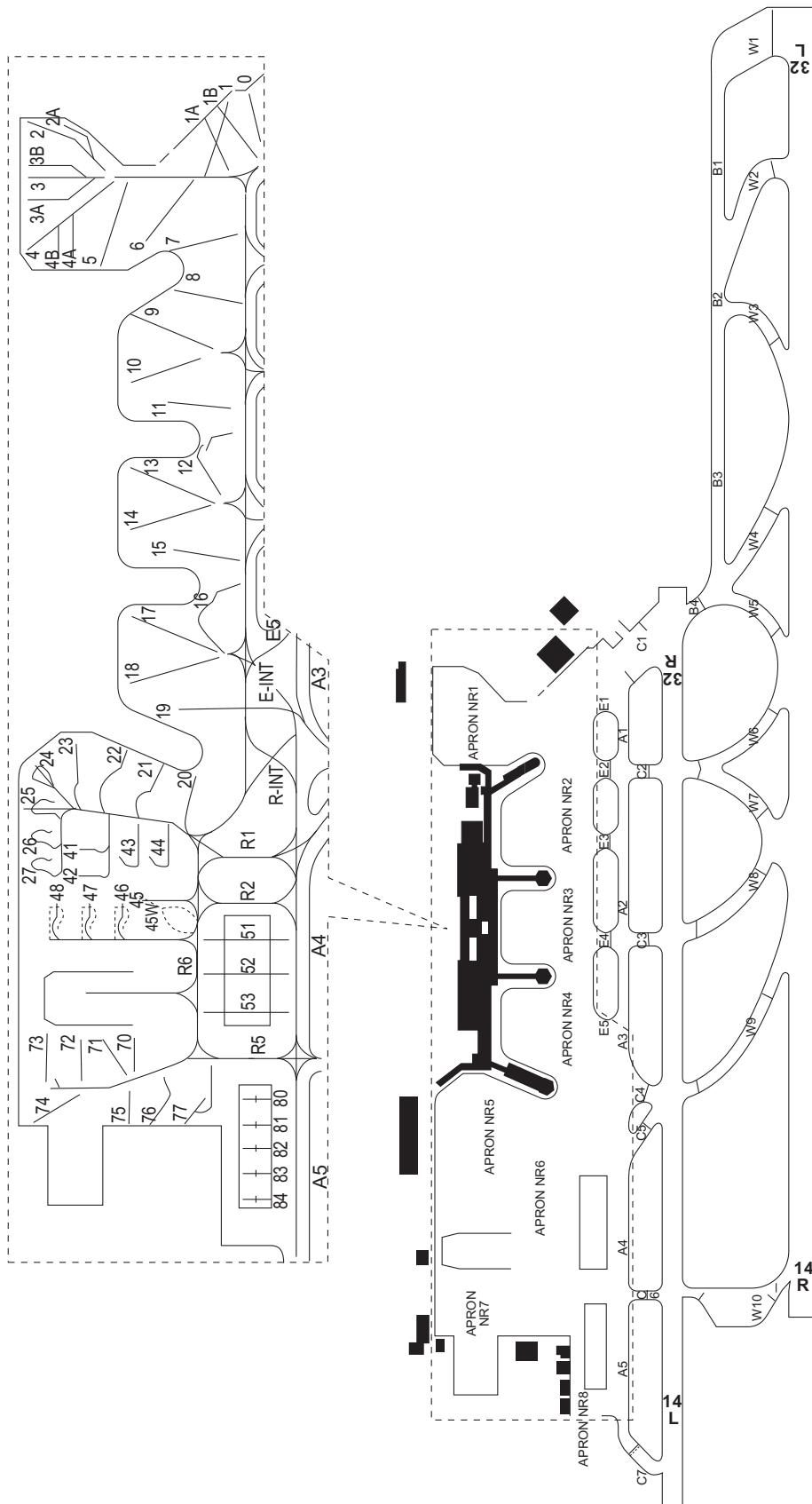
AERODROME CHART



RJOO / OSAKA INTL

## AD CHART

OSAKA INTERNATIONAL AIRPORT		
		ELEV 12m(39ft)
Designation	Call Sign	Frequency (MHz)
ATIS	Osaka Int'l Airport	128.6
DLRY	Osaka Delivery	118.8
GND	Osaka Ground	121.7
		126.2
TWR	Osaka Tower	118.1
		126.2
		236.8

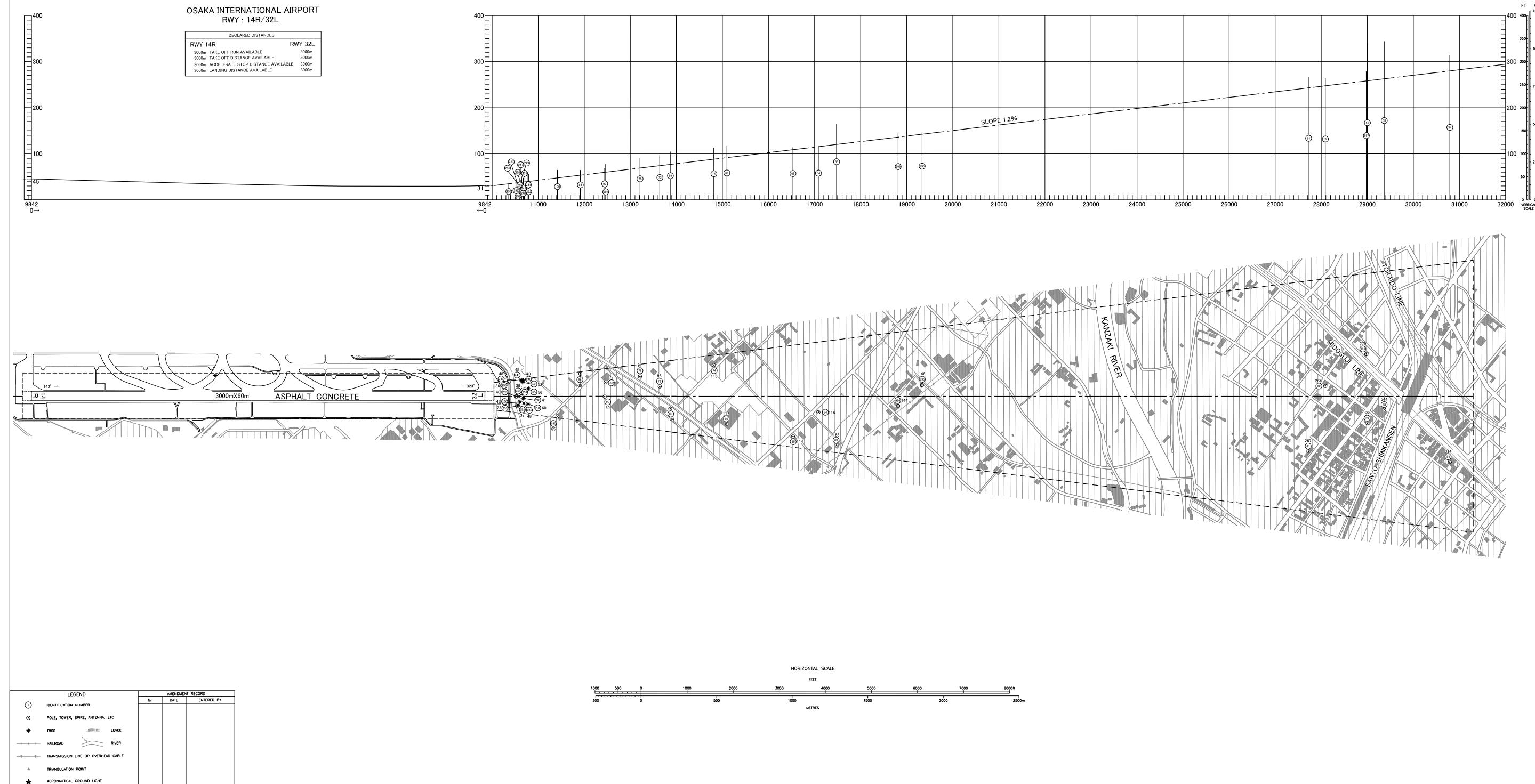


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DIMENSIONS AND ELEVATIONS IN FEET BEARINGS ARE MAGNETIC

MAGNETIC VARIATION 8° W-FEB 2022

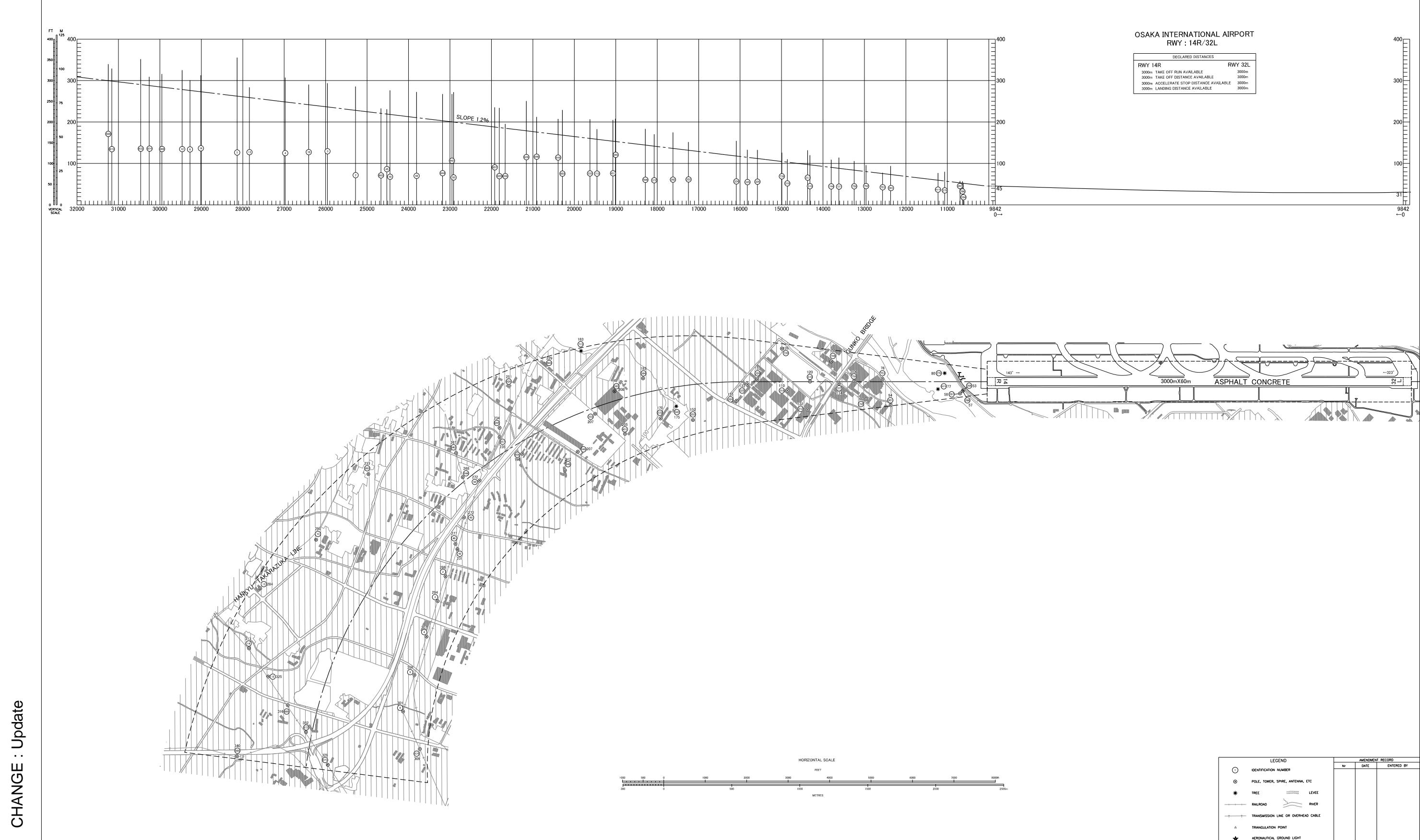
AERODROME OBSTACLE CHART-ICAO  
TYPE A (OPERATING LIMITATIONS)



DIMENSIONS AND ELEVATIONS IN FEET BEARINGS ARE MAGNETIC

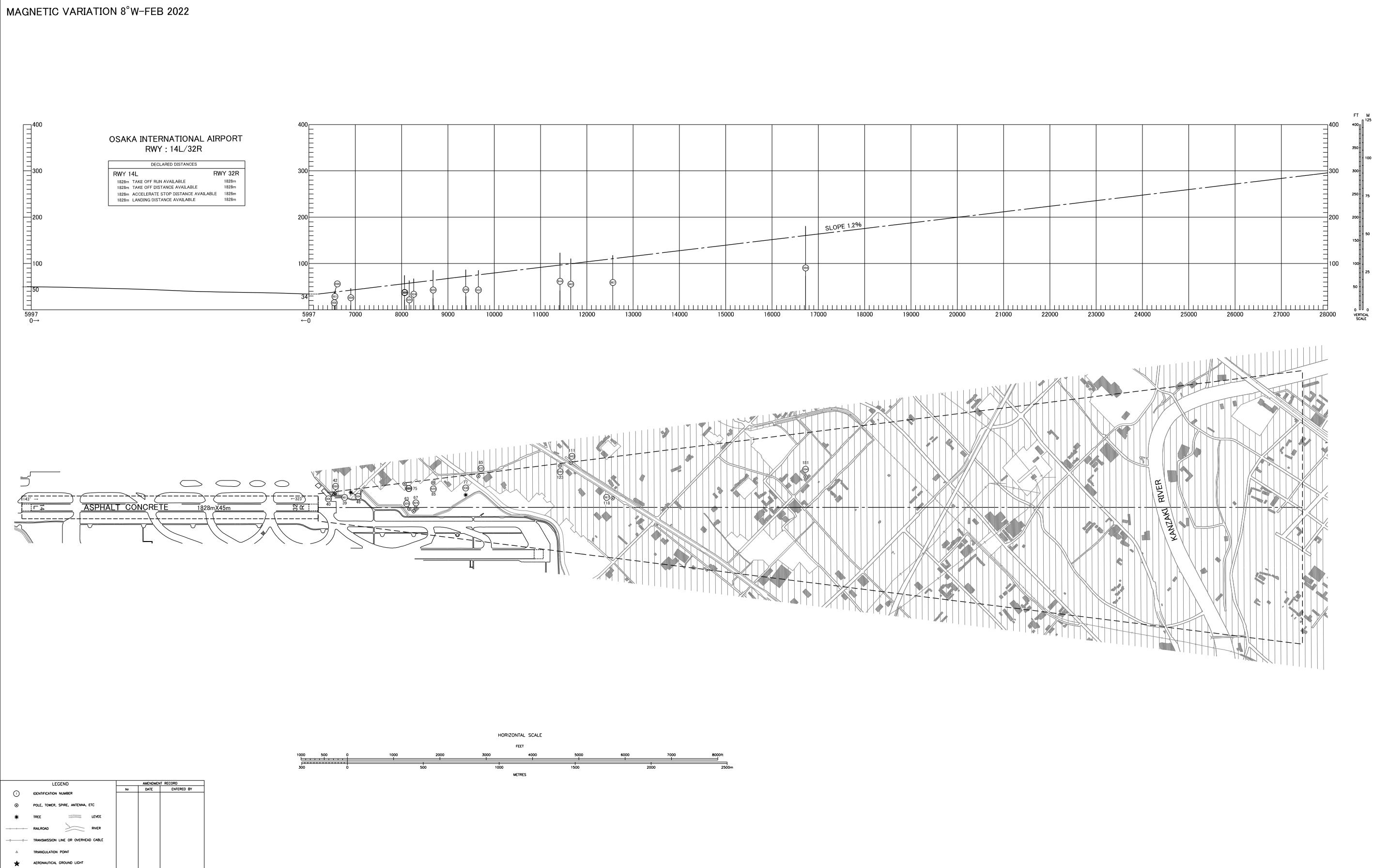
AERODROME OBSTACLE CHART-ICAO  
TYPE A (OPERATING LIMITATIONS)

MAGNETIC VARIATION 8°W-FEB 2022



DIMENSIONS AND ELEVATIONS IN FEET BEARINGS ARE MAGNETIC

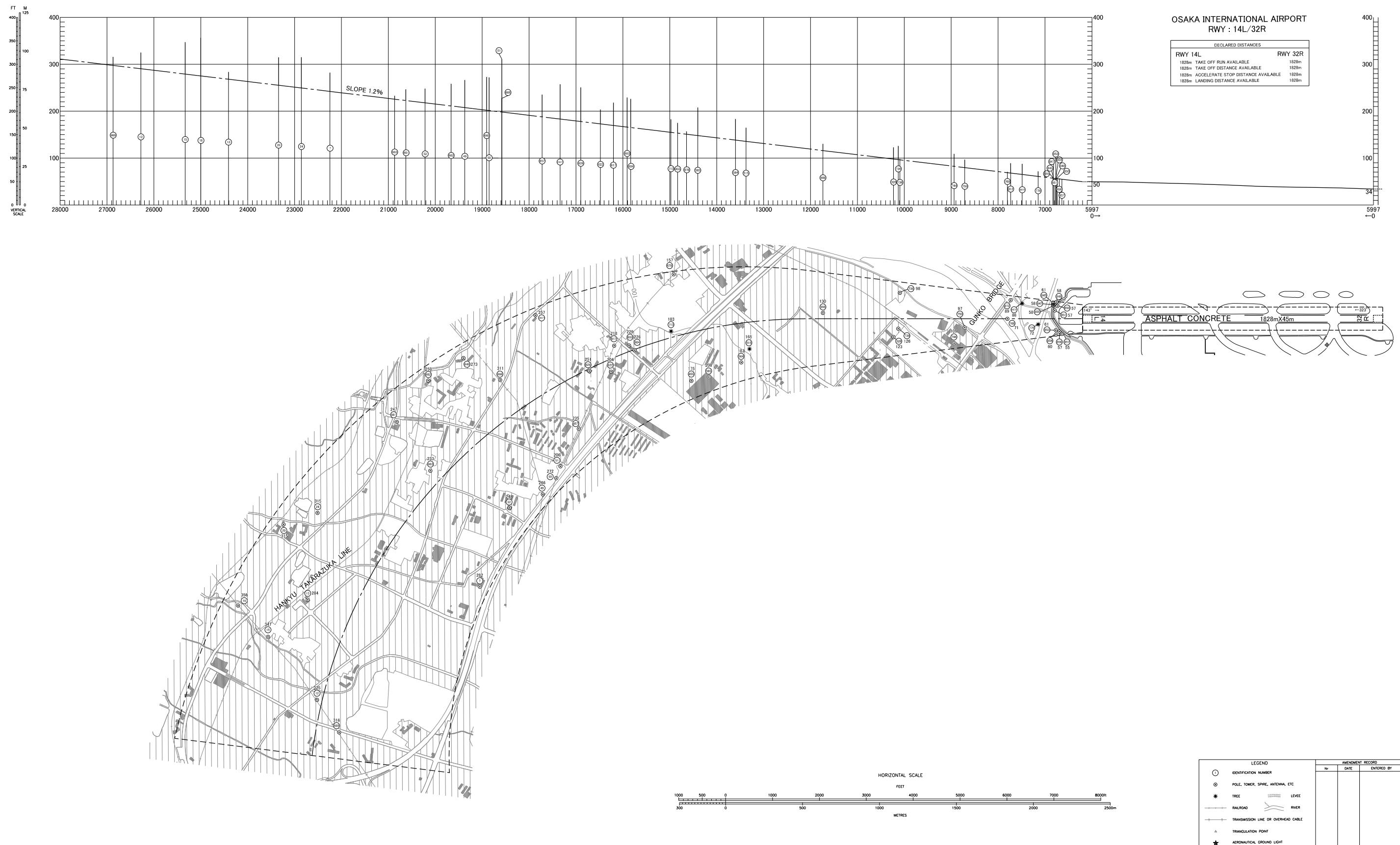
AERODROME OBSTACLE CHART-ICAO  
TYPE A (OPERATING LIMITATIONS)



DIMENSIONS AND ELEVATIONS IN FEET BEARINGS ARE MAGNETIC

AERODROME OBSTACLE CHART-ICAO  
TYPE A (OPERATING LIMITATIONS)

MAGNETIC VARIATION 8° W-FEB 2022



# AERODROME OBSTACLE CHART-ICAO TYPE B

DIMENSIONS AND ELEVATIONS IN FEET BEARINGS ARE MAGNETIC



CHANGE : Update

## STANDARD DEPARTURE CHART -INSTRUMENT

RJOO / OSAKA INTL

SID

ASUKA FOUR DEPARTURE

RWY 32R/32L : Climb RWY HDG to 500FT or above, turn left within 4NM from RWY end/ITE 2.1DME,...

RWY 14R/14L : Climb RWY HDG to 500FT or above, turn left,...  
...via ITE R101 to ASUKA.

Cross ASUKA at or above 5000FT.

Note : When take off RWY 14R/14L, following climb gradient should be maintained until 500FT.

Speed (Knots)	60	90	120	150	180	210
Rate (Feet/Min)	300	450	600	750	900	1050

PANAS ONE DEPARTURE

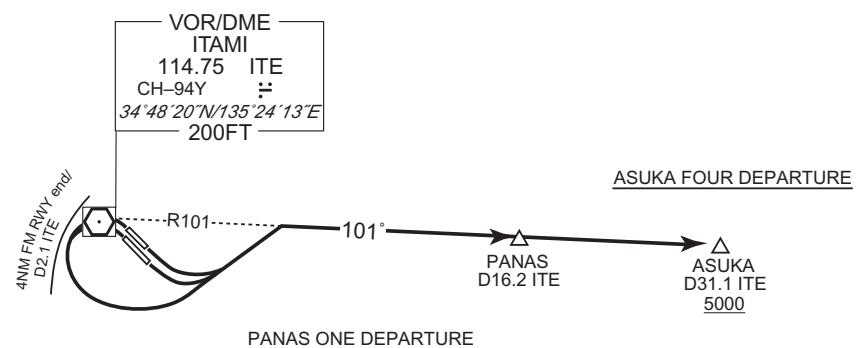
RWY 32R/32L : Climb RWY HDG to 500FT or above, turn left within 4NM from RWY end/ITE 2.1DME,...

RWY 14R/14L : Climb RWY HDG to 500FT or above, turn left,...  
...via ITE R101 to PANAS.

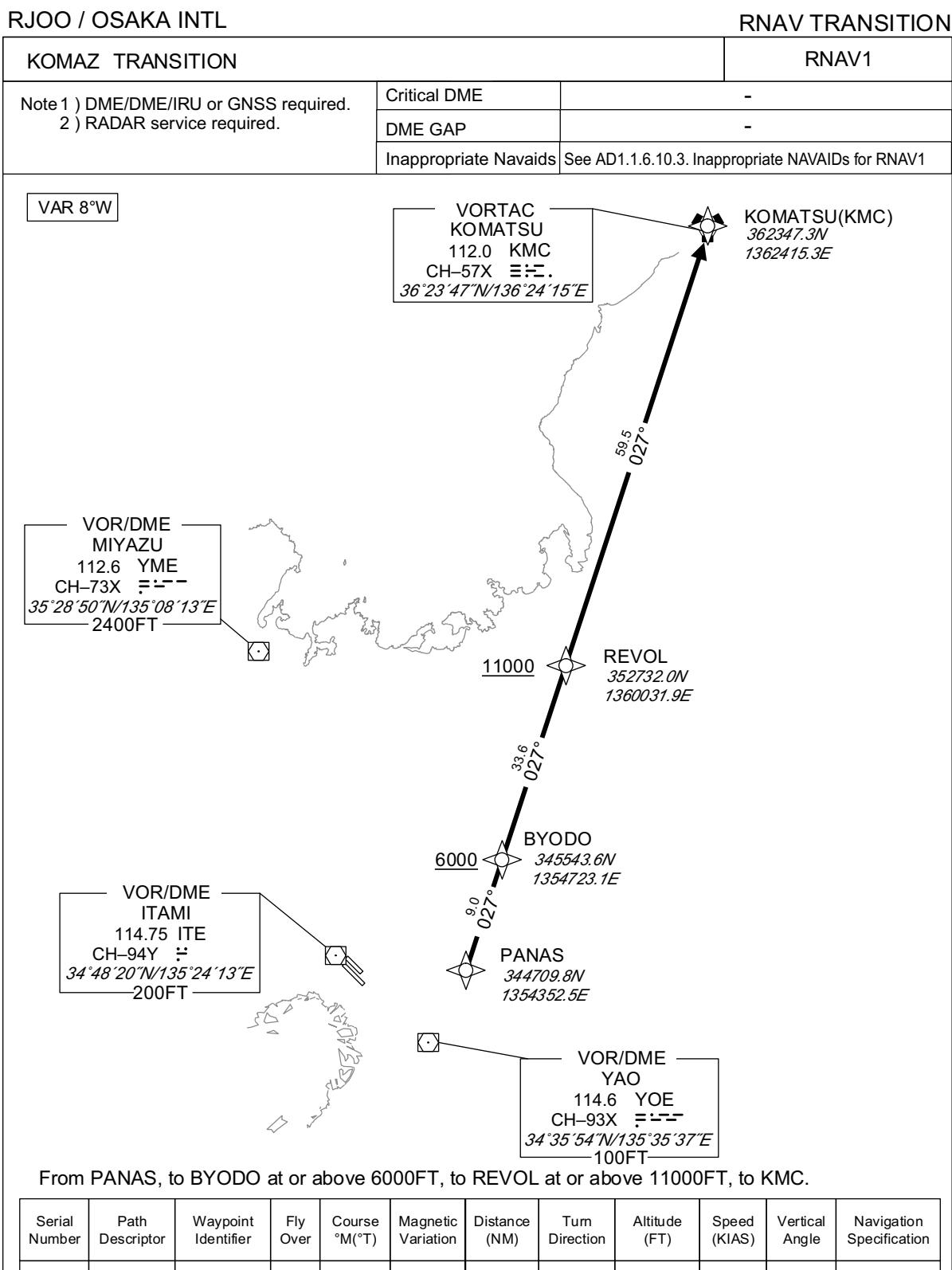
Note : When take off RWY 14R/14L, following climb gradient should be maintained until 500FT.

Speed (Knots)	60	90	120	150	180	210
Rate (Feet/Min)	300	450	600	750	900	1050

CHANGE: New PROC(PANAS ONE DEPARTURE).



## STANDARD DEPARTURE CHART -INSTRUMENT



CHANGE : Description of VAR and PROC name.

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	PANAS	-	-	-8.0	-	-	-	-	-	RNAV1
002	TF	BYODO	-	027 (018.6)	-8.0	9.0	-	+6000	-	-	RNAV1
003	TF	REVOL	-	027 (018.6)	-8.0	33.6	-	+11000	-	-	RNAV1
004	TF	KMC	-	027 (018.7)	-8.0	59.5	-	-	-	-	RNAV1

## STANDARD DEPARTURE CHART -INSTRUMENT

RJOO / OSAKA INTL

SID

IZUMI ONE DEPARTURE

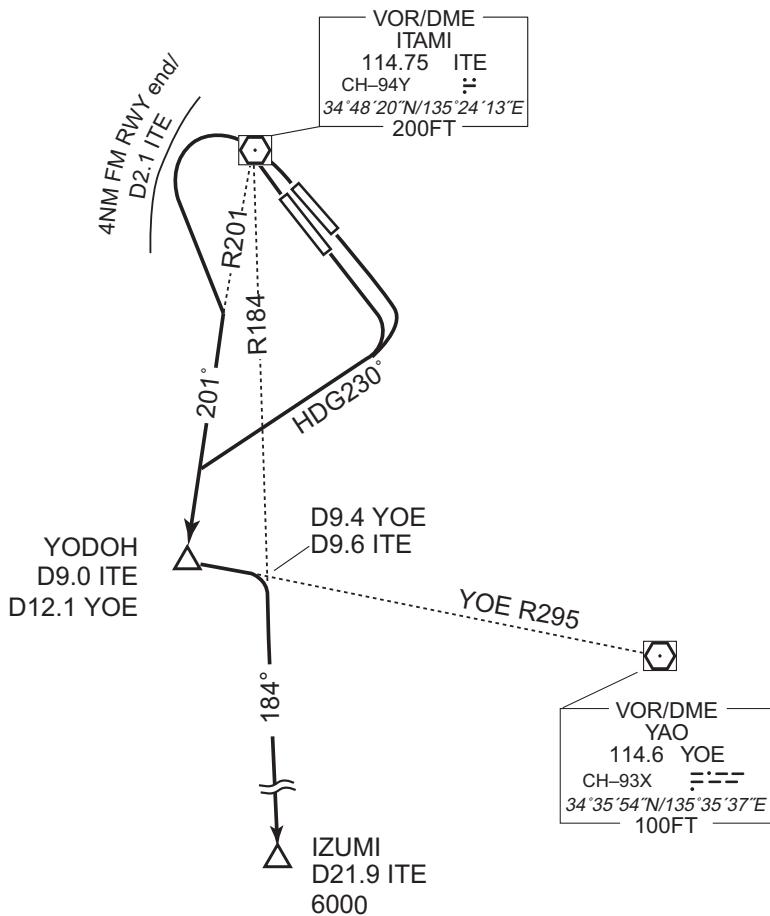
RWY 32R/32L : Climb RWY HDG to 500FT or above, turn left within 4NM from RWY end/ITE 2.1DME, via ITE R201 to YODOH,...

RWY 14R/14L : Climb RWY HDG to 500FT or above, turn right HDG230° to intercept and proceed via ITE R201 to YODOH,...  
...turn left, via YOE R295 to intercept and proceed via ITE R184 to IZUMI.  
Cross IZUMI at or above 6000FT.

Note : When take off RWY 14R/14L, following climb gradient should be maintained until 500FT.

Speed (Knots)	60	90	120	150	180	210
Rate (Feet/Min)	300	450	600	750	900	1050

CHANGE : Description of PROC name.



## STANDARD DEPARTURE CHART -INSTRUMENT

RJOO / OSAKA INTL

SID

EAST REVERSAL FOUR DEPARTURE

RWY 32R/32L : Climb RWY HDG to 500FT or above, turn left within 4NM from RWY end/ITE 2.1DME,...

RWY 14R/14L : Climb RWY HDG to 500FT or above, turn left,...  
...via ITE R101 to 3000FT or above, turn left direct to ITE VOR/DME within ITE 14.0DME.

Cross ITE VOR/DME at assigned altitude.

Note : When take off RWY 14R/14L, following climb gradient should be maintained until 500FT.

Speed (Knots)	60	90	120	150	180	210
Rate (Feet/Min)	300	450	600	750	900	1050

CHANGE : Description of PROC name.



STANDARD DEPARTURE CHART -INSTRUMENT

AIP JAPAN  
RJOO / OSAKA INTL

SID

**TIGER TWO DEPARTURE**

**RWY 32R/32L :** Climb RWY HDG to 500FT or above, turn left within 4NM from RWY end/ITE 2.1DME, via ITE R201 until crossing YOE R301...

**RWY 14R/14L :** Climb RWY HDG to 500FT or above, turn right HDG230° until crossing YOE R301...

...turn right to intercept and proceed via YOE R291 to TIGER.

Cross TIGER at or above 6000FT.

Note : Following climb gradient should be maintained until 2500FT.

Speed (Knots)	60	90	120	150	180	210
Rate (Feet/Min)	300	450	600	750	900	1050

CHANGE : Description of PROC name.



## STANDARD DEPARTURE CHART -INSTRUMENT

RJOO / OSAKA INTL

TRANSITION

KAGAWA TRANSITION

From over TIGER, via YOE R291 to SUMAR, via ITE R260 to intercept and proceed via KTE R057 to KTE VOR/DME.

Cross SUMAR at or above 9000FT, cross ITE R260/43.1DME at or above FL180.



CHANGE : Description of PROC name.

STANDARD DEPARTURE CHART -INSTRUMENT

RJOO / OSAKA INTL

TRANSITION

ASAGI TRANSITION

From over TIGER, via KCE R324 to ASAGI.  
Cross KCE R324/22.4DME at or above 7000FT.

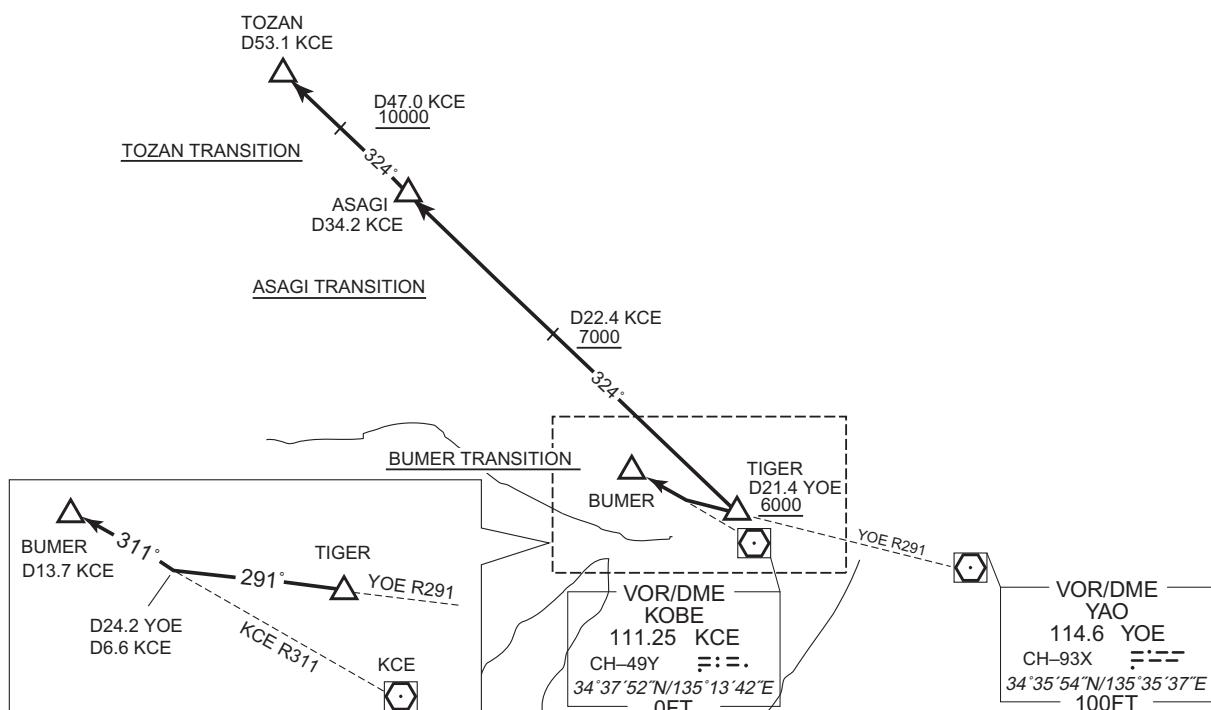
TOZAN TRANSITION

From over TIGER, via KCE R324 to TOZAN, via ASAGI.  
Cross KCE R324/22.4DME at or above 7000FT, cross KCE R324/47.0DME at or above 10000FT.

BUMER TRANSITION

From over TIGER, via YOE R291 to intercept and proceed via KCE R311 to BUMER.

CHANGE : TOZAN TRANSITION. Radial FM KCE.



## STANDARD DEPARTURE CHART-INSTRUMENT

RJOO / OSAKA INTL

SID and TRANSITION

MINAC FOUR DEPARTURE

RWY 32R/32L : Climb RWY HDG to 500FT or above, turn left within 4NM from RWY end/ITE 2.1DME,...

RWY 14R/14L : Climb RWY HDG to 500FT or above, turn left,...  
...via ITE R101 to intercept and proceed via KCE R077 to MINAC.

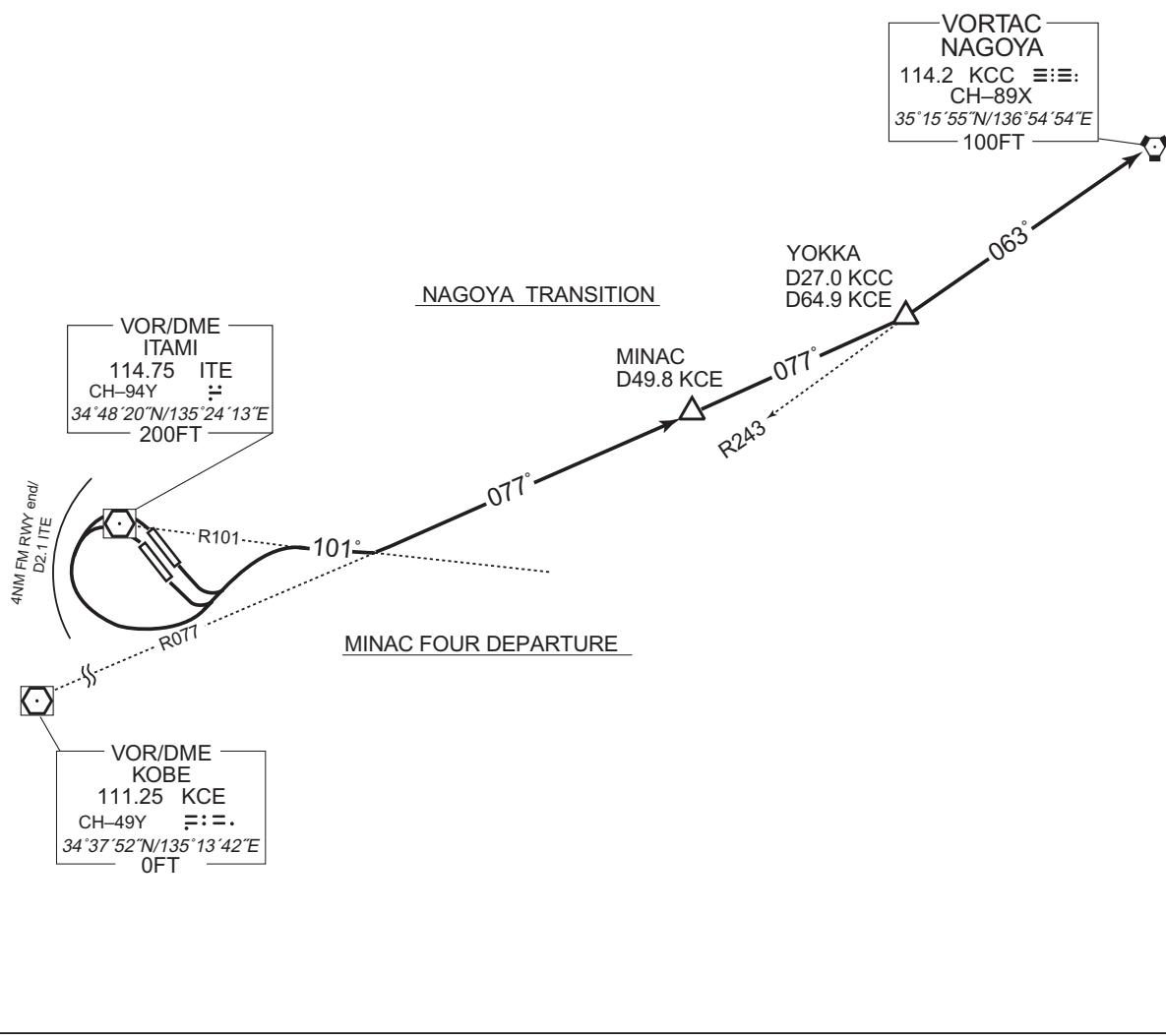
Note: When take off RWY14R/14L, following climb gradient should be maintained until 500FT.

Speed (Knots)	60	90	120	150	180	210
Rate (Feet/Min)	300	450	600	750	900	1050

NAGOYA TRANSITION

From over MINAC, via KCE R077 to YOKKA, via KCC R243 to KCC VORTAC.

CHANGE : PROC renamed. Radial FM KCE.

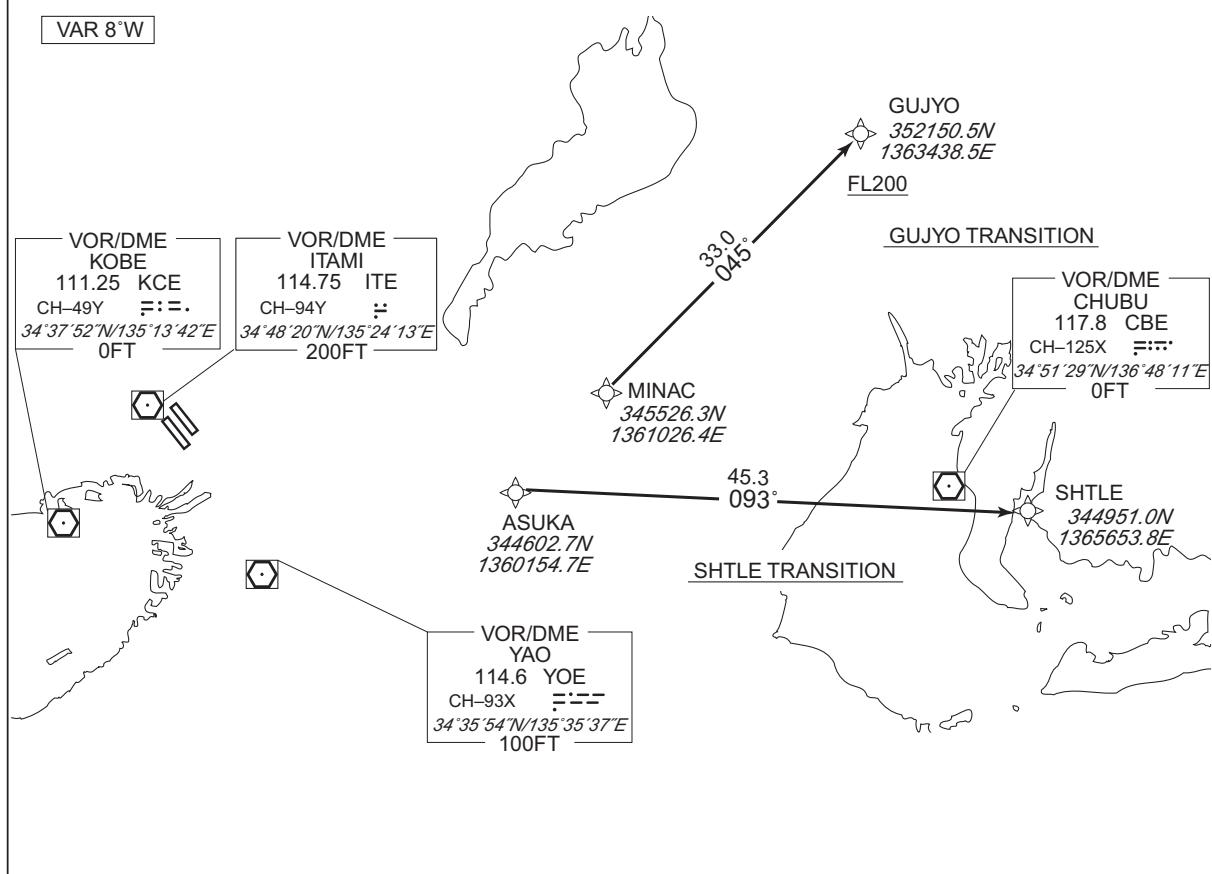


STANDARD DEPARTURE CHART-INSTRUMENT

RJOO / OSAKA INTL

RNAV TRANSITION

GUJYO TRANSITION / SHTLE TRANSITION		RNAV1
NOTE 1 ) DME/DME/IRU or GNSS required. 2 ) RADAR service required.	Critical DME	-
	DME GAP	-
	Inappropriate Navaids	See AD1.1.6.10.3. Inappropriate NAVADs for RNAV1



GUJYO TRANSITION

From MINAC, to GUJYO at or above FL200.

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	MINAC	—	—	-8.0	—	—	—	—	—	RNAV1
002	TF	GUJYO	—	045 (036.7)	-8.0	33.0	—	+FL200	—	—	RNAV1

SHTLE TRANSITION

From ASUKA, to SHTLE.

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	ASUKA	—	—	-8.0	—	—	—	—	—	RNAV1
002	TF	SHTLE	—	093 (084.9)	-8.0	45.3	—	—	—	—	RNAV1

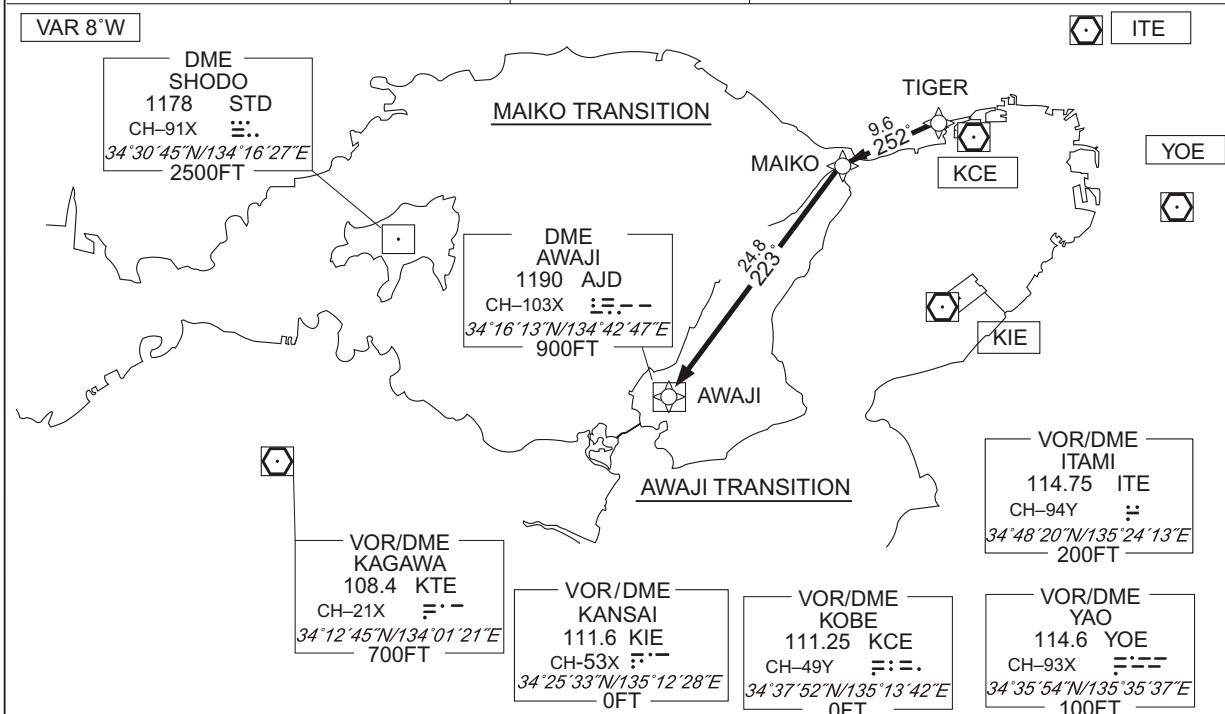
CHANGE : Description of VAR.

## STANDARD DEPARTURE CHART-INSTRUMENT

RJOO / OSAKA INTL

RNAV TRANSITION

MAIKO TRANSITION / AWAJI TRANSITION		RNAV1
NOTE 1 ) DME/DME/IRU or GNSS required.	Critical DME	-
2 ) RADAR service required.	DME GAP	-
	Inappropriate Navaids	See AD1.1.6.10.3. Inappropriate NAVAIDs for RNAV1

MAIKO TRANSITION

From TIGER, to MAIKO.

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	TIGER	-	-	-8.2	-	-	-	-	-	RNAV1
002	TF	MAIKO	-	252 (244.2)	-8.2	9.6	-	-	-	-	RNAV1

AWAJI TRANSITION

From TIGER, to MAIKO, to AWAJI.

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	TIGER	-	-	-8.0	-	-	-	-	-	RNAV1
002	TF	MAIKO	-	252 (244.2)	-8.0	9.6	-	-	-	-	RNAV1
003	TF	AWAJI	-	223 (214.6)	-8.0	24.8	-	-	-	-	RNAV1

Waypoint Coordinates

Waypoint Identifier	Coordinates	Waypoint Identifier	Coordinates
TIGER	344050.4N / 1351016.7E	AWAJI	341613.1N / 1344246.6E
MAIKO	343639.7N / 1345949.1E		

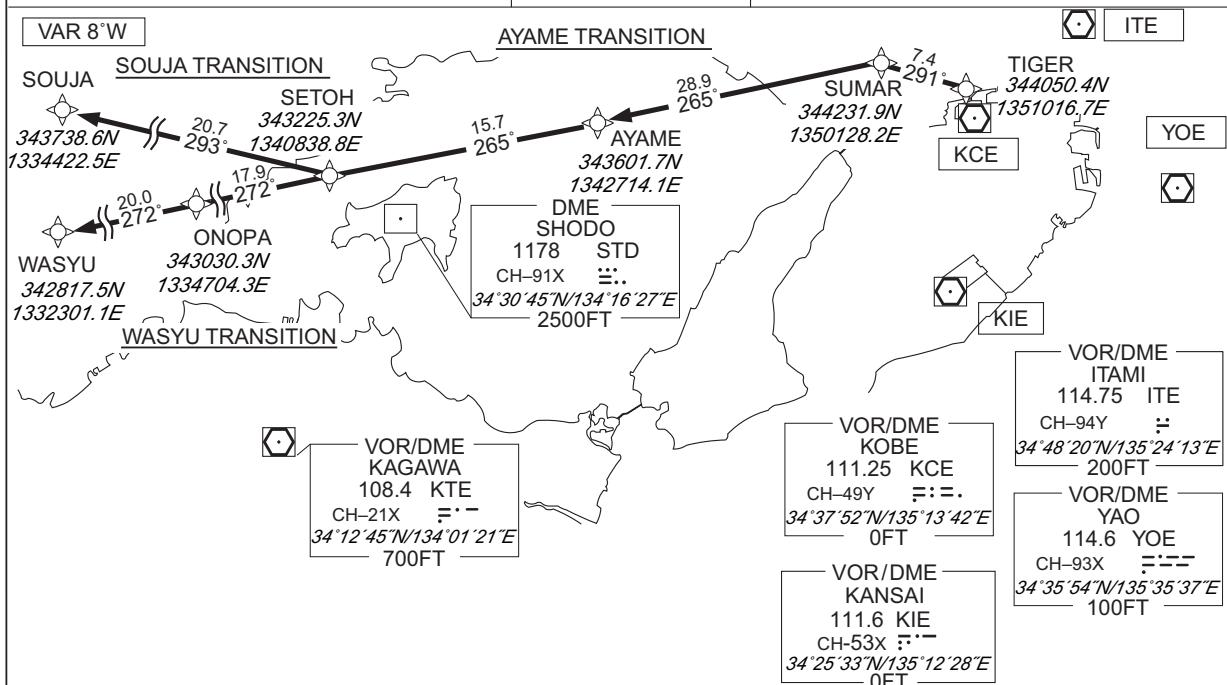
CHANGE : MAIKO TRANSITION established. Waypoint Coordinates added.

## **STANDARD DEPARTURE CHART-INSTRUMENT**

RJOO / OSAKA INTL

## RNAV TRANSITION

AYAME TRANSITION / SOUJA TRANSITION / WASYU TRANSITION		RNAV1
NOTE 1 ) DME/DME/IRU or GNSS required.	Critical DME	—
2 ) RADAR service required.	DME GAP	—
	Inappropriate Navaids	See AD1.1.6.10.3. Inappropriate NAVAIDS for RNAV1



## AYAME TRANSITION

From TIGER, to SUMAR, to AYAME.

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	TIGER	—	—	-8.1	—	—	—	—	—	RNAV1
002	TF	SUMAR	—	291 (283.2)	-8.1	7.4	—	—	—	—	RNAV1
003	TF	AYAME	—	265 (257.2)	-8.1	28.9	—	—	—	—	RNAV1

CHANGE : TAKAMATSU TACAN abolished.

SOUJA TRANSITION

From TIGER, to SUMAR, to AYAME, to SETOH, to SOUJA,

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	TIGER	—	—	-8.1	—	—	—	—	—	RNAV1
002	TF	SUMAR	—	291 (283.2)	-8.1	7.4	—	—	—	—	RNAV1
003	TF	AYAME	—	265 (257.2)	-8.1	28.9	—	—	—	—	RNAV1
004	TF	SETOH	—	265 (256.8)	-8.1	15.7	—	—	—	—	RNAV1
005	TF	SOUJA	—	293 (284.8)	-8.1	20.7	—	—	—	—	RNAV1

## STANDARD DEPARTURE CHART-INSTRUMENT

RJOO / OSAKA INTL

RNAV TRANSITION

## WASYU TRANSITION

From TIGER, to SUMAR, to AYAME, to SETOH, to ONOPA, to WASYU.

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	TIGER	—	—	-8.1	—	—	—	—	—	RNAV1
002	TF	SUMAR	—	291 (283.2)	-8.1	7.4	—	—	—	—	RNAV1
003	TF	AYAME	—	265 (257.2)	-8.1	28.9	—	—	—	—	RNAV1
004	TF	SETOH	—	265 (256.8)	-8.1	15.7	—	—	—	—	RNAV1
005	TF	ONOPA	—	272 (263.9)	-8.1	17.9	—	—	—	—	RNAV1
006	TF	WASYU	—	272 (263.7)	-8.1	20.0	—	—	—	—	RNAV1

CHANGE : VAR. PROC course. ONOPA established.

STANDARD ARRIVAL CHART-INSTRUMENT

RJOO / OSAKA INTL

STAR

IZUMI ARRIVAL

From over IZUMI, via ITE 21.9DME counter-clockwise ARC to intercept and proceed via ITE R141 to IKOMA.

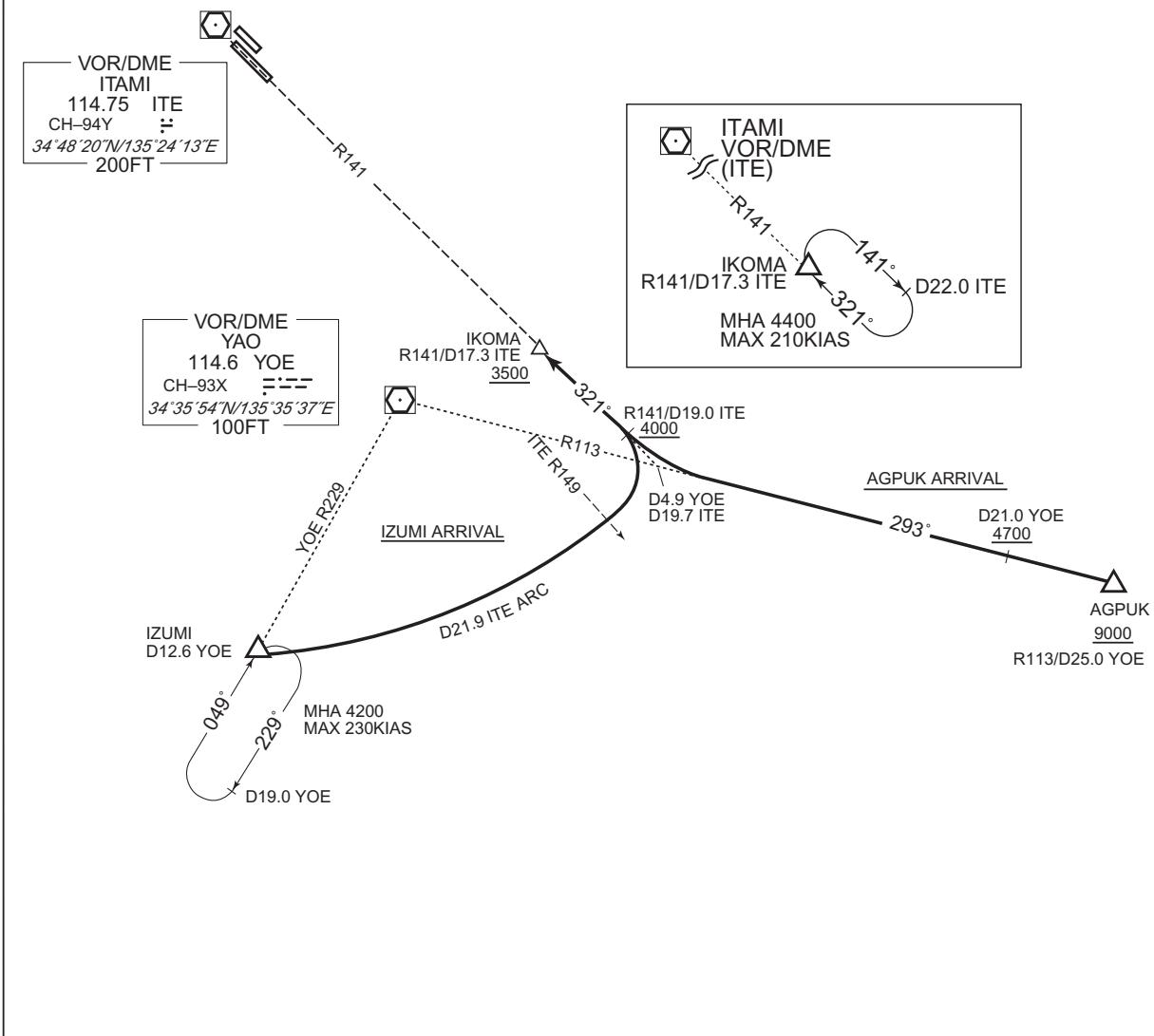
Cross ITE R141/19.0DME at or above 4000FT, cross IKOMA at or above 3500FT.

AGPUK ARRIVAL

From over AGPUK, via YOE R113 to intercept and proceed via ITE R141 to IKOMA.

Cross AGPUK at or above 9000FT, cross YOE R113/21.0DME at or above 4700FT, cross ITE R141/19.0DME at or above 4000FT, cross IKOMA at or above 3500FT.

CHANGE : AGPUK ARRIVAL established.



## STANDARD ARRIVAL CHART-INSTRUMENT

RJOO / OSAKA INTL

RNAV STAR RWY32L/32R

IKOMA EAST ARRIVAL / IKOMA NORTH ARRIVAL

RNAV1

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

VAR 8°W

ROKKO  
350700.6N  
1351800.9E  
7000

VOR/DME  
ITAMI  
114.75 ITE  
CH-94Y  
34°48'20"N/135°24'13"E  
200FT

KAMEO  
345702.7N  
1352804.2E  
7000

VOR/DME  
KOB  
111.25 KCE  
CH-49Y  
34°37'52"N/135°13'42"E  
0FT

IKOMA NORTH ARRIVAL22.8  
148°2.3  
296°5.0  
226°10.5  
297°9.5  
297°MAX 210KIAS for  
IKOMA NORTH  
ARRIVALMAX 210KIAS for  
IKOMA NORTH  
ARRIVAL

VOR/DME  
KANSAI  
111.6 KIE  
CH-53X  
34°25'33"N/135°12'28"E  
0FT

IKOMA  
343616.7N  
1353914.8E  
3500

VOR/DME  
YAO  
114.6 YOE  
CH-93X  
34°35'54"N/135°35'37"E  
100FT

Using NAVAID

D28.0 YOE  
MHA 7000  
MAX 230KIAS  
KAMEO  
D22.0 YOE  
R351  
YAO  
VOR/DME  
(YOE)

Using NAVAID

MIRAI  
D34.9 KIE  
R087  
KANSAI  
VOR/DME  
(KIE)  
MHA 6000  
MAX 230KIAS  
D41.0 KIE

IKOMA EAST ARRIVAL2.3  
296°5.0  
226°10.5  
297°9.5  
297°AGPUK  
342908.3N  
1360451.3E

Using NAVAID

ITAMI  
VOR/DME  
(ITE)  
R141  
IKOMA  
D17.3 ITE  
327°  
D22.0 ITE

ITAMI  
VOR/DME  
(ITE)  
R138  
ABENO  
D19.4 ITE  
378°  
D24.0 ITE

CHANGE : Description of VAR.

STANDARD ARRIVAL CHART-INSTRUMENT

RJOO / OSAKA INTL

RNAV STAR RWY32L/32R

IKOMA EAST ARRIVAL

From AGPUK, to MIRAI at or above 6000FT, to ABENO, to IKOMA at or above 3500FT.

Critical DME	KCC : AGPUK – MIRAI
DME GAP	–
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	AGPUK	–	–	-8.0	–	–	–	–	–	RNAV1
002	TF	MIRAI	–	297 (288.7)	-8.0	9.5	–	+6000	–	–	RNAV1
003	TF	ABENO	–	297 (288.6)	-8.0	10.5	–	–	–	–	RNAV1
004	TF	IKOMA	–	296 (288.5)	-8.0	2.3	–	+3500	–	–	RNAV1

IKOMA NORTH ARRIVAL

From ROKKO at or above 7000FT, to KAMEO at or above 7000FT, to OTABE, to ABENO, to IKOMA at or above 3500FT.

Critical DME	ITE : 9.9NM to KAMEO – KAMEO YME : 19.7NM to OTABE – 13.7NM to OTABE
DME GAP	–
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	ROKKO	–	–	-8.0	–	–	+7000	–	–	RNAV1
002	TF	KAMEO	–	148 (140.4)	-8.0	12.9	–	+7000	–	–	RNAV1
003	TF	OTABE	–	148 (140.5)	-8.0	22.8	–	–	–	–	RNAV1
004	TF	ABENO	–	226 (218.0)	-8.0	5.0	–	–	-210	–	RNAV1
005	TF	IKOMA	–	296 (288.5)	-8.0	2.3	–	+3500	-210	–	RNAV1

CHANGE : VAR. KODAI abolished. AGPUK established. PROC course.

## STANDARD ARRIVAL CHART-INSTRUMENT

RJOO / OSAKA INTL

RNAV STAR RWY32L/32R

## HABIK ARRIVAL

RNAV1

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

VAR 8°W

VOR/DME  
ITAMI  
114.75 ITE  
CH-94Y  
 $34^{\circ}48'20''N/135^{\circ}24'13''E$   
200FT



VOR/DME  
KOBÉ  
111.25 KCE  
CH-49Y  
 $34^{\circ}37'52''N/135^{\circ}13'42''E$   
0FT

VOR/DME  
YAO  
114.6 YOE  
CH-93X  
 $34^{\circ}35'54''N/135^{\circ}35'37''E$   
100FT

IKOMA  
 $34^{\circ}36'16.7''N$   
 $135^{\circ}39'14.8''E$   
3500

VOR/DME  
KANSAI  
111.6 KIE  
CH-53X  
 $34^{\circ}25'33''N/135^{\circ}12'28''E$   
0FT

IZUMI  
 $34^{\circ}26'28.5''N$   
 $135^{\circ}23'1.3''E$

HABIK  
 $34^{\circ}32'46.8''N$   
 $135^{\circ}39'14.2''E$

Using NAVAID

IZUMI D12.6 YOE R229°  
YAO VOR/DME (YOE)  
D19.0 YOE  
MHA 4200 MAX 230KIAS

Using NAVAID

ITAMI VOR/DME (ITE) R141°  
IKOMA D17.3 ITE 141°  
D22.0 ITE 327°

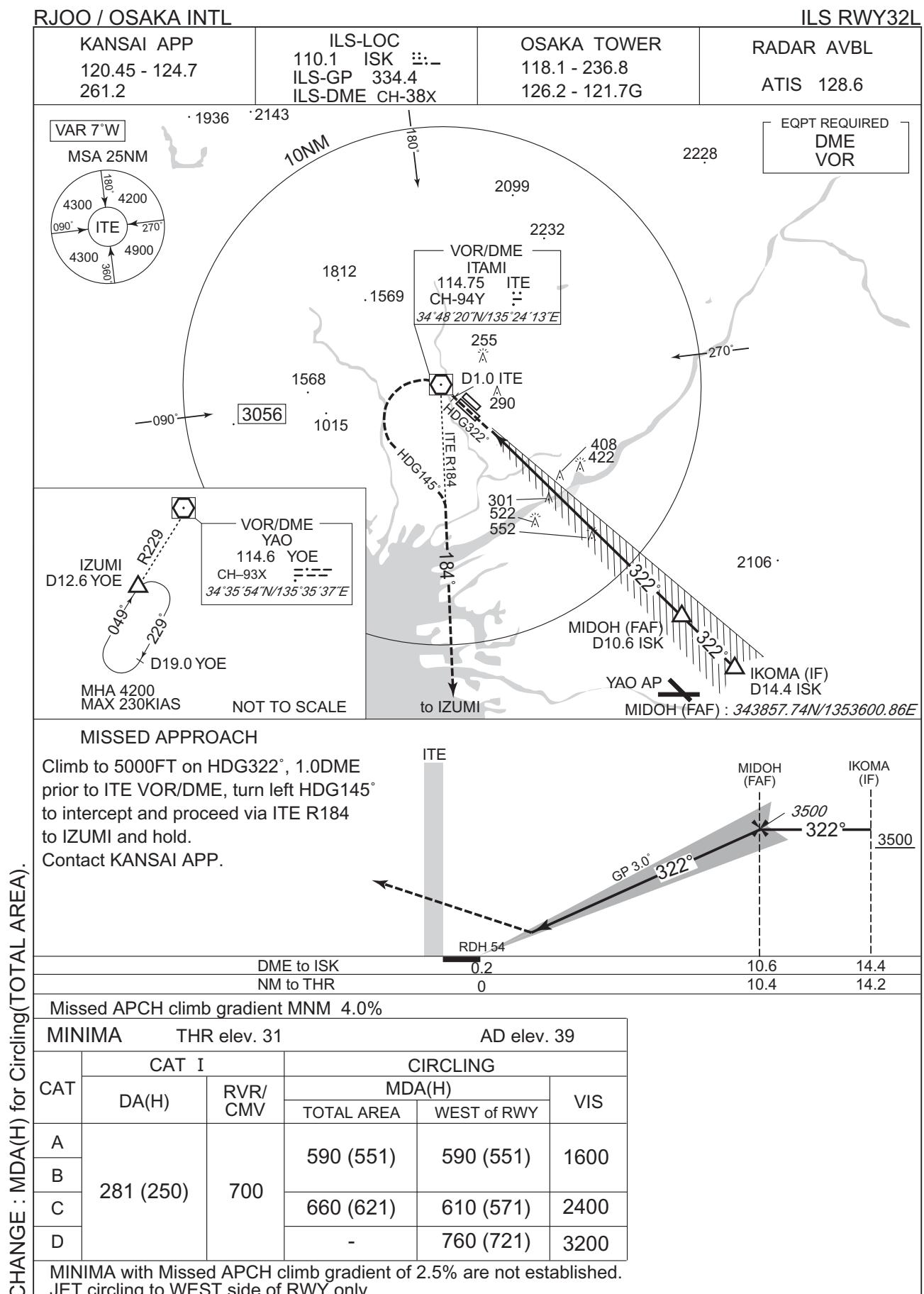
From IZUMI, to HABIK, to IKOMA at or above 3500FT.

Critical DME	-
DME GAP	-
Inappropriate Navaids	See AD1.1.6.10.3. Inappropriate NAVAIDs for RNAV1

CHANGE : Description of VAR and PROC name.

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	IZUMI	-	-	-8.0	-	-	-	-	-	RNAV1
002	TF	HABIK	-	(069) (060.8)	-8.0	13.0	-	-	-	-	RNAV1
003	TF	IKOMA	-	(008) (000.1)	-8.0	3.5	-	+3500	-	-	RNAV1

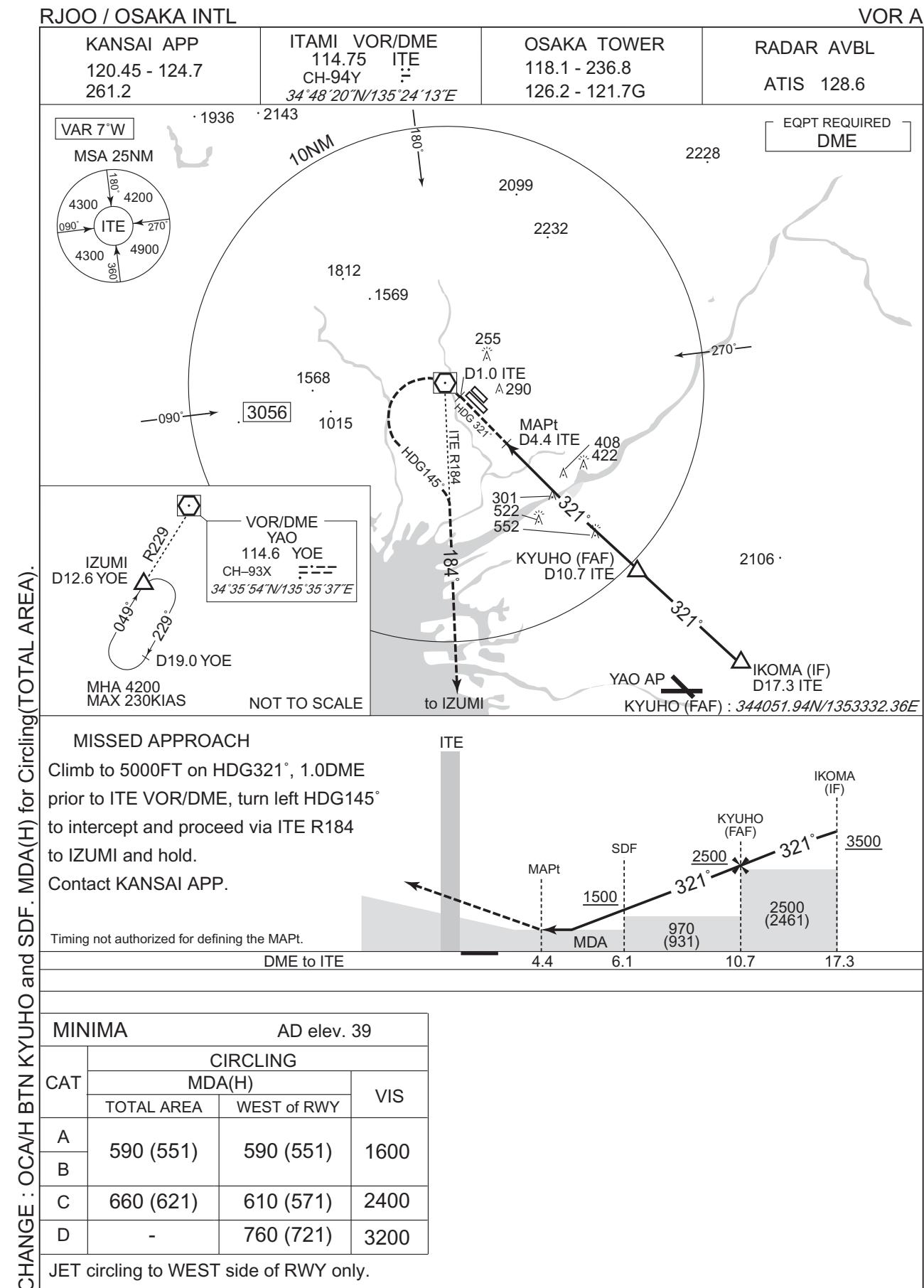
INSTRUMENT APPROACH CHART



## INSTRUMENT APPROACH CHART



INSTRUMENT APPROACH CHART



## INSTRUMENT APPROACH CHART

RJOO / OSAKA INTL

RNP RWY32L

**CHANGE : 02L53 established. MSAS CH added. Minimum TEMP for Baro-VNAV, HLDG Pattern, PROC ALT at FAF. Missed APCH for Using VOR/DME abolished. OCA/H BTN KOSAK and UMEDA, LPV established. MINIMA, NM to THR at VDP.**

INSTRUMENT APPROACH CHART

RJOO / OSAKA INTL

RNP RWY32L

**FAS DATA BLOCK**

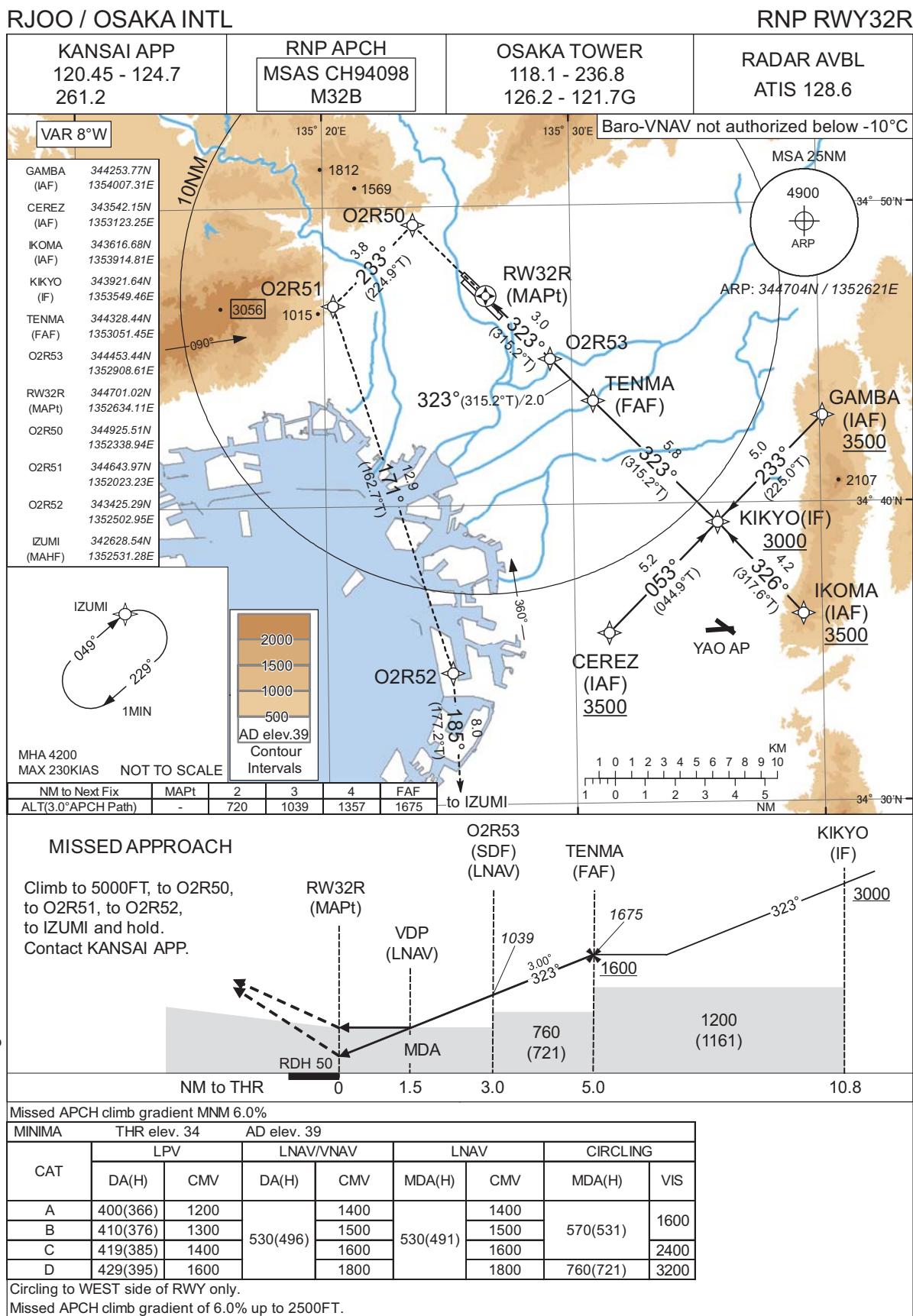
Operation type	0	LTP/FTP ellipsoidal height	+00469
SBAS service provider identifier	2	FPAP latitude	344728.7535N
Airport identifier	RJOO	FPAP longitude	1352543.3300E
Runway	323	Threshold crossing height	00016.5
Approach performance designator	0	TCH units selector	1
Route indicator		Glide path angle	03.00
Reference path data selector	0	Course width at threshold	105.00
Reference path ID	M32A	△ length offset	0000
LTP/FTP latitude	344619.8985N	HAL	40.0
LTP/FTP longitude	1352706.7455E	VAL	50.0
CRC remainder	D799CA35		

**Required additional data**

LTP/FTP orthometric height	9.6
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CHANGE : FAS DATA BLOCK, Required additional data established.

## INSTRUMENT APPROACH CHART



INSTRUMENT APPROACH CHART

RJOO / OSAKA INTL

RNP RWY32R

**FAS DATA BLOCK**

Operation type	0	LTP/FTP ellipsoidal height	+00478
SBAS service provider identifier	2	FPAP latitude	344742.9515N
Airport identifier	RJOO	FPAP longitude	1352543.2590E
Runway	321	Threshold crossing height	00015.0
Approach performance designator	0	TCH units selector	1
Route indicator		Glide path angle	03.00
Reference path data selector	0	Course width at threshold	105.00
Reference path ID	M32B	△ length offset	0000
LTP/FTP latitude	344700.9970N	HAL	40.0
LTP/FTP longitude	1352634.0960E	VAL	50.0
CRC remainder	49D4256C		

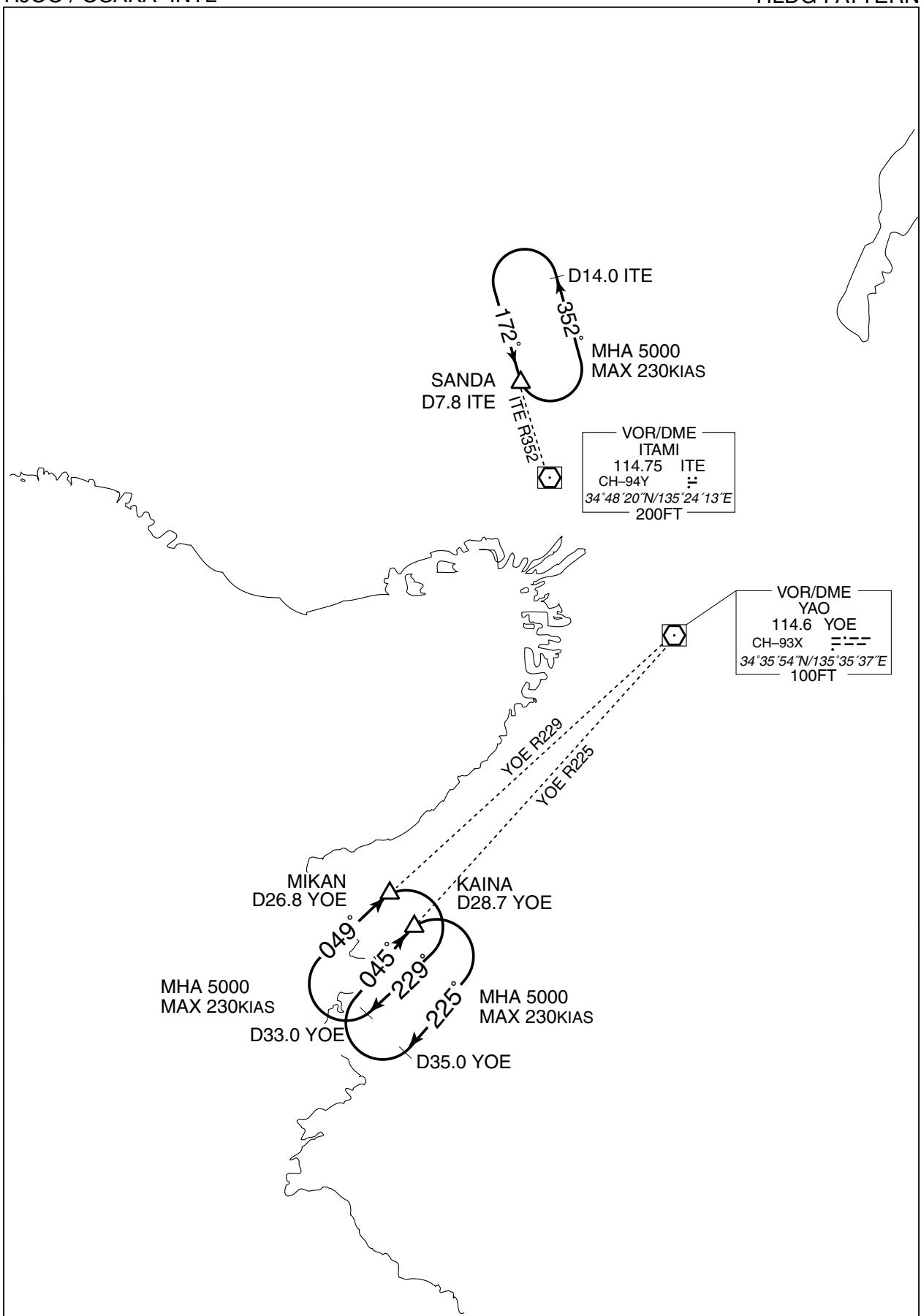
**Required additional data**

LTP/FTP orthometric height	10.6
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CHANGE : FAS DATA BLOCK, Required additional data established.

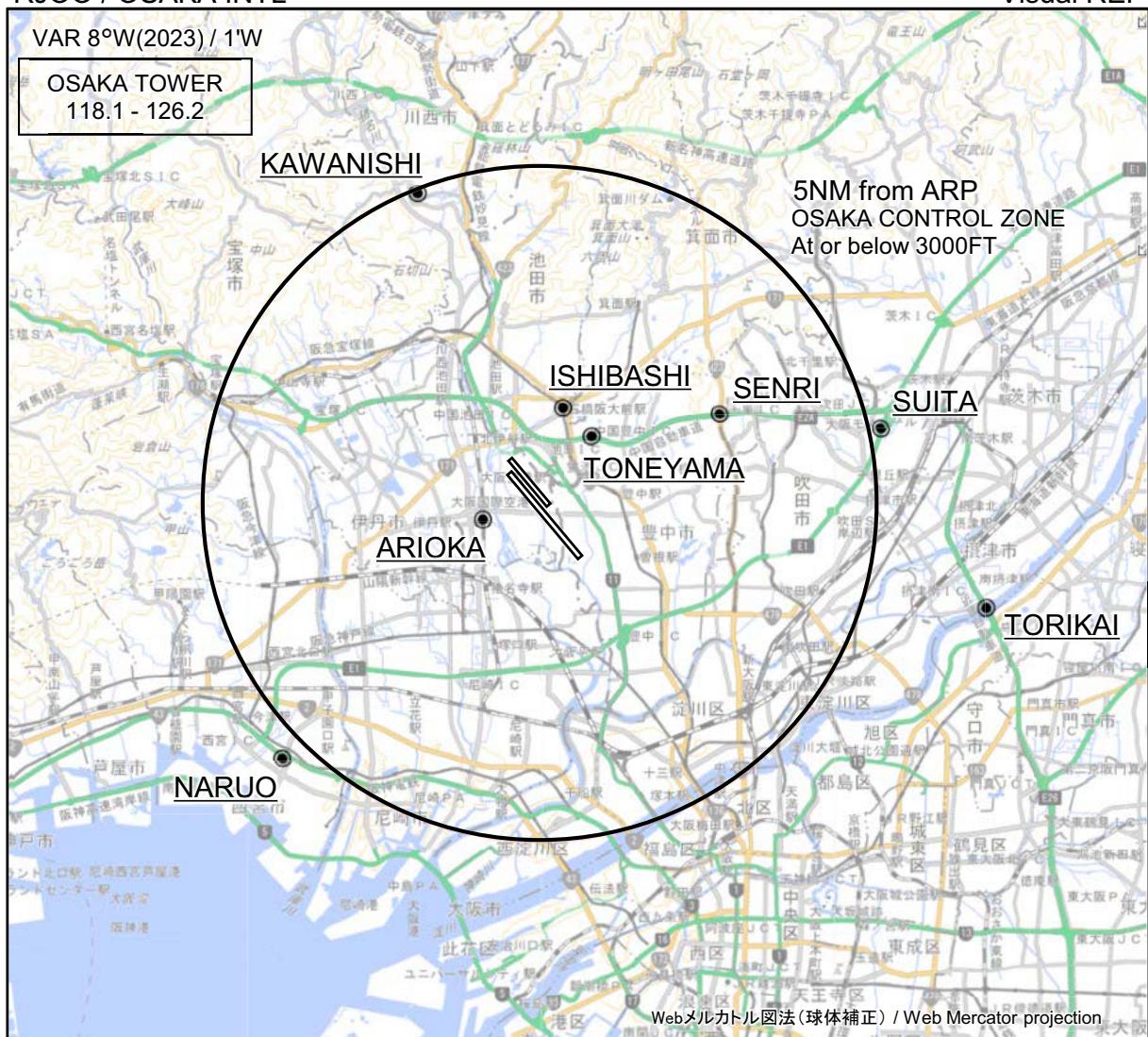
RJOO / OSAKA INTL

HLDG PATTERN



## RJOO / OSAKA INTL

## Visual REP



※図中に標高を示す数字がある場合、単位はメートル(m)である。The unit of measurement used to express elevation is meter(m).

Call sign	BRG / DIST from ARP	Remarks
川西 Kawanishi	339°T / 4.9NM	多田神社 Shrine
石橋 Ishibashi	013°T / 1.5NM	阪急石橋阪大前駅 Station
千里 Senri	063°T / 3.0NM	千里インターチェンジ Interchange
吹田 Suita	077°T / 5.2NM	吹田ジャンクション Junction
刀根山 Toneyama	037°T / 1.2NM	中国豊中インターチェンジ Interchange
有岡 Arioka	255°T / 0.9NM	JR伊丹駅 Station
鳥飼 Torikai	103°T / 6.8NM	鳥飼大橋 Bridge
鳴尾 Naruo	225°T / 5.4NM	甲子園球場 Baseball ground

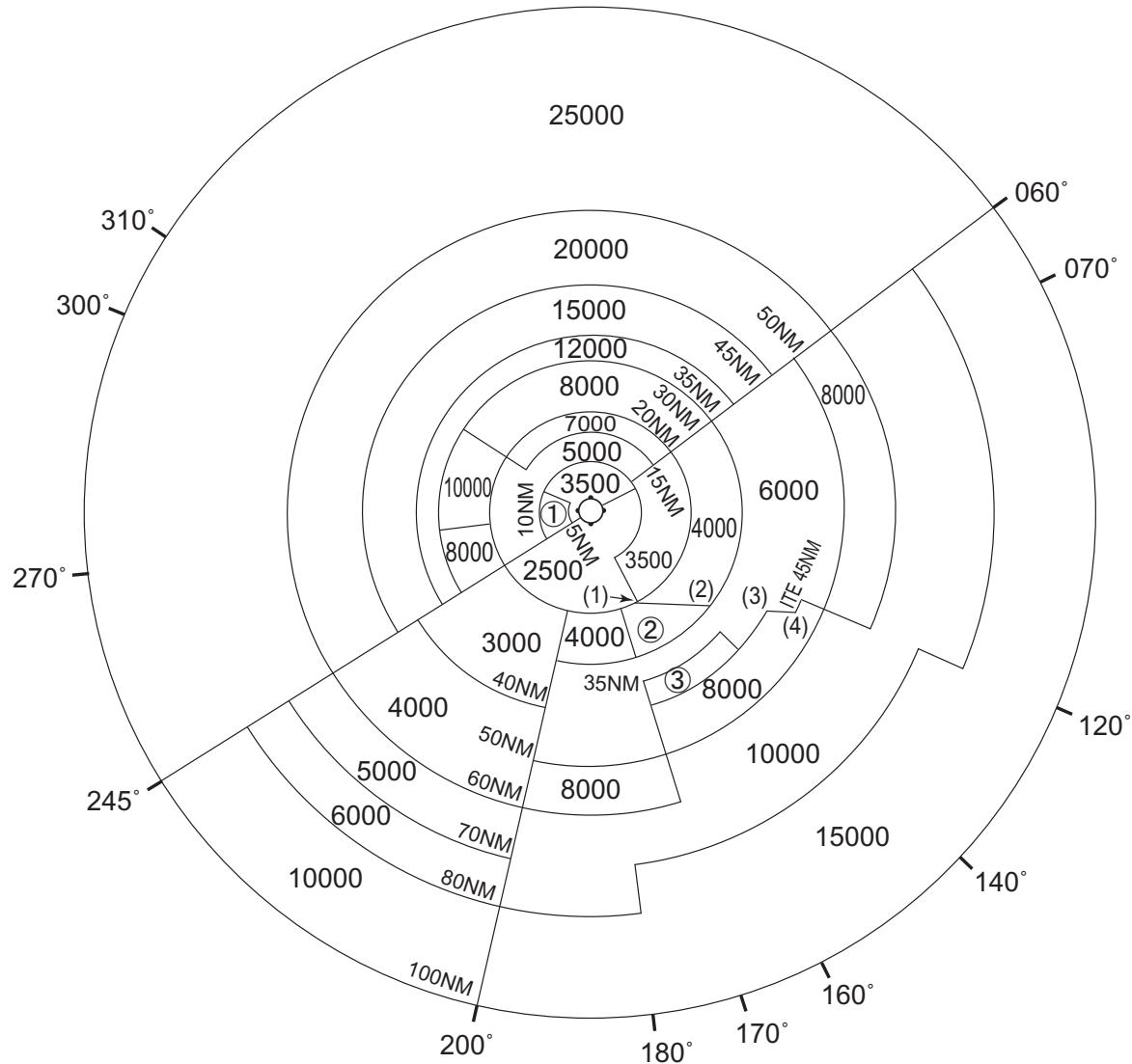
CHANGE: VAR.



RJOO / OSAKA INTL

Minimum Vectoring Altitude CHART

VAR 8°W (2023)



CHANGE : Update(BTN 245° and 300°).

- ① 4100
- ② 5000
- ③ 7000

- (1) 342930N/1353527E
- (2) 342925N/1355432E
- (3) 342918N/1360849E
- (4) 342924N/1361335E

CENTER: 344752N/1352550E (No.1 RADAR SITE)  
 CENTER: 344659N/1352600E (No.2 RADAR SITE)