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Ministry of Land, Infrastructure and Transport
Office of Civil Aviation
11, Doum 6-ro, Sejong-si, 30103, Republic of Korea

AMENDMENT NR 13/23

14 DEC 2023

AIRAC

AIP AMENDMENT NR 13/23

(Effective : 1600UTC 24 JAN 2024)

1. SIGNIFICANT INFORMATION AND CHANGES

1.1 General

a) Information of outline for PBN.

b) Information of general, flight planning, calculation and application of AD operating minima, pre-flight planning for RNP APCH procedures.

1.2 Enroute

a) Establishment of global navigation satellite system.

b) Information of name for significant point(MAGUK → MIBUB).

1.3 Incheon INTL Airport

a) Information of procedures for start-up and push back.

b) Information of missed approach procedures, track, ALT restriction, recommended profile, WX minima, FAF, SDF, MAPt and note.

c) Information of instrument approach procedures(RNP RWY 15L, RNP RWY 15R).

d) Withdrawal of note.

1.4 Muan INTL Airport

a) Establishment of SBAS procedure.

b) Establishment of FAS data block information.

1.5 Wonju Airport

a) Information of name for significant point(MAGUK → MIBUB).

1.6 Ulsan Airport

a) Establishment of SBAS procedure and Information of WX minima.

b) Information of remark and holding procedure for SDEMO.

c) Establishment of FAS data block information.

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END

7. 성능기반항행(PBN)

7.1 개요

7.1.1 제36차 국제민간항공기구(ICAO) 총회 결의(A36-23)에 따라 대한민국은 인천 비행정보구역(FIR)에 대한 성능기반항행(PBN) 이행계획을 수립하고 2010년부터 재래식 계기비행절차를 ICAO PBN 매뉴얼(Doc. 9613)을 바탕으로 한 계기비행절차로 단계적 전환을 추진하고 있다. 대한민국의 성능기반항행(PBN) 이행에 관한 사항은 항공정보회람(AIC 4/10, 2010.10.7)에 있다.

7.1.2 인천 FIR 내 항공로 공역은 RNAV2 기준이 적용되고 터미널 공역의 출발·도착 절차(SID/STAR)에는 RNAV1, 접근절차에는 기압고도 정보를 이용하는 RNP APCH 또는 RNP AR APCH 또는 SBAS 정보를 이용하는 RNP APCH가 적용될 것이다.

7.1.3 대한민국 내 PBN 공역을 비행하려는 모든 항공기는 ICAO PBN 매뉴얼(Doc 9613)에 명시된 적절한 항행장비를 장착하여야 한다. 다만, 항공로에 대한 PBN 항행요건은 FL 140 이상(영공 통과 시 FL 290 이상)에서만 적용될 것이다.

7.1.4 PBN 도입에 따라 공역, 장애물, 소음 등의 제약을 최소화한 유연한 비행경로 선정과 단축비행로 설정을 통해 공역 수용능력을 향상할 수 있고, 연속강하운영(CDO) 적용을 통한 지상충돌사고 감소, 연료절감, 소음감소 등의 이익이 기대된다.

7.2 RNAV1/RNAV2 이행

7.2.1 항행요건

ICAO 협약 제3조에 정의된 국가 항공기를 제외하고, 인천 비행정보구역(FIR) 내에서 RNAV1 또는 RNAV2로 지정된 항공로, 표준계기출발절차(SID) 또는 표준계기도착절차(STAR)를 비행하는 모든 항공기는 ICAO PBN Manual(Doc. 9613)에 명시된 RNAV1 또는 RNAV2에 적합한 정밀도를 가진 항행장비를 장착하여야 한다. 대한민국은 향후 터미널 지역의 교통특성, 혼잡도 등을 고려하여 동 지역에 대한 RNAV1 항행요건 의무화를 검토할 것이다.

7.2.2 비행계획

RNAV1 또는 RNAV2 항행요건을 충족하는 항행장비를 장착하고, 항공기 등록국의 운항승인을 받은 항공기 운영자는 비행계획서의 항목10(탑재장비)에 문자 “Z"을 기입하고 항목18(기타 정보)에 "NAV/RNAV1 또는 RNAV2"로 표기하여야 한다.

7. Performance Based Navigation (PBN)

7.1 Outline

7.1.1 Following the 36th ICAO Assembly resolution (A36-23), the Republic of Korea (hereinafter 'ROK') established the PBN implementation plan for Incheon FIR and has been working to transit from the current conventional Instrument Flight Procedures (IFP) to the IFP based on the ICAO PBN Manual (Doc. 9613) since 2010. AIC 4/10 (2010.10.7) describes the PBN implementation plan of the ROK.

7.1.2 RNAV2 specification will be applied to en-route airspace in Incheon FIR and RNAV1 specification will be applied to Standard Instrument Departures/Standard Instrument Arrivals (SID/STAR) of terminal airspace. Furthermore, RNP APCH or RNP AR APCH which uses pressure altitude information or RNP APCH using SBAS information will be applied to the approach procedures.

7.1.3 All aircraft supposed to be operated in PBN airspace of the ROK shall be equipped with appropriate navigation equipments specified in ICAO PBN Manual(Doc 9613). However, PBN navigation requirements for en-routes will only be applied above FL 140 (above FL 290 for overflying Incheon FIR).

7.1.4 Introduction of PBN will allow various benefits : airspace capacity will be improved through the selection of flexible flight paths and the establishment of direct routes while minimizing the restrictions caused by airspace, obstacles, noise, etc.. Continuous Descent Operations (CDO) will contribute to the reduction of controlled flight into terrain (CFIT) accidents/incidents, fuel savings and the reduction of noise affected area.

7.2 Implementation of RNAV1/RNAV2

7.2.1 Navigation requirements

Except state aircraft defined in Article 3 of Convention on International Civil Aviation, all aircraft flying routes designated as RNAV1 or RNAV2, Standards Instrument Departures (SIDs) or Standards Instrument Arrivals (STARs) in Incheon FIR must be equipped with appropriate navigation equipments specified in ICAO PBN Manual(Doc. 9613). Considering traffic characteristics and complexities in the terminal areas, the ROK will review compulsory observance of RNAV1 navigation requirements in those airspace.

7.2.2 Flight planning

Operators of aircraft that are equipped with appropriate navigation equipments that meets RNAV1 or RNAV2 requirements and that received appropriate operational approval by the State where their aircraft is registered shall insert the designator letter "Z" in Item 10 (Equipment) of Flight Plan and specify "NAV/RNAV1 or RNAV2" in Item 18(Other Information).

Change : Information of outline for PBN.

7.2.3 운항승인

RNAV1 또는 RNAV2로 지정된 공역을 운항하기 위해서는 탑재된 항행장비의 운항성능이 항공로상에서 비행시간의 95% 동안 중심선에서 횡적으로 ±1 NM 또는 ±2 NM 이내의 정확도를 유지해야 한다. 대한민국에 등록된 항공기를 RNAV1 또는 RNAV2로 지정된 공역에서 운영하고자 하는 항공기 운영자는 항공기가 항공안전법(제75조) 및 운항기술기준에 명시된 RNAV1 또는 RNAV2 공역에 요구되는 항행요건을 갖추었음을 증명하는 서류를 다음의 부서에 제출하고 항공기 운항승인을 획득하여야 한다.

a. 국제항공운송사업자가 사용하는 항공기

국토교통부 항공정책실 운항안전과

(우) 30103 세종특별자치시 도움6로 11

전화 : 044-201-4274
팩스 : 044-201-5629

b. 국제항공운송사업자가 사용하는 항공기를 제외한 항공기

서울지방항공청 항공운항과

(우) 22382 인천광역시 중구 공항로 424번길 47

전화 : 032-740-2158
팩스 : 032-740-2159

부산지방항공청 항공운항과

(우) 46723 부산광역시 강서구 공항진입로 108

전화 : 051-974-2153
팩스 : 051-971-1219

제주지방항공청 안전운항과

(우) 63115 제주특별자치도 제주시 공항로 2

전화 : 064-797-1744~5
팩스 : 064-797-1759

7.2.3 Operational Approval

To be eligible for RNAV1/RNAV2 operations, navigation equipments are required to provide en-route lateral track keeping accuracy of ±1/±2 or better for 95% of the flight time. Aircraft operators who want to operate aircraft registered in Korea in RNAV1/RNAV2 airspace shall submit documents, certifying that their aircraft satisfy navigation requirements required for RNAV1/RNAV2 airspace defined by Aviation Safety Act (Article 75) and Flight Safety Regulations, to the Office of Civil Aviation or Regional Aviation Administration depending on the type of business at the address below and shall receive operational approval.

a. Aircraft used by International Air Transportation Business

Aviation Safety Division, Office of Civil Aviation, Ministry of Land, Infrastructure and Transport

11, Doum 6-ro, Sejong-si, 30103, Republic of Korea

TEL : +82-44-201-4274
Telefax : +82-44-201-5629

b. Aircraft used by other than International Air Transportation Business

Flight Operations Division,
Seoul Regional Aviation Administration

47, Gonghang-ro, 424 Beon-gil, Jung-gu, Incheon, 22382, Republic of Korea
TEL : +82-32-740-2158
Telefax : +82-32-740-2159

Flight Operations Division,
Busan Regional Aviation Administration

108, Gonghangjinip-ro, Gangseo-gu, Busan, 46723, Republic of Korea
TEL : +82-51-974-2153
Telefax : +82-51-971-1219

Safety Operations Division,
Jeju Regional Aviation Administration

Gonghangro 2, Jeju city, Jeju Special-Governing Province, 63115, Republic of Korea
TEL : +82-64-797-1744~5
Telefax : +82-64-797-1759

7.3 RNP 접근절차 (RNP APCH)

7.3.1 일반사항

7.3.1.1 다음은 APV Baro VNAV 및 APV SBAS 절차를 위한 공항운영최저치 산정방법을 포함하여 인천 비행정보구역(FIR) 내 RNP 접근절차(RNP APCH) 이용에 대한 설명이다.

7.3.1.2 RNP APCH LNAV, LNAV/VNAV 및 LPV 접근절차는 항공교통관제업무가 제공되는 인가된 공항의 계기활주로에만 적용된다. 인가된 RNP APCH 절차도면은 항공정보간행물(AIP) 공항부문(AD section)에 각 공항별로 수록되어 있다.

7.3.1.3 공고된 RNP APCH 절차는 ICAO PBN 매뉴얼(Doc 9613)에 명시된 RNP APCH에 적합한 항행성능을 갖춘 항공기로 이용할 수 있으며 조종사는 계기비행 한정자격과 RNP APCH에 대한 지식을 갖추고 이에 대한 훈련을 받아야 한다.

7.3.2 항공기 항행시스템

7.3.2.1 RNP APCH에 사용되는 항공기에는 1식 이상의 GNSS 수신기가 장착되어야 하며, 동 항공기의 항행시스템은 RNP 0.3 이상의 항행정밀도를 유지하면서 계기접근절차를 수행할 수 있음을 인증 받아야 한다.
주 - 비행교범(Airplane Flight Manual : AFM)에 사용된 용어는 항공기별로 상이할 수 있다.

7.3.2.2 모든 승인된 장치는 RNP APCH 운항을 위한 승인을 받고, 이를 비행교범(AFM), 항공기 운영교범(Aircraft Operating manual : AOM) 또는 이와 동등한 문서에 수록하여야 한다. 사용될 수 있는 항행시스템은 다음과 같다.

a. TSO-C129a/ETSO-C129a Class A1 또는 TSO-C146( )/ETSO-C146( ) Gamma급 및 1급, 2급 또는 3급에 따라 검증된 하나 이상의 GPS 수신기를 가진 GNSS 단독 시스템; 또는

b. TSO-C129( )/ETSO-C129( ) B1급, C1급, B3급 또는 C3급, 또는 TSO-C145( )/ETSO-C145( ) 1급, 2급 또는 3급(동일 내용의 통합안내서도 함께)에 따라 검증된 하나 이상의 GPS수신기를 가진 다중센서 시스템(FMS ; Flight Management System)

주 - ( )는 기술표준지시(Technical Standard Order : TSO)의 어떤 버전도 수용 가능함을 의미한다. 즉 TSO-C129()은 TSO-C129 또는 TSO-C129a에서 가능함의 의미한다.

7.3.2.3 항공기 운영자는 RNP APCH 절차 수행 시 AFM에 명시된 항행시스템의 모든 운영제한 사항을 준수하여야 한다.

7.3.2.4 조종사는 항행시스템에 사용 중인 탑재 항행데이터베이스 및 소프트웨어 버전이 비행시간동안 유효함을 확인하여야 한다. 모든 접근절차는 항행 데이터베이스에서 명칭별로 검색하여 항행시스템에 입력할 수 있어야 한다. 어떠한 경우에도 수동으로 입력되어 전시된(overlay) 절차가 접근의 1차 참조자료로서 사용되어서는 안 된다.

7.3 RNP APCH Procedures

7.3.1 General

7.3.1.1 This section provides information on the use of RNP APCH within Incheon FIR including guidance on the calculation of aerodrome operating minima supporting the introduction of APV Baro VNAV procedures and APV SBAS procedures.

7.3.1.2 RNP APCH LNAV, LNAV/VNAV and LPV procedures are applied only to the instrument runways in authorized aerodromes where the air traffic services is provided. RNP APCH charts of each aerodrome are contained in AD section of Aeronautical Information Publication(AIP).

7.3.1.3 Published RNP APCH procedures can be used by the aircraft that are approved appropriate navigation specifications specified by ICAO PBN Manual(Doc 9613), and pilots shall hold instrument flight rating, have the knowledge on RNP APCH procedures and be trained on it.

7.3.2 Aircraft navigation system

7.3.2.1 The aircraft navigation system used in RNP APCH shall include at least one GNSS receiver and must be approved to conduct RNP APCH approaches with the accuracy of RNP 0.3.
Note - The terminology used in Airplane Flight Manual (AFM) may vary between aircraft types.

7.3.2.2 All approved installations must have obtained the approval for RNP APCH operations and entered in Airplane Flight Manual(AFM), Aircraft Operating Manual (AOM) or the equivalent document. Available navigation systems are as follow;

a. A system only based on GNSS having at least one GPS receiver qualified to TSO-C129a / ETSO-C129a Class A1 or TSO-C146() / ETSO-C146() Class Gamma and operational class 1, 2 or 3 or;

b. A multi-sensor system(eg, Flight Management System) having at least one GPS receiver qualified to TSO-C129( ) / ETSO-C129( ) Class B1, C1, B3 or C3 or TSO-C145( ) / ETSO-C145( ) Class 1, 2 or 3(with equivalent integration guidance).

Note - ( ) refers to any version of the equivalent Technical Standard Order(TSO) is acceptable. That is, TSO-C129() means that either TSO-C129 or TSO-C129a is acceptable.

7.3.2.3 The aircraft operators must observe all operational limitations of navigation systems mentioned in AFM when conducting RNP APCH procedures.

7.3.2.4 Pilots must confirm that the on-board navigation database and a software version in use for the navigation system are valid for the time of flight. The entire approach procedure must be loadable, by name, from the navigation database. In any cases, manually entered and overlay procedures must not be used as a primary reference on any approach.

Change : Information of general for RNP APCH procedures.

7.3.3 운항승인

대한민국에 등록된 항공기를 이용하여 RNP APCH 절차를 수행하려는 항공기 운영자는 항공안전법(제75조) 및 운항기술기준에 명시된 항공기가 RNP APCH에 요구되는 항행요건을 갖추었음을 증명하는 서류를 다음의 부서에 제출하고 항공기 운항승인을 획득하여야 한다.

a. 국제항공운송사업자가 사용하는 항공기

국토교통부 항공정책실 운항안전과

(우) 30103 세종특별자치시 도움6로 11

전화 : 044-201-4274
팩스 : 044-201-5629

b. 국제항공운송사업자가 사용하는 항공기를 제외한 항공기

서울지방항공청 항공운항과

(우) 22382 인천광역시 중구 공항로 424번길 47

전화 : 032-740-2158
팩스 : 032-740-2159

부산지방항공청 항공운항과

(우) 46723 부산광역시 강서구 공항진입로 108

전화 : 051-974-2153
팩스 : 051-971-1219

제주지방항공청 안전운항과

(우) 63115 제주특별자치도 제주시 공항로 2

전화 : 064-797-1744~5
팩스 : 064-797-1759

7.3.3 Operational Approval

Aircraft operators who want to carry out RNP APCH using the aircraft registered in ROK shall submit documents, certifying that their aircraft satisfy navigation requirements required for RNP APCH defined by Aviation Safety Act (Article 75) and Flight Safety Regulations, to the Office of Civil Aviation or Regional Aviation Administration depending on the type of business at the address below and shall receive operational approval.

a. Aircraft used by International Air Transportation Business

Aviation Safety Division, Office of Civil Aviation,
Ministry of Land, Infrastructure and Transport
11, Doum 6-ro, Sejong-si, 30103
Republic of Korea
TEL : +82-44-201-4274
Telefax : +82-44-201-5629

b. Aircraft used by other than International Air Transportation Business

Flight Operations Division,
Seoul Regional Aviation Administration
47, Gonghang-ro, 424 Beon-gil, Jung-gu,
Incheon, 22382 Republic of Korea
TEL : +82-32-740-2158
Telefax : +82-32-740-2159

Flight Operations Division,
Busan Regional Aviation Administration
108, Gonghangjinip-ro, Gangseo-gu, Busan,
46723 Republic of Korea

TEL : +82-51-974-2153
Telefax : +82-51-971-1219

Safety Operations Division,
Jeju Regional Aviation Administration
Gonghangro 2, Jeju city,
Jeju Special-Governing Province
63115, Republic of Korea

TEL : +82-64-797-1744~5
Telefax : +82-64-797-1759

7.3.4 비행계획

RNP APCH 항행요건을 충족하는 항행장비를 장착하고, 항공기 등록국의 운항승인을 받은 항공기 운영자는 비행계획서의 항목10(탑재장비)에 문자 “R"을 기입하고 항목18(기타 정보)에 RNP Specifications에 따라 "PBN/S1” 또는 "PBN/S2” 또는 "PBN/T1“ 또는 "PBN/T2“를 표기한다. SBAS 정보를 이용하는 RNP APCH의 경우 비행계획서의 항목10(탑재장비)에 문자 “B”을 기입하고 항목18(기타 정보)에 “NAV/SBAS”로 표기하여야 한다.

7.3.4 Flight planning

Operators of aircraft that are equipped with appropriate navigation equipments that satisfies RNP APCH navigation specification and receives appropriate operational approval by the State where their aircraft is registered shall insert the designator letter "R" in Item 10(Equipment) of flight plan and shall specify, according to RNP specification, "PBN/S1“, "PBN/S2”, "PBN/T1“ or "PBN/T2“ in Item 18(Other Information). For RNP APCH based on SBAS information, operators of aircraft shall enter the letter "B" in Item 10 and indicate "NAV/SBAS" in Item 18 of the flight plan.

7.3.5 비행절차설계

국방부 관할 민군공용공항을 제외하고 민간항공기가 취항하는 공공용 공항에 대한 RNP APCH 절차 수립은 국토교통부가 담당한다. 사설비행장에 대한 RNP APCH 절차는 비행절차업무기준(국토교통부 고시)에 근거하여 비행장 설치자 또는 비행장 운영자가 수립하고 국토교통부장관(항공교통과장)의 승인을 받아야 한다.

7.3.5 Flight Procedure Design

Except joint use civil and military aerodromes under the Ministry of National Defence (MND), the Ministry of Land, Infrastructure and Transport (MOLIT) is responsible for the establishment of RNP APCH procedures for public aerodromes where civil aircraft are operating. RNP APCH procedures for private aerodromes shall be established by aerodrome founder or aerodrome operator based on Standards for Flight Procedures (MOLIT Standards) and receive approval by the Minister of MOLIT (Director of Air Traffic Division).

Change : Information of flight planning for RNP APCH procedures.

7.3.6 공항운영최저치 설정 및 운영

7.3.6.1 공항운영최저치는 장애물 회피고도(Obstacle Clearance Height : OCH)나 시스템 최저치(MDH 250 ft 이상)를 고려하여 산출되며 항공정보간행물에 고시된다.

7.3.6.2 RNP APCH LNAV 절차에 수직강하 정보가 제공되는 경우 최저강하고도(Minimum Descent Altitude : MDA)는 DA(Decision Altitude)로 사용될 수 있다. RNP APCH LNAV/VNAV 및 RNP APCH LPV 절차는 DH(Decision Height)까지 비행할 수 있으며 DH는 250 ft 이상이다.

7.3.7 비행계획 전 확인

7.3.7.1 항공기 운영자는 RNP APCH 절차 수행이 예상되는 공항에 대한 비행계획을 수립하기 전에 계획된 도착 예정시간에 GNSS의 적절한 수신범위를 확인하여야 한다. RNP APCH 절차 수행 중 GNSS 신호를 이용할 수 없는 시간이 5분 이상으로 예상되는 경우, 항공기 운영자는 항공기 출발시간 조정, 수행할 계기접근절차 변경 등의 조치를 취하여야 한다.

7.3.7.2 수신기 자체 무결성 감시(Receiver Autonomous Integrity Monitoring : RAIM) 또는 SBAS 보호수준 경보 기능은 필수항행성능(RNP)의 이용가능성을 판단하는 방법으로 사용되고 있다. 항공기 운영자는 GNSS 구성요소의 고장으로 비행 중 RAIM 기능 활용 또는 GNSS 항행이 불가능하여 다른 항행수단으로 변경이 필요할 수 있음을 인식하고 있어야 한다. 따라서 항공기 운영자는 조종사 교육과정에 GNSS 항법을 이용할 수 없는 경우에 대한 대응방법을 포함하여야 하고 조종사도 이를 숙지하여야 한다.

7.3.7.3 대한민국은 인천 비행정보구역(FIR) 내 GNSS 신호에 대한 수신기 자체 무결성 감시장비(RAIM)의 유효성 예측정보를 매일 항공고시보(NOTAM)로 발행하고 있다.

7.3.8 운영방법

7.3.8.1 RNP APCH 절차를 수행하는 항공기에 대한 착륙 순서와 항공기간 분리기준은 항공교통관제절차(국토교통부 고시)를 적용한다.

7.3.8.2 RNP APCH 절차를 수행하고자 하는 조종사는 관제기관에 허가를 요청하여야 한다. 접근절차에 대한 허가는 조종사에게 발간된 비행절차와 강하경로를 준수하며 비행하도록 허가하는 것이다.

7.3.8.3 RNP APCH LNAV/VNAV(APV with Baro VNAV) 절차 수행을 위한 기압고도계 설정 시 조종사의 오류를 예방하기 위해 항공교통관제사는 접근을 개시하기 전에 조종사와 QNH를 확인하여야 한다.

7.3.6 Calculation and Application of Aerodrome Operating Minima

7.3.6.1 Aerodrome operating minima is calculated by considering Obstacle Clearance Height (OCH) or system minima (no lower than 250 ft Minimum Descent Height (MDH)), and is published in AIP.

7.3.6.2 When vertical guidance information is provided to RNP APCH LNAV procedures, Minimum Descent Altitude (MDA) can be used as Decision Altitude (DA). The aircraft using RNP APCH LNAV/VNAV and RNP APCH LPV procedures can be operated at Decision Height (DH) which is no lower than 250 ft.

7.3.7 Pre-Flight Planning

7.3.7.1 Aircraft operators shall ensure that the appropriate coverage from GNSS is provided for the intended flight at an estimated arrival time before flight planning on the aerodromes where RNP APCH is expected. In the event of a predicted, continuous loss of appropriate level of fault detection of more than five (5) minutes for any part of the RNP APCH, the flight planning should be revised eg. delaying the departure or planning a different approach procedure.

7.3.7.2 Receiver Autonomous Integrity Monitoring (RAIM) or SBAS alert limit availability prediction is a tool to assess the expected capability to meet the required navigation performance(RNP). Aircraft operators must be aware that because of the failure to some GNSS elements, RAIM or GNSS navigation altogether, may be lost while airborne which may require reversion to an alternate means of navigation. Therefore, the aircraft operators must include the procedures related to the failure of GNSS navigation into the pilot training and pilots also must be aware of it.

7.3.7.3 The ROK issues NOTAM on the availability of RAIM information on GNSS signal within Incheon FIR everyday.

7.3.8 Method of Operation

7.3.8.1 Air Traffic Service Procedures (MOLIT Standards) is applied for sequencing and separating aircraft at all times during RNP APCH.

7.3.8.2 Pilots who want to fly RNP APCH procedure shall request clearance to the ATC facility. Clearance to fly the procedure permits the pilot to fly in accordance with the published procedure, following the descent profile.

7.3.8.3 In order to prevent the potential for mis-setting of barometric references for RNP APCH LNAV/VNAV (APV with BARO-VNAV) procedures, Air Traffic Controllers must confirm QNH with flight crews prior to commencement of the approach.

Change : Information of calculation and application of AD operating minima, pre-flight planning for RNP APCH procedures.

7.3.8.4 접근절차는 첫 접근지점(Initial Approach Fix : IAF)에서 시작한다. 그러나 항공기가 중간접근지점(Intermediate Fix : IF)로 유도되는 경우 RNP APCH가 IF에서 시작될 수도 있다.

7.3.8.5 무선통화(RTF) 용어. 접근절차 수행 시 사용되는 무선통화 용어는 다음과 같다.

가. 조종사가 특정한 비행절차에 대한 허가 요청 시 :

(항공기 호출부호), request RNAV approach, via (Initial Approach Fix Designator), runway xx.

나. 항공교통관제사가 특정한 비행절차 허가 시 :

(항공기 호출부호), cleared RNAV approach, runway xx, (report at (Initial Approach Fix designator)).

다. 접근하는 항공기 간 우선순위 결정 및 교통상황 파악을 위해 항공교통관제사가 조종사에게 최종접근로에 정대 시 보고를 요청하거나 비행절차상의 특정 지점에서 보고하도록 요청할 경우 :

(항공기 호출부호), report established on final approach track;
(항공기 호출부호), report 2 miles from final approach fix.

라. 항공교통관제사가 조종사에게 최종접근지점(Final Approach Fix)에서 보고하도록 지시할 경우 :
(항공기 호출부호), report final approach fix.

마. 항공교통관제사가 GNSS 시스템의 오류를 인지한 경우 :
(항공기 호출부호), GNSS reported unreliable (or GNSS may not be available (due to interference));
In the vicinity of (location) (radius) (between (levels)). 또는
In the area of (description) (between (levels));
(항공기 호출부호), GNSS unavailable for (specify operation) (from (time) to (time) (or until further notice));

바. 조종사가 관제사에게 RAIM을 이용할 수 없음을 통보하고 향후 조치계획을 밝힐 경우 :
(항공기 호출부호), GNSS unavailable (due to (reason e.g. Loss of RAIM or RAIM alert)) (intentions);
(항공기 호출부호), Loss of RAIM or RAIM alert (intentions).

7.3.8.6 최종접근지점(FAF)에서 조종사는 접근절차 상의 다음 지점(Waypoint)으로 비행하며, 적절한 시점/지점에서 지시받은 관제허가를 계속 수행하거나 실패접근절차(Missed Approach Procedure)를 수행하여야 한다.

7.3.8.4 The approach procedure commences at the Initial Approach Fix(IAF). However, where aircraft are vectored to the Intermediate Fix(IF), the RNP APCH procedure will commence at the IF.

7.3.8.5 RTF Phraseology. The following phraseology should be used when carrying out the approach procedures.

a. When pilots request clearance for a specific approach procedure :
(aircraft call sign), request RNAV approach, via (Initial Approach Fix Designator), runway xx.

b. When air traffic controllers clear the approach procedure requested by the pilot. :
(aircraft call sign), cleared RNAV approach, runway xx, (report at (Initial Approach Fix designator)).

c. When the air traffic controllers request the pilot to report when established on final approach track or to report at any other relevant point in the procedure for traffic sequencing and to aid situational awareness between approaching aircraft :
(aircraft call sign), report established on final approach track;
(aircraft call sign), report 2 miles from final approach fix.

d. When air traffic controllers instruct the pilot to report at the Final Approach Fix :
(aircraft call sign), report final approach fix.

e. When the air traffic controllers are aware of problems with GNSS system :
(aircraft call sign), GNSS reported unreliable (or GNSS may not be available (due to interference));
In the vicinity of (location) (radius) (between (levels)). or
In the area of (description) (between (levels));
(aircraft call sign), GNSS unavailable for (specify operation) (from (time) to (time) (or until further notice));

f. When pilots inform the controller of a RAIM indication and subsquent intentions :
(aircraft call sign), GNSS unavailable (due to (reason e.g. Loss of RAIM or RAIM alert)) (intentions);
(aircraft call sign), Loss of RAIM or RAIM alert (intentions).

7.3.8.6 After reaching the final approach fix, the pilot shall continue to fly the procedure towards the next waypoint and at the appropriate time/point either continue with the air traffic clearance received or execute the Missed Approach Procedure (MAP).

ENR 4.3 GLOBAL NAVIGATION SATELLITE SYSTEM(GNSS)

1. 위성항법보정시스템(SBAS) 개요

1.1 대한민국은 국제민간항공기구(ICAO)의 SBAS에 관한 표준 및 권고에 따라 GPS를 보정하는 위성항법보정시스템(SBAS)인 한국형 위성기반 보정시스템(KASS, Korea Augmentation Satellite System)을 개발하였고, 인천비행정보구역(FIR)에 항공용서비스로 제공할 것이다.

1.2 KASS는 기준국(7), 위성통신국(2), 중앙처리·통합운영국(2) 등 지상시스템, 통합네트워크 및 정지궤도위성(1~2)으로 구성되며, WGS-84 좌표계를 사용한다.

1.3 KASS는 국제민간항공기구(ICAO) 부속서 10 Vol.1에 따라 SBAS 서비스 제공자 식별번호 6번을 사용하며, ICAO 부속서 10 Vol.1 3.7.2.4 기술기준에 따른 정확성, 무결성 등 시스템 요구성능(SIS)을 준수할 것이다.

1.4 KASS는 L1(1575.42 MHz) 및 L5(1176.45 MHz) 주파수를 사용한다.

1.5 KASS는 MEASAT-3D(동경 91.5도) 정지궤도위성 1기로 운영 중이며, 위성식별코드(PRN)는 134번을 사용한다. '25년 이후 2기의 정지궤도위성을 운영할 예정이다

1. Overview of Satellite-Based Augmentation System(SBAS)

1.1 The Republic of Korea, developed the Korea Augmentation Satellite System(KASS) for supplement the GPS as a Satellite-based Augmentation System (SBAS) in compliance with ICAO SBAS Standards and Recommended Practices, and will provide safety of life services using the Korea Augmentation Satellite System (KASS) in Incheon Flight Information Region(FIR) for aviation.

1.2 KASS consists of a ground segment comprising 7 reference stations, 2 satellite communication stations, 2 central processing/control stations and wide area networks, and a space segment comprising 2 geostationary satellites(1~2), and uses the WGS-84 coordinate system.

1.3 KASS, in accordance with ICAO Annex 10 Vol.1, uses identification number 6 as the SBAS service provider, adhering to the System Integrity, Accuracy, and Continuity(SIS) requirements specified in ICAO Annex 10 Vol.1, 3.7.2.4.

1.4 KASS uses the L1(1575.42 MHz) and L5(1176.45 MHz) frequencies.

1.5 KASS is operated with a geostationary orbit satellite (MEASAT-3D) located at 91.5 degrees east longitude, using Pseudo Random Noise(PRN) Code 134. The second geostationary satellite is planned for operation after the 25th year.

명칭 System name	신호 주파수 Frequencies	정지궤도위성 Geo Satellite	서비스 범위 Service coverage	관리기관 Management organization	서비스 제공 Aviation service
Korea Augmentation Satellite System (KASS)	L1 : 1575.42 MHz L5 : 1176.45 MHz	1호기 : Measat-3D, PRN Code 134 First Geo : Measat-3D, PRN Code 134	대한민국 인천비행정보구역 (FIR) Incheon FIR	국토교통부 항공교통본부 항공위성항법센터 (KANSC) Korea Air Navigation Satellite Center, Air traffic management office, Ministry of Land, Infrastructure and Transport	En-route, Terminal, NPA, RNP APCH

2. KASS 운영정보 및 서비스 제공

2.1 KASS 사용자 수신기는 FAA / TSO (Technical Standard Order) C145, C146 또는 유럽의 동등한 것으로 승인된 시스템이어야 한다.

2.2 KASS 신호의 이상 또는 GPS 위성의 급격한 상태 변화, 전리층 교란 등에 따른 성능저하 또는 계획된 유지보수 등으로 서비스가 제공될 수 없는 경우에는 관련 정보와 함께 항공고시보(NOTAM)가 발행될 것이다.

2.3 항공기 운영자, 조종사 등은 RNP APCH LPV 절차 수행을 계획할 경우 사전에 필히 항공고시보(NOTAM)를 확인하여야 하며, KASS 성능 저하 또는 서비스 미제공 시기 등을 고려하여야 한다.

2. KASS Operational Information and Service

2.1 KASS user receivers must be complied with FAA/TSO (Technical Standard Order) C145, C146, or equivalent European TSO.

2.2 In case of anomalies in KASS signals or service unavailability due to the rapid changes of a GPS status, ionospheric disturbances, or planned maintenances, a NOTAM will be issued relevant information.

2.3 Aircraft operators and pilots planning RNP APCH LPV procedures must check NOTAMs in advance and consider KASS performance degradation or non-service periods.

Change : Establishment of global navigation satellite system.

2.4 KASS 서비스를 사용한 En-Route, Terminal의 수평 경보 한계는 1 NM, NPA의 수평 경보 한계는 0.3 NM로 정의되며, APV(LPV)의 수평 경보 한계는 40 m, 수직 경보 한계는 50 m로 정의된다.

2.5 적정한 항공전자기기를 갖춘 경우, KASS는 서비스 범위 내에서 LNAV, LNAV/VNAV 및 LPV 접근절차에 대한 RNAV(GNSS) 접근 방식을 포함해 비행의 모든 단계를 지원하는 수준의 서비스를 제공할 것이다.

2.6 RNP APCH LPV 접근절차의 인가된 도면은 항공정보간행물(AIP) 공항부문(AD section)에 각 공항별로 수록되어 있다.

2.7 KASS 서비스 범위의 가장자리에 가까운 일부 위치는 수직 안내를 제공하는 접근 방식의 가용성이 낮을 수 있다.

2.8 연락처
조종사, 항공교통업무제공자 또는 공항운영자는 KASS 신호 제공 등에 관한 추가정보가 필요한 경우 또는 KASS 이용 중 이상상황 발생 시 다음의 주소로 연락하면 된다.

국토교통부 항공교통본부 항공위성항법센터

주소 : (우)28142,
충북 청주시 청원구 내수읍 입동리 230-8

전화 : 043-901-6400
팩스 : 043-901-6448

2.4 In En-Route, Terminal using KASS service, the horizontal alarm limit is defined as 1 NM, In NPA, the horizontal alarm limit is defined as 0.3 NM, In APV (LPV) the horizontal alarm limit is defined as 40 m, and the vertical alarm limit is defined as 50 m.

2.5 With appropriate avionics, KASS will provide services supporting all phases of flight, including RNAV(GNSS) approaches such as LNAV, LNAV/VNAV, and LPV approach procedure within the service coverage.

2.6 Authorized charts for RNP APCH LPV procedures are included in the Aeronautical Information Publication(AIP) under the Airport section(AD section) for each airport.

2.7 Some locations near the edge of the KASS service coverage may have lower availability of approaches providing vertical guidance.

2.8 Contact Information
Pilots, air traffic service providers, or airport operators to require additional information about KASS signal provision or to report abnormal situations during KASS usage can contact the following address. :

Korea Air Navigation Satellite Center,
Air Traffic Management Office,
Ministry of Land, Infrastructure and Transport

Address : 230-8, Ipdong-ri, Naesu-eup, Cheongwon-gu, Cheongju-si, Chungcheongbuk-do, 28142, Republic of Korea

TEL : +82-43-901-6400
FAX : +82-43-901-6448

Change : Establishment of global navigation satellite system.

3.11 RKJY

Name-code designator [pronunciation]					Coordinates	ATS route or other route	Remarks
1					2	3	4
◇	**ADGES**	5LNC	[ædʒs]	[애지스]	343803N 1273514E	STAR	RKJY
◇	**AGUTI**	5LNC	[aguti]	[아구티]	350141N 1273134E	IAP	RKJY
◇	**ANJAY**	5LNC	[anjeɪ]	[안제이]	344543N 1273924E	IAP	RKJY
◇	**AVMET**	5LNC	[a:vmet]	[아브멧]	342708N 1274629E	STAR	RKJY
◇	**BUGYO**	5LNC	[bugyo]	[부교]	345226N 1272729E	STAR	RKJY
◇	**IDROL**	5LNC	[i:drol]	[이드롤]	345233N 1273603E	IAP	RKJY
◇	**ISDOV**	5LNC	[ɪsdov]	[이스도브]	344756N 1272955E	STAR	RKJY
◇	**ISRIV**	5LNC	[ɪsriv]	[이스리브]	345410N 1272548E	STAR	RKJY
◇	**KAKRU**	5LNC	[kakru]	[칵루]	345548N 1273428E	IAP	RKJY
◇	**MENIV**	5LNC	[meniv]	[메니브]	343546N 1273508E	STAR	RKJY
◇	**SEHEE**	5LNC	[sehi]	[세희]	344437N 1273039E	STAR	RKJY
◇	**SKOTA**	5LNC	[skota]	[스코타]	350605N 1272924E	STAR, IAP	RKJY
△	**SOONA**	5LNC	[su:na]	[수나]	343828N 1274256E	STAR, IAP	RKJY
◇	**TOQUE**	5LNC	[tokju]	[토큐]	344115N 1274135E	IAP	RKJY
△	**YEONA**	5LNC	[yeon-a]	[연아]	345704N 1272452E	STAR, IAP	RKJY
◇	**JY401**	5ANNC	-	-	345838N 1273304E	IAP	RKJY
◇	**JY402**	5ANNC	-	-	350044N 1272650E	IAP	RKJY
◇	**JY505**	5ANNC	-	-	345511N 1273446E	IAP	RKJY
◇	**JY752**	5ANNC	-	-	342333N 1275302E	STAR	RKJY
◇	**JY801**	5ANNC	-	-	343906N 1274250E	SID	RKJY
◇	**JY802**	5ANNC	-	-	343633N 1274949E	SID	RKJY
◇	**JY803**	5ANNC	-	-	344425N 1275402E	SID	RKJY
◇	**JY804**	5ANNC	-	-	344856N 1273023E	SID	RKJY
◇	**JY805**	5ANNC	-	-	350222N 1272210E	SID	RKJY
◇	**JY806**	5ANNC	-	-	342513N 1274331E	SID	RKJY
◇	**JY851**	5ANNC	-	-	345638N 1273403E	SID	RKJY
◇	**JY852**	5ANNC	-	-	345931N 1274244E	SID	RKJY
◇	**JY853**	5ANNC	-	-	345337N 1274537E	SID	RKJY
◇	**JY854**	5ANNC	-	-	344247N 1273927E	SID	RKJY
◇	**JY857**	5ANNC	-	-	344706N 1274154E	SID	RKJY
◇	**JY865**	5ANNC	-	-	344759N 1273103E	SID	RKJY
◇	**JY866**	5ANNC	-	-	344102N 1273349E	SID	RKJY
◇	**RW350**	5ANNC	-	-	345001N 1273718E	IAP	RKJY

3.12 RKNW

Name-code designator [pronunciation]					Coordinates	ATS route or other route	Remarks
1					2	3	4
◆	**ANKEG**	5LNC	[ankeg]	[안케그]	372807N 1275846E	MAP	RKNW
◆	**ANOTI**	5LNC	[anoti]	[아노티]	373743N 1280444E	IAP	RKNW
◇	**AROKU**	5LNC	[aroku]	[아로쿠]	373954N 1275615E	SID	RKNW
◇	**ARUNA**	5LNC	[aruna]	[아루나]	372342N 1274614E	SID	RKNW
◇	**CASTO**	5LNC	[casto]	[카스토]	373405N 1280229E	IAP	RKNW
△	**CHISE**	5LNC	[cɪse]	[치세]	373750N 1280312E	SID	RKNW
◇	**DOXEL**	5LNC	[doksel]	[독셀]	371903N 1275309E	IAP	RKNW
◆	**DUBAL**	5LNC	[dubal]	[두발]	372427N 1275629E	MAP	RKNW
◆	**ENDEX**	5LNC	[endéks]	[엔덱스]	371703N 1274456E	IAP	RKNW
◇	**ENLAR**	5LNC	[enlar]	[엔랄]	372212N 1274828E	STAR	RKNW
◇	**ESLOL**	5LNC	[eslol]	[에스롤]	372434N 1274956E	STAR	RKNW
◇	**GADDY**	5LNC	[gaddy]	[가디]	372216N 1275508E	MAP	RKNW
△	**GANAM**	5LNC	[kanam]	[가남]	370640N 1273952E	STAR	RKNW
◇	**GAREP**	5LNC	[garep]	[가렙]	373711N 1280424E	MAP	RKNW
△	**IKILA**	5LNC	[ɪkɪla]	[이킬라]	373648N 1280409E	SID	RKNW
◇◆	**IKOSU**	5LNC	[ɪkos]	[이코스]	371450N 1275033E	STAR/IAP	RKNW
◇◆	**JOOKA**	5LNC	[jooka]	[주카]	373409N 1281345E	STAR/IAP	RKNW
◇	**KAGER**	5LNC	[kaiger]	[케이거]	371416N 1274444E	MAP	RKNW
◇	**KORHA**	5LNC	[kora]	[코라]	372016N 1275354E	IAP	RKNW
△	**MIBUB**	5LNC	[mibub]	[미붑]	373706N 1275458E	IAP	RKNW
◇	**MAJIF**	5LNC	[majif]	[마지프]	372610N 1280845E	STAR	RKNW
◇	**OGEBU**	5LNC	[ogebu;]	[오게부]	371426N 1280129E	STAR	RKNW
◇◆	**OLGOD**	5LNC	[olga;d]	[올갓]	371237N 1275610E	STAR/IAP	RKNW
◇	**OLSAX**	5LNC	[ɔlsaek]	[올색]	372255N 1275532E	IAP	RKNW
◇	**OLTOV**	5LNC	[oltov]	[올토브]	373217N 1280121E	IAP	RKNW
◇	**OPUPI**	5LNC	[opu;pɪ]	[오푸피]	371856N 1280416E	STAR	RKNW
△	**ORINU**	5LNC	[orinu]	[오리누]	371355N 1274517E	IAP	RKNW
◇	**POLLU**	5LNC	[pollu;]	[폴루]	372937N 1275942E	IAP	RKNW
◇	**RULRU**	5LNC	[rulru]	[룰루]	371138N 1274113E	SID	RKNW
◇	**SANUV**	5LNC	[sanuv]	[사누브]	372036N 1275407E	SID	RKNW
◇	**SUSAP**	5LNC	[susap]	[수샙]	371814N 1274833E	MAP	RKNW
△	**VEMPU**	5LNC	[vempu]	[벰푸]	374152N 1275300E	IAP	RKNW
◆	**VEMTI**	5LNC	[vemti]	[벰티]	373956N 1275906E	IAP	RKNW

Change : Information of name for significant point(MAGUK → MIBUB).

8. In case of engine start-up with GPU at gates due to APU malfunction or failure, pilot needs to contact Incheon Apron earlier than TSAT window(± 5 minutes) considering the time required for engine start-up and push-back.

9. All aircraft to be taxied within the apron shall set their engine thrusts to idle. In case of using breakaway thrust, it should be minimized, especially when commencing taxiing from stands(NR. 814, 815, 816, 817) and starting points(Point 33, 34, 35, 36) in Apron 3 for ground safety.

10. Push-back approval is valid for 1 MIN. Push-back is therefore to begin promptly after approval. The push-back procedures of the aircraft within the Apron are as follows. As with most, these procedures shall be kept. However, if any modification of the procedures is required as the case may be, Incheon Apron may give the pilot specific instructions suited for the safety of aircraft movement.

11. The smaller aircraft(business jets) ingress and egress procedures at designated deicing pads shall follow the instructions of Incheon Apron. Deicing pads are self-maneuvering stands (i.e. taxi out with no push-back). In case of M North zone assigned not for deicing, aircraft shall be pushed back for departure.

12. There are several blue lines in Apron 1 and 3
    Locations : Right behind Gates 9, 15, 21, 22, 32, 33, 39, 45, 49 in Apron 1, and 237, 238, 239, 240, 258, 259, 260, 261 in Apron 3.
    The aircraft of those gates shall be pushed back along blue line until their nose-wheels are on the specific taxilane.

13. To avoid delay to other aircraft using 'Apron 1 and 3' area, aircraft should be ready to taxi as soon as the push-back manoeuvre and engine start procedure are completed. The push-back for gate 17, 18, 19, 20, 21, 33, 34, 35, 36 is onto taxilane R7, and for gate 236R, 237, 238, 239, 240, 241, 257, 258, 259, 260, 261, 261R is onto taxilane R12, therefore to avoid delays to other traffic it is essential that the aircraft should be ready to taxi as soon as the push-back manoeuvre is completed. If aircraft are unable to comply with these procedures, pilots shall immediately inform Incheon Apron in order that alternative taxi instructions may be issued to other aircraft.

14. When an aircraft have any problem which can't make it taxi right after push back, the pilot should report to Apron control. And then the pilot will be instructed to return gate or to move other place to avoid blocking taxilanes.

15. Delays may be expected due to other aircraft to push back or to taxi as distances between aircraft gates/stands vary. If push-back is delayed due to apron traffic conditions, TSAT will remain valid even if it exceeds TSAT + 5 minutes. TOBT needs not to be updated for such situations.

16. The following tables describe the procedures for push-back of aircraft from gates with airbridges and stands. Incheon Apron will issue specific instructions to the pilot if it is necessary to expedite traffic movement.
    Most gates and stands have several push-back procedures. Push-back instructions shall be issued including direction (only 4 directions are used) or specific position when necessary. Incheon Apron will issue a push-back instruction according to the use of runway or certain traffic condition.

17. When The aircraft push back onto taxilane R2 or R3 with facing south, the pilot shall be taxied with idle power for ground safety.

18. The aircraft that have been approved for push-back by Incheon Apron must set the Mode A code assigned by ATC prior to push-back.

19. The pilots and vehicle operators should look out all directions as they are instructed by the Incheon Apron and also obey emergency stop instruction given by any team member.

20. The aircraft that are moving after stopping at 4E and 5W must move with minimum power.

Change : Information of procedures for start-up and push back.

Aircraft Stands	Pushback Procedures	Phraseology
Apron 1		
1 and 2	The aircraft shall be pushed back to face north along blue line until its nosewheel is at spot 1.	Pushback approved to point 1
3	The aircraft shall be pushed back onto taxilane R1 to face north.	Pushback approved to face north
	The aircraft shall be pushed back to face north along blue line until its nosewheel is at spot 1.	Pushback approved to point 1
6	The aircraft shall be pushed back onto taxilane R1 to face north.	Pushback approved to face north
	The aircraft shall be pushed back to face south along taxilane R1 until the specific gate position.	Pushback approved to face south abeam gate(number)
7	The aircraft shall be pushed back onto taxilane R1 to face north.	Pushback approved to face north
	The aircraft shall be pushed back to face south along taxilane R1 until the specific gate position.	Pushback approved to face south abeam gate(number)
	The aircraft shall be pushed back onto the stand 825 on taxilane R5 to face south.	Pushback approved to stand 825
8	The aircraft shall be pushed back onto taxilane R1 to face south.	Pushback approved to face south
	The aircraft shall be pushed back to face north along taxilane R1 until the specific gate position.	Pushback approved to face north abeam gate(number)
	The aircraft shall be pushed back onto the stand 825 on taxilane R5 to face south.	Pushback approved to stand 825
9	The aircraft shall be pushed back to face south along blue line until its nosewheel is at R1.	Pushback approved to face south
	The aircraft shall be pushed back onto taxilane R1 to face north.	Pushback approved to face north
	The aircraft shall be pushed back onto the stand 825 on taxilane R5 to face south.	Pushback approved to stand 825
10, 11 and 12	The aircraft shall be pushed back onto taxilane R1 to face south.	Pushback approved to face south
	The aircraft shall be pushed back onto taxilane R1 to face north.	Pushback approved to face north
14	The aircraft shall be pushed back onto taxilane R1 to face south.	Pushback approved to face south
	The aircraft shall be pushed back onto taxilane R1 to face north until gate 10 to minimize jet blast effect.	Pushback approved to face north
	The aircraft shall be pushed back onto the spot 53R on A6 to face west.	Pushback approved to spot 53Romeo
15	The aircraft shall be pushed back to face north along blue line until its nosewheel is at R1.	Pushback approved to face north
	The aircraft shall be pushed back onto taxilane R1 to face south.	Pushback approved to face south
	The aircraft shall be pushed back onto the spot 53R on A6 to face west.	Pushback approved to spot 53Romeo
16	The aircraft shall be pushed back onto taxilane R1 to face north.	Pushback approved to face north
	The aircraft shall be pushed back onto taxilane R1 to face south.	Pushback approved to face south
	The aircraft shall be pushed back onto the spot 53R on A6 to face west.	Pushback approved to spot 53Romeo

INSTRUMENT APPROACH CHART - ICAO

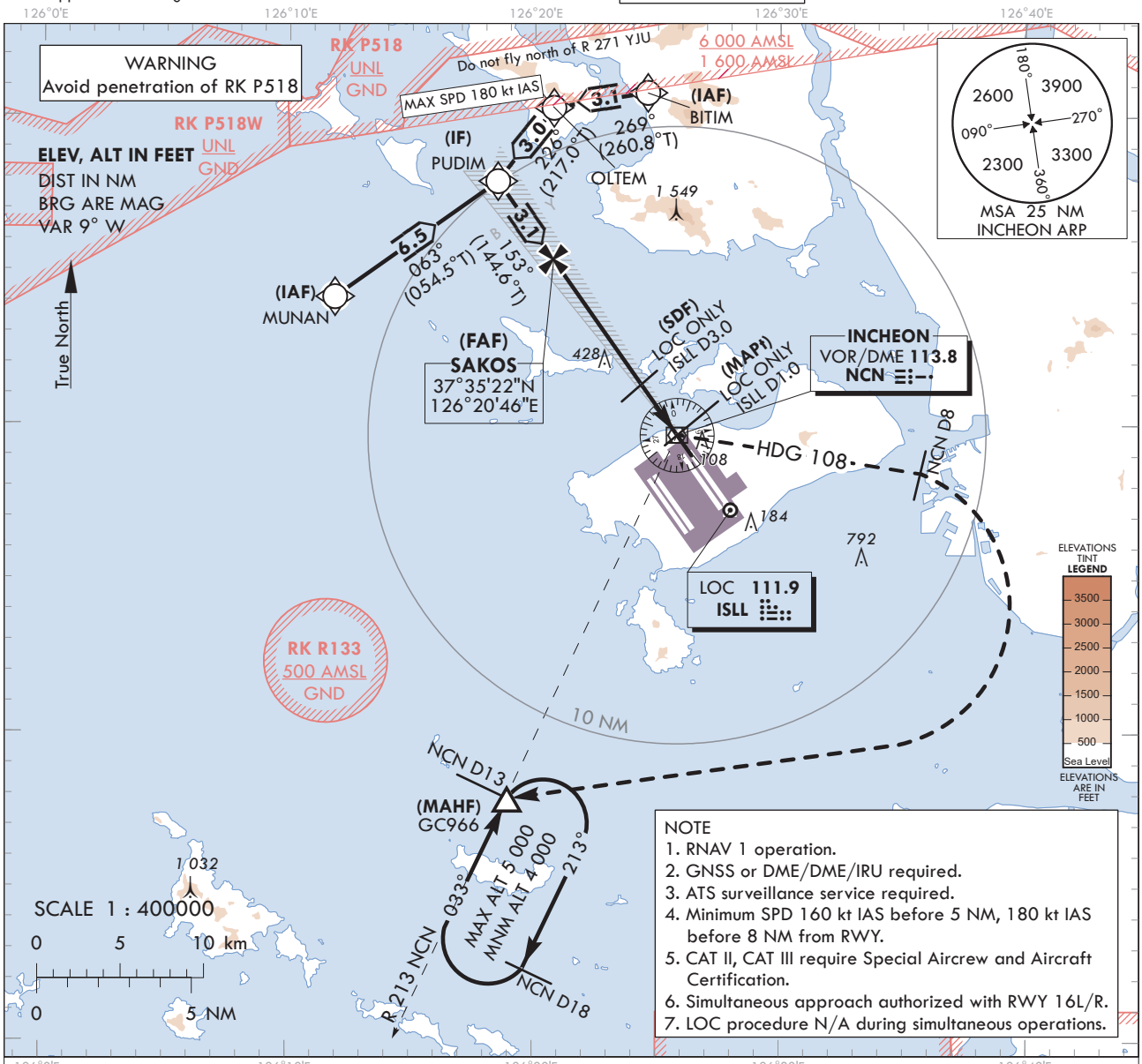
Note : Approach ICAO Flight Procedures.

AERODROME ELEV 23 ft
HEIGHTS RELATED TO
THR RWY 15L - ELEV 23 ft

SEOUL	APP	119.75
		121.35
INCHEON	TWR	118.2
		118.8

SEOUL/Incheon Intl(RKSI)

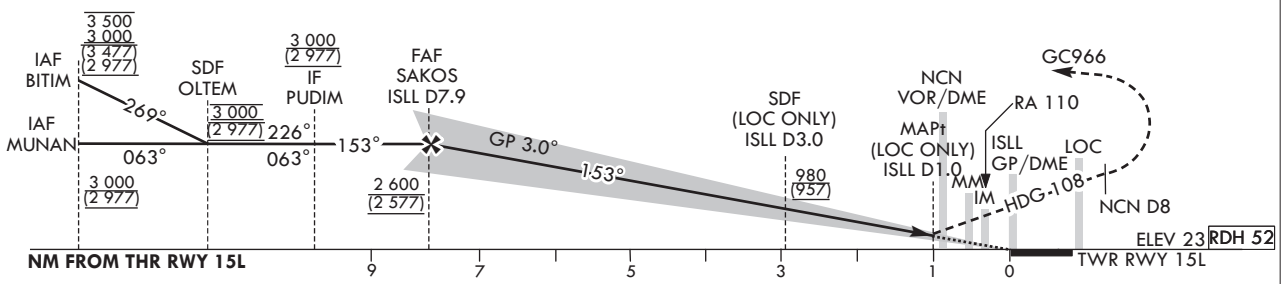
ILS Z or LOC Z RWY 15L
CAT II & III



NOTE
1. RNAV 1 operation.
2. GNSS or DME/DME/IRU required.
3. ATS surveillance service required.
4. Minimum SPD 160 kt IAS before 5 NM, 180 kt IAS before 8 NM from RWY.
5. CAT II, CAT III require Special Aircrew and Aircraft Certification.
6. Simultaneous approach authorized with RWY 16L/R.
7. LOC procedure N/A during simultaneous operations.

TRANSITION ALT 14 000
TRANSITION LVL FL 140

RECOMMENDED PROFILE	DME ISLL	7	6	5	4	3	2
Final Approach Gradient 5.37%, 326 ft/NM	ALT(HGT)	2 307 (2 284)	1 980 (1 957)	1 654 (1 631)	1 327 (1 304)	1 001 (978)	675 (652)



CATEGORY			DA(DH)/ MDA(MDH)	A	B	C	D
Straight-in	CAT-I	FULL	223 (200)	RVR 550 m, VIS 800 m			
		ALS INOP		1 200 m			
	LOC	FULL	380 (357)	900 m			
		ALS INOP		1 600 m			
	CAT II		123(100)	300 m			300 m[1] / 350 m
	CAT III		-	75 m[2] / 125 m			

MISSED APPROACH
Fly RWY heading, climb to 4 000 ft. At 720 ft, turn left heading 108. At NCN 8 DME, turn right direct to GC966. Hold as published. Do not turn before passing MAPt.

1) For CAT D aeroplane conducting an autoland.
2) Aeroplane use Fail-operational system.
* Timing Not authorized for defining MAPt.
* Circling Not authorized.

Change : Information of missed approach procedure, recommended profile and WX minima.

SEOUL/Incheon Intl(RKSI)
ILS Z or LOC Z RWY 15L
CAT II & III

AERONAUTICAL DATA TABULATION

ILS Z/LOC Z Approach to RWY 15L from MUNAN to PUDIM(IF)		
Fix / Point		Coordinates
MUNAN(IAF)		37°34'09.3"N 126°11'53.0"E
PUDIM(IF)		37°37'54.2"N 126°18'30.0"E

ILS Z/LOC Z Approach to RWY 15L from BITIM to PUDIM(IF)		
Fix / Point		Coordinates
BITIM(IAF)		37°40'48.0"N 126°24'36.1"E
OLTEM(SDF)		37°40'18.2"N 126°20'46.3"E
PUDIM(IF)		37°37'54.2"N 126°18'30.0"E

ILS Z/LOC Z Approach to RWY 15L from PUDIM(IF) to MAHF		
Fix / Point		Coordinates
SAKOS(FAF)	BRG 153.15°/7.92 NM ISLL	37°35'22.4"N 126°20'45.7"E
D3.0 ISLL(SDF) (LOC ONLY)	BRG 153.15°/3.00 NM ISLL	37°31'21.2"N 126°24'20.8"E
D1.0 ISLL(MAPt) (LOC ONLY)	BRG 153.15°/1.00 NM ISLL	37°29'43.1"N 126°25'48.2"E
NCN VOR/DME		37°29'41.7"N 126°25'49.2"E
THR RWY 15L		37°29'02.20"N 126°26'24.56"E
ISLL DME		37°28'56.4"N 126°26'35.6"E
Climb to 720 ft	HDG 153	-
D8 NCN	HDG 108	-
GC966	BRG 213.08°/13.00 NM NCN	37°17'53.0"N 126°18'58.0"E

Change : Information of SDF, MAPt and missed approach procedure.

INSTRUMENT APPROACH CHART - ICAO

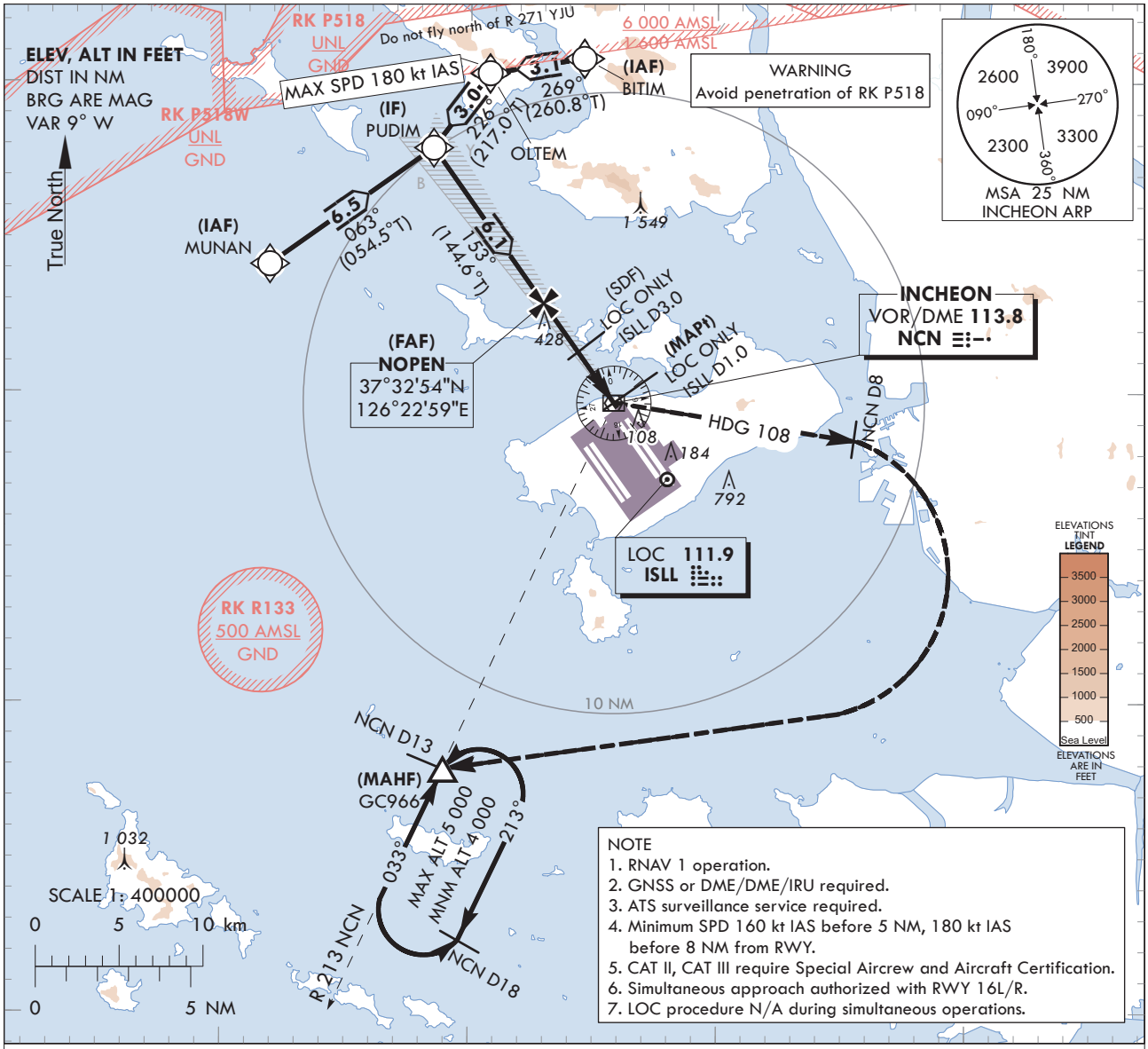
Note : Approach under ICAO Flight Procedures.

AERODROME ELEV 23 ft
HEIGHTS RELATED TO
THR RWY 15L - ELEV **23** ft

SEOUL	APP	119.75 121.35
INCHEON	TWR	118.2 118.8

SEOUL/Incheon Intl(RKSI)

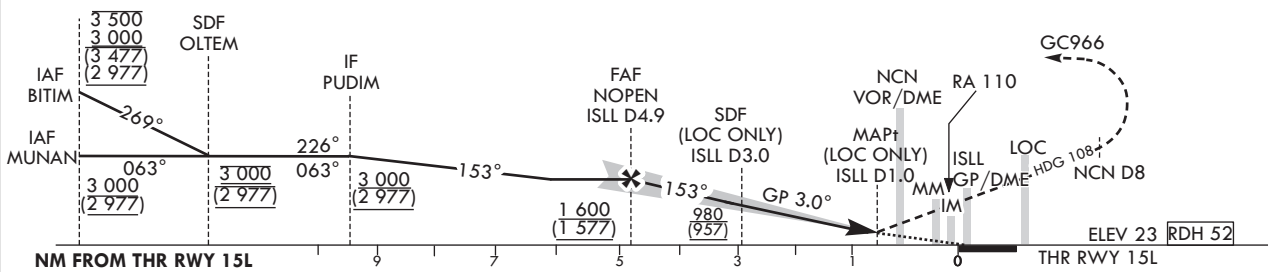
ILS Y or LOC Y RWY 15L
CAT II & III



NOTE
1. RNAV 1 operation.
2. GNSS or DME/DME/IRU required.
3. ATS surveillance service required.
4. Minimum SPD 160 kt IAS before 5 NM, 180 kt IAS before 8 NM from RWY.
5. CAT II, CAT III require Special Aircrew and Aircraft Certification.
6. Simultaneous approach authorized with RWY 16L/R.
7. LOC procedure N/A during simultaneous operations.

TRANSITION ALT 14 000
TRANSITION LVL FL 140

RECOMMENDED PROFILE	DME ISLL	4	3	2
Final Approach Gradient 5.30%, 322 ft/NM	ALT(HGT)	1 311 (1 288)	989 (966)	667 (644)



CATEGORY			DA(DH)/ MDA(MDH)	A	B	C	D
Straight-in	CAT-I	FULL	223 (200)	RVR 550 m, VIS 800 m			
		ALS INOP		1 200 m			
	LOC	FULL	380 (357)	900 m			
		ALS INOP		1 600 m			
	CAT II		123(100)	300 m			300 m[1] / 350 m
	CAT III		-	75 m[2] / 125 m			

MISSED APPROACH
Fly RWY heading, climb to 4 000 ft. At 720 ft, turn left heading 108. At NCN 8 DME, turn right direct to GC966. Hold as published. Do not turn before passing MAPt.

1) For CAT D aeroplane conducting an autoland.
2) Aeroplane use Fail-operational system.
* Timing Not authorized for defining MAPt.
* Circling Not authorized.

Change : Information of missed approach procedure, recommended profile and WX minima.

SEOUL/Incheon Intl(RKSI)
ILS Y or LOC Y RWY 15L
CAT II & III

AERONAUTICAL DATA TABULATION

ILS Y/LOC Y Approach to RWY 15L from MUNAN to PUDIM(IF)	
Fix / Point	Coordinates
MUNAN(IAF)	37°34'09.3"N 126°11'53.0"E
PUDIM(IF)	37°37'54.2"N 126°18'30.0"E

ILS Y/LOC Y Approach to RWY 15L from BITIM to PUDIM(IF)	
Fix / Point	Coordinates
BITIM(IAF)	37°40'48.0"N 126°24'36.1"E
OLTEM(SDF)	37°40'18.2"N 126°20'46.3"E
PUDIM(IF)	37°37'54.2"N 126°18'30.0"E

ILS Y/LOC Y Approach to RWY 15L from PUDIM(IF) to MAHF		
Fix / Point		Coordinates
NOPEN(FAF)	BRG 153.15°/4.89 NM ISLL	37°32'53.5"N 126°22'58.5"E
D3.0 ISLL (SDF LOC ONLY)	BRG 153.15°/3.00 NM ISLL	37°31'21.2"N 126°24'20.8"E
D1.0 ISLL (MAPt LOC ONLY)	BRG 153.15°/1.00 NM ISLL	37°29'43.1"N 126°25'48.2"E
NCN VOR/DME		37°29'41.7"N 126°25'49.2"E
THR RWY 15L		37°29'02.20"N 126°26'24.56"E
ISLL DME		37°28'56.4"N 126°26'35.6"E
Climb to 520 ft	HDG 153	-
D8 NCN	HDG 108	-
GC966	BRG 213.08°/13.00 NM NCN	37°17'53.0"N 126°18'58.0"E

Change : Information of SDF, MAPt and missed approach procedure.

INSTRUMENT APPROACH CHART - ICAO

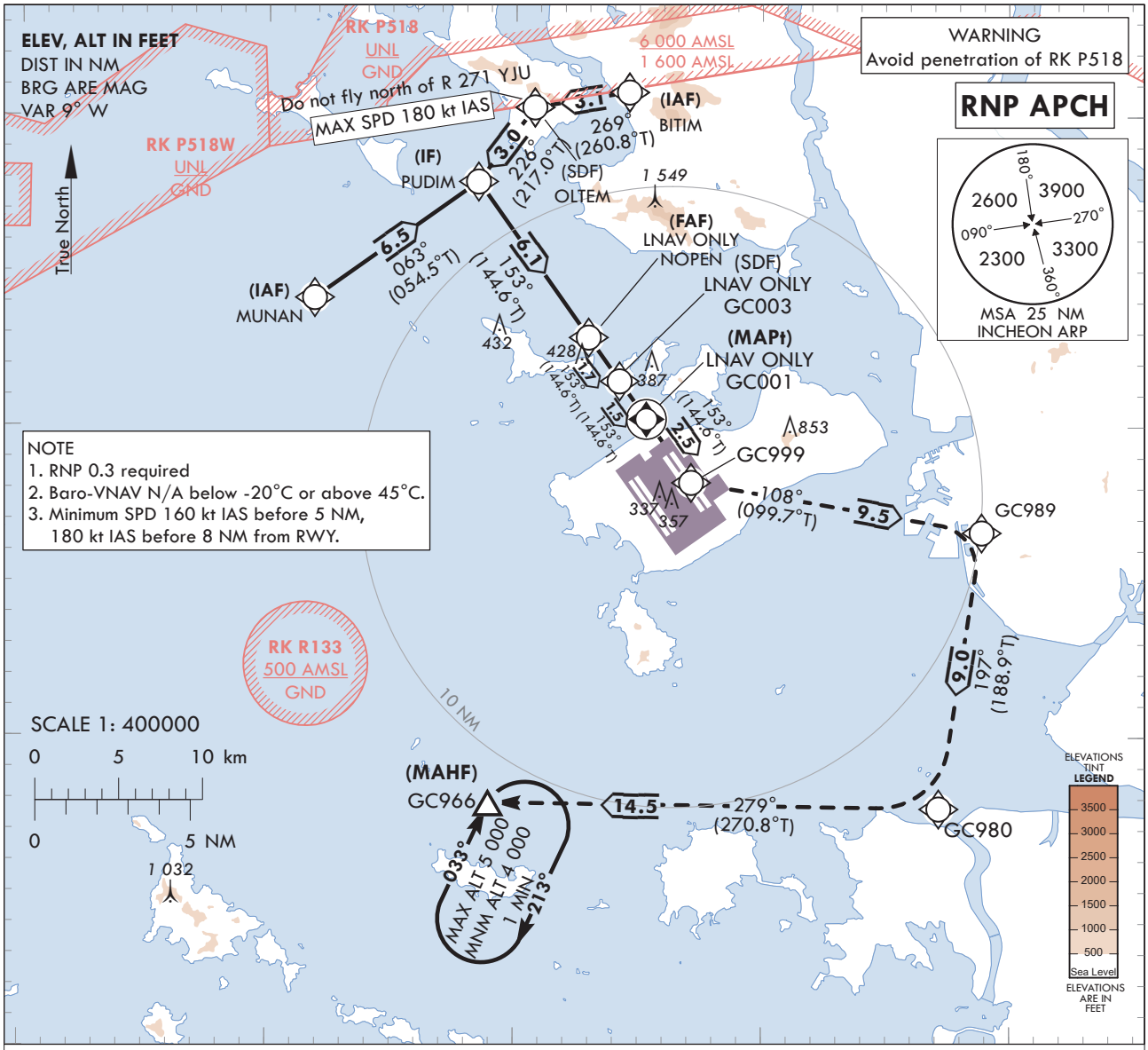
Note : Approach under ICAO Flight Procedures.

AERODROME ELEV 23 ft
HEIGHTS RELATED TO
THR RWY 15L - ELEV **23** ft

SEOUL	APP	119.75
		121.35
INCHEON	TWR	118.2
		118.8

SEOUL/Incheon Intl(RKSI)

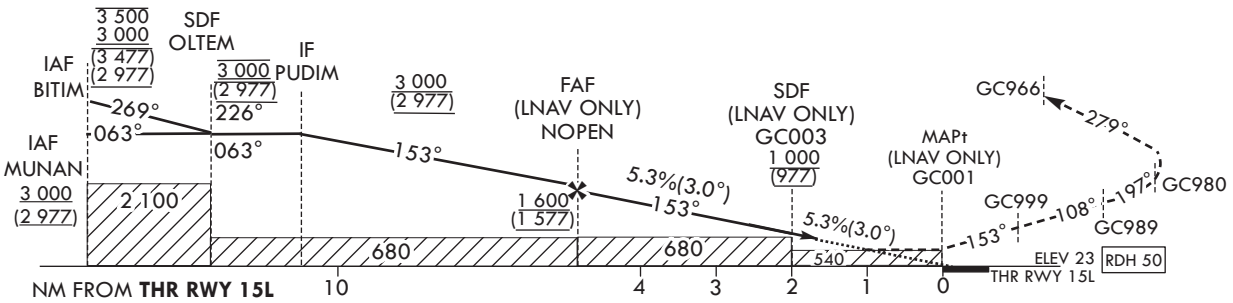
RNP RWY 15L



TRANSITION ALT 14 000
TRANSITION LVL FL 140

MISSED APPROACH
Climb to 4 000 ft. Track to GC999, GC989, GC980 and GC966. Hold as published.

NOTE
1. Missed approach turn limited to 210 kt IAS maximum at GC999 and GC989.



CATEGORY			DA(H)/ MDA(H)	A	B	C	D
STA	LNAV	FULL	540 (517)	1 600 m			
		ALS INOP		2 400 m			
	LNAV/VNAV	FULL	460 (437)	1 300 m			
		ALS INOP		2 000 m			

Knots	60	90	120	150	180
Rate of descent V/V fpm	324	485	647	809	971

* Timing Not authorized for defining MAPt.
* Circling Not authorized.

Change : Information of instrument approach procedure(RNP RWY 15L).

Instrument Approach Procedure Coding Tables

RNP RWY 15L - via MUNAN(IAF) to GC966(MAHF)

Serial Number	Path Descriptor	Waypoint Identifier	Fly-over	Course/Track °M(°T)	Distance (NM)	Turn direction	Altitude (ft)	Speed (kt)	Coordinates	VPA/ RDH	Navigation specification	Remarks
001	IF	MUNAN	-	-	-	-	+3 000	-	37°34'09.3"N 126°11'53.0"E	-	RNP APCH	IAF
002	TF	PUDIM	-	063 (054.5)	6.5	-	+3 000	-	37°37'54.2"N 126°18'30.0"E	-	RNP APCH	IF
003	TF	NOPEN	-	153 (144.6)	6.1	-	+1 600	-	37°32'53.5"N 126°22'58.5"E	-	RNP APCH	FAF
004	TF	GC003	-	153 (144.6)	1.7	-	+1 000	-	37°31'29.2"N 126°24'13.7"E	-	RNP APCH	SDF
005	TF	GC001	Y	153 (144.6)	1.5	-	+540	-	37°30'15.70"N 126°25'19.14"E	-3.05/50	RNP APCH	MAPt
006	TF	GC999	-	153 (144.6)	2.5	-	-	-210	37°28'13.2"N 126°27'08.2"E	-	RNP APCH	-
007	TF	GC989	-	108 (099.7)	9.5	-	-	-210	37°26'36.8"N 126°38'53.7"E	-	RNP APCH	-
008	TF	GC980	-	197 (188.9)	9.0	-	-	-	37°17'42.5"N 126°37'09.6"E	-	RNP APCH	-
009	TF	GC966	-	279 (270.8)	14.5	-	+4 000	-	37°17'53.0"N 126°18'58.0"E	-	RNP APCH	
009	HM	GC966	Y	033 (024.8)	-	R	-5 000 +4 000	-	37°17'53.0"N 126°18'58.0"E	-	RNP APCH	1 min (Outbound timing)

RNP RWY 15L - via BITIM(IAF) to GC966(MAHF)

Serial Number	Path Descriptor	Waypoint Identifier	Fly-over	Course/Track °M(°T)	Distance (NM)	Turn direction	Altitude (ft)	Speed (kt)	Coordinates	VPA/ RDH	Navigation specification	Remarks
001	IF	BITIM	-	-	-	-	-3 500 +3 000	-	37°40'48.0"N 126°24'36.1"E	-	RNP APCH	IAF
002	TF	OLTEM	-	269 (260.8)	3.1	-	@3 000	-180	37°40'18.2"N 126°20'46.3"E	-	RNP APCH	SDF
003	TF	PUDIM	-	226 (217.0)	3.0	-	+3 000	-	37°37'54.2"N 126°18'30.0"E	-	RNP APCH	IF
004	TF	NOPEN	-	153 (144.6)	6.1	-	+1 600	-	37°32'53.5"N 126°22'58.5"E	-	RNP APCH	FAF
005	TF	GC003	-	153 (144.6)	1.7	-	+1 000	-	37°31'29.2"N 126°24'13.7"E	-	RNP APCH	SDF
006	TF	GC001	Y	153 (144.6)	1.5	-	+540	-	37°30'15.70"N 126°25'19.14"E	-3.05/50	RNP APCH	MAPt
007	TF	GC999	-	153 (144.6)	2.5	-	-	-210	37°28'13.2"N 126°27'08.2"E	-	RNP APCH	-
008	TF	GC989	-	108 (099.7)	9.5	-	-	-210	37°26'36.8"N 126°38'53.7"E	-	RNP APCH	-
009	TF	GC980	-	197 (188.9)	9.0	-	-	-	37°17'42.5"N 126°37'09.6"E	-	RNP APCH	-
010	TF	GC966	-	279 (270.8)	14.5	-	+4 000	-	37°17'53.0"N 126°18'58.0"E	-	RNP APCH	
011	HM	GC966	Y	033 (024.8)	-	R	-5 000 +4 000	-	37°17'53.0"N 126°18'58.0"E	-	RNP APCH	1 min (Outbound timing)

INSTRUMENT APPROACH CHART - ICAO

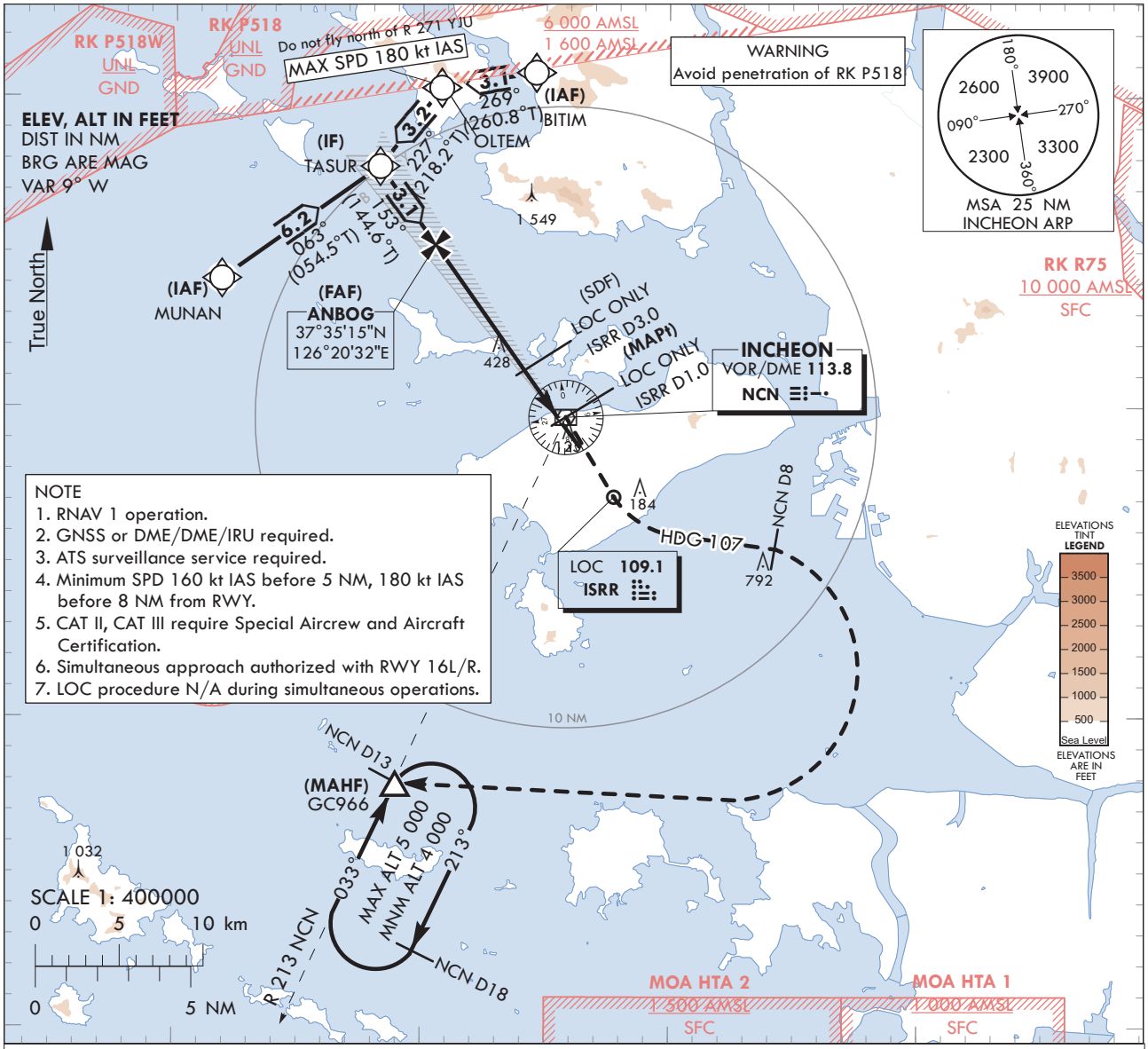
Note : Approach under ICAO Flight Procedures.

AERODROME ELEV 23 ft
HEIGHTS RELATED TO
THR RWY 15R - ELEV **23 ft**

SEOUL	APP	119.75 121.35
INCHEON	TWR	118.2 118.8

SEOUL/Incheon Intl(RKSI)

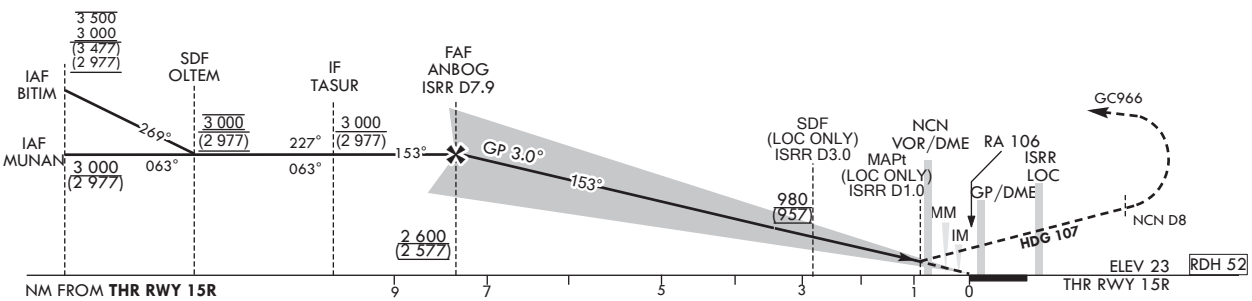
ILS Z or LOC Z RWY 15R
CAT II & III



NOTE
1. RNAV 1 operation.
2. GNSS or DME/DME/IRU required.
3. ATS surveillance service required.
4. Minimum SPD 160 kt IAS before 5 NM, 180 kt IAS before 8 NM from RWY.
5. CAT II, CAT III require Special Aircrew and Aircraft Certification.
6. Simultaneous approach authorized with RWY 16L/R.
7. LOC procedure N/A during simultaneous operations.

TRANSITION ALT 14 000
TRANSITION LVL FL 140

RECOMMENDED PROFILE	DME ISRR	7	6	5	4	3	2
Final Approach Gradient 5.37%, 326 ft/NM	ALT(HGT)	2 307 (2 284)	1 980 (1 957)	1 654 (1 631)	1 327 (1 304)	1 001 (978)	675 (652)



CATEGORY			DA(DH)/ MDA(MDH)	A	B	C	D
Straight-in	CAT-I	FULL	223 (200)	RVR 550 m, VIS 800 m			
		ALS INOP		1 200 m			
	LOC	FULL	380 (357)	900 m			
		ALS INOP		1 600 m			
	CAT II		123(100)	300 m			300 m[1]/ 350 m
	CAT III		-	75 m[2] / 125 m			

1) For CAT D aeroplane conducting an autoland.
2) Aeroplane use Fail-operational system.

MISSED APPROACH
Fly RWY heading climb to 4 000 ft. At 720 ft, turn left heading 107. At NCN 8 DME, turn right direct to GC966. Hold as pulished. Do not turn before passing MAPt.

* Timing Not authorized for defining MAPt.
* Circling Not authorized.

Change : Information of missed approach procedure, recommended profile and WX minima.

SEOUL/Incheon Intl(RKSI)
ILS Z or LOC Z RWY 15R
CAT II & III

AERONAUTICAL DATA TABULATION

ILS Z/LOC Z Approach to RWY 15R from MUNAN to TASUR(IF)		
Fix / Point		Coordinates
MUNAN(IAF)		37°34'09.3"N 126°11'53.0"E
TASUR(IF)		37°37'46.4"N 126°18'16.2"E

ILS Z/LOC Z Approach to RWY 15R from BITIM to TASUR(IF)		
Fix / Point		Coordinates
BITIM(IAF)		37°40'48.0"N 126°24'36.1"E
OLTEM(SDF)		37°40'18.2"N 126°20'46.3"E
TASUR(IF)		37°37'46.4"N 126°18'16.2"E

ILS Z/LOC Z Approach to RWY 15R from TASUR(IF) to MAHF		
Fix / Point		Coordinates
ANBOG(FAF)	BRG 153.15°/7.92 NM ISRR	37°35'14.6"N 126°20'31.9"E
D3.0 ISRR (SDF LOC ONLY)	BRG 153.15°/3.00 NM ISRR	37°31'13.4"N 126°24'07.1"E
D1.0 ISRR (MAPt LOC ONLY)	BRG 153.15°/1.00 NM ISRR	37°29'35.4"N 126°25'34.4"E
NCN VOR/DME		37°29'41.7"N 126°25'49.2"E
THR RWY 15R		37°28'54.44"N 126°26'10.82"E
ISRR DME		37°28'48.7"N 126°26'21.9"E
Climb to 720 ft	HDG 153	-
D8 NCN	HDG 107	-
GC966	BRG 213.08°/13.00 NM NCN	37°17'53.0"N 126°18'58.0"E

Change : Information of MAPt and missed approach procedure.

INSTRUMENT APPROACH CHART - ICAO

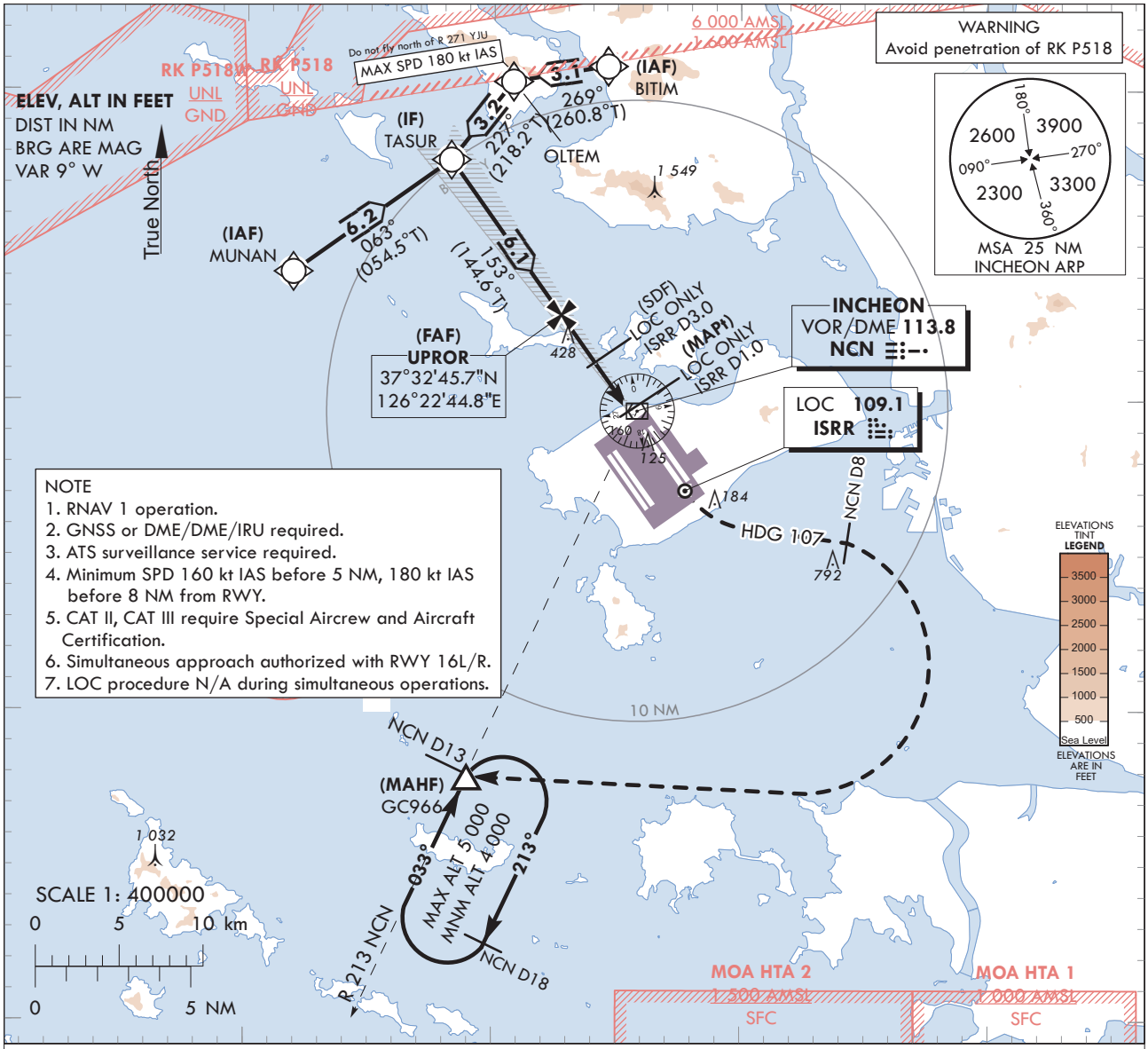
Note : Approach under ICAO Flight Procedures.

AERODROME ELEV 23 ft
HEIGHTS RELATED TO
THR RWY 15R - ELEV **23** ft

SEOUL	APP	119.75
		121.35
INCHEON	TWR	118.2
		118.8

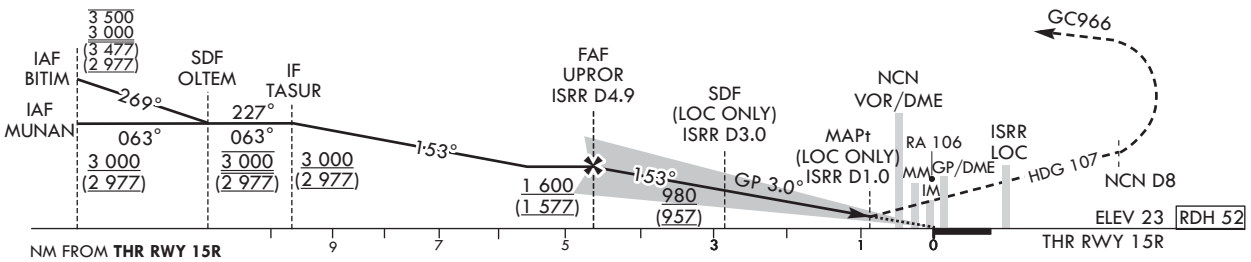
SEOUL/Incheon Intl(RKSI)

ILS Y or LOC Y RWY 15R
CAT II & III



TRANSITION ALT 14 000
TRANSITION LVL FL 140

RECOMMENDED PROFILE	DME ISRR	4	3	2
Final Approach Gradient 5.30%, 322 ft/NM	ALT(HGT)	1 311 (1 288)	989 (966)	667 (644)



CATEGORY			DA(DH)/ MDA(MDH)	A	B	C	D
Straight-in	CAT-I	FULL	223 (200)	RVR 550 m, VIS 800 m			
		ALS INOP		1 200 m			
	LOC	FULL	380 (357)	900 m			
		ALS INOP		1 600 m			
	CAT II		123(100)	300 m			300 m 1)/ 350 m
	CAT III		-	75 m 2) / 125 m			

1) For CAT D aeroplane conducting an autoland.
2) Aeroplane use Fail-operational system.

MISSED APPROACH
Fly RWY heading, climb to 4 000 ft. At 720 ft, turn left heading 107. At NCN 8 DME, turn right direct to GC966. Hold as pulished. Do not turn before passing MAPt.

* Timing Not authorized for defining MAPt.
* Circling Not authorized.

Change : Information of missed approach procedure, recommended profile and WX minima.

SEOUL/Incheon Intl(RKSI)
ILS Y or LOC Y RWY 15R
CAT II & III

AERONAUTICAL DATA TABULATION

ILS Y/LOC Y Approach to RWY 15R from MUNAN to TASUR(IF)	
Fix / Point	Coordinates
MUNAN(IAF)	37°34'09.3"N 126°11'53.0"E
TASUR(IF)	37°37'46.4"N 126°18'16.2"E

ILS Y/LOC Y Approach to RWY 15R from BITIM to TASUR(IF)	
Fix / Point	Coordinates
BITIM(IAF)	37°40'48.0"N 126°24'36.1"E
OLTEM(SDF)	37°40'18.2"N 126°20'46.3"E
TASUR(IF)	37°37'46.4"N 126°18'16.2"E

ILS Y/LOC Y Approach to RWY 15R from TASUR(IF) to MAHF		
Fix / Point		Coordinates
UPROR(FAF)	BRG 153.15°/4.89 NM ISRR	37°32'45.7"N 126°22'44.8"E
D3.0 ISRR (SDF LOC ONLY)	BRG 153.15°/3.00 NM ISRR	37°31'13.4"N 126°24'07.1"E
D1.0 ISRR (MAPt LOC ONLY)	BRG 153.15°/1.00 NM ISRR	37°29'35.4"N 126°25'34.4"E
NCN VOR/DME		37°29'41.7"N 126°25'49.2"E
THR RWY 15R		37°28'54.44"N 126°26'10.82"E
ISRR DME		37°28'48.7"N 126°26'21.9"E
Climb to 720 ft	HDG 153	-
D8 NCN	HDG 107	-
GC966	BRG 213.08°/13.00 NM NCN	37°17'53.0"N 126°18'58.0"E

Change : Information of MAPt and missed approach procedure.

INSTRUMENT APPROACH CHART - ICAO

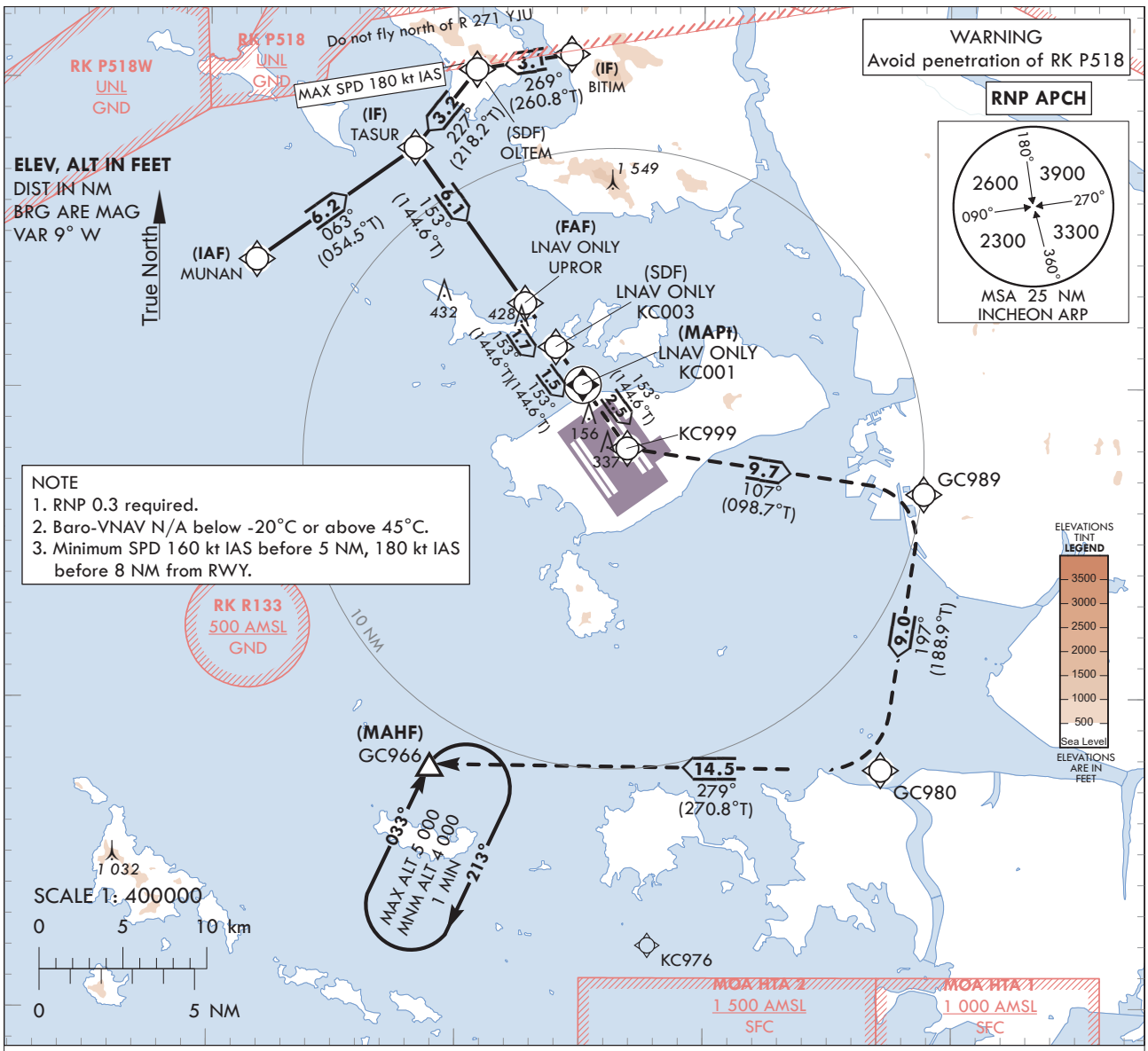
Note : Approach under ICAO Flight Procedures.

AERODROME ELEV 23 ft
HEIGHTS RELATED TO
THR RWY 15R - ELEV **23** ft

SEOUL	APP	119.75
		121.35
INCHEON	TWR	118.2
		118.8

SEOUL/Incheon Intl(RKSI)

RNP RWY 15R



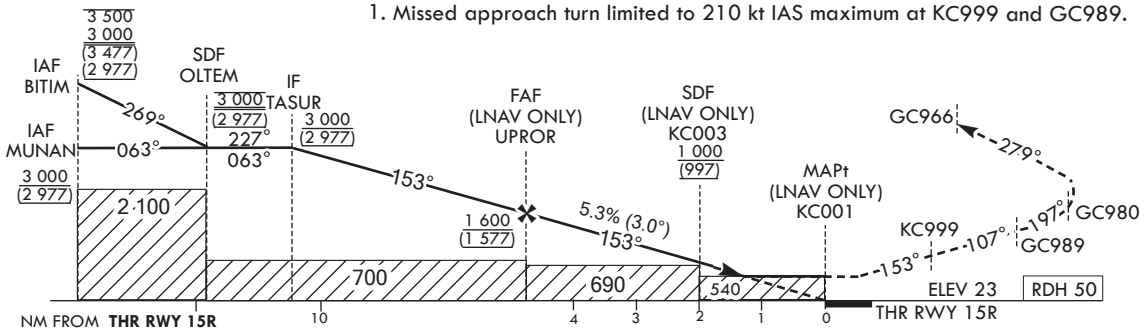
TRANSITION ALT 14 000
TRANSITION LVL FL 140

MISSED APPROACH

Climb to 4 000 ft. Track to GC999, GC989, GC980 and GC966. Hold as published.

NOTE

1. Missed approach turn limited to 210 kt IAS maximum at KC999 and GC989.



CATEGORY			DA(H)/ MDA(H)	A	B	C	D
STA	LNAV	FULL	540 (517)	1 600 m			
		ALS INOP		2 400 m			
	LNAV/VNAV	FULL	460 (437)	1 300 m			
		ALS INOP		2 000 m			

	Knots	60	90	120	150	180
Rate of descent	V/V fpm	324	485	647	809	971

* Timing Not authorized for defining MAPt.
* Circling Not authorized.

Change : Information of instrument approach procedure(RNP RWY 15R).

AERONAUTICAL DATA TABULATION

Instrument Approach Procedure Coding Tables

RNP RWY 15R - via MUNAN(IAF) to GC966(MAHF)

Serial Number	Path Descriptor	Waypoint Identifier	Fly-over	Course/Track °M(°T)	Distance (NM)	Turn direction	Altitude (ft)	Speed (kt)	Coordinates	VPA/ RDH	Navigation specification	Remarks
001	IF	MUNAN	-	-	-	-	+3 000	-	37°34'09.3"N 126°11'53.0"E	-	RNP APCH	IAF
002	TF	TASUR	-	063 (054.5)	6.2	-	+3 000	-	37°37'46.4"N 126°18'16.2"E	-	RNP APCH	IF
003	TF	UPROR	-	153 (144.6)	6.1	-	+1 600	-	37°32'45.7"N 126°22'44.8"E	-	RNP APCH	FAF
004	TF	KC003	-	153 (144.6)	1.7	-	+1 000	-	37°31'21.4"N 126°23'59.9"E	-	RNP APCH	SDF
005	TF	KC001	Y	153 (144.6)	1.5	-	+540	-	37°30'07.93"N 126°25'05.40"E	-3.05/50	RNP APCH	MAPt
006	TF	KC999	-	153 (144.6)	2.5	-	-	-210	37°28'05.4"N 126°26'54.4"E	-	RNP APCH	-
007	TF	GC989	-	107 (098.7)	9.7	-	-	-210	37°26'36.8"N 126°38'53.7"E	-	RNP APCH	-
008	TF	GC980	-	197 (188.9)	9.0	-	-	-	37°17'42.5"N 126°37'09.6"E	-	RNP APCH	-
009	TF	GC966	-	279 (270.8)	14.5	-	+4 000	-	37°17'53.0"N 126°18'58.0"E	-	RNP APCH	
010	HM	GC966	Y	033 (024.8)	-	R	-5 000 +4 000	-	37°17'53.0"N 126°18'58.0"E	-	RNP APCH	1 min (Outbound timing)

RNP RWY 15R - via BITIM(IAF) to GC966(MAHF)

Serial Number	Path Descriptor	Waypoint Identifier	Fly-over	Course/Track °M(°T)	Distance (NM)	Turn direction	Altitude (ft)	Speed (kt)	Coordinates	VPA/ RDH	Navigation specification	Remarks
001	IF	BITIM	-	-	-	-	-3 500 +3 000	-	37°40'48.0"N 126°24'36.1"E	-	RNP APCH	IAF
002	TF	OLTEM	-	269 (260.8)	3.1	-	@3 000	-180	37°40'18.2"N 126°20'46.3"E	-	RNP APCH	SDF
003	TF	TASUR	-	227 (218.2)	3.2	-	+3 000	-	37°37'46.4"N 126°18'16.2"E	-	RNP APCH	IF
004	TF	UPROR		153 (144.6)	6.1	-	+1 600	-	37°32'45.7"N 126°22'44.8"E	-	RNP APCH	FAF
005	TF	KC003	-	153 (144.6)	1.7	-	+1 000	-	37°31'21.4"N 126°23'59.9"E	-	RNP APCH	SDF
006	TF	KC001	Y	153 (144.6)	1.5	-	+540	-	37°30'07.93"N 126°25'05.40"E	-3.05/50	RNP APCH	MAPt
007	TF	KC999	-	153 (144.6)	2.5	-	-	-210	37°28'05.4"N 126°26'54.4"E	-	RNP APCH	-
008	TF	GC989	-	107 (098.7)	9.7	-	-	-210	37°26'36.8"N 126°38'53.7"E	-	RNP APCH	-
009	TF	GC980	-	197 (188.9)	9.0	-	-	-	37°17'42.5"N 126°37'09.6"E	-	RNP APCH	-
010	TF	GC966	-	279 (270.8)	14.5	-	+4 000	-	37°17'53.0"N 126°18'58.0"E	-	RNP APCH	
011	HM	GC966	Y	033 (024.8)	-	R	-5 000 +4 000	-	37°17'53.0"N 126°18'58.0"E	-	RNP APCH	1 min (Outbound timing)

Change : Information of instrument approach procedure(RNP RWY 15R).

INSTRUMENT APPROACH CHART - ICAO

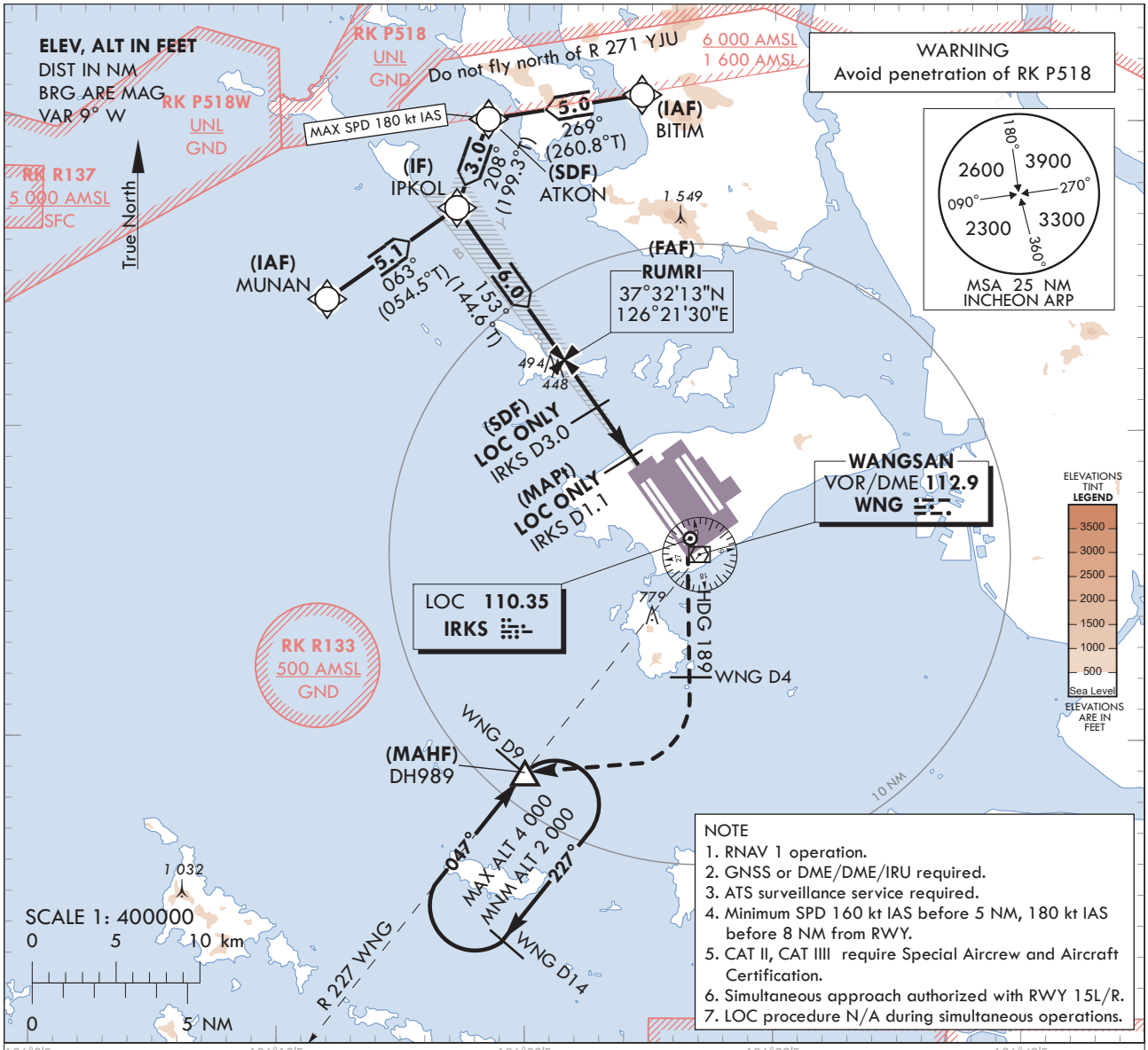
Note : Approach under ICAO Flight Procedures.

AERODROME ELEV 23 ft
HEIGHTS ELEV TO
THR RWY 16L - ELEV 23 ft

SEOUL	APP	119.75
		121.35
INCHEON	TWR	118.2
		118.8

SEOUL/Incheon Intl(RKSI)

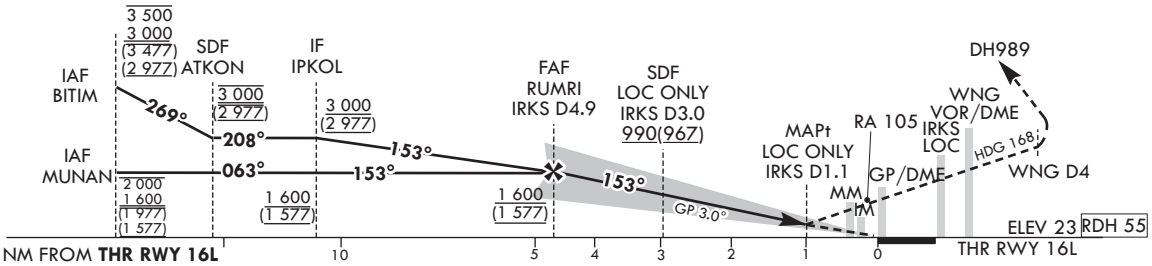
ILS or LOC RWY 16L
CAT II & III



NOTE
1. RNAV 1 operation.
2. GNSS or DME/DME/IRU required.
3. ATS surveillance service required.
4. Minimum SPD 160 kt IAS before 5 NM, 180 kt IAS before 8 NM from RWY.
5. CAT II, CAT IIII require Special Aircrew and Aircraft Certification.
6. Simultaneous approach authorized with RWY 15L/R.
7. LOC procedure N/A during simultaneous operations.

TRANSITION ALT 14 000
TRANSITION LVL FL 140

RECOMMENDED PROFILE	DME ISRR	4	3	2
Final Approach Gradient 5.30%, 322 ft/NM	ALT(HGT)	1 310 (1 287)	988 (965)	666 (643)



CATEGORY			DA(DH)/ MDA(MDH)	A	B	C	D
Straight-in	CAT-I (CG 2.5%)	FULL	460 (437)	1 300 m			
		ALS INOP		2 000 m			
	CAT-I (CG 4.0%)	FULL	223 (200)	RVR 550 m, VIS 800 m			
		ALS INOP		1 200 m			
	LOC	FULL	410 (387)	1 100 m			
		ALS INOP		1 800 m			
	CAT II		123(100)	300 m			300 m 1)/ 350 m
	CAT III		-	75 m 2) / 125 m			

1) For CAT D aeroplane conducting an autoland.
2) Aeroplane use Fail-operational system.

MISSED APPROACH
Fly RWY heading, climb to 2 000 ft. At 500 ft, turn right heading 189. At WNG 4 DME, turn right direct to DH989. Hold as published. Do not turn before passing MAPt.

NOTE
1. Missed approach turn limited to 210 kt IAS maximum.
2. Missed approach minimum climb gradient of 2.5% to 2 000 ft (DH 437 or 387), 4.0% to 2 000 ft (DH 200 or 100).

* Timing Not authorized for defining MAPt.
* Circling Not authorized.

Change : Information of missed approach procedure, recommended profile, WX minima and note.

SEOUL/Incheon Intl(RKSI)
ILS or LOC RWY 16L
CAT II & III

AERONAUTICAL DATA TABULATION

ILS/LOC Approach to RWY 16L from MUNAN to IPKOL(IF)	
Fix / Point	Coordinates
MUNAN(IAF)	37°34'09.3"N 126°11'53.0"E
IPKOL(IF)	37°37'07.4"N 126°17'07.3"E

ILS/LOC Approach to RWY 16L from BITIM to IPKOL(IF)	
Fix / Point	Coordinates
BITIM(IAF)	37°40'48.0"N 126°24'36.1"E
ATKON(SDF)	37°39'59.6"N 126°18'23.2"E
IPKOL(IF)	37°37'07.4"N 126°17'07.3"E

ILS/LOC Approach to RWY 16L from IPKOL(IF) to MAHF		
Fix / Point		Coordinates
RUMRI(FAF)	BRG 153.16°/4.89 NM IRKS	37°32'12.9"N 126°21'30.4"E
D3.0 IRKS(SDF) (LOC ONLY)	BRG 153.16°/3.00 NM IRKS	37°30'40.6"N 126°22'52.7"E
D1.1 IRKS(MAPt) (LOC ONLY)	BRG 153.16°/1.10 NM IRKS	37°29'07.4"N 126°24'15.7"E
THR RWY 16L		37°28'22.11"N 126°24'56.05"E
IRKS DME		37°28'11.4"N 126°24'59.7"E
WNG VOR/DME		37°25'58.6"N 126°27'00.0"E
Climb to 500 ft	HDG 153	-
D4 WNG	HDG 189	-
DH989	BRG 226.64°/9.00 NM WNG	37°18'55.0"N 126°19'59.0"E

Change : Information of MAPt and missed approach procedure.

INSTRUMENT APPROACH CHART - ICAO

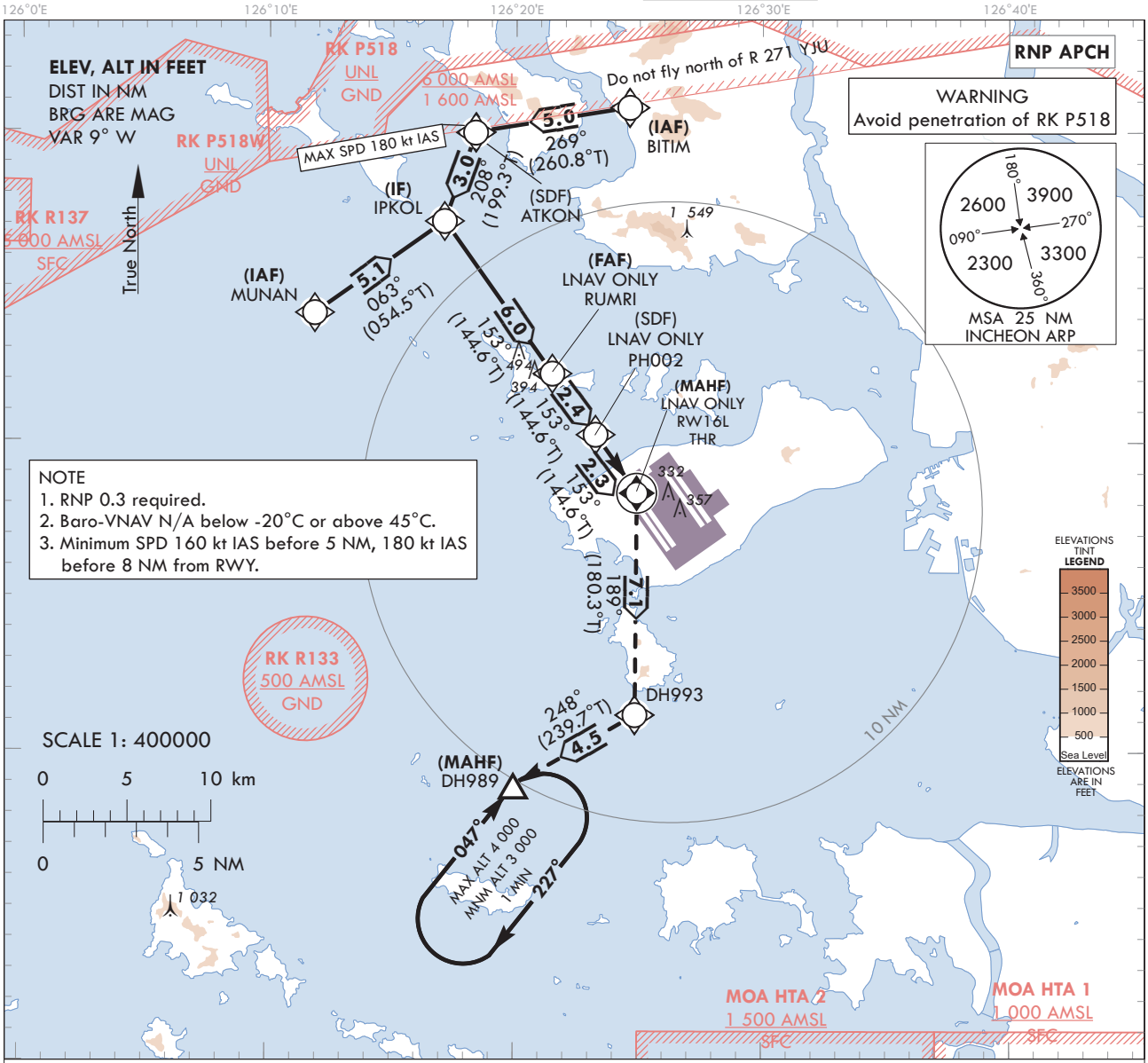
Note : Approach under ICAO Flight Procedures.

AERODROME ELEV 23 ft
HEIGHTS RELATED TO
THR RWY 16L - ELEV **23 ft**

SEOUL	APP	119.75
		121.35
INCHEON	TWR	118.2
		118.8

SEOUL/Incheon Intl(RKSI)

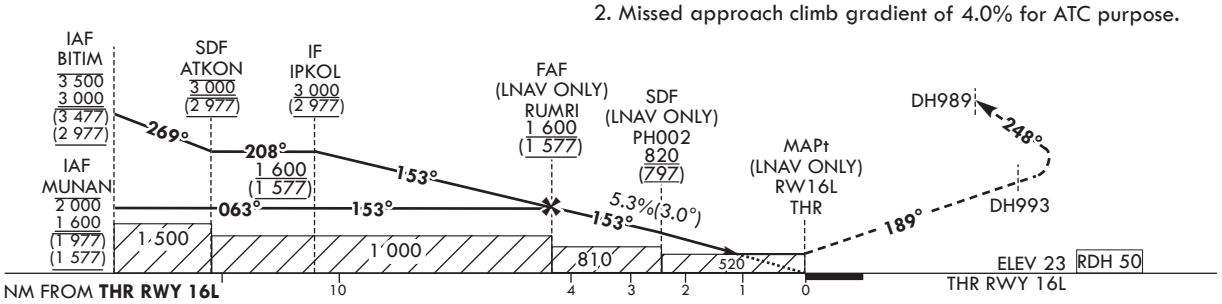
RNP RWY 16L



TRANSITION ALT 14 000
TRANSITION LVL FL 140

MISSED APPROACH
Climb to 3 000 ft. Track to DH993 and DH989. Hold as published.

NOTE
1. Missed approach turn limited to 240 kt IAS maximum.
2. Missed approach climb gradient of 4.0% for ATC purpose.



CATEGORY			DA(H)/MDA(H)	A	B	C	D
STA	LNAV	FULL	520 (497)	1 500 m			
		ALS INOP		2 300 m			
	LNAV/VNAV	FULL	430 (407)	1 200 m			
		ALS INOP		1 900 m			

Rate of descent	Knots	60	90	120	150	180
	V/V fpm	324	486	648	810	972

* Timing Not authorized for defining MAPt.
* Circling Not authorized.

Change : Information of missed approach procedure, ALT restriction and note.

AERONAUTICAL DATA TABULATION

Instrument Approach Procedure Coding Tables

RNP RWY 16L - via MUNAN(IAF) to DH989(MAHF)

Serial Number	Path Descriptor	Waypoint Identifier	Fly-over	Course/Track °M(°T)	Distance (NM)	Turn direction	Altitude (ft)	Speed (kt)	Coordinates	VPA/ RDH	Navigation specification	Remarks
001	IF	MUNAN	-	-	-	-	-2 000 +1 600	-	37°34'09.3"N 126°11'53.0"E	-	RNP APCH	IAF
002	TF	IPKOL	-	063 (054.5)	5.1	-	+1 600	-	37°37'07.4"N 126°17'07.3"E	-	RNP APCH	IF
003	TF	RUMRI	-	153 (144.6)	6.0	-	+1 600	-	37°32'12.9"N 126°21'30.4"E	-	RNP APCH	FAF
004	TF	PH002	-	153 (144.6)	2.4	-	+820	-	37°30'14.8"N 126°23'15.7"E	-	RNP APCH	SDF
005	TF	RW16L	Y	153 (144.6)	2.3	-	+520	-	37°28'22.11"N 126°24'56.06"E	-3.05/50	RNP APCH	MAPt
006	TF	DH993	-	189 (180.3)	7.1	-	-	-240	37°21'12.6"N 126°24'53.1"E	-	RNP APCH	-
007	TF	DH989	Y	248 (239.7)	4.5	-	+3 000	-240	37°18'55.0"N 126°19'59.0"E	-	RNP APCH	-
008	HM	DH989	Y	047 (038.4)	-	R	-4 000 +3 000	-	37°18'55.0"N 126°19'59.0"E	-	RNP APCH	1 min (Outbound timing)

RNP RWY 16L - via BITIM(IAF) to DH989(MAHF)

Serial Number	Path Descriptor	Waypoint Identifier	Fly-over	Course/Track °M(°T)	Distance (NM)	Turn direction	Altitude (ft)	Speed (kt)	Coordinates	VPA/ RDH	Navigation specification	Remarks
001	IF	BITIM	-	-	-	-	-3 500 +3 000	-	37°40'48.0"N 126°24'36.1"E	-	RNP APCH	IAF
002	TF	ATKON	-	269 (260.8)	5.0	-	@3 000	-180	37°39'59.6"N 126°18'23.2"E	-	RNP APCH	SDF
003	TF	IPKOL	-	208 (199.3)	3.0	-	+3 000	-	37°37'07.4"N 126°17'07.3"E	-	RNP APCH	IF
004	TF	RUMRI	-	153 (144.6)	6.0	-	+1 600	-	37°32'12.9"N 126°21'30.4"E	-	RNP APCH	FAF
005	TF	PH002	-	153 (144.6)	2.4	-	+820	-	37°30'14.8"N 126°23'15.7"E	-	RNP APCH	SDF
006	TF	RW16L	Y	153 (144.6)	2.3	-	+520	-	37°28'22.11"N 126°24'56.06"E	-3.05/50	RNP APCH	MAPt
007	TF	DH993	-	189 (180.3)	7.1	-	-	-240	37°21'12.6"N 126°24'53.1"E	-	RNP APCH	-
008	TF	DH989	Y	248 (239.7)	4.5	-	+3 000	-240	37°18'55.0"N 126°19'59.0"E	-	RNP APCH	-
009	HM	DH989	Y	047 (038.4)	-	R	-4 000 +3 000	-	37°18'55.0"N 126°19'59.0"E	-	RNP APCH	1 min (Outbound timing)

Change : Information of missed approach procedure.

INSTRUMENT APPROACH CHART-ICAO

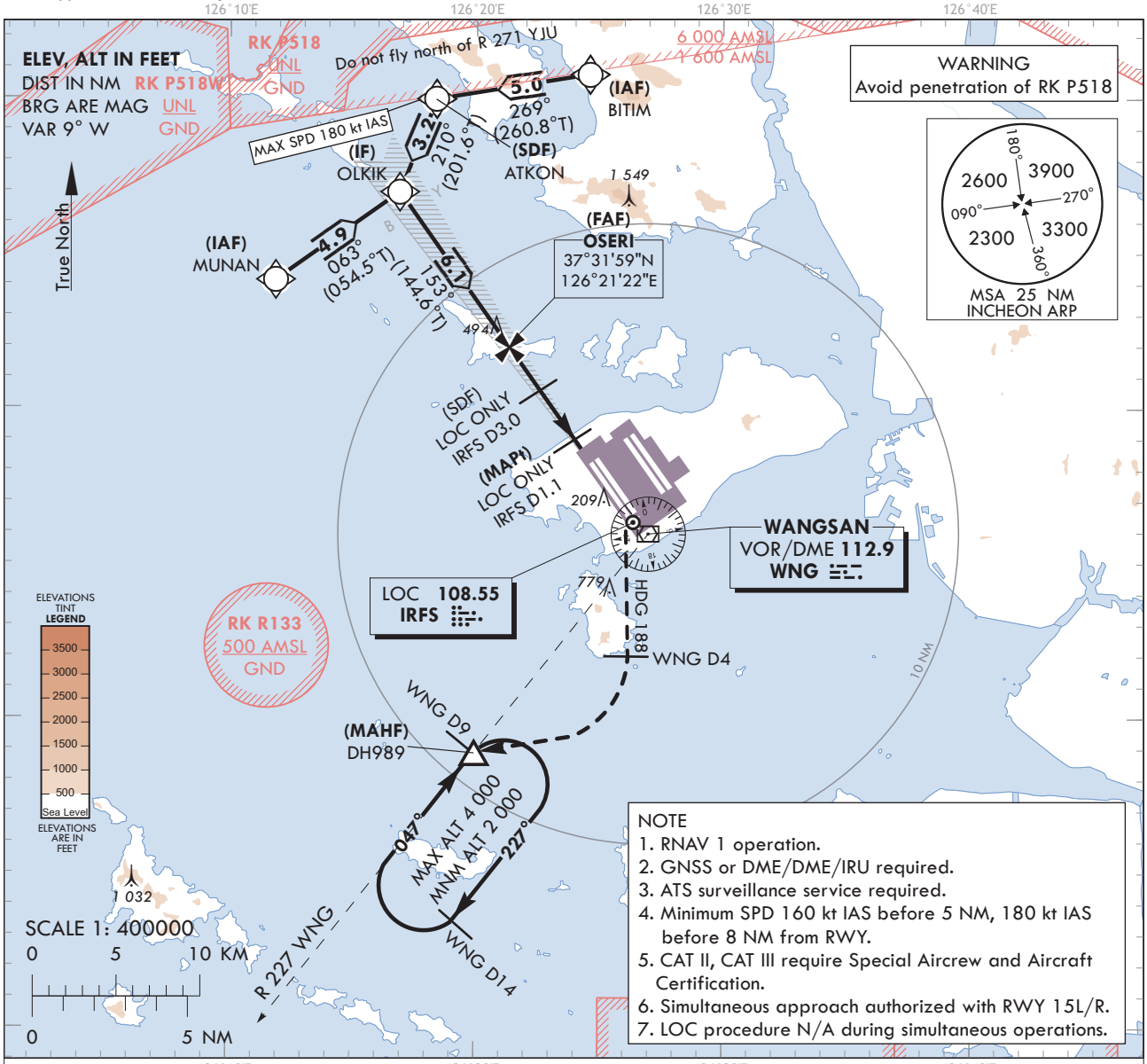
Note : Approach under ICAO Flight Procedures.

AERODROME ELEV 23 ft
HEIGHTS RELATED TO
THR RWY 16R - ELEV **23 ft**

SEOUL	APP	119.75
		121.35
INCHEON	TWR	118.2
		118.8

SEOUL/Incheon Intl(RKSI)

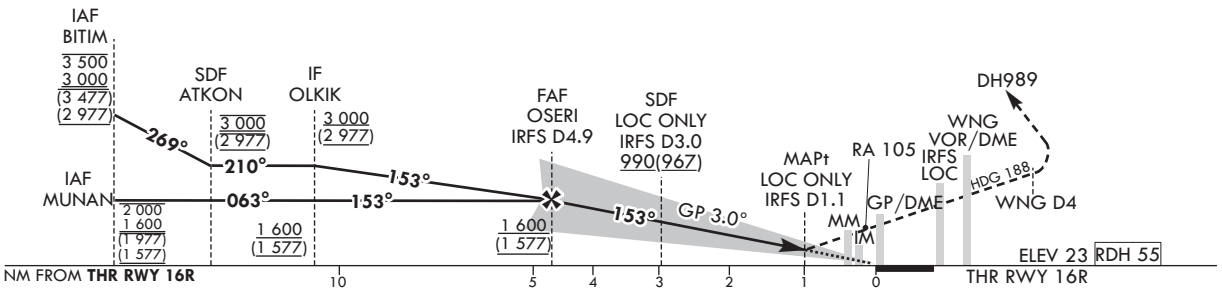
ILS or LOC RWY 16R
CAT II & III



NOTE
1. RNAV 1 operation.
2. GNSS or DME/DME/IRU required.
3. ATS surveillance service required.
4. Minimum SPD 160 kt IAS before 5 NM, 180 kt IAS before 8 NM from RWY.
5. CAT II, CAT III require Special Aircrew and Aircraft Certification.
6. Simultaneous approach authorized with RWY 15L/R.
7. LOC procedure N/A during simultaneous operations.

TRANSITION ALT 14 000
TRANSITION LVL FL 140

RECOMMENDED PROFILE	DME IRFS	4	3	2
Final Approach Gradient 5.30%, 322 ft/NM	ALT(HGT)	1 310 (1 287)	988 (965)	666 (643)



CATEGORY			DA(DH)/ MDA(MDH)	A	B	C	D
Straight-in	CAT-I (CG 2.5%)	FULL	460 (437)	1 300 m			
		ALS INOP		2 000 m			
	CAT-I (CG 4.0%)	FULL	223 (200)	RVR 550 m, VIS 800 m			
		ALS INOP		1 200 m			
	LOC	FULL	410 (387)	1 100 m			
		ALS INOP		1 800 m			
	CAT II		123(100)	300 m			300 m[1)] / 350 m
	CAT III		-	75 m[2)] / 125 m			

1) For CAT D aeroplane conducting an autoland.
2) Aeroplane use Fail-operational system.

MISSED APPROACH
Fly RWY heading, climb to 2 000 ft. At 500 ft, turn right heading 188. At WNG 4 DME, turn right direct to DH989. Hold as published.
Do not turn before passing MAPt.

NOTE
1. Missed approach turn limited to 210 kt IAS maximum.
2. Missed approach minimum climb gradient of 2.5% to 2 000 ft (DH 437 or 387), 4.0% to 2 000 ft (DH 200 or 100).

* Timing Not authorized for defining MAPt.
* Circling Not authorized.

Change : Information of missed approach procedure, WX minima and note.

SEOUL/Incheon Intl(RKSI)
ILS or LOC RWY 16R
CAT II & III

AERONAUTICAL DATA TABULATION

ILS/LOC Approach to RWY 16R from MUNAN to OLKIK(IF)	
Fix / Point	Coordinates
MUNAN(IAF)	37°34'09.3"N 126°11'53.0"E
OLKIK(IF)	37°36'59.6"N 126°16'53.5"E

ILS/LOC Approach to RWY 16R from BITIM to OLKIK(IF)	
Fix / Point	Coordinates
BITIM(IAF)	37°40'48.0"N 126°24'36.1"E
ATKON(SDF)	37°39'59.6"N 126°18'23.2"E
OLKIK(IF)	37°36'59.6"N 126°16'53.5"E

ILS/LOC Approach to RWY 16R from OLKIK(IF) to MAHF		
Fix / Point		Coordinates
OSERI(FAF)	BRG 153.16°/4.89 NM IRFS	37°31'59.0"N 126°21'22.1"E
D3.0 IRFS(SDF) (LOC ONLY)	BRG 153.16°/3.00 NM IRFS	37°30'26.2"N 126°22'44.8"E
D1.1 IRFS(MAPt) (LOC ONLY)	BRG 153.16°/1.10 NM IRFS	37°28'53.2"N 126°24'07.7"E
THR RWY 16R		37°28'07.71"N 126°24'48.18"E
IRFS DME		37°27'56.9"N 126°24'51.6"E
WNG VOR/DME		37°25'58.6"N 126°27'00.0"E
Climb to 500 ft	HDG 153	-
D4 WNG	HDG 188	-
DH989	BRG 226.64°/9.00 NM WNG	37°18'55.0"N 126°19'59.0"E

Change : Information of missed approach procedure.

INSTRUMENT APPROACH CHART - ICAO

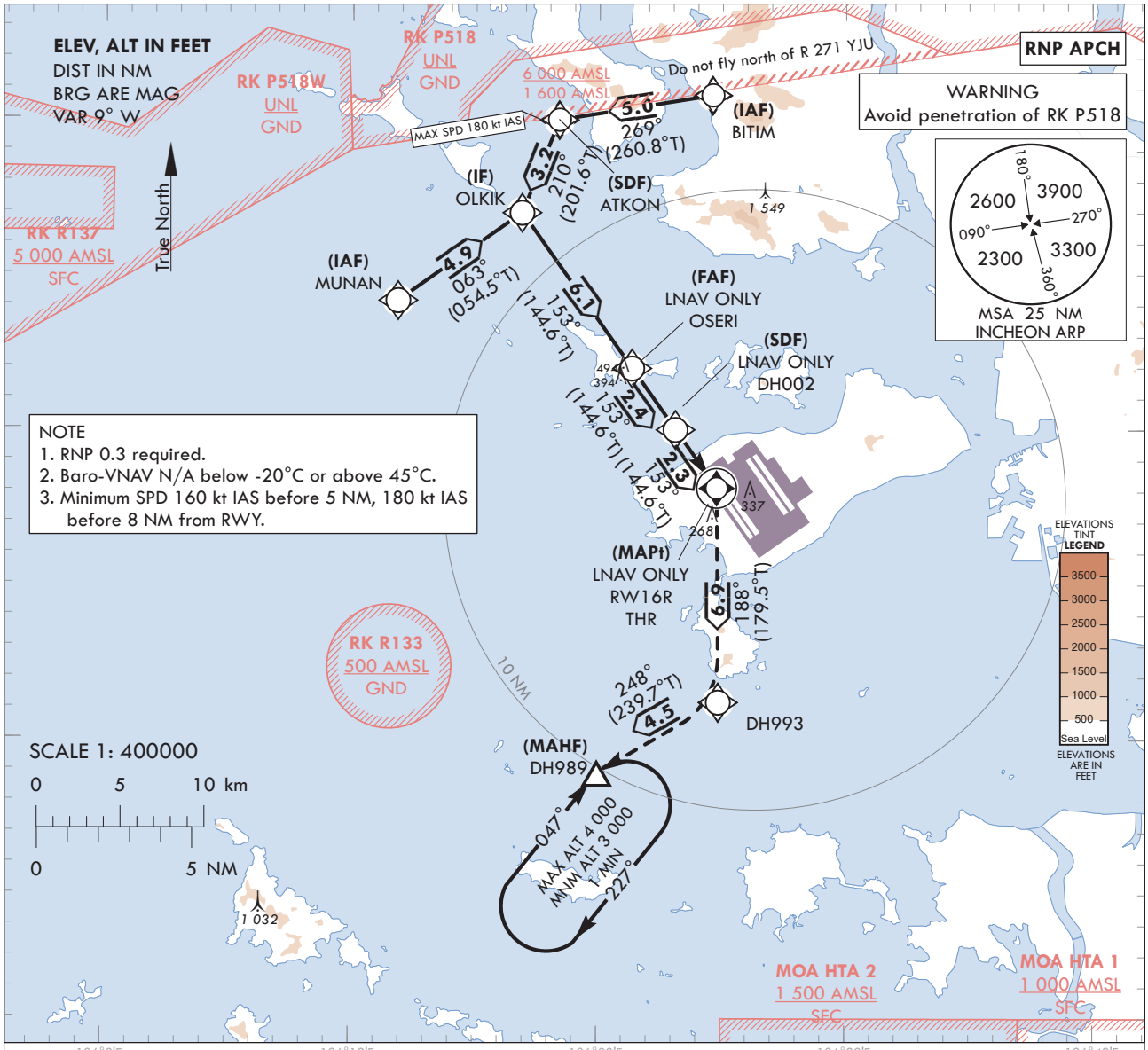
Note : Approach under ICAO Flight Procedures.

AERODROME ELEV 23 ft
HEIGHTS RELATED TO
THR RWY 16R - ELEV **23 ft**

SEOUL	APP	119.75
		121.35
INCHEON	TWR	118.2
		118.8

SEOUL/Incheon Intl(RKSI)

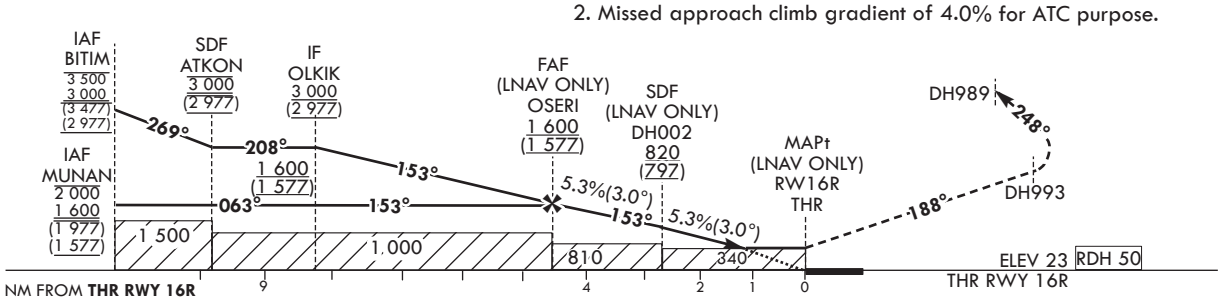
RNP RWY 16R



TRANSITION ALT 14 000
TRANSITION LVL FL 140

MISSED APPROACH
Climb to 3 000 ft. Track to DH993 and DH989. Hold as published.

NOTE
1. Missed approach turn limited to 240 kt IAS maximum.
2. Missed approach climb gradient of 4.0% for ATC purpose.



CATEGORY			DA(H)/MDA(H)	A	B	C	D
STA	LNAV	FULL	520 (497)	1 500 m			
		ALS INOP		2 300 m			
	LNAV/VNAV	FULL	430 (407)	1 200 m			
		ALS INOP		1 900 m			

Knots	60	90	120	150	180
Rate of descent V/V fpm	323	485	647	809	970

* Timing Not authorized for defining MAPt.
* Circling Not authorized.

Change : Information of missed approach procedure, ALT restriction and note.

Instrument Approach Procedure Coding Tables

RNP RWY 16R - via MUNAN(IAF) to DH989(MAHF)

Serial Number	Path Descriptor	Waypoint Identifier	Fly-over	Course/Track °M(°T)	Distance (NM)	Turn direction	Altitude (ft)	Speed (kt)	Coordinates	VPA/ RDH	Navigation specification	Remarks
001	IF	MUNAN	-	-	-	-	-2 000 +1 600	-	37°34'09.3"N 126°11'53.0"E	-	RNP APCH	IAF
002	TF	OLKIK	-	063 (054.5)	4.9	-	+1 600	-	37°36'59.6"N 126°16'53.5"E	-	RNP APCH	IF
003	TF	OSERI	-	153 (144.6)	6.1	-	+1 600	-	37°31'59.0"N 126°21'22.1"E	-	RNP APCH	FAF
004	TF	DH002	-	153 (144.6)	2.4	-	+820	-	37°30'00.4"N 126°23'07.8"E	-	RNP APCH	SDF
005	TF	RW16R	Y	153 (144.6)	2.3	-	+520	-	37°28'07.71"N 126°24'48.18"E	-3.05/50	RNP APCH	MAPt
006	TF	DH993	-	188 (179.5)	6.9	-	-	-240	37°21'12.6"N 126°24'53.1"E	-	RNP APCH	-
007	TF	DH989	Y	248 (239.7)	4.5	-	+3 000	-240	37°18'55.0"N 126°19'59.0"E	-	RNP APCH	-
008	HM	DH989	Y	047 (038.4)	-	R	-4 000 +3 000	-	37°18'55.0"N 126°19'59.0"E	-	RNP APCH	1 min (Outbound timing)

RNP RWY 16R - via BITIM(IAF) to DH989(MAHF)

Serial Number	Path Descriptor	Waypoint Identifier	Fly-over	Course/Track °M(°T)	Distance (NM)	Turn direction	Altitude (ft)	Speed (kt)	Coordinates	VPA/ RDH	Navigation specification	Remarks
001	IF	BITIM	-	-	-	-	-3 500 +3 000	-	37°40'48.0"N 126°24'36.1"E	-	RNP APCH	IAF
002	TF	ATKON	-	269 (260.8)	5.0	-	@3 000	-180	37°39'59.6"N 126°18'23.2"E	-	RNP APCH	SDF
003	TF	OLKIK	-	210 (201.6)	3.2	-	+3 000	-	37°36'59.6"N 126°16'53.5"E	-	RNP APCH	IF
004	TF	OSERI	-	153 (144.6)	6.1	-	+1 600	-	37°31'59.0"N 126°21'22.1"E	-	RNP APCH	FAF
005	TF	DH002	-	153 (144.6)	2.4	-	+820	-	37°30'00.4"N 126°23'07.8"E	-	RNP APCH	SDF
006	TF	RW16R	Y	153 (144.6)	2.3	-	+520	-	37°28'07.71"N 126°24'48.18"E	-3.05/50	RNP APCH	MAPt
007	TF	DH993	-	188 (179.5)	6.9	-	-	-240	37°21'12.6"N 126°24'53.1"E	-	RNP APCH	-
008	TF	DH989	Y	248 (239.7)	4.5	-	+3 000	-240	37°18'55.0"N 126°19'59.0"E	-	RNP APCH	-
009	HM	DH989	Y	047 (038.4)	-	R	-4 000 +3 000	-	37°18'55.0"N 126°19'59.0"E	-	RNP APCH	1 min (Outbound timing)

Change : Information of missed approach procedure.

INSTRUMENT APPROACH CHART - ICAO

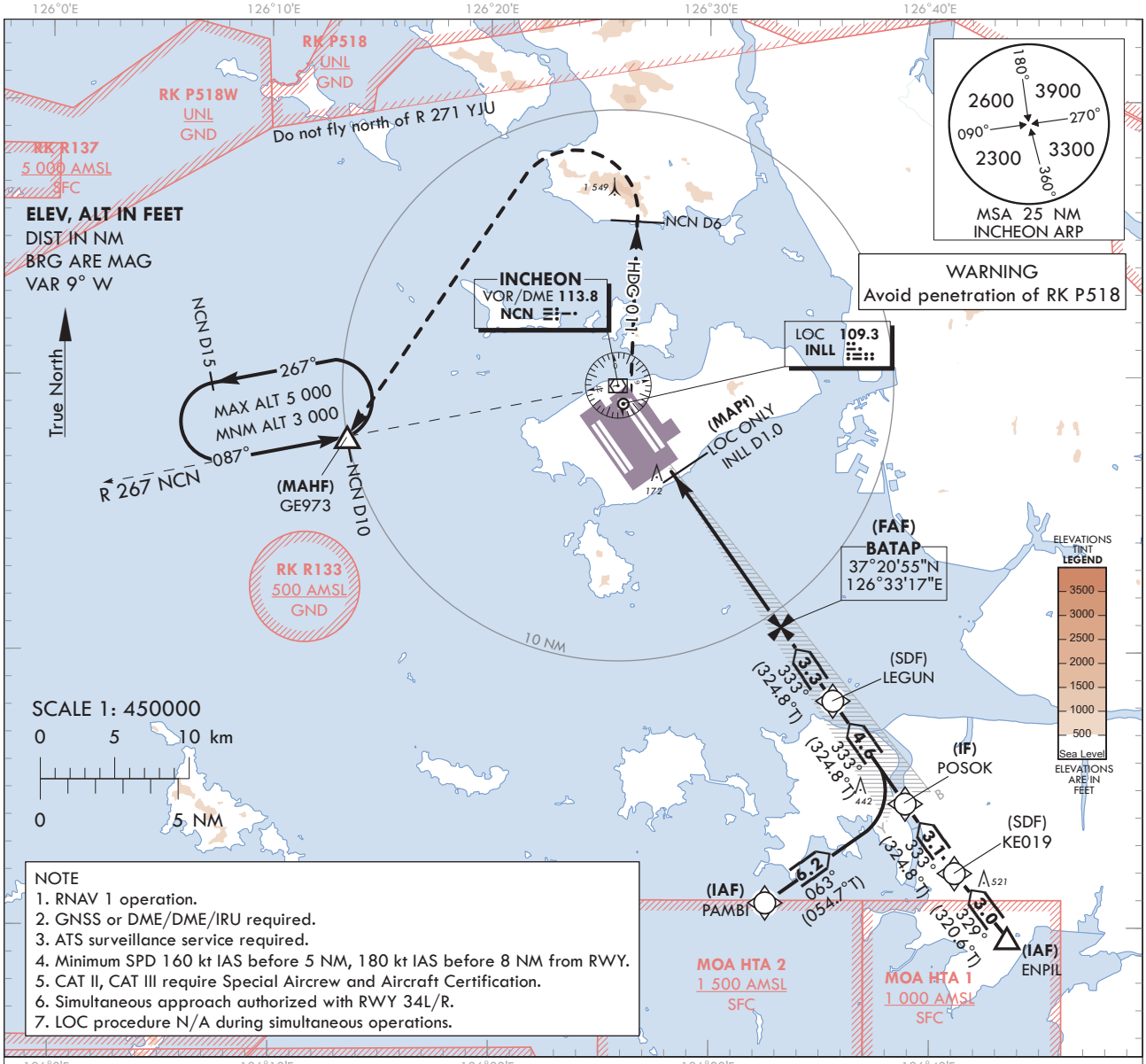
Note : Approach under ICAO Flight Procedures.

AERODROME ELEV 23 ft
HEIGHTS RELATED TO
THR RWY 33L - ELEV **23** ft

SEOUL	APP	119.75
		121.35
INCHEON	TWR	118.2
		118.8

SEOUL/Incheon Intl(RKSI)

ILS or LOC RWY 33L
CAT II & III

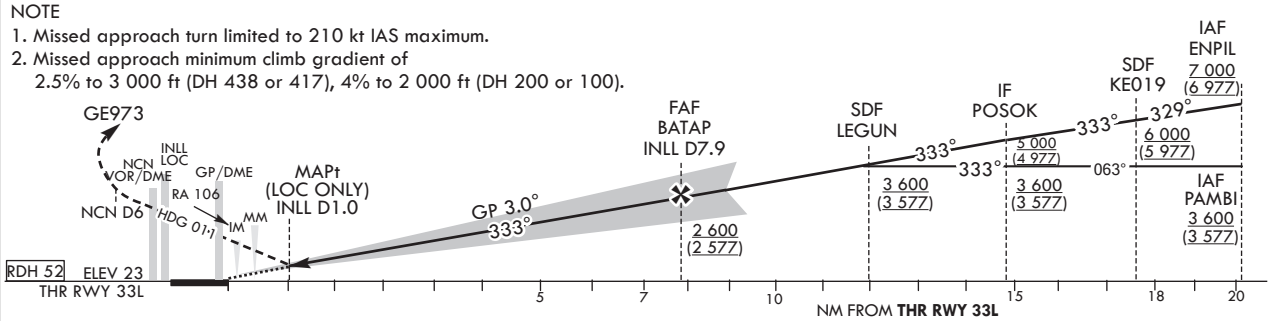


NOTE
1. RNAV 1 operation.
2. GNSS or DME/DME/IRU required.
3. ATS surveillance service required.
4. Minimum SPD 160 kt IAS before 5 NM, 180 kt IAS before 8 NM from RWY.
5. CAT II, CAT III require Special Aircrew and Aircraft Certification.
6. Simultaneous approach authorized with RWY 34L/R.
7. LOC procedure N/A during simultaneous operations.

RECOMMENDED PROFILE(LOC ONLY)	DME INLL	7	6	5	4	3	2
Final Approach Gradient 5.37%, 326 ft/NM	ALT(HGT)	2 306 (2 283)	1 980 (1 957)	1 654 (1 631)	1 327 (1 304)	1 001 (978)	675 (652)

TRANSITION ALT 14 000
TRANSITION LVL FL 140

NOTE
1. Missed approach turn limited to 210 kt IAS maximum.
2. Missed approach minimum climb gradient of 2.5% to 3 000 ft (DH 438 or 417), 4% to 2 000 ft (DH 200 or 100).



CATEGORY			DA(DH)/ MDA(MDH)	A	B	C	D
Straight-in	CAT-I (CG 2.5%)	FULL	461 (438)	1 300 m			
		ALS INOP		2 000 m			
	CAT-I (CG 4.0%)	FULL	223 (200)	RVR 550 m, VIS 800 m			
		ALS INOP		1 200 m			
	LOC	FULL	440 (417)	1 200 m			
		ALS INOP		1 900 m			
	CAT II		123(100)	300 m			300 m[1]/ 350 m
	CAT III		-	75 m[2] / 125 m			

MISSED APPROACH
Fly RWY heading, climb to 3 000 ft. At 500 ft, turn right heading 011. At NCN 6 DME, turn left direct to GE973.
Hold as published. Do not turn before passing MAPt.

1) For CAT D aeroplane conducting an autoland.
2) Aeroplane use Fail-operational system.

*Timing Not authorized for defining MAPt.
*Circling Not authorized.

Change : Information of missed approach procedure, recommended profile and note.

SEOUL/Incheon Intl(RKSI)
ILS or LOC RWY 33L
CAT II & III

AERONAUTICAL DATA TABULATION

ILS/LOC Approach to RWY 33L from PAMBI to POSOK(IF)		
Fix / Point	Coordinates	
PAMBI(IAF)	37°10'54.3"N	126°32'34.4"E
POSOK(IF)	37°14'30.3"N	126°38'56.6"E

ILS/LOC Approach to RWY 33L from ENPIL to POSOK(IF)		
Fix / Point	Coordinates	
ENPIL(IAF)	37°09'39.0" N	126°43'34.0" E
KE019(SDF)	37°11'58.6"N	126°41'10.5"E
POSOK(IF)	37°14'30.3"N	126°38'56.6"E

ILS/LOC Approach to RWY 33L from POSOK(IF) to MAHF			
Fix / Point		Coordinates	
LEGUN(SDF)		37°18'14.5"N	126°35'38.6"E
BATAP(FAF)	BRG 333.28°/7.92 NM INLL	37°20'54.7"N	126°33'16.8"E
D1.0 INLL (MAPt LOC ONLY)	BRG 333.28°/1.00 NM INLL	37°26'34.2"N	126°28'15.6"E
THR RWY 33L		37°27'15.21"N	126°27'39.08"E
INLL DME		37°27'25.4"N	126°27'35.9"E
NCN VOR/DME		37°29'41.7"N	126°25'49.2"E
Climb to 500 ft	HDG 333	-	
D6 NCN	HDG 011	-	
GE973	BRG 267.26°/10 NM NCN	37°27'47.0"N	126°13'29.0"E

Change : Information of FAF, MAPt and missed approach procedure.

INSTRUMENT APPROACH CHART - ICAO

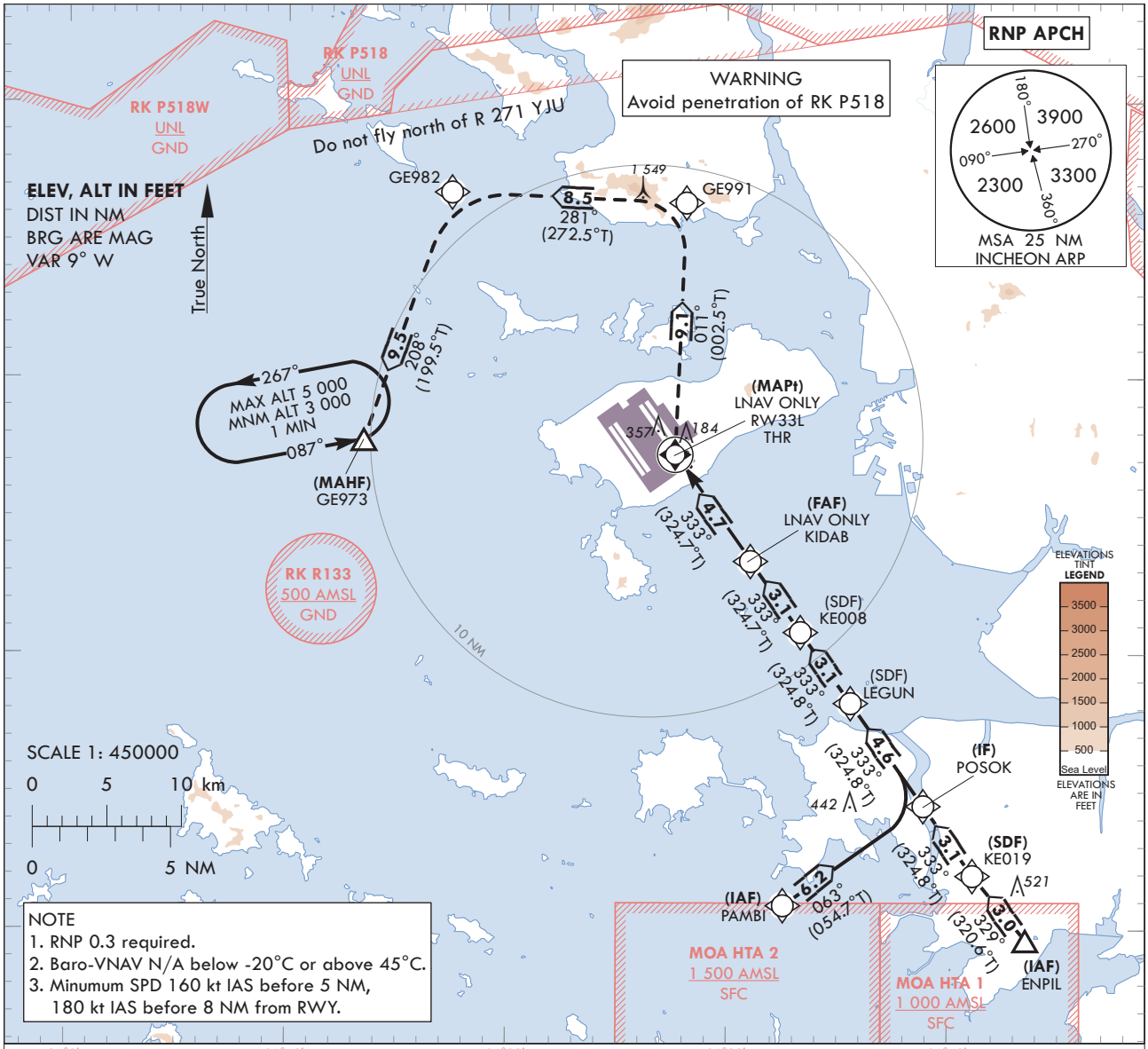
Note : Approach under ICAO Flight Procedures.

AERODROME ELEV 23 ft
HEIGHTS RELATED TO
THR RWY 33L - ELEV **23 ft**

SEOUL	APP	119.75
		121.35
INCHEON	TWR	118.2
		118.8

SEOUL/Incheon Intl(RKSI)

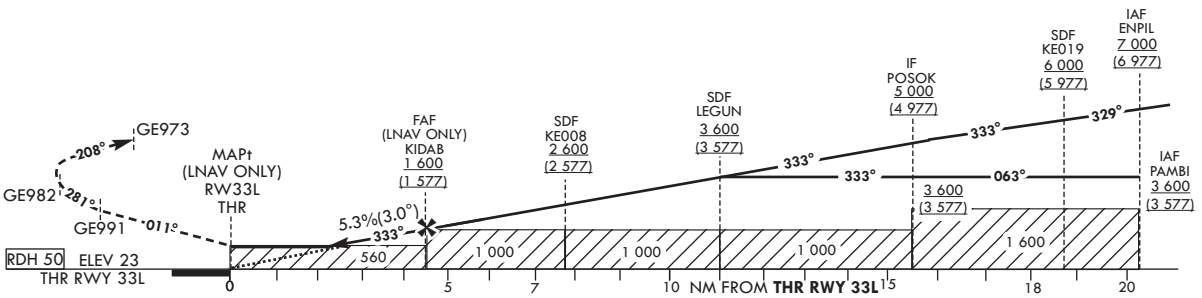
RNP RWY 33L



NOTE
1. RNP 0.3 required.
2. Baro-VNAV N/A below -20°C or above 45°C.
3. Minumum SPD 160 kt IAS before 5 NM, 180 kt IAS before 8 NM from RWY.

MISSED APPROACH
Climb to 3 000 ft. Track to GE991, GE982 and GE973. Hold as published.

TRANSITION ALT 14 000
TRANSITION LVL FL 140



CATEGORY			MDA(H)/DA(H)	A	B	C	D
STA	LNAV	FULL	560 (537)	1 700 m			
		ALS INOP		2 400 m			
	LNAV/VNAV	FULL	430 (407)	1 200 m			
		ALS INOP		1 900 m			

	Knots	60	90	120	150	180
Rate of descent	V/V fpm	323	484	645	807	968

*Timing Not authorized for defining MAPt.
*Circling Not authorized.

Change : Information of missed approach procedure, WX minima and Withdrawal of note.

Instrument Approach Procedure Coding Tables

RNP RWY 33L - via PAMBI(IAF) to GE978(MAHF)

Serial Number	Path Descriptor	Waypoint Identifier	Fly-over	Course/Track °M(°T)	Distance (NM)	Turn direction	Altitude (ft)	Speed (kt)	Coordinates	VPA/ TCH	Navigation specification	Remarks
001	IF	PAMBI	-	-	-	-	+3 600	-	37°10'54.3"N 126°32'34.4"E	-	RNP APCH	IAF
002	TF	POSOK	-	063 (054.7)	6.2	-	+3 600	-	37°14'30.3"N 126°38'56.6"E	-	RNP APCH	IF
003	TF	LEGUN	-	333 (324.8)	4.6	-	+3 600	-	37°18'14.5"N 126°35'38.6"E	-	RNP APCH	SDF
004	TF	KE008	-	333 (324.8)	3.1	-	+2 600	-	37°20'48.9"N 126°33'21.9"E	-	RNP APCH	SDF
005	TF	KIDAB	-	333 (324.7)	3.1	-	+1 600	-	37°23'23.2"N 126°31'05.1"E	-	RNP APCH	FAF
006	TF	RW33L	Y	333(324.7)	4.7	-	+560	-	37°27'15.21"N 126°27'39.08"E	-3.04/50	RNP APCH	MAPt
007	TF	GE991	-	011(002.5)	9.1	-	-	-	37°36'23.4"N 126°28'09.1"E	-	RNP APCH	-
008	TF	GE982	-	281(272.5)	8.5	-	-	-	37°36'45.2"N 126°17'27.9"E	-	RNP APCH	-
009	TF	GE973	Y	208(199.5)	9.5	-	+4 000	-	37°27'47.0"N 126°13'29.0"E	-	RNP APCH	-
010	HM	GE973	Y	087(078.9)	-	L	-5 000 +3 000	-	37°27'47.0"N 126°13'29.0"E	-	RNP APCH	1 min (Outbound timing)

RNP RWY 33L - via ENPIL(IAF) to GE978(MAHF)

Serial Number	Path Descriptor	Waypoint Identifier	Fly-over	Course/Track °M(°T)	Distance (NM)	Turn direction	Altitude (ft)	Speed (kt)	Coordinates	VPA/ TCH	Navigation specification	Remarks
001	IF	ENPIL	-	-	-	-	+7 000	-	37°09'39.0"N 126°43'34.0"E	-	RNP APCH	IAF
002	TF	KE019	-	329 (320.6)	3.0	-	+6 000	-	37°11'58.6"N 126°41'10.5"E	-	RNP APCH	SDF
003	TF	POSOK	-	333 (324.8)	3.1	-	+5 000	-	37°14'30.3"N 126°38'56.6"E	-	RNP APCH	IF
004	TF	LEGUN	-	333 (324.8)	4.6	-	+3 600	-	37°18'14.5"N 126°35'38.6"E	-	RNP APCH	SDF
005	TF	KE008	-	333 (324.8)	3.1	-	+2 600	-	37°20'48.9"N 126°33'21.9"E	-	RNP APCH	SDF
006	TF	KIDAB	-	333 (324.7)	3.1	-	+1 600	-	37°23'23.2"N 126°31'05.1"E	-	RNP APCH	FAF
007	TF	RW33L	Y	333(324.7)	4.7	-	+560	-	37°27'15.21"N 126°27'39.08"E	-3.04/50	RNP APCH	MAPt
008	TF	GE991	-	011(002.5)	9.1	-	-	-	37°36'23.4"N 126°28'09.1"E	-	RNP APCH	-
009	TF	GE982	-	281(272.5)	8.5	-	-	-	37°36'45.2"N 126°17'27.9"E	-	RNP APCH	-
010	TF	GE973	Y	208(199.5)	9.5	-	+4 000	-	37°27'47.0"N 126°13'29.0"E	-	RNP APCH	-
011	HM	GE973	Y	087(078.9)	-	L	-5 000 +3 000	-	37°27'47.0"N 126°13'29.0"E	-	RNP APCH	1 min (Outbound timing)

Change : Information of missed approach procedure.

INSTRUMENT APPROACH CHART - ICAO

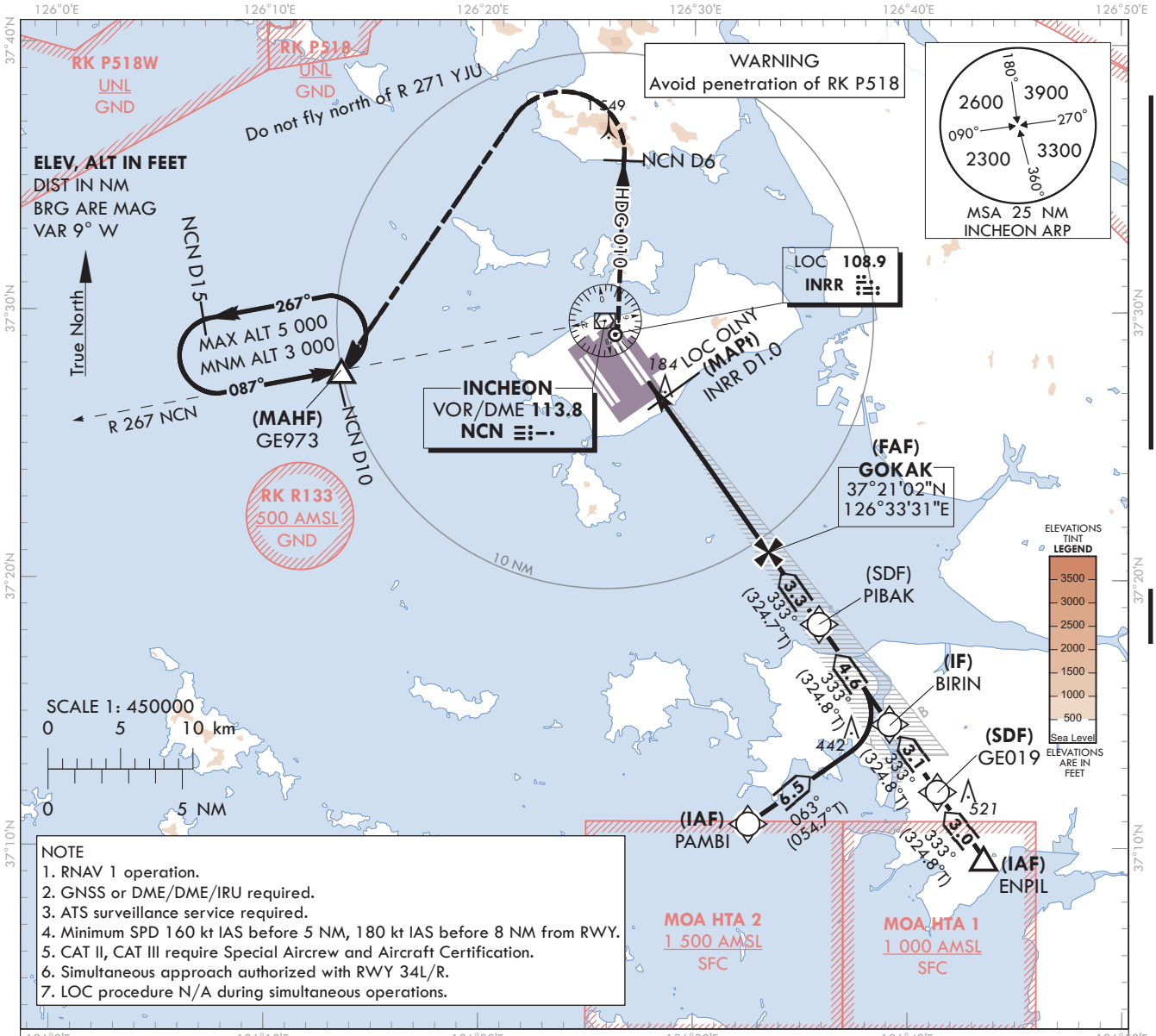
Note : Approach under ICAO Flight Procedures.

AERODROME ELEV 23 ft
HEIGHTS RELATED TO
THR RWY 33R - ELEV **23** ft

SEOUL	APP	119.75
		121.35
INCHEON	TWR	118.2
		118.8

SEOUL/Incheon Intl(RKSI)

ILS or LOC RWY 33R
CAT II & III

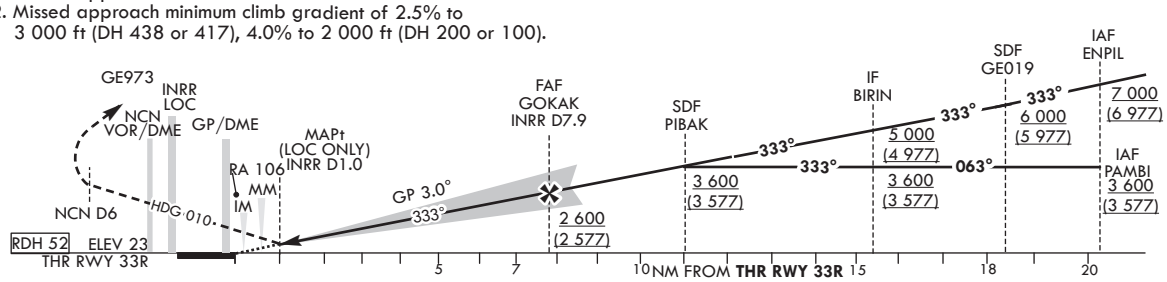


NOTE
1. RNAV 1 operation.
2. GNSS or DME/DME/IRU required.
3. ATS surveillance service required.
4. Minimum SPD 160 kt IAS before 5 NM, 180 kt IAS before 8 NM from RWY.
5. CAT II, CAT III require Special Aircrew and Aircraft Certification.
6. Simultaneous approach authorized with RWY 34L/R.
7. LOC procedure N/A during simultaneous operations.

RECOMMENDED PROFILE(LOC ONLY)	DME INRR	7	6	5	4	3	2
Final Approach Gradient 5.37%, 326 ft/NM	ALT(HGT)	2 306 (2 283)	1 980 (1 957)	1 654 (1 631)	1 327 (1 304)	1 001 (978)	675 (652)

TRANSITION ALT 14 000
TRANSITION LVL FL 140

NOTE
1. Missed approach turn limited to 210 kt IAS maximum.
2. Missed approach minimum climb gradient of 2.5% to 3 000 ft (DH 438 or 417), 4.0% to 2 000 ft (DH 200 or 100).



CATEGORY			DA(DH)/ MDA(MDH)	A	B	C	D
Straight-in	CAT-I (CG 2.5%)	FULL	461 (438)	1 300 m			
		ALS INOP		2 000 m			
	CAT-I (CG 4.0%)	FULL	223 (200)	RVR 550 m, VIS 800 m			
		ALS INOP		1 200 m			
	LOC	FULL	440 (417)	1 200 m			
		ALS INOP		1 900 m			
	CAT II		123(100)	300 m			300 m[1]/ 350 m
	CAT III		-	75 m[2] / 125 m			

MISSED APPROACH
Fly RWY heading, climb to 3 000 ft. At 500 ft, turn right heading 010. At NCN 6 DME, turn left direct to GE973.
Hold as published. Do not turn before passing MAPt.

1) For CAT D aeroplane conducting an autoland.
2) Aeroplane use Fail-operational system.

* Timing Not authorized for defining MAPt.
* Circling Not authorized.

Change : Information of missed approach procedure, track for FAF, recommended profile and note.

SEOUL/Incheon Intl(RKSI)
ILS or LOC RWY 33R
CAT II & III

AERONAUTICAL DATA TABULATION

ILS/LOC Approach to RWY 33R from PAMBI to BIRIN(IF)		
Fix / Point	Coordinates	
PAMBI(IAF)	37°10'54.3"N	126°32'34.4"E
BIRIN(IF)	37°14'38.1"N	126°39'10.4"E

ILS/LOC Approach to RWY 33R from ENPIL to BIRIN(IF)		
Fix / Point	Coordinates	
ENPIL(IAF)	37°09'39.0"N	126°43'34.0"E
GE019(SDF)	37°12'06.3"N	126°41'24.3"E
BIRIN(IF)	37°14'38.1"N	126°39'10.4"E

ILS/LOC Approach to RWY 33R from BIRIN(IF) to MAHF			
Fix / Point		Coordinates	
PIBAK(SDF)		37°18'22.2"N	126°35'52.3"E
GOKAK(FAF)	BRG 333.28°/7.92 NM INRR	37°21'02.4"N	126°33'30.5"E
D1.0 INRR (MAPt LOC ONLY)	BRG 333.28°/1.00 NM INRR	37°26'41.9"N	126°28'29.3"E
THR RWY 33R		37°27'22.97"N	126°27'52.82"E
INRR DME		37°27'33.2"N	126°27'49.7"E
NCN VOR/DME		37°29'41.7"N	126°25'49.2"E
Climb to 500 ft	HDG 333	-	
D6 NCN	HDG 010	-	
GE973	BRG 267.26°/10 NM NCN	37°27'47.0"N	126°13'29.0"E

Change : Information of FAF, MAPt and missed approach procedure.

INSTRUMENT APPROACH CHART - ICAO

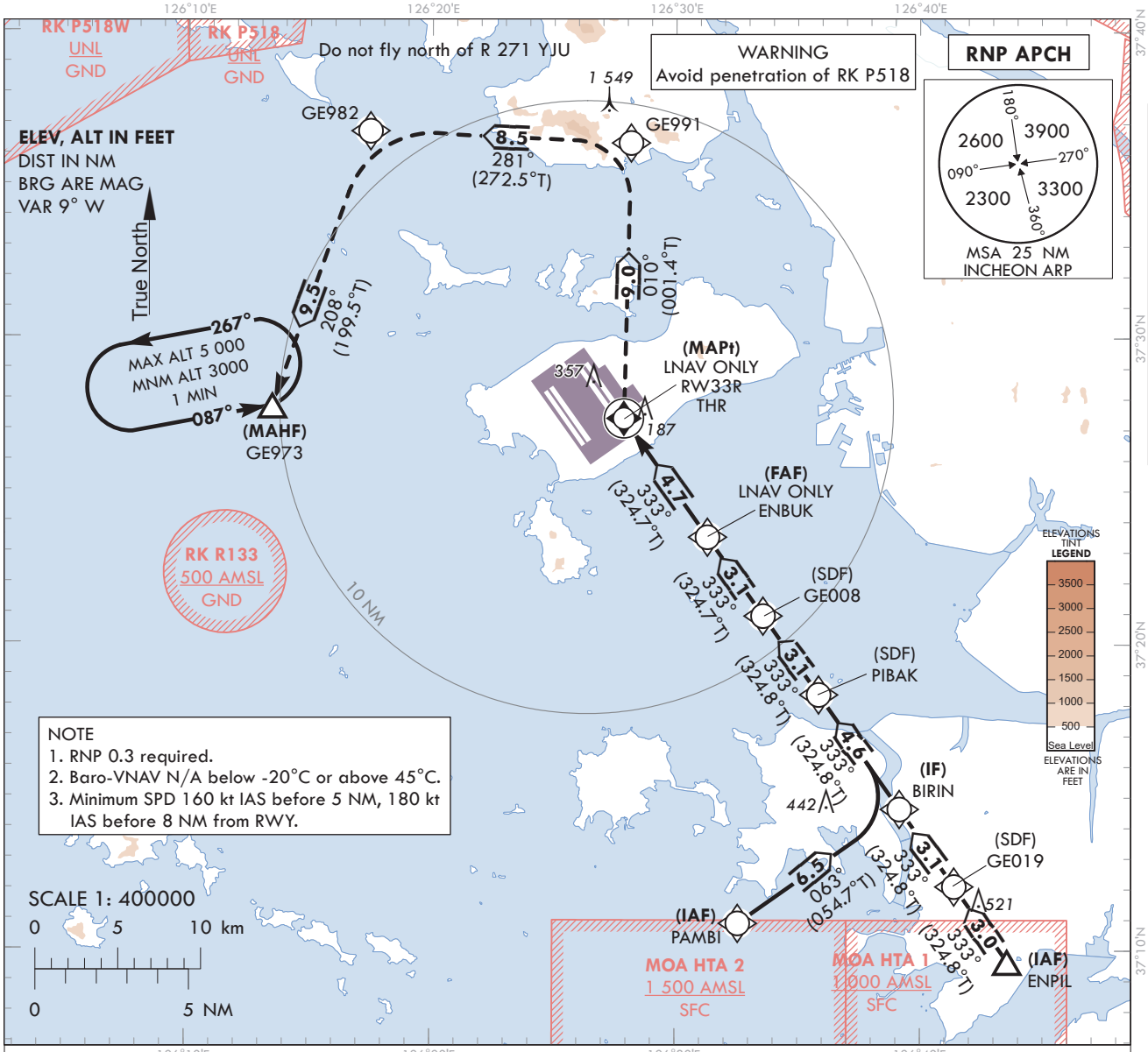
Note : Approach under ICAO Flight Procedures.

AERODROME ELEV 23 ft
HEIGHTS RELATED TO
THR RWY 33R - ELEV **23** ft

SEOUL	APP	119.75
		121.35
INCHEON	TWR	118.2
		118.8

SEOUL/Incheon Intl(RKSI)

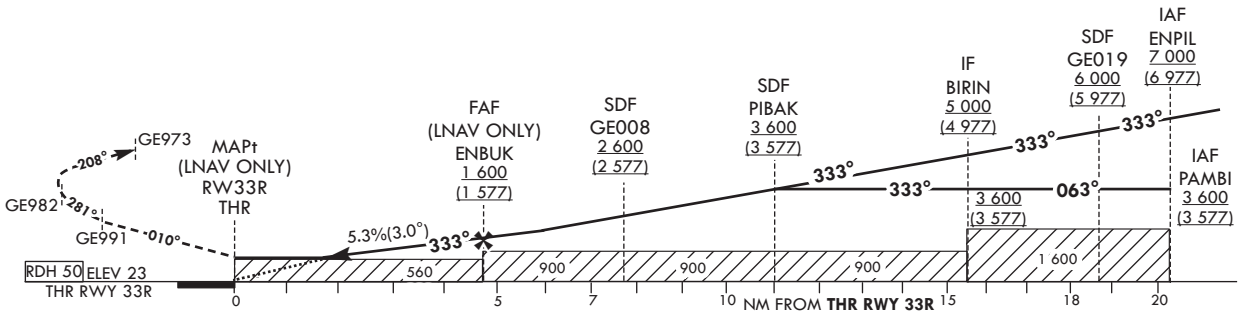
RNP RWY 33R



NOTE
1. RNP 0.3 required.
2. Baro-VNAV N/A below -20°C or above 45°C.
3. Minimum SPD 160 kt IAS before 5 NM, 180 kt IAS before 8 NM from RWY.

MISSED APPROACH
Climb to 3 000 ft. Track to GE991, GE982 and GE973. Hold as published.

TRANSITION ALT 14 000
TRANSITION LVL FL 140



CATEGORY			MDA(H)/DA(H)	A	B	C	D
STA	LNAV	FULL	560 (537)	1 700 m			
		ALS INOP		2 400 m			
	LNAV/VNAV	FULL	430 (407)	1 200 m			
		ALS INOP		1 900 m			

	Knots	60	90	120	150	180
Rate of descent	V/V fpm	323	484	645	807	968

*Timing Not authorized for defining MAPt.
*Circling Not authorized.

Change : Information of missed approach procedure, ALT restriction, WX minima and Withdrawal of note.

Instrument Approach Procedure Coding Tables

RNP RWY 33R - via PAMBI(IAF) to GE973(MAHF)

Serial Number	Path Descriptor	Waypoint Identifier	Fly-over	Course/Track °M(°T)	Distance (NM)	Turn direction	Altitude (ft)	Speed (kt)	Coordinates	VPA/ TCH	Navigation specification	Remarks
001	IF	PAMBI	-	-	-	-	+ 3 600	-	37°10'54.3"N 126°32'34.4"E	-	RNP APCH	IAF
002	TF	BIRIN	-	063 (054.7)	6.5	-	+ 3 600	-	37°14'38.1"N 126°39'10.4"E	-	RNP APCH	IF
003	TF	PIBAK	-	333 (324.8)	4.6	-	+3 600	-	37°18'22.2"N 126°35'52.3"E	-	RNP APCH	SDF
004	TF	GE008	-	333 (324.8)	3.1	-	+2 600	-	37°20'56.6"N 126°33'35.7"E	-	RNP APCH	SDF
005	TF	ENBUK	-	333 (324.7)	3.1	-	+1 600	-	37°23'31.0"N 126°31'18.8"E	-	RNP APCH	FAF
006	TF	RW33R	Y	333(324.7)	4.7	-	+510	-	37°27'22.97"N 126°27'52.82"E	-3.04/50	RNP APCH	MAPt
007	TF	GE991	-	010(001.4)	9.0	-	-	-	37°36'23.4"N 126°28'09.1"E	-	RNP APCH	-
008	TF	GE982	-	281(272.5)	8.5	-	-	-	37°36'45.2"N 126°17'27.9"E	-	RNP APCH	-
009	TF	GE973	Y	208(199.5)	9.5	-	+4 000	-	37°27'47.0"N 126°13'29.0"E	-	RNP APCH	-
010	HM	GE973	Y	087(078.9)	-	L	-5 000 +3 000	-	37°27'47.0"N 126°13'29.0"E	-	RNP APCH	1 min (Outbound timing)

RNP RWY 33R - via ENPIL(IAF) to GE973(MAHF)

Serial Number	Path Descriptor	Waypoint Identifier	Fly-over	Course/Track °M(°T)	Distance (NM)	Turn direction	Altitude (ft)	Speed (kt)	Coordinates	VPA/ TCH	Navigation specification	Remarks
001	IF	ENPIL	-	-	-	-	+7 000	-	37°09'39.0"N 126°43'34.0"E	-	RNP APCH	IAF
002	TF	GE019	-	333 (324.8)	3.0	-	+6 000	-	37°12'06.3"N 126°41'24.3"E	-	RNP APCH	SDF
003	TF	BIRIN	-	333 (324.8)	3.1	-	+5 000	-	37°14'38.1"N 126°39'10.4"E	-	RNP APCH	IF
004	TF	PIBAK	-	333 (324.8)	4.6	-	+3 600	-	37°18'22.2"N 126°35'52.3"E	-	RNP APCH	SDF
005	TF	GE008	-	333 (324.8)	3.1	-	+2 600	-	37°20'56.6"N 126°33'35.7"E	-	RNP APCH	SDF
006	TF	ENBUK	-	333 (324.7)	3.1	-	+1 600	-	37°23'31.0"N 126°31'18.8"E	-	RNP APCH	FAF
007	TF	RW33R	Y	333(324.7)	4.7	-	+510	-	37°27'22.97"N 126°27'52.82"E	-3.04/50	RNP APCH	MAPt
008	TF	GE991	-	010(001.4)	9.0	-	-	-	37°36'23.4"N 126°28'09.1"E	-	RNP APCH	-
009	TF	GE982	-	281(272.5)	8.5	-	-	-	37°36'45.2"N 126°17'27.9"E	-	RNP APCH	-
010	TF	GE973	Y	208(199.5)	9.5	-	+4 000	-	37°27'47.0"N 126°13'29.0"E	-	RNP APCH	-
011	HM	GE973	Y	087(078.9)	-	L	-5 000 +3 000	-	37°27'47.0"N 126°13'29.0"E	-	RNP APCH	1 min (Outbound timing)

Change : Information of missed approach procedure.

INSTRUMENT APPROACH CHART - ICAO

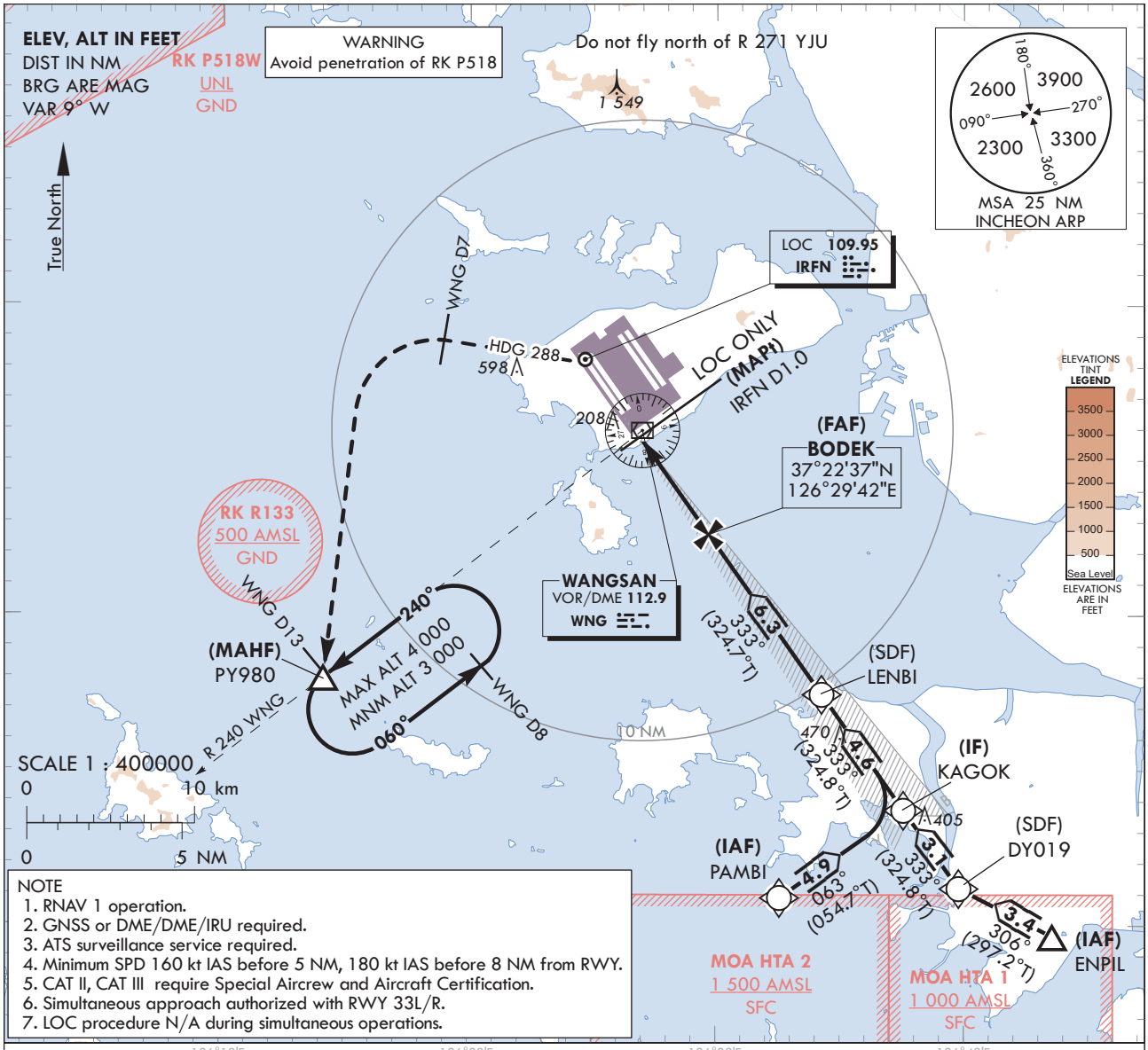
Note : Approach under ICAO Flight Procedures.

AERODROME ELEV 23 ft
HEIGHTS RELATED TO
THR RWY 34L - ELEV 23 ft

SEOUL	APP	119.75
		121.35
INCHEON	TWR	118.2
		118.8

SEOUL/Incheon Intl(RKSI)

ILS or LOC RWY 34L
CAT II & III

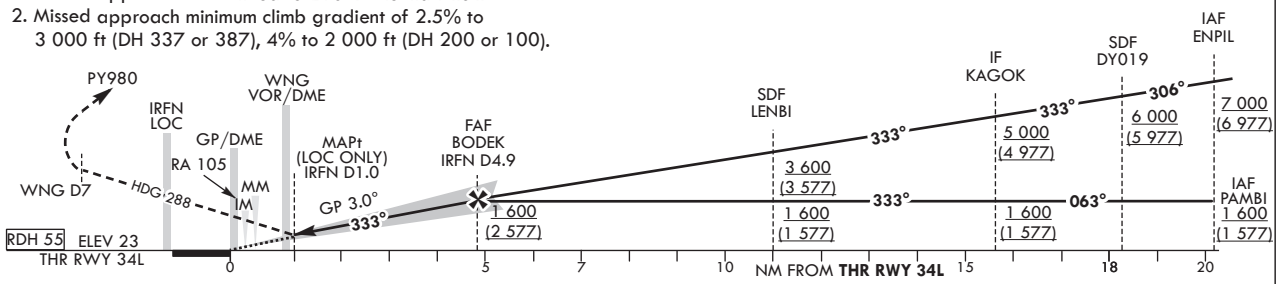


NOTE
1. RNAV 1 operation.
2. GNSS or DME/DME/IRU required.
3. ATS surveillance service required.
4. Minimum SPD 160 kt IAS before 5 NM, 180 kt IAS before 8 NM from RWY.
5. CAT II, CAT III require Special Aircrew and Aircraft Certification.
6. Simultaneous approach authorized with RWY 33L/R.
7. LOC procedure N/A during simultaneous operations.

RECOMMENDED PROFILE(LOC ONLY)	DME IRFN	4	3	2
Final Approach Gradient 5.30%, 322 ft/NM	ALT(HGT)	1 310 (1 287)	988 (965)	666 (643)

TRANSITION ALT	14 000
TRANSITION LVL	FL 140

NOTE
1. Missed approach turn limited to 210 kt IAS maximum.
2. Missed approach minimum climb gradient of 2.5% to 3 000 ft (DH 337 or 387), 4% to 2 000 ft (DH 200 or 100).



CATEGORY			DA(DH)/ MDA(MDH)	A	B	C	D
Straight-in	CAT-I (CG 2.5%)	FULL	360 (337)	800 m			
		ALS INOP		1 500 m			
	CAT-I (CG 4.0%)	FULL	223 (200)	RVR 550 m, VIS 800 m			
		ALS INOP		1 200 m			
	LOC	FULL	410 (387)	1 100 m			
		ALS INOP		1 800 m			
	CAT II		123(100)	300 m			300 m[1)]/ 350 m
	CAT III		-	75 m[2)] / 125 m			

MISSED APPROACH
Fly RWY heading, climb to 3 000 ft. At 500 ft, turn left heading 288. At WNG 7 DME, turn left direct to PY980.
Hold as published. Do not turn before passing MAPt.

1) For CAT D aeroplane conducting on autoland.
2) Aeroplane use Fail-operational system.

* Timing Not authorized for defining the MAPt.
* Circling Not authorized.

Change : Information of missed approach procedure.

SEOUL/Incheon Intl(RKSI)
ILS or LOC RWY 34L
CAT II & III

AERONAUTICAL DATA TABULATION

ILS/LOC Approach to RWY 34L from PAMBI to KAGOK(IF)		
Fix / Point		Coordinates
PAMBI(IAF)		37°10'54.3"N 126°32'34.4"E
KAGOK(IF)		37°13'43.8"N 126°37'34.2"E

ILS/LOC Approach to RWY 34L from ENPIL to KAGOK(IF)		
Fix / Point		Coordinates
ENPIL(IAF)		37°09'39.0"N 126°43'34.0"E
DY019(SDF)		37°11'12.0"N 126°39'48.0"E
KAGOK(IF)		37°13'43.8"N 126°37'34.2"E

ILS/LOC Approach to RWY 34L from KAGOK(IF) to MAHF		
Fix / Point		Coordinates
LENBI(SDF)		37°17'27.8"N 126°34'16.1"E
BODEK(FAF)	BRG 333.20°/4.89 NM IRFN	37°22'37.3"N 126°29'41.9"E
D1.0 IRFN (MAPt LOC ONLY)	BRG 333.20°/1.00 NM IRFN	37°25'48.0"N 126°26'52.4"E
WNG VOR/DME		37°25'58.6"N 126°27'00.0"E
THR RWY 34L		37°26'28.50"N 126°26'16.45"E
IRFN DME		37°26'34.7"N 126°26'04.9"E
Climb to 500 ft	HDG 333	-
D7 WNG	HDG 288	-
PY980	BRG 240.30°/13.00 NM WNG	37°17'58.7"N 126°14'09.0"E

Change : Information of missed approach procedure.

INSTRUMENT APPROACH CHART - ICAO

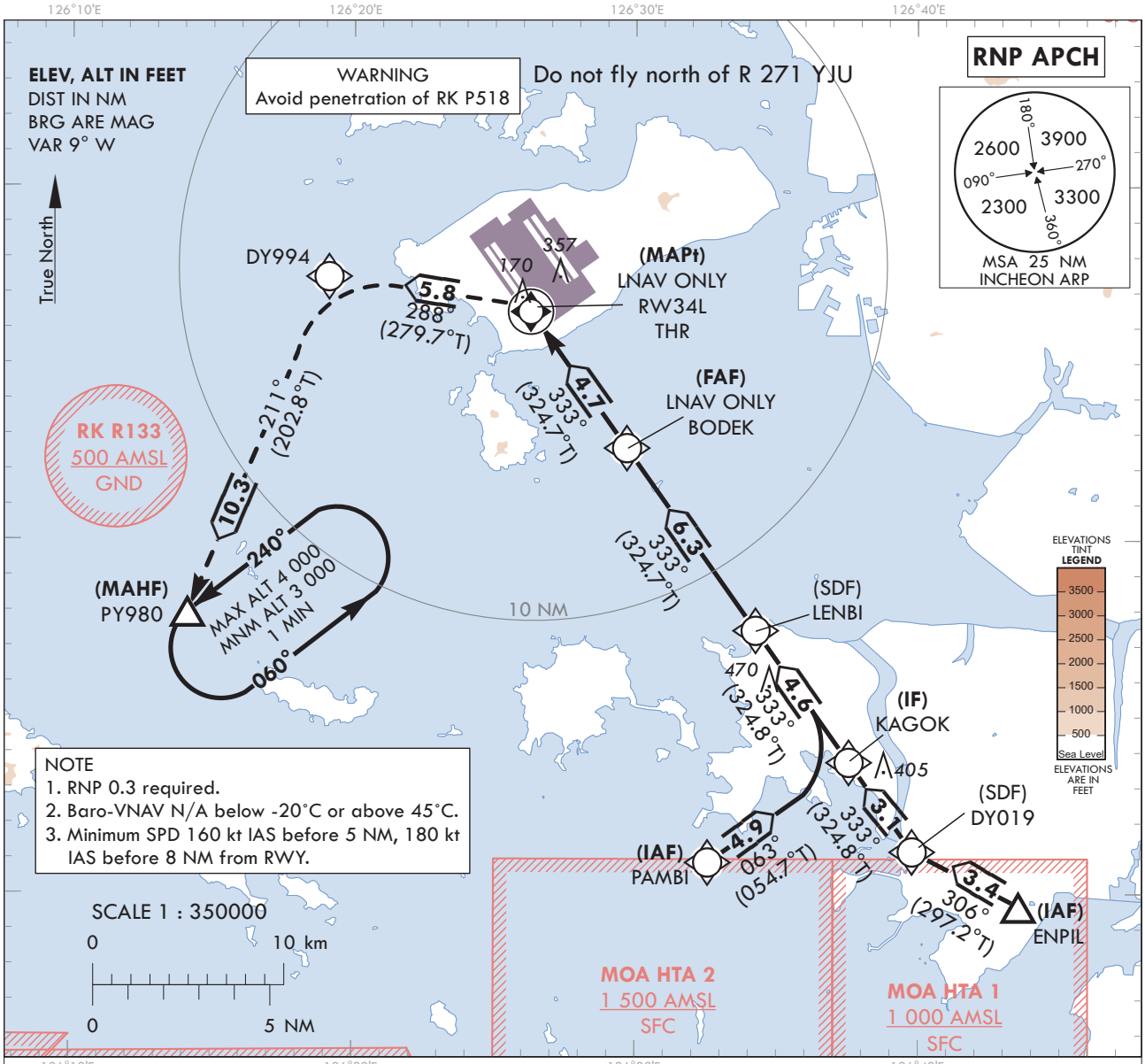
Note : Approach under ICAO Flight Procedures.

AERODROME ELEV 23 ft
HEIGHTS RELATED TO
THR RWY 34L - ELEV **23** ft

SEOUL	APP	119.75
		121.35
INCHEON	TWR	118.2
		118.8

SEOUL/Incheon Intl(RKSI)

RNP RWY 34L

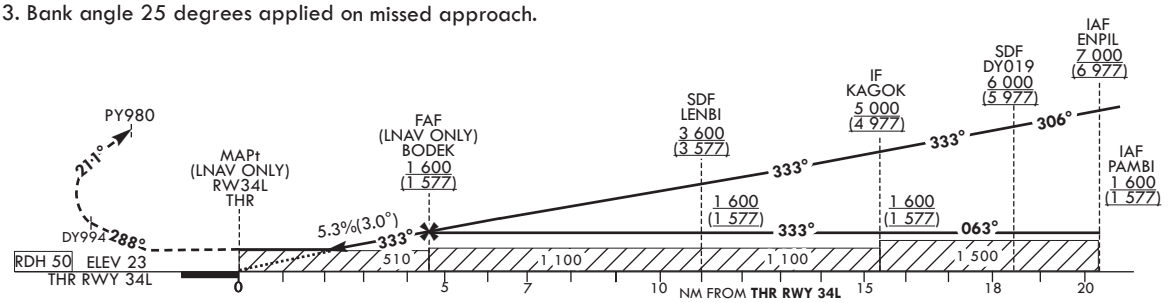


NOTE
1. RNP 0.3 required.
2. Baro-VNAV N/A below -20°C or above 45°C.
3. Minimum SPD 160 kt IAS before 5 NM, 180 kt IAS before 8 NM from RWY.

MISSED APPROACH
Climb to 3 000 ft. Track to DY994, PY980. Hold as published.

TRANSITION ALT	14 000
TRANSITION LVL	FL 140

NOTE
1. Missed approach turn limited to 220 kt IAS maximum.
2. Missed approach climb gradient of 3.0% for ATC purpose.
3. Bank angle 25 degrees applied on missed approach.



CATEGORY			MDA(H)/DA(H)	A	B	C	D
STA	LNAV	FULL	510 (487)	1 500 m			
		ALS INOP		2 300 m			
	LNAV/VNAV	FULL	430 (407)	1 200 m			
		ALS INOP		1 900 m			

Rate of descent	Knots	60	90	120	150	180
	V/V fpm	324	486	647	809	971

* Timing Not authorized for defining the MAPt.
* Circling Not authorized.

Change : Information of missed approach procedure and note.

AERONAUTICAL DATA TABULATION

Instrument Approach Procedure Coding Tables

RNP RWY 34L - via PAMBI to PY980(MAHF)

Serial Number	Path Descriptor	Waypoint Identifier	Fly-over	Course/Track °M(°T)	Distance (NM)	Turn direction	Altitude (ft)	Speed (kt)	Coordinates	VPA/ RDH	Navigation specification	Remarks
001	IF	PAMBI	-	-	-	-	+1 600	-	37°10'54.3"N 126°32'34.4"E	-	RNP APCH	IAF
002	TF	KAGOK	-	063 (054.7)	4.9	-	+1 600	-	37°13'43.8"N 126°37'34.2"E	-	RNP APCH	IF
003	TF	LENBI	-	333 (324.8)	4.6	-	+1 600	-	37°17'27.8"N 126°34'16.1"E	-	RNP APCH	SDF
004	TF	BODEK	-	333 (324.7)	6.3	-	+1 600	-	37°22'37.3"N 126°29'41.9"E	-	RNP APCH	FAF
005	TF	RW34L	Y	333 (324.7)	4.7	-	+510	-	37°26'28.50"N 126°26'16.45"E	-3.05/50	RNP APCH	MAPt
006	TF	DY994	-	288 (279.7)	5.8	-	-	-220	37°27'26.9"N 126°19'07.5"E	-	RNP APCH	Bank Angle 25°
007	TF	PY980	Y	211 (202.8)	10.3	-	+3 000	-220	37°17'58.7"N 126°14'09.0"E	-	RNP APCH	MAHF
008	HM	PY980	Y	240 (231.3)	-	L	-4 000 +3 000	-	37°17'58.7"N 126°14'09.0"E	-	RNP APCH	1 min (Outbound timing)

RNP RWY 34L - via ENPIL(IAF) to PY980(MAHF)

Serial Number	Path Descriptor	Waypoint Identifier	Fly-over	Course/Track °M(°T)	Distance (NM)	Turn direction	Altitude (ft)	Speed (kt)	Coordinates	VPA/ RDH	Navigation specification	Remarks
001	IF	ENPIL	-	-	-	-	+7 000	-	37°09'39.0"N 126°43'34.0"E	-	RNP APCH	IAF
002	TF	DY019	-	306 (297.2)	3.4	-	+6 000	-	37°11'12.0"N 126°39'48.0"E	-	RNP APCH	SDF
003	TF	KAGOK	-	333 (324.8)	3.1	-	+5 000	-	37°13'43.8"N 126°37'34.2"E	-	RNP APCH	IF
004	TF	LENBI	-	333 (324.8)	4.6	-	+3 600	-	37°17'27.8"N 126°34'16.1"E	-	RNP APCH	SDF
005	TF	BODEK	-	333 (324.7)	6.3	-	+1 600	-	37°22'37.3"N 126°29'41.9"E	-	RNP APCH	FAF
006	TF	RW34L	Y	333 (324.7)	4.7	-	+510	-	37°26'28.50"N 126°26'16.45"E	-3.05/50	RNP APCH	MAPt
007	TF	DY994	-	288 (279.7)	5.8	-	-	-220	37°27'26.9"N 126°19'07.5"E	-	RNP APCH	Bank Angle 25°
008	TF	PY980	Y	211 (202.8)	10.3	-	+3 000	-220	37°17'58.7"N 126°14'09.0"E	-	RNP APCH	MAHF
009	HM	PY980	Y	240 (231.3)	-	L	-4 000 +3 000	-	37°17'58.7"N 126°14'09.0"E	-	RNP APCH	1 min (Outbound timing)

Change : Information of missed approach procedure.

INSTRUMENT APPROACH CHART - ICAO

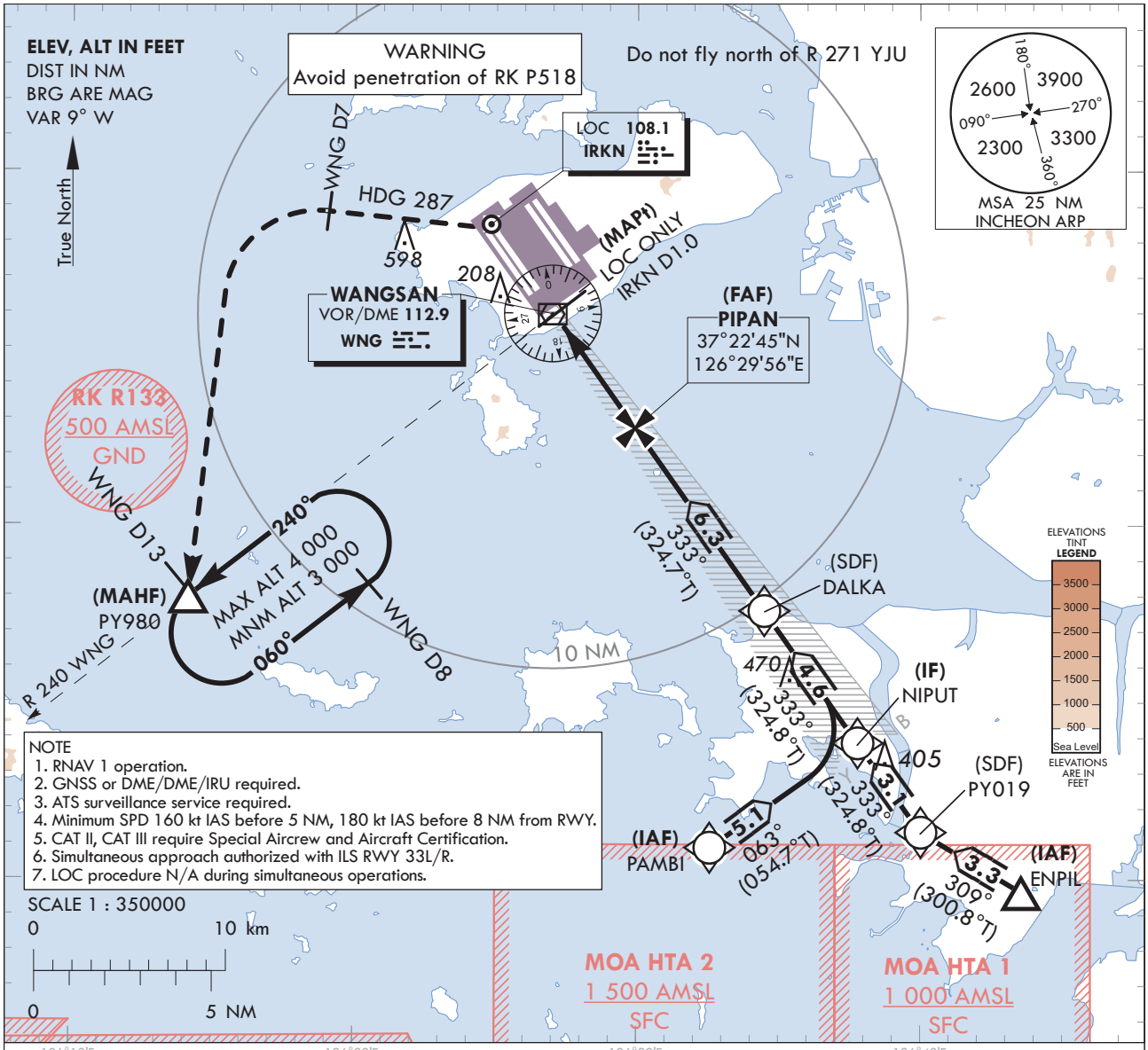
Note : Approach under ICAO Flight Procedures.

AERODROME ELEV 23 ft
HEIGHTS RELATED TO
THR RWY 34R - ELEV **23** ft

SEOUL	APP	119.75
		121.35
INCHEON	TWR	118.2
		118.8

SEOUL/Incheon Intl(RKSI)

ILS or LOC RWY 34R
CAT II & III

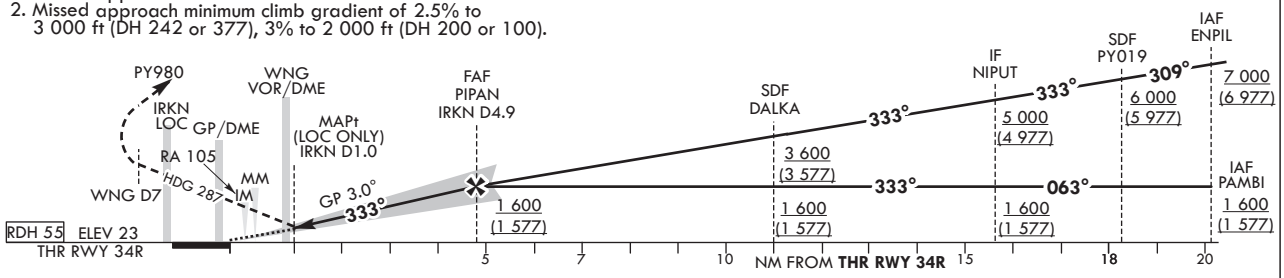


NOTE
1. RNAV 1 operation.
2. GNSS or DME/DME/IRU required.
3. ATS surveillance service required.
4. Minimum SPD 160 kt IAS before 5 NM, 180 kt IAS before 8 NM from RWY.
5. CAT II, CAT III require Special Aircrew and Aircraft Certification.
6. Simultaneous approach authorized with ILS RWY 33L/R.
7. LOC procedure N/A during simultaneous operations.

RECOMMENDED PROFILE(LOC ONLY)	DME IRKN	4	3	2
Final Approach Gradient 5.30%, 322 ft/NM	ALT(HGT)	1 310 (1 287)	988 (965)	666 (643)

TRANSITION ALT	14 000
TRANSITION LVL	FL 140

NOTE
1. Missed approach turn limited to 210 kt IAS maximum.
2. Missed approach minimum climb gradient of 2.5% to 3 000 ft (DH 242 or 377), 3% to 2 000 ft (DH 200 or 100).



CATEGORY			DA(DH)/ MDA(MDH)	A	B	C	D
Straight-in	CAT-I (CG 2.5%)	FULL	360 (337)	800 m			
		ALS INOP		1 300 m			
	CAT-I (CG 3.0%)	FULL	223 (200)	RVR 550 m, VIS 800 m			
		ALS INOP		1 200 m			
	LOC	FULL	410 (387)	1 100 m			
		ALS INOP		1 800 m			
	CAT II		123(100)	300 m			300 m[1)]/ 350 m
	CAT III		-	75 m[2)] / 125 m			

MISSED APPROACH
Fly RWY heading, climb to 3 000 ft. At 500 ft, turn left heading 287. At WNG 7 DME, turn left direct to PY980.
Hold as published. Do not turn before passing MAPt.

1) For CAT D aeroplane conducting an autoland.
2) Aeroplane use Fail-operational system.

* Timing Not authorized for defining MAPt.
* Circling Not authorized.

Change : Information of missed approach procedure, recommended profile and WX minima.

SEOUL/Incheon Intl(RKSI)
ILS or LOC RWY 34R
CAT II & III

AERONAUTICAL DATA TABULATION

ILS/LOC Approach to RWY 34R from PAMBI to NIPUT(IF)		
Fix / Point		Coordinates
PAMBI(IAF)		37°10'54.3"N 126°32'34.4"E
NIPUT(IF)		37°13'51.5"N 126°37'47.9"E

ILS/LOC Approach to RWY 34R from ENPIL to NIPUT(IF)		
Fix / Point		Coordinates
ENPIL(IAF)		37°09'39.0"N 126°43'34.0"E
PY019(SDF)		37°11'20.4"N 126°40'01.2"E
NIPUT(IF)		37°13'51.5"N 126°37'47.9"E

ILS/LOC Approach to RWY 34R from NIPUT(IF) to MAHF		
Fix / Point		Coordinates
DALKA(SDF)		37°17'35.6"N 126°34'29.8"E
PIPAN(FAF)	BRG 333.34°/4.89 NM IRKN	37°22'45.1"N 126°29'55.6"E
D1.0 IRKN (MAPt LOC ONLY)	BRG 333.34°/1.00 NM IRKN	37°25'55.7"N 126°27'06.3"E
WNG VOR/DME		37°25'58.6"N 126°27'00.0"E
THR RWY 34R		37°26'36.29"N 126°26'30.21"E
IRKN DME		37°26'42.5"N 126°26'18.8"E
Climb to 500 ft	HDG 333	-
D7 WNG	HDG 287	-
PY980	BRG 240.75°/13.00 NM WNG	37°17'58.7"N 126°14'09.0"E

Change : Information of missed approach procedure.

INSTRUMENT APPROACH CHART - ICAO

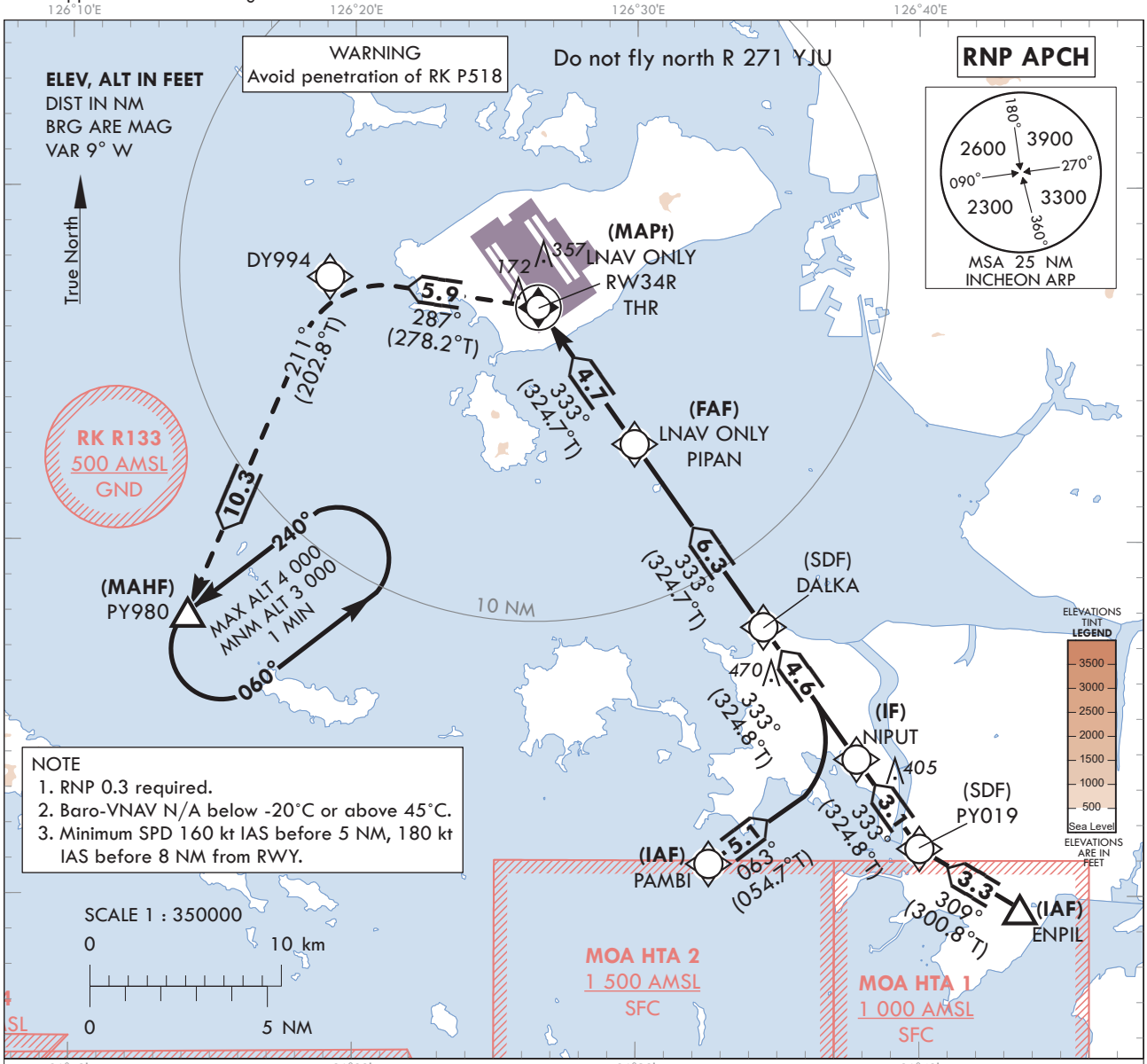
AERODROME ELEV 23 ft
HEIGHTS RELATED TO
THR RWY 34R - ELEV **23 ft**

SEOUL	APP	119.75
		121.35
INCHEON	TWR	118.2
		118.8

SEOUL/Incheon Intl(RKSI)

RNP RWY 34R

Note : Approach under ICAO Flight Procedures.

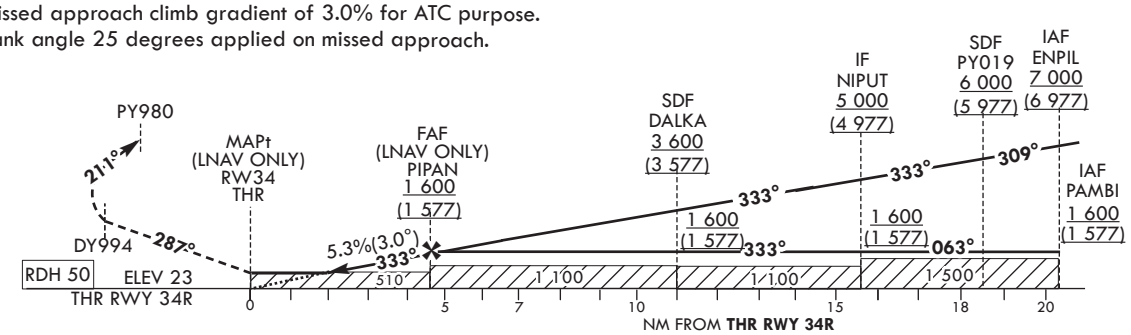


NOTE
1. RNP 0.3 required.
2. Baro-VNAV N/A below -20°C or above 45°C.
3. Minimum SPD 160 kt IAS before 5 NM, 180 kt IAS before 8 NM from RWY.

MISSED APPROACH
Climb to 3 000 ft. Track to DY994, PY980. Hold as published.

TRANSITION ALT	14 000
TRANSITION LVL	FL 140

NOTE
1. Missed approach turn limited to 220 kt IAS maximum.
2. Missed approach climb gradient of 3.0% for ATC purpose.
3. Bank angle 25 degrees applied on missed approach.



CATEGORY			MDA(H)/DA(H)	A	B	C	D
STA	LNAV	FULL	510 (487)	1 500 m			
		ALS INOP		2 300 m			
	LNAV/VNAV	FULL	430 (407)	1 200 m			
		ALS INOP		1 900 m			

Rate of descent	Knots	60	90	120	150	180
	V/V fpm	324	486	647	809	971

* Timing Not authorized for defining MAPt.
*Circling Not authorized.

Change : Information of missed approach procedure and note.

Instrument Approach Procedure Coding Tables

RNP RWY 34R - via PAMBI(IAF) to PY980(MAHF)

Serial Number	Path Descriptor	Waypoint Identifier	Fly-over	Course/Track °M(°T)	Distance (NM)	Turn direction	Altitude (ft)	Speed (kt)	Coordinates	VPA/ TCH	Navigation specification	Remarks
001	IF	PAMBI	-	-	-	-	+1 600	-	37°10'54.3"N 126°32'34.4"E	-	RNP APCH	IAF
002	TF	NIPUT	-	063 (054.7)	5.1	-	+1 600	-	37°13'51.5"N 126°37'47.9"E	-	RNP APCH	IF
003	TF	DALKA	-	333 (324.8)	4.6	-	+1 600	-	37°17'35.6"N 126°34'29.8"E	-	RNP APCH	SDF
004	TF	PIPAN	-	333 (324.7)	6.3	-	+1 600	-	37°22'45.1"N 126°29'55.6"E	-	RNP APCH	FAF
005	TF	RW34R	Y	333(324.7)	4.7	-	+510	-	37°26'36.29"N 126°26'30.21"E	-3.05/50	RNP APCH	MAPt
006	TF	DY994	-	287(278.2)	5.9	-	-	-220	37°27'26.9"N 126°19'07.5"E	-	RNP APCH	Bank Angle 25°
007	TF	PY980	Y	211(202.8)	10.3	-	+3 000	-220	37°17'58.7"N 126°14'09.0"E	-	RNP APCH	-
008	HM	PY980	Y	240(231.3)	-	L	-4 000 +3 000	-	37°17'58.7"N 126°14'09.0"E	-	RNP APCH	1 min (Outbound timing)

RNP RWY 34R - via ENPIL(IAF) to PY980(MAHF)

Serial Number	Path Descriptor	Waypoint Identifier	Fly-over	Course/Track °M(°T)	Distance (NM)	Turn direction	Altitude (ft)	Speed (kt)	Coordinates	VPA/ TCH	Navigation specification	Remarks
001	IF	ENPIL	-	-	-	-	+7 000	-	37°09'39.0"N 126°43'34.0"E	-	RNP APCH	IAF
002	TF	PY019	-	309 (300.8)	3.3	-	+6 000	-	37°11'20.4"N 126°40'01.2"E	-	RNP APCH	SDF
003	TF	NIPUT	-	333 (324.8)	3.1	-	+5 000	-	37°13'51.5"N 126°37'47.9"E	-	RNP APCH	IF
004	TF	DALKA	-	333 (324.8)	4.6	-	+3 600	-	37°17'35.6"N 126°34'29.8"E	-	RNP APCH	SDF
005	TF	PIPAN	-	333 (324.7)	6.3	-	+1 600	-	37°22'45.1"N 126°29'55.6"E	-	RNP APCH	FAF
006	TF	RW34R	Y	333(324.7)	4.7	-	+510	-	37°26'36.29"N 126°26'30.21"E	-3.05/50	RNP APCH	MAPt
007	TF	DY994	-	287(278.2)	5.9	-	-	-220	37°27'26.9"N 126°19'07.5"E	-	RNP APCH	Bank Angle 25°
008	TF	PY980	Y	211(202.8)	10.3	-	+3 000	-220	37°17'58.7"N 126°14'09.0"E	-	RNP APCH	-
009	HM	PY980	Y	240(231.3)	-	L	-4 000 +3 000	-	37°17'58.7"N 126°14'09.0"E	-	RNP APCH	1 min (Outbound timing)

Change : Information of missed approach procedure.

INSTRUMENT APPROACH CHART - ICAO

AERODROME ELEV 51 ft
HEIGHTS RELATED TO
THR RWY 01 - ELEV **32** ft

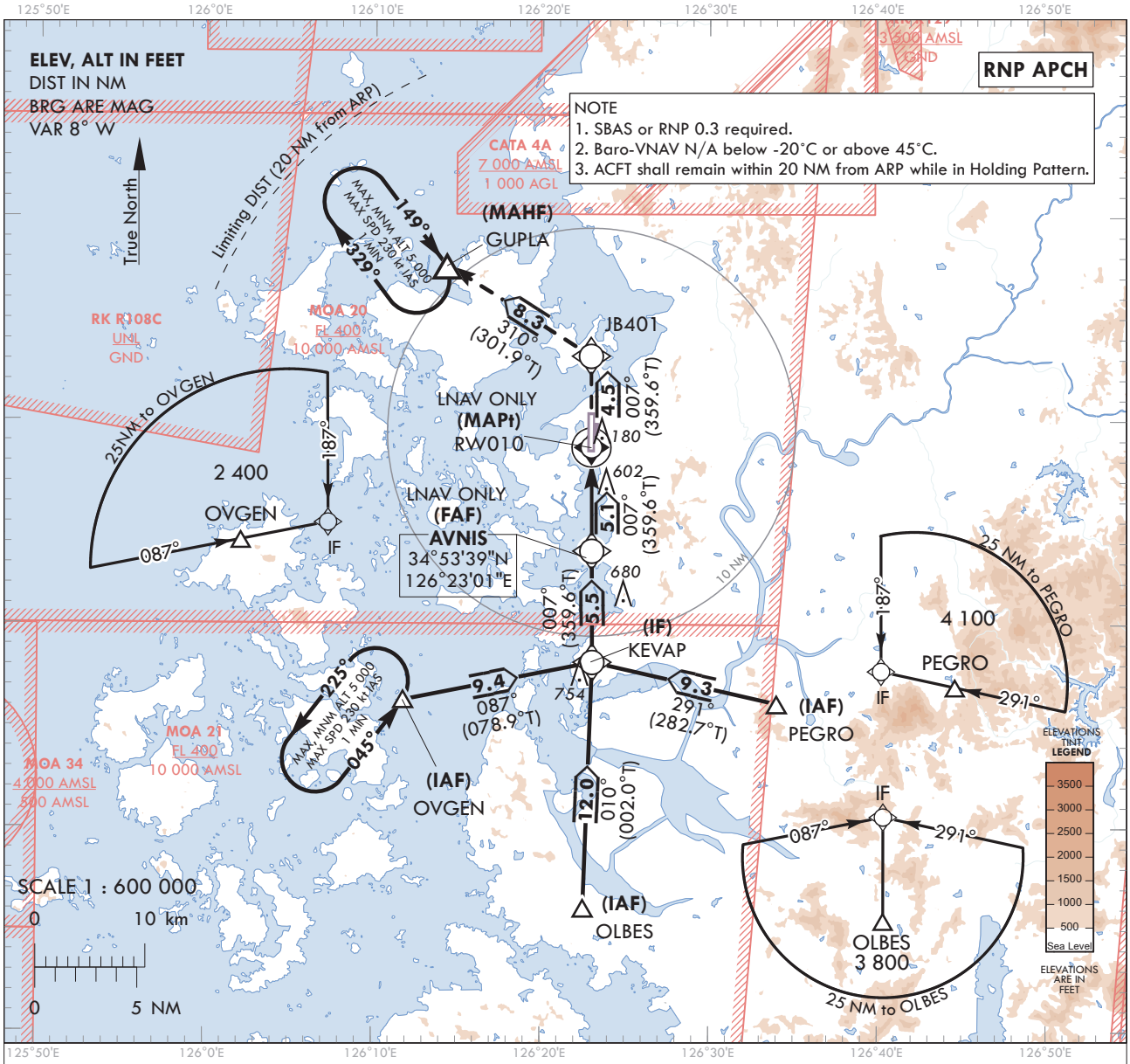
GWANGJU	APP	120.475	130.0
		228.9	265.5
MUAN	TWR	118.25	118.85

KASS
CH86099
K01A
RDH : 50

MUAN/Muan Intl(RKJB)

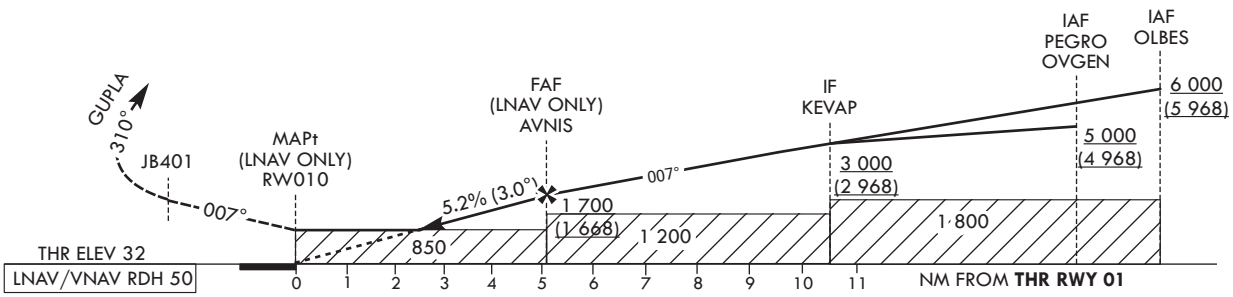
RNP RWY 01

Note : Approach under ICAO Flight Procedure.



TRANSITION ALT	14 000
TRANSITION LVL	FL 140

MISSED APPROACH
Climb to 5 000 ft on track of 007° to JB401,
then LEFT turn on track of 310° to GUPLA.
Hold as published.



CATEGORY			DA(H)/MDA(H)	A	B	C	D
STA	LPV	FULL	320 (288)	700 m			
		ALS INOP		1 400 m			
	LNAV/VNAV	FULL	790 (758)	2 700 m			
		ALS INOP		3 500 m			
	LNAV	FULL	850 (818)	3 100 m			
		ALS INOP		3 800 m			

	Knots	60	90	120	150	180
Rate of descent	V/V fpm	319	478	638	797	957

* Timing Not authorized for defining MAPt.
* Circling Not authorized.

Change : Establishment of SBAS procedure.

Instrument Approach Procedure Coding Tables

RNP RWY 01 - via OVGEN to KEVAP(IF)

Serial Number	Path Descriptor	Waypoint Identifier	Fly-over	Course/Track °M(°T)	Distance (NM)	Turn direction	Altitude (ft)	Speed (kt)	Coordinates	VPA/ RDH	Navigation specification	Remarks
001	IF	OVGEN	-	-	-	-	+5 000	-	34°46'22.2"N 126°11'47.9"E	-	RNP APCH	IAF
002	TF	KEVAP	-	087(078.9)	9.4	-	+3 000	-	34°48'10.9"N 126°23'03.3"E	-	RNP APCH	IF

RNP RWY 01 - via OLBES to KEVAP(IF)

Serial Number	Path Descriptor	Waypoint Identifier	Fly-over	Course/Track °M(°T)	Distance (NM)	Turn direction	Altitude (ft)	Speed (kt)	Coordinates	VPA/ RDH	Navigation specification	Remarks
001	IF	OLBES	-	-	-	-	+6 000	-	34°36'08.1"N 126°22'32.0"E	-	RNP APCH	IAF
002	TF	KEVAP	-	010(002.0)	12.0	-	+3 000	-	34°48'10.9"N 126°23'03.3"E	-	RNP APCH	IF

RNP RWY 01 - via PEGRO to KEVAP(IF)

Serial Number	Path Descriptor	Waypoint Identifier	Fly-over	Course/Track °M(°T)	Distance (NM)	Turn direction	Altitude (ft)	Speed (kt)	Coordinates	VPA/ RDH	Navigation specification	Remarks
001	IF	PEGRO	-	-	-	-	+5 000	-	34°46'09.0"N 126°34'02.1"E	-	RNP APCH	IAF
002	TF	KEVAP	-	291(282.7)	9.3	-	+3 000	-	34°48'10.9"N 126°23'03.3"E	-	RNP APCH	IF

RNP RWY 01 - via KEVAP(IF) to GUPLA(MAHF)

Serial Number	Path Descriptor	Waypoint Identifier	Fly-over	Course/Track °M(°T)	Distance (NM)	Turn direction	Altitude (ft)	Speed (kt)	Coordinates	VPA/ RDH	Navigation specification	Remarks
002	TF	KEVAP	-	-	-	-	+3 000	-	34°48'10.9"N 126°23'03.3"E	-	RNP APCH	IF
003	TF	AVNIS	-	007(359.6)	5.5	-	+1 700	-	34°53'38.8"N 126°23'00.8"E	-	RNP APCH	FAF
004	TF	RW010	Y	007(359.6)	5.1	-	+850	-	34°58'43.64"N 126°22'58.45"E	-3.00/50	RNP APCH	MAPt
005	TF	JB401	-	007(359.6)	4.5	-	-	-	35°03'13.1"N 126°22'56.4"E	-	RNP APCH	-
006	TF	GUPLA	Y	310(301.9)	8.3	-	-	-	35°07'37.8"N 126°14'18.1"E	-	RNP APCH	-
007	HM	GUPLA	Y	149(141.1)	-	R	@5 000	-230	35°07'37.8"N 126°14'18.1"E	-	RNP APCH	1 MIN (Outbound timing)

HOLDING PROCEDURE

Holding Identification	Path Descriptor	Waypoint Identifier	Fly-over	Course/Track °M(°T)	Time (min)	Turn direction	Altitude (ft)	Speed (kt)	Coordinates	VPA/ RDH	Navigation specification	Remarks
RNP RWY 01	HM	OVGEN	Y	045 (037.0)	1	L	@5 000	-230	34°46'22.2"N 126°11'47.9"E	-	RNAV 1	-

MUAN/Muan Intl(RKJB)
RNP RWY 01

FAS DATA BLOCK INFORMATION

INPUT DATA

Parameters	Values
Operation Type	0
SBAS Provider	6 (KASS)
Airport Identifier	RKJB
Runway	01
Runway Letter	0 (None)
Approach Performance Designator	0
Route Indicator	
Reference Path Data Selector	0
Reference Path Identifier	K01A
LTP/FTP Latitude	34°58'43.6370"N
LTP/FTP Longitude	126°22'58.4515"E
LTP/FTP Ellipsoidal Height (metres)	33.6
FPAP Latitude	35°00'14.4945"N
Delta FPAP Latitude (seconds)	90.8575
FPAP Longitude	126°22'57.8165"E
Delta FPAP Longitude (seconds)	-0.6350
Threshold Crossing Height (TCH)	50.0
TCH Units Selector	0 (Feet)
Glidepath Angle (GPA, degrees)	3.00
Course Width (metres)	105.00
Length Offset (metres)	0
Horizontal Alert Limit (HAL, meters)	40.0
Vertical Alert Limit (VAL, meters)	50.0

OUTPUT DATA

Data Block	60 02 0A 0B 12 01 00 00 01 31 30 0B 6A E2 02 0F 27 D7 3C 36 50 15 D3 C5 02 0A FB FF F4 01 2C 01 64 00 C8 FA F7 D9 C7 7B
Calculated CRC Value	F7D9C77B

Change : Establishment of FAS data block information.

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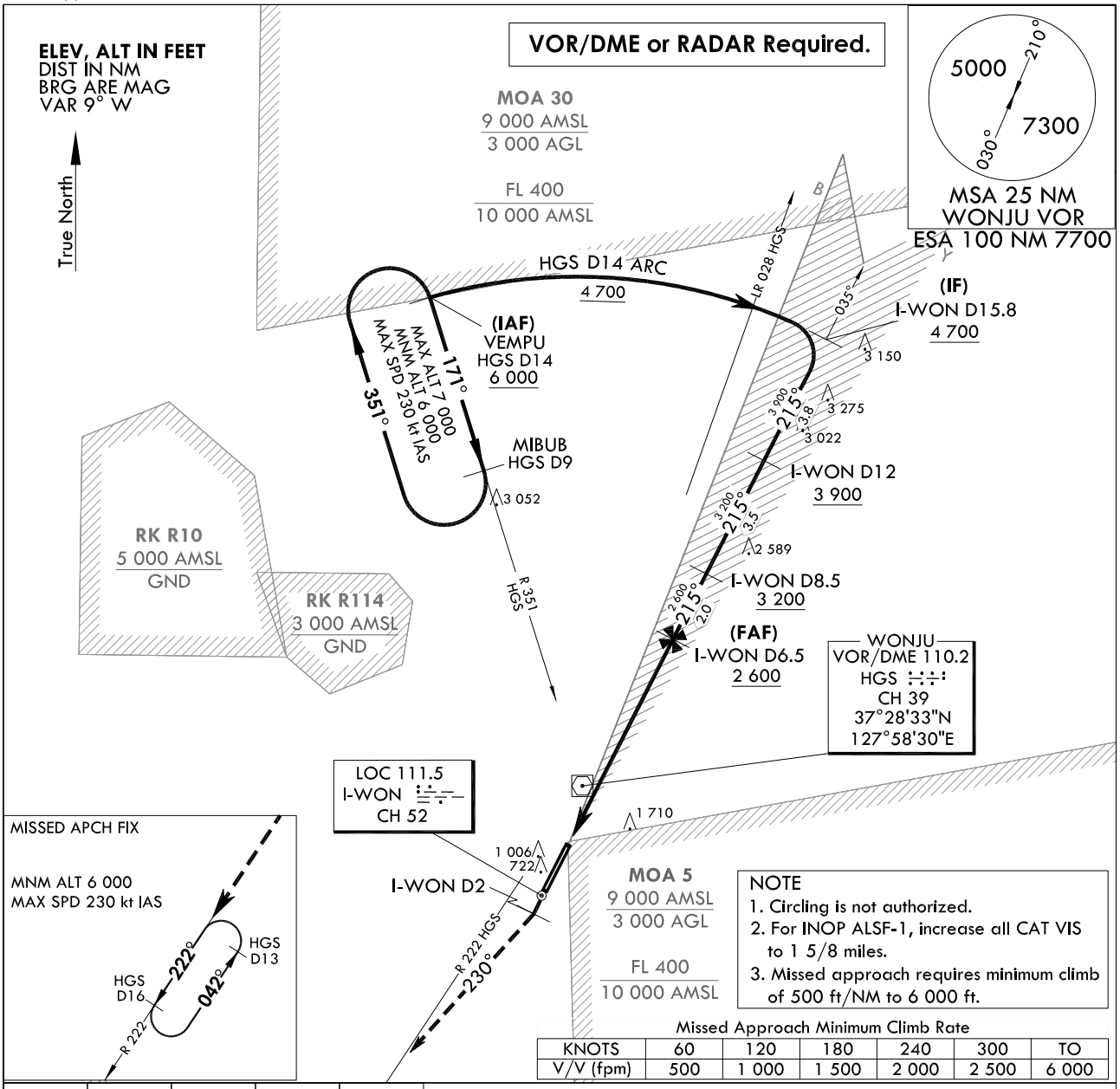
INSTRUMENT APPROACH CHART

AERODROME ELEV 330 ft
HEIGHTS RELATED TO
RWY 21 ELEV TDZ **330 ft**

Note : Approach and circle to land under U.S. TERPS.

WONJU	APP	130.2	
		234.4	255.0
WONJU	TWR	126.2	236.6
		265.5	

WONJU/Wonju(RKNW)
ILS RWY 21



NOTE
1. Circling is not authorized.
2. For INOP ALSF-1, increase all CAT VIS to 1 5/8 miles.
3. Missed approach requires minimum climb of 500 ft/NM to 6 000 ft.

Missed Approach Minimum Climb Rate

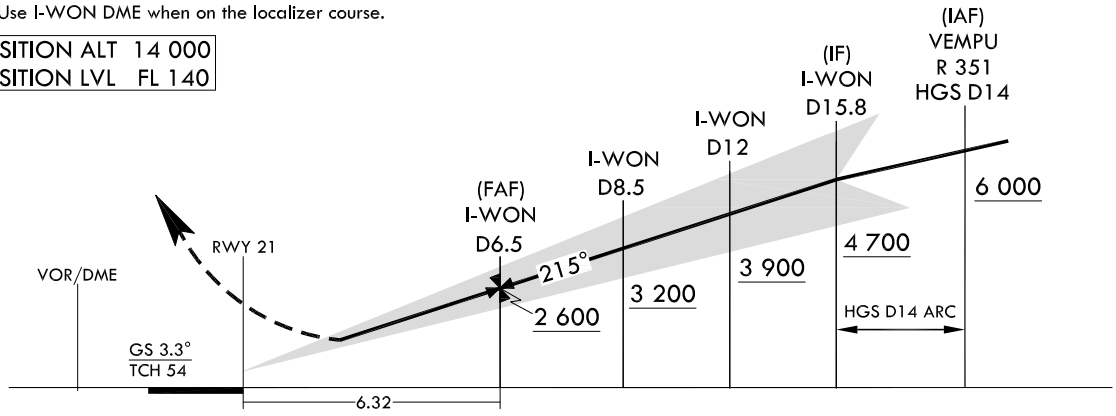
KNOTS	60	120	180	240	300	TO
V/V (fpm)	500	1 000	1 500	2 000	2 500	6 000

HDG 215°	I-WON D2	HDG 230°	R 222 HGS	R 222 HGS D16 6 000

MISSED APPROACH
Climb to 6 000 ft via HDG 215° to I-WON D2 and right turn HDG 230° to intercept R 222 HGS, then R 222 HGS to HGS D16 and hold.

NOTE : Use I-WON DME when on the localizer course.

TRANSITION ALT 14 000
TRANSITION LVL FL 140



CATEGORY	A	B	C	D
S-ILS 21	**905-1¼** 575(600-1¼)			

Change : Information of name for siginificant point(MAGUK → MIBUB).

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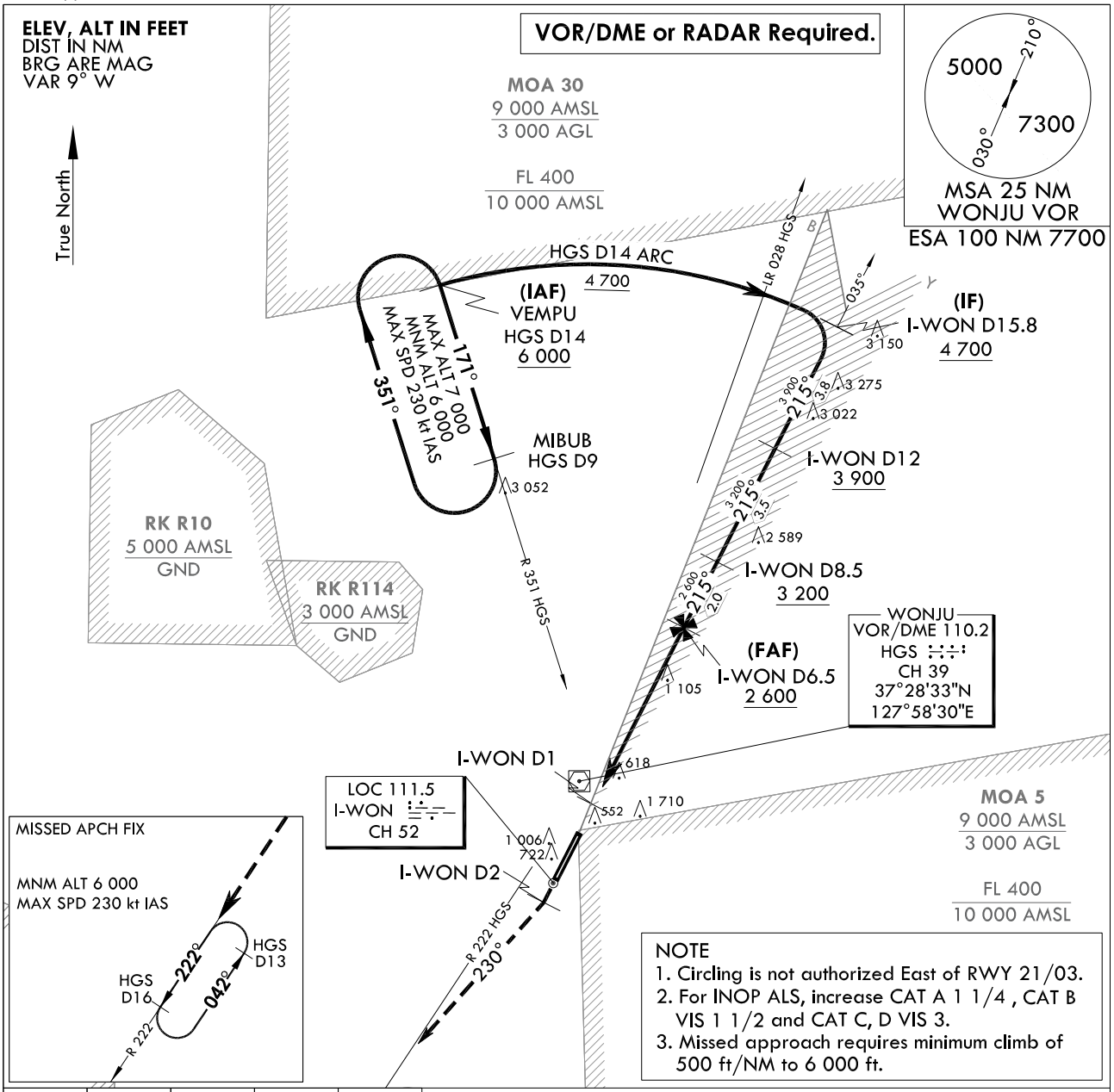
INSTRUMENT APPROACH CHART

AERODROME ELEV 330 ft
HEIGHTS RELATED TO
RWY 21 ELEV TDZ **330 ft**

WONJU	APP	130.2 234.4	 255.0
WONJU	TWR	126.2 265.5	236.6

WONJU/Wonju(RKNW)
LOC/DME RWY 21

Note : Approach and circle to land under U.S. TERPS.



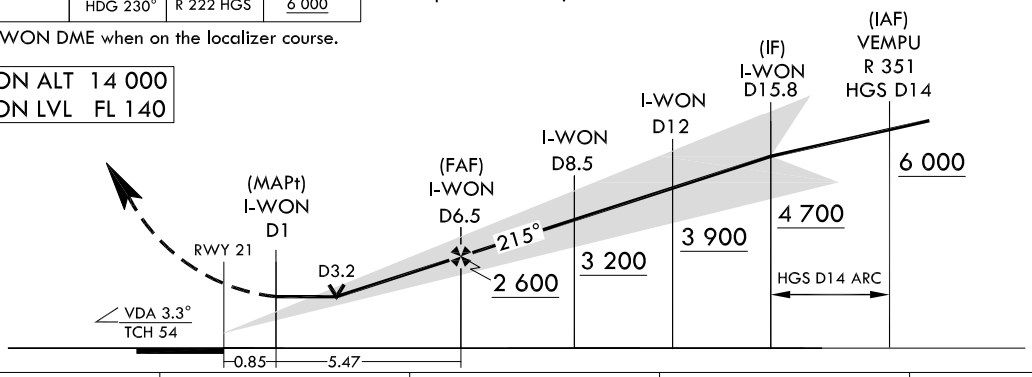
NOTE
1. Circling is not authorized East of RWY 21/03.
2. For INOP ALS, increase CAT A 1 1/4 , CAT B VIS 1 1/2 and CAT C, D VIS 3.
3. Missed approach requires minimum climb of 500 ft/NM to 6 000 ft.

HDG 215°	I-WON D2	HDG 230°	R 222 HGS	R 222 HGS D16 6 000

MISSED APPROACH
Climb to 6 000 ft via HDG 215° to I-WON D2 and right turn HDG 230° to intercept R 222 HGS, then R 222 HGS to HGS D16 and hold.

NOTE : Use I-WON DME when on the localizer course.

TRANSITION ALT 14 000
TRANSITION LVL FL 140



CATEGORY	A	B	C	D
S-LOC 21	**1 420/40** 1 090(1 100-¾)	**1 420/55** 1 090(1 100-1)	**1 420-2½** 1 090(1 100-2½)	
CIRCLING	**1 440-1¼** 1 110(1 200-1¼)	**1 440-1½** 1 110(1 200-1½)	**1 780-3** 1 450(1 500-3)	**2 060-3** 1 730(1 800-3)

Change : Information of name for siginificant point(MAGUK → MIBUB).

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INSTRUMENT APPROACH CHART - ICAO

Note : Approach under ICAO Flight Procedures.

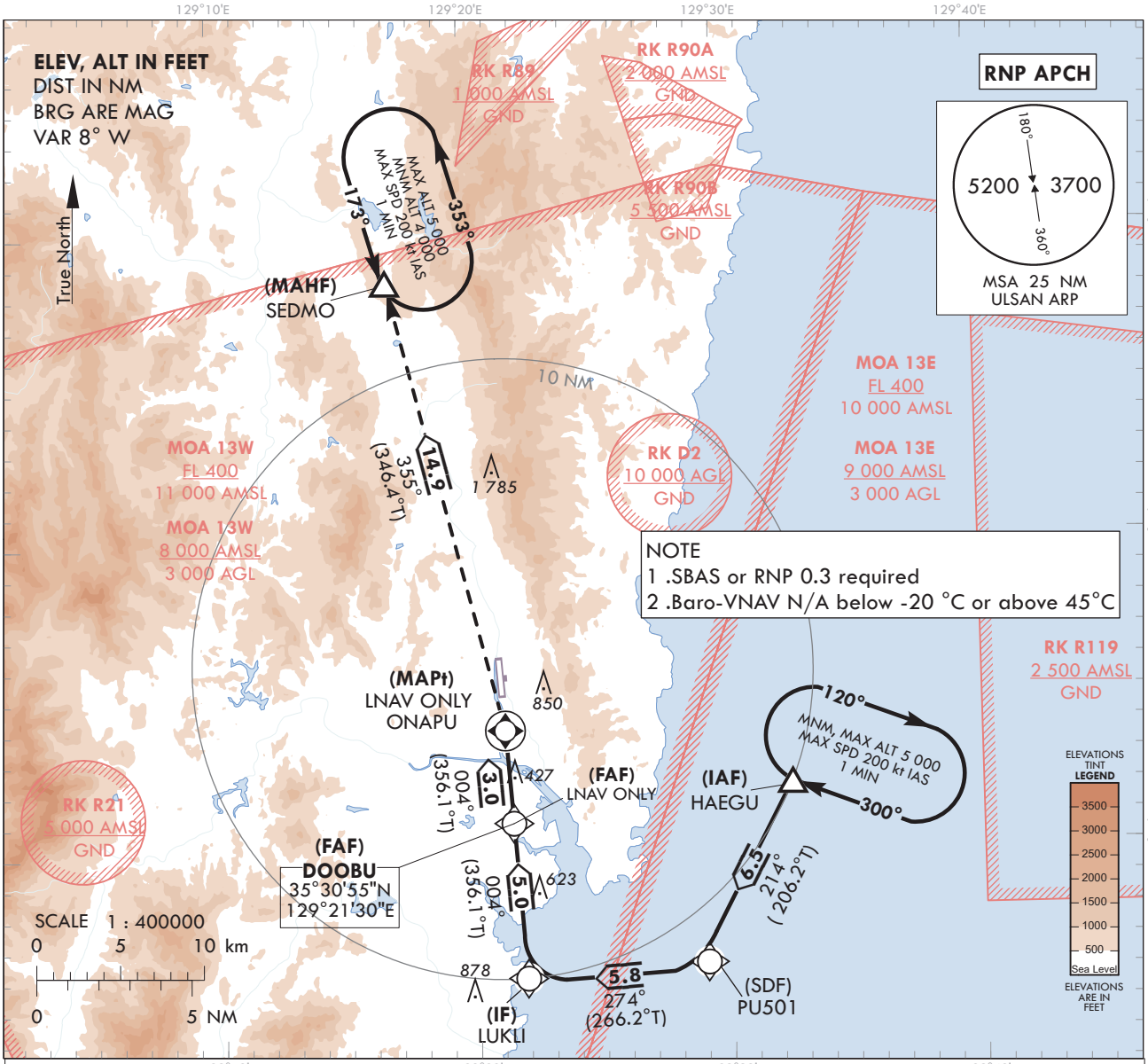
AERODROME ELEV 42 ft
HEIGHTS RELATED TO
THR RWY 36 - ELEV **28 ft**

POHANG	APP	124.25
		120.2
ULSAN	TWR	118.75

KASS
CH71318
K36A
RDH : 50

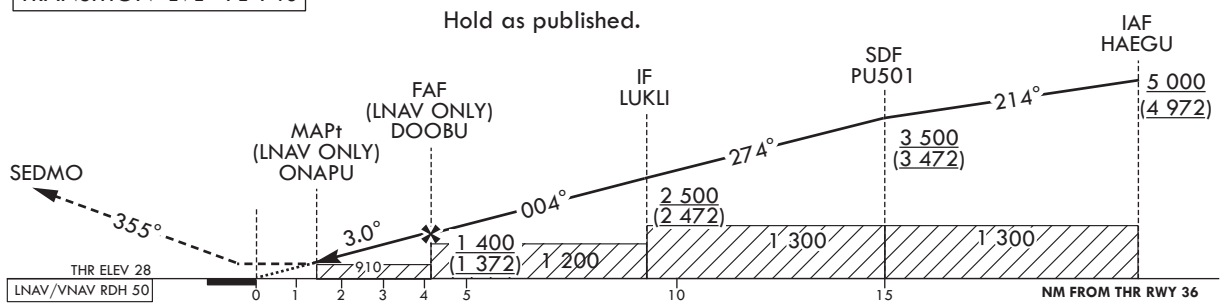
ULSAN/Ulsan(RKPU)

RNP RWY 36



TRANSITION ALT	14 000
TRANSITION LVL	FL 140

MISSED APPROACH
Climb to 4 000 ft on track of 355° to SEDMO.
Hold as published.



CATEGORY			DA(H)/MDA(H)	A	B	C	D
STA	LPV (CG 2.5%)	FULL	740 (712)	3 200 m			
		ALS INOP		3 900 m			
	LPV (CG 5.0%)	FULL	340 (312)	900 m			
		ALS INOP		1 600 m			
	LNAV/VNAV	FULL	810 (782)	3 600 m			
		ALS INOP		4 300 m			
	LNAV	FULL	910 (882)	3 300 m			
		ALS INOP		4 000 m			

	Knots	60	90	120	150	180
Rate of descent	V/V fpm	319	478	637	796	956

* Timing Not authorized for defining MAPt.
* Circling Not authorized.

Change : Establishment of SBAS procedure and Information of WX minima.

Instrument Approach Procedure Coding Tables

RNP RWY 36

Serial Number	Path Descriptor	Waypoint Identifier	Fly-over	Course/Track °M(°T)	Distance (NM)	Turn direction	Altitude (ft)	Speed (kt)	Coordinates	VPA/ RDH	Navigation specification	Remarks
001	IF	HAEGU	-	-	-	-	+5 000	-	35°32'06.7"N 129°32'32.3"E	-	RNP APCH	IAF
002	TF	PU501	-	214(206.2)	6.5	-	+3 500	-	35°26'18.1"N 129°29'02.9"E	-	RNP APCH	SDF
003	TF	LUKLI	-	274(266.2)	5.8	-	+2 500	-	35°25'54.4"N 129°21'54.8"E	-	RNP APCH	IF
004	TF	DOOBU	-	004(356.1)	5.0	-	+1 400	-	35°30'55.3"N 129°21'29.7"E	-	RNP APCH	FAF
005	TF	ONAPU	Y	004(356.1)	3.0	-	+910	-	35°33'54.4"N 129°21'14.8"E	-3.00/50	RNP APCH	MAPt
006	HM	SEDMO	Y	355(346.4)	14.9	-	-	-	35°48'27.1"N 129°16'55.0"E	-	RNP APCH	1 min (Outbound timing)

HOLDING PROCEDURE

Holding Identification	Path Descriptor	Waypoint Identifier	Fly-over	Course/Track °M(°T)	Time (min)	Turn direction	Altitude (ft)	Speed (kt)	Coordinates	VPA/ RDH	Navigation specification	Remarks
RNP RWY 36	HM	HAEGU	Y	300 (292.1)	1.0	R	@5 000	-200	35°32'06.7"N 129°32'32.3"E	-	RNAV 1	-
	HM	SEDMO	Y	173 (164.4)	1.0	L	-5 000 +4 000	-200	35°48'27.1"N 129°16'55.0"E	-	RNAV 1	-

Change : Information of remark and holding procedure for SDEMO.

ULSAN/Ulsan(RKPU)
RNP RWY 36

FAS DATA BLOCK INFORMATION

INPUT DATA

Parameters	Values
Operation Type	0
SBAS Provider	6 (KASS)
Airport Identifier	RKPU
Runway	36
Runway Letter	0 (None)
Approach Performance Designator	0
Route Indicator	
Reference Path Data Selector	0
Reference Path Identifier	K36A
LTP/FTP Latitude	35°35'04.1470"N
LTP/FTP Longitude	129°21'08.9500"E
LTP/FTP Ellipsoidal Height (meters)	38.3
FPAP Latitude	35°36'08.8905"N
Delta FPAP Latitude (seconds)	64.7435
FPAP Longitude	129°21'03.5405"E
Delta FPAP Longitude (seconds)	-5.4095
Threshold Crossing Height (TCH)	50.0
TCH Units Selector	0 (Feet)
Glidepath Angle (GPA, degrees)	3.00
Course Width (metres)	105.00
Length Offset (metres)	0
Horizontal Alert Limit (HAL, meters)	40.0
Vertical Alert Limit (VAL, meters)	50.0

OUTPUT DATA

Data Block	60 15 10 0B 12 24 00 00 01 36 33 0B A6 6D 45 0F AC 16 83 37 7F 15 CF F9 01 BD D5 FF F4 01 2C 01 64 00 C8 FA 10 38 07 E6
Calculated CRC Value	103807E6

Change : Establishment of FAS data block information.

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