

AD 2.1 AERODROMES
VQPR AD 2.1 AERODROME LOCATION INDICATOR AND NAME
VQPR - PARO/International**VQPR AD 2.2 AERODROME GEOGRAPHICAL AND ADMINISTRATIVE DATA**

1	ARP co-ordinates and site at AD	272411.23N 0892529.30E * Centre of RWY
2	Direction and distance from(city)	5 Km SE from Paro town
3	Elevation/Reference temperature	2 244.479M (7363.776ft) MSL/ 28°C
4	MAG VAR/Annual changes	0.10° East changing by 0.04 °E
5	AD Administration, address, telephone, telefax, telex. AFS	Department of Air Transport, Paro: Bhutan. Tel No.(975)-8- 271403,271751 Email: kwangchuk@doat.gov.bt
6	Type of traffic permitted (IFR/VFR)	VFR & IFR in VMC
7	Remarks	AD PPR

VQPR AD 2.3 OPERATIONAL HOURS

1	AD Administration	Available MON - FRI 0300 – 1100 (UTC)
2	Customs and immigration	Available during sked operations
3	Health and sanitation	Available during sked operation & as and when required
4	AIS Briefing Office	Available during operations and MON - FRI 0300 – 1100 (UTC)
5	ATS Reporting Office	Available during operations and MON - FRI 0300 – 1100 (UTC)
6	MET Briefing Office	Available during operations and MON - FRI 0300 – 1100 (UTC)
7	ATS	During Operational Hrs
8	Fuelling	Available during sked operations
9	Handling	Available during sked operations
10	Security	24 hours
11	De-icing	Not available
12	Remarks	Out side those hours, service available O/R. Request to be submitted to the AD 24hrs before intended operation.

VQPR AD 2.4 HANDLING SERVICES AND FACILITIES

1	Cargo-handling facilities	Available with airline operator, Druk-air
2	Fuel/oil types	Aviation Turbine Fuel only – Jet A1
3	Fuelling facilities/capacity	1 truck, 9000 litres, 500ltrs/Sec.
4	De-icing facilities	Manual by sweeping
5	Hanger space for visiting aircraft	Limited, by prior arrangement with operator, Druk-air.
6	Repair facilities for visiting A/C	Available by prior arrangement with operator, Druk-air.
7	Remarks	NIL

VQPR AD 2.5 PASSENGER FACILITIES

1	Hotels	Near AD and in the city.
2	Restaurants	At AD and in city.
3	Transportation	Taxi from the AD to Thimphu
4	Medical facilities	First aid at AD. Hospital in the Paro town 8 Km.
5	Bank and Post Office	Bank & Post office at AD. Open within AD HR
6	Tourist Office	Office in the city :Tel: 975 – 2- 323251,fax: 975-2- 323695
7	Remarks	Nil

VQPR AD 2.6 RESCUE AND FIRE FIGHTING SERVICES

1	AD category for fire fighting	Within AD HR: CAT 6
2	Rescue equipment	Rescue Tools with CFT
3	Capability for removal of disabled aircraft	NIL
4	Remarks	NIL

*WGS-84 Coordinates

VQPR AD 2.7 SEASONAL AVAILABILITY - CLEARING

1	Type of clearing equipment	Manually Sweeping
2	Clearance priorities	1. RWY 33/15 and associated TWY to Apron
3	Remarks	Information on snow clearance published from November - April through NOTAM . See also snow plan in section AD 1.2.2

VQPR AD 2.8 APRON, TAXIWAYS AND CHECK LOCATION DATA

1	Apron surface and strength	1. Apron A Surface : Concrete, Strength: PCN 56/R/C/X/T 2. Apron B Surface : Concrete, Strength: PCN 60/R/C/X/T 3. Apron C Surface : Concrete, Strength: PCN 56/R/C/X/T
2	Taxiway width, surface and strength	1. Taxiway A Width:15 M Surface: Concrete Strength: PCN 56/R/C/X/T 2. Taxiway B Width: 18 M Surface: Concrete Strength: PCN 60/R/C/X/T 3. Taxiway N Width: 18 M Surface: Asphalt Strength: PCN 50/F/B/W/T 4. Taxiway S Width: 18 M Surface: Asphalt Strength: PCN 50/F/B/W/T 5. Taxiway T Taxiway running parallel to runway Width: 18 M Surface: Asphalt. Length :1993.6M Strength: PCN 50/F/B/W/T Strip : 1460 X 26 M (till ceremonial lounge) Longitudinal slope 0.65% Transverse slope : 1.5%
3	ACL location and elevation	Location: At Apron Elevation: 2 243.69M
4	VOR checkpoints	Point A – Taxiway A Holding Points 27°24'20.97N 089°25'20.84E* DVOR 324.4° DME 7.7NM Point B – Threshold RWY15 27°24'39N 089°25'11E* DVOR 325.1° DME 8.2NM
5	INS check points	-
6	Remarks	NIL

VQPR AD 2.9 SURFACE MOVEMENT GUIDANCE AND CONTROL SYSTEM AND MARKINGS

1	Use of aircraft stand ID signs, TWY guide lines and visual docking/parking guidance system of aircraft stands	Nose-in guidance at aircraft stand
2	RWY and TWY markings and LGT	Markings Available
3	Stop bars	Stop bars where appropriate.
4	Remarks	NIL.

VQPR AD 2.10 AERODROME OBSTACLES

In approach/TKOF areas			In Circling area ad at AD		Remarks
Obstacle type	Elevation		Obstacle type	Elevation	
RWY/Area affected	Markings/LGT	Coordinates	Markings/LGT	Coordinates	
a	b	c	a	b	
RWY 15	SEE AD 2.3 VQPR -1		TO BE DEVELOPED		
RWY33	SEE AD 2.3 VQPR -2				

VQPR AD 2.11 METEOROLOGICAL INFORMATION PROVIDED

1	Associated MET Office	Paro Airport
2	Hours of service MET Office outside hours	During Flight operations only
3	Office responsible for TAF preparation Periods validity	TO BE DEVELOPED
4	Type of landing forecast Interval of issuance	Current Weather half hourly during flight operations (in Plain Language)
5	Briefing/consultation provided	Personal consultation During flight operation(on demand)
6	Flight documentation Language (s) used	TO BE DEVELOPED, English

*WGS-84 Coordinates

7	Charts and other information available for briefing or consultation	TO BE DEVELOPED/ satellite images/significant WX chart/upper charts are downloaded and provided prior departure.
8	Supplementary equipment available for providing information	NIL
9	ATS unit provided with information	Paro Control Tower
10	Additional information (limitation of service, etc.)	Presently limited to providing METAR and local current valley WX in plain language only during flight operations.

VQPR AD 2.12 RUNWAY PHYSICAL CHARACTERISTICS

Designations RWY NR	TRUE & MA BRG	Dimensions of RWY (M)	Strength (PCN) and surface of RWY and SWY	THR coordinates		THR elevation and highest elevation of TDZ of precision APP RWY
1	2	3	4	5		6
15	150.38°	2265 X 30 M	PCN 56/F/C/X/T	272439.270N		2 243.759 M AMSL
33	331.50°	2265 X 30 M		0892511.442E* 272343.205N 0892547.149E*		2 227.812 M AMSL
Slope of RYW-SWY	SWY Dimensions (M)	CWY Dimensions (M)	Strip Dimensions (M)	OFZ	Displaced THR Dimensions (M)	Remarks
7	8	9	10	11	12	13
0.81%	NIL	NIL	2385 M X 30 M	NIL	160M X 30M 120M X 30M	End of RWY15 272443.785N 0892508.560E* (2244.479 M) End of RWY33 272339.802N 0892549.306E* (2226.805 M) RWY Turn pad available at the both end of RWY

VQPR AD 2.13 DECLARED DISTANCES

RWY Designator	TORA (M)	TODA (M)	ASDA (M)	LDA (M)	Remarks
1	2	3	4	5	6
15	2265	2265	2265	2105	NIL
33	2265	2265	2265	2145	

VQPR AD 2.14 APPROACH RUNWAY LIGHTING

RWY Designator	APCH LGT Type LEN INTST	THR LGT Colour WBAR	VASIS (MEHT) PAPI	TDZ, LGT LEN	RWY Centre Line LGT Length, spacing, Colour, INTST	RWY edge LGT LEN, spacing colour INTST	RWY END LGT colour INTST	RWY END LGT Colour WBAR	Remarks
NIL									

VQPR AD 2.15 OTHER LIGHTING, SECONDARY POWER SUPPLY

1	ABN/IBN location, characteristics and hours of operation	Not established
2	LDI location and LGT Anemometer location and LGT	LDI: 50 M NW and 700 M SW of ARP, unlighted Anemometer : 300 M from THR 15 and THR 33, unlighted
3	TWY edge and centre line lighting	NIL
4	Secondary power supply/switch-over time	Secondary power supply to all lighting at AD 500KVA Switch-over time : 60 sec
5	Remarks	NIL

*WGS-84 Coordinates

VQPR AD 2.16 HELICOPTER LANDING AREA

1	Coordinates TLOF of THR of FATO	TO BE DEVELOPED
2	TLOF and/or FATO elevation M/FT	TO BE DEVELOPED
3	TLOF and FATO are dimensions, surface, strength, marking	TO BE DEVELOPED
4	True and MAG BRG of FATO	TO BE DEVELOPED
5	Declared distance available	TO BE DEVELOPED
6	APP and FATO lightning	TO BE DEVELOPED
7	Remarks	

VQPR AD 2.17 ATS AIRSPACE

1	Designation and lateral limits	Paro
2	Vertical limits	
3	Airspace classification	Class F
4	ATS unit call signLanguage(s)	PARO Tower English
5	Transition altitude	18 000 ft
6	Remarks	Two ways communication

VQPR AD 2.18 ATS COMMUNICATION FACILITIES

Service Designation	Callsign	Frequency	Hours of operation	Remarks
TWR	Paro Tower	120.3 Mhz (EXTN) 120.3 Mhz (STBY)	HO	As per sked flight operations
RADIO	Paro Radio	121.5 EMER. Freq. 8921 Khz 13342 Khz	HO	-do-

VQPR AD 2.19 RADIO NAVIGATION AND LANDING AIDS

Type of aid, CAT of ILS/MLS (forVOR/ILS/MLS, give VAR)	ID	Frequency	Hours of operation	Site of transmitting antenna coordinates	Elevation of DME transmitting antenna	Remarks
DVOR/DME	PRO	108.4 MHz	HO	7.7 NM south of aerodrome 27°18'03.00"N 089°30'20.00"E*	3 469M	DME Channel 21X

*WGS-84 Coordinates

VQPR 2.20 LOCAL TRAFFIC REGULATIONS

1. Airport regulations

- 1.1 At Paro Airport a number of local regulations apply, in accordance with ICAO Annex 2,11,14 Doc. 4444. See GEN 1.2.
- 1.2 Marshaller assistance can be requested.
- 1.3 When a local regulation is of importance for the safe operation of aircraft on the apron, the information will be given to each aircraft by the TWR on VHF R/T.

2. Taxiing to and from stands.

- 2.1 Arriving aircraft will be allocated a stand number by the TWR
- 2.2 Assistance from the "FOLLOW ME" vehicle can be requested from the TWR.
- 2.3 Departing flights shall contact the TWR to obtain ATC and ADC clearance before commencing Pushback & Start up. Request for ATC clearance may take place at the earliest 5 minutes prior to Pushback & start-up. Frequency 120.3Mhz is to be used. Departing aircraft shall obtain taxi instruction from Paro TWR on 120.3 Mhz.
- 2.4 Aircraft shall perform pushback & start up on Taxiway "T" facing either North or South depending on the runway in use.
- 2.6 In order to maintain Runway Occupancy Time (ROT), aircraft shall not be permitted to pushback & start up on runway.

3. Parking for small aircraft (General aviation)

General aviation small aircraft shall be guided by marshallers to the parking area.

4. Parking area for helicopters

The parking area for helicopters will always be guided by a marshaller on the stand or on R/T from TWR.

5. Apron Taxiing during winter conditions

"Follow me" vehicle can be provided on request.

6. Taxiing Limitations

No limitations

7. School and Training Technical test flight – use of runways

Subject to permission from tower

8 Helicopter traffic

- 8.1 Request ARO during the hours of service and, if possible, not later than 24 hrs before the flight is to be carried out.
- 8.2 Any request for approval of traffic shall contain the following information:
 - a) Owner/Operator
 - b) Type of helicopter, registration/call sign
 - c) Date, arrival time/departure time, destination(s).
- 8.3 Furthermore, other details relevant to the evaluation of the request shall be given as required.

9. Removal of disable aircraft from runways

- 9.1 When an aircraft is wrecked on a runway, it is the duty of the owner or user of such aircraft to have it removed from the runway as quickly as possible. If a wrecked aircraft is not removed from the runway as quickly as possible by the owner or user, the aircraft will be removed by the DoAT at owner's or user's expense.

VQPR AD 2.21 NOISE ABATEMENT PROCEDURES

TO BE DEVELOPED

VQPR AD 2.22 FLIGHT PROCEDURES

1 **General**

Flight within Paro air traffic circuit shall be in accordance with the Visual Meteorological Conditions (VMC).

- a) Prior operating into Paro airport the pilot in- command should be briefed and visit the aerodrome as an observer.
 - or should Undertake instruction in a simulator approved by the authority for that purpose.
 - or Request guide pilot (navigator) from the Authorised Clearing Agent.
 - Clearances on behalf of private airlines and for additional logistics can be arrange by the Local Clearing Agent. For contact see GEN 1.1 para 7

Note:- Bhutan Air Services (BAS) is the authorized Clearing agent on behalf of Department of Air Transport responsible for coordinating and collecting document for onward submission to the DG BCAA for seeking approval of clearances for private aircraft/helicopter that fly to Bhutan. All fees and charges for Private flight operated at Paro Aerodrome are also collected by the Bhutan Air Service on Behalf of DoAT.

- b) In order to avoid unnecessary delay while departing from Paro, relevant clearances (**YANKEE ALPHA NUMBER**) from DGCA India and other relevant clearances from the respective authority must be obtained to over fly/transiting through the respective airspace.
- c) Specific date & time of arrival/departure or over flying/transiting should be clearly mentioned while obtaining such clearances.
- d) Last minute change in flight plan could lead to **DELAY OF FLIGHT TO OBTAIN NEW ADC/FIC**. Therefore, it is recommended that all flights are to adhere with planned flight plan or inform to ARO regarding the changes in flight plan at least one day prior. **DoAT Bhutan shall not be responsible for the delay of flight.**
- e) Flight wishing to depart early morning from Paro (BTN 0000–0400 UTC), is recommended to file the flight plan at least one day prior to departure from Paro to avoid delay in obtaining ADC/FIC from INDIA FIR/FIC.
- f) Flight plan can be filed during operational hours or during office hours (03:00 – 10:00 UTC) at the following address.

**ARO,
CONTROL TOWER,
1st FLOOR,
PARO AIRPORT.
Tel No. 975-8-272306/272895
Fax No. 975272307
Email:- paro.aro@gmail.com
AFTN:- VQPRZPZX**

2 **Radar Procedures**

No Radar facilities are available at Paro Aerodrome.

3 **Communication failure**

In the event of a communication failure, the pilot shall act in accordance with the communication failure procedures in ICAO Annex 10 Vol. II and Annex 2 general rules para 3.6.52

- 4 **Procedures for IFR flights with in Paro air traffic circuit**
Due to high terrain and steep mountains adjacent to the aerodrome, only flight in VMC is permitted.
- 5 **Procedures for flights to/from Paro AD**
- 5.1 ATC clearance for flights will be given under the conditions described below:
- a) A flight plan containing items 7 to 18 and indicating the purpose of the flight, shall be submitted to Paro ATC.
 - b) ATC and ADC/FIC clearance number shall be obtained before the aircraft Taxi out.
 - c) Position reports shall be submitted in accordance with 3.6.3 of ICAO Annex 2.
 - d) Deviation from the ATC clearance may only be made when prior permission has been obtained.
 - e) Two-ways radio communication shall be maintained on the frequency 120.3 MHz.
- 5.2 With the high terrain and rapid phenomenon change of weather in and around the Paro aerodrome, all flights are operated in VMC, therefore any aircraft operating in Bhutanese territory are required to obtain weather information from Paro aerodrome at least one hour prior to departure.
- 5.3 Paro weather will available on HF Radio on freq. **8921Khz** and **13342Khz**, call sign Paro radio or can be requested on AFTN i.e. On **VQPRYMYX**, **VQPRZTZX**, **VQPRZPZX**.
- 5.4 **Arrival Instruction**
- 5.4.1 Flight plan should be filed on AFTN/Fax prior one hour departure followed by status of flight, in the event of any delay or cancellation of flight likely to occur.
- 5.4.2 **Airborne call is must** as soon as the aircraft departs from the departure aerodrome with the **ATD and ETA over Paro. Airborne time & ETA should be informed to Paro radio on HF.**
- 5.4.3 Entry/Exit from/to Bhutan to Indian airspace is on positive R/T contact with Hasimara (IAF 130.4MHz) Bagdogra (IAF 131.2MHz) and Guwahati (Civil ACC 120.5MHz or Civil APP 123.9MHz) as applicable (See AIP India for latest Frequency).
- 5.4.4 Entry/Exit into circuit area is via **Chhuzom** (*confluence of rivers Paro Thimphu*) at safety altitude. Descend below safety altitude only in VMC. All arriving aircraft to contact Paro tower atleast 38 NM before reaching confluence.
- 5.4.5 TA18,000, TL will be passed by ATC
- (a) Circuit area/pattern is generally to the west of airfield. Aircraft on circuit may not be visible to ATC, due to hills, descending circuit.
 - (b) Towards North/North East of the airfield the *Dupshare* valley is **unsafe and not Permitted for** circuit.
- 5.4.6 Final approach track for both runway is curved due to hilly terrain, **“EXERCISE CAUTION”**. Approach on final is above 3°GP. No visual guidance like VASI. PAPI. ILS, Runway lights e.t.c., available on final.
- 5.4.7 Surface winds conditions at different positions of runway can be requested. Surface winds increase in intensity usually in the afternoon hours.
- 5.4.8 Severe turbulence may experience when entering the valley.
- 5.4.9 Strong anabatic wind in the afternoon (Feb – May) may give raise to moderate to severe turbulence; it is recommended to restrict flight movement to the morning.
- 5.4.10 Only one aircraft at a time is permitted to Descend in a valley.

5.4.11 Holding point is over TAKTI 180°/15 NM from VOR/DME at altitude cleared by Paro ATC. Minimum **altitude** 16 000ft.

5.4.12 Helicopters operating as a domestic flight/mountain flight within Bhutan territory shall contact Paro tower on fixed line/mobile for Paro weather and the departure information (ETA/ETD). This shall be applied only to those helicopter not equipped with **HF radio facilities** on board

5.5 Departure Instruction

5.5.1 **No SIDS** (Standard Instrument Departure) is established for Paro airport. Therefore, all aircraft shall strictly follow in visual meteorological conditions (VMC).

5.5.2 After departure climb initially 18 000ft on QNH maintaining visual to terrain/obstacle and report over Confluence/VOR"PRO". An estimates time over designated compulsory reporting points and destination shall be passed to TWR.

5.5.3 When reaching altitude 18 000 ft and/or before crossing Bhutan airspace, aircraft shall contact the following adjacent ACC/APP for higher level and position report.

a) **BOGOP (R598)**

Contact Hashimara on freq 130.4mhz & also with Gauhati on freq 120.5 Mhz (Approach) 123.9 Mhz (Area)

b) **SUBSU (G348)**

Contact Baghdora on freq 131.2Mhz & also with Gauhati on freq 120.5 Mhz (Approach) 123.9 Mhz (Area)

c) For further Information and other Frequency see India AIP.

5.5.4 After establishing contact with the adjacent ACC, aircraft shall report back to Paro tower with their assigned level and position before leaving Bhutan airspace/crossing transfer point i.e. Over **BOGOP/SUBSU**

3 Communication failure

In the event of a communication failure, the pilot shall act in accordance with the communication failure procedures in ICAO Annex 10 Vol. II and Annex 2 general rules para 3.6.52

4 Procedures for IFR flights with in Paro air traffic circuit

Due to high terrain and steep mountains adjacent to the aerodrome, only flight in VMC is permitted.

5 Procedures for flights to/from Paro AD

5.1 ATC clearance for flights will be given under the conditions described below:

a) A flight plan containing items 7 to 18 and indicating the purpose of the flight, shall be submitted to Paro ATC.

b) ATC and ADC/FIC clearance number shall be obtained before the aircraft Taxi out.

d) Position reports shall be submitted in accordance with 3.6.3 of ICAO Annex 2.

d) Deviation from the ATC clearance may only be made when prior permission has been obtained.

e) Two-ways radio communication shall be maintained on the frequency 120.3 MHz.

5.2 With the high terrain and rapid phenomenon change of weather in and around the Paro aerodrome, all flights are operated in VMC, therefore any aircraft operating in Bhutan territory are required to obtain weather information from Paro aerodrome at least one hour prior to departure.

5.3 Paro weather will available on HF Radio on freq. **8921Khz** and **13342Khz**, call sign Paro radio or can be requested on AFTN i.e. On **VQPRMYX**, **VQPRZTX**, **VQPRZPX**.

5.4 Arrival Instruction

- 5.4.1 Flight plan should be filed on AFTN/Fax prior one hour departure followed by status of flight, in the event of any delay or cancellation of flight likely to occur.
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- 5.4.7 Surface winds conditions at different positions of runway can be requested. Surface winds increase in intensity usually in the afternoon hours.
- 5.4.8 Severe turbulence may experience when entering the valley.
- 5.4.9 Strong anabatic wind in the afternoon (Feb – May) may give raise to moderate to severe turbulence; it is recommended to restrict flight movement to the morning.
- 5.4.10 Holding point is over TAKTI 180°/15 NM from VOR/DME at altitude cleared by Paro ATC. Minimum **altitude** 16 000ft.
- 5.4.11 Helicopters operating as a domestic flight/mountain flight within Bhutan territory shall contact Paro tower on fixed line/mobile for Paro weather and the departure information (ETA/ETD). This shall be applied only to those helicopter not equipped with **HF radio facilities** on board

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- 5.5.2 After departure climb initially 18 000ft on QNH maintaining visual to terrain/obstacle and report over Confluence/VOR”PRO”. An estimates time over designated compulsory reporting points and destination shall be passed to TWR.
- 5.5.3 When reaching altitude 18 000 ft and/or before crossing Bhutan airspace, aircraft shall contact the following adjacent ACC/APP for higher level and position report.
- a) **BOGOP (R598)**
Contact Hashimara on freq 130.4mhz & also with Guwahati on freq 120.5 Mhz (Approach)
123.9 Mhz (Area)

- b) **SUBSU (G348)**
Contact Baghdora on freq 131.2Mhz & also with Gauwahati on freq 120.5 Mhz (Approach) 123.9 Mhz (Area)
 - c) For further Information and other Frequency see India AIP.
- 5.5.4 After establishing contact with the adjacent ACC, aircraft shall report back to Paro tower with their assigned level and position before leaving Bhutan airspace/crossing transfer point i.e. Over **BOGOP/SUBSU**

6 RESTRICTION-

- a) Only Day operations in visual meteorological conditions (VMC) is permitted
- b) No night landing/bad weather facilities
- c) Altitudes to be maintained as per ICAO Annex 2 - Rules of the Air.
- d) Avoid flying over yellow rooftop i.e., (*dzongs, monastery, temples*)
- e) Flight shall be permitted **to take-off & land between sunrise & sunset for all types of flight operations.**

VQPR AD 2.23 ADDITIONAL INFORMATION

1. Bird concentrations in the vicinity of the airport

As far as practicable, Aerodrome Control will inform pilots of the bird activity and the estimated heights AGL, when situation warrants.

VQPR AD 2.24 CHARTS RELATED TO AN AERODROME

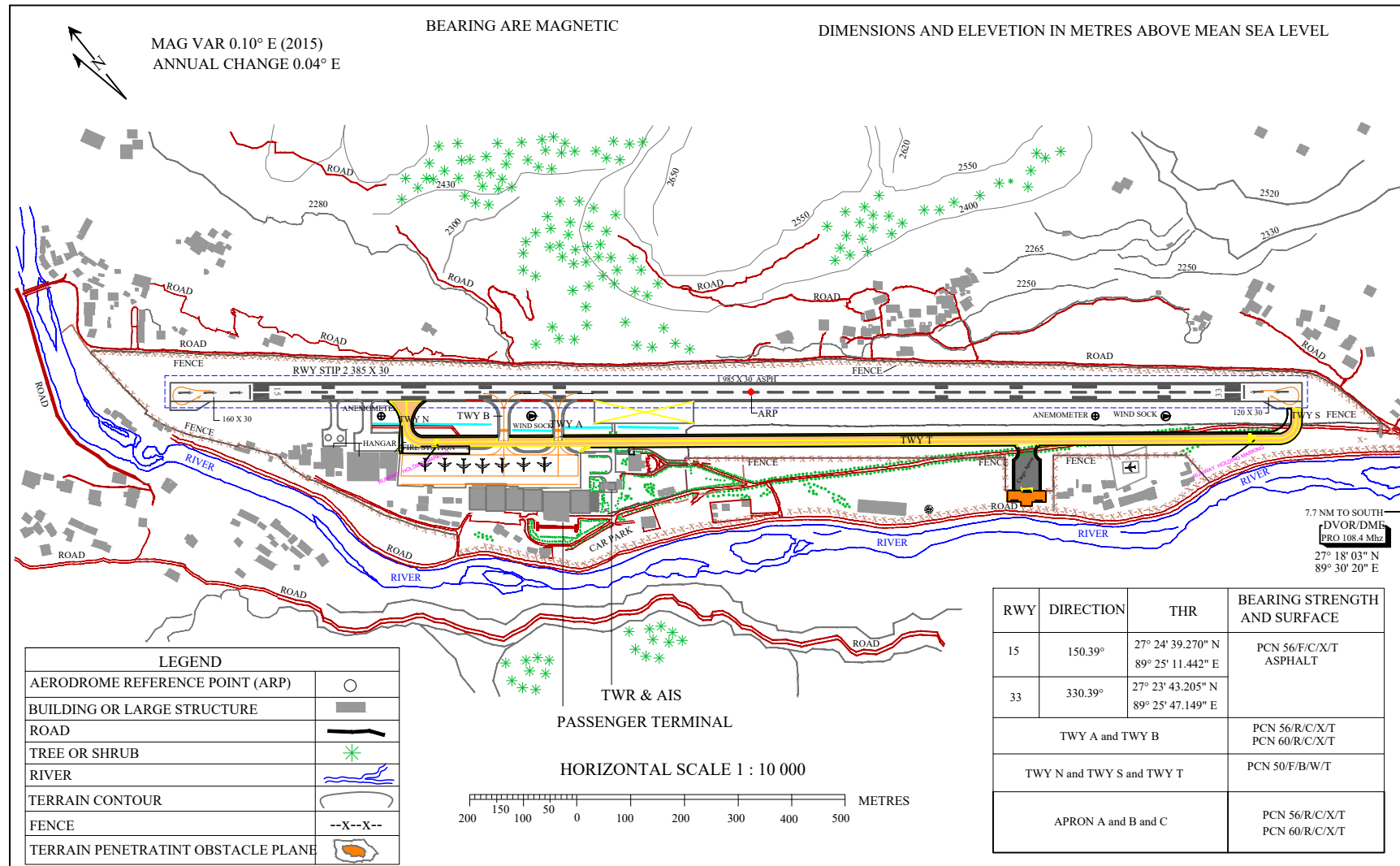
	<i>page</i>
Aerodrome chart.....	AD 2.2-VQPR-1
Aerodrome Obstacle Chart - ICAO Type- A runway 15.....	AD 2.3-VQPR-1
Aerodrome Obstacle Chart - ICAO Type -A runway 33.....	AD 2.3 -VQPR-2
RNP-AR, Cloud break procedure for VQPR	AD 2.4 –VQPR-1
STAR (RNP) VQPR	AD 2.5-VQPR-1 to 2
RNAV (RNP) X RWY 15/33	AD 2.6-VQPR-1 to 3
RNAV (RNP) Y RWY 15/33	AD 2.7-VQPR-1 to 3
RNAV (RNP) Z RWY 15/33.....	AD 2.8-VQPR-1 to 4

AERODROME CHART - ICAO

AERODROME ELEVATION 2244.47 m.

ARP 27° 24' 11.23" N
89° 25' 29.31" ETWR 120.3 Mhz
EMER 121.5 Mhz

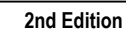
PARO / Paro International Airport



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PARO / Paro International Airport

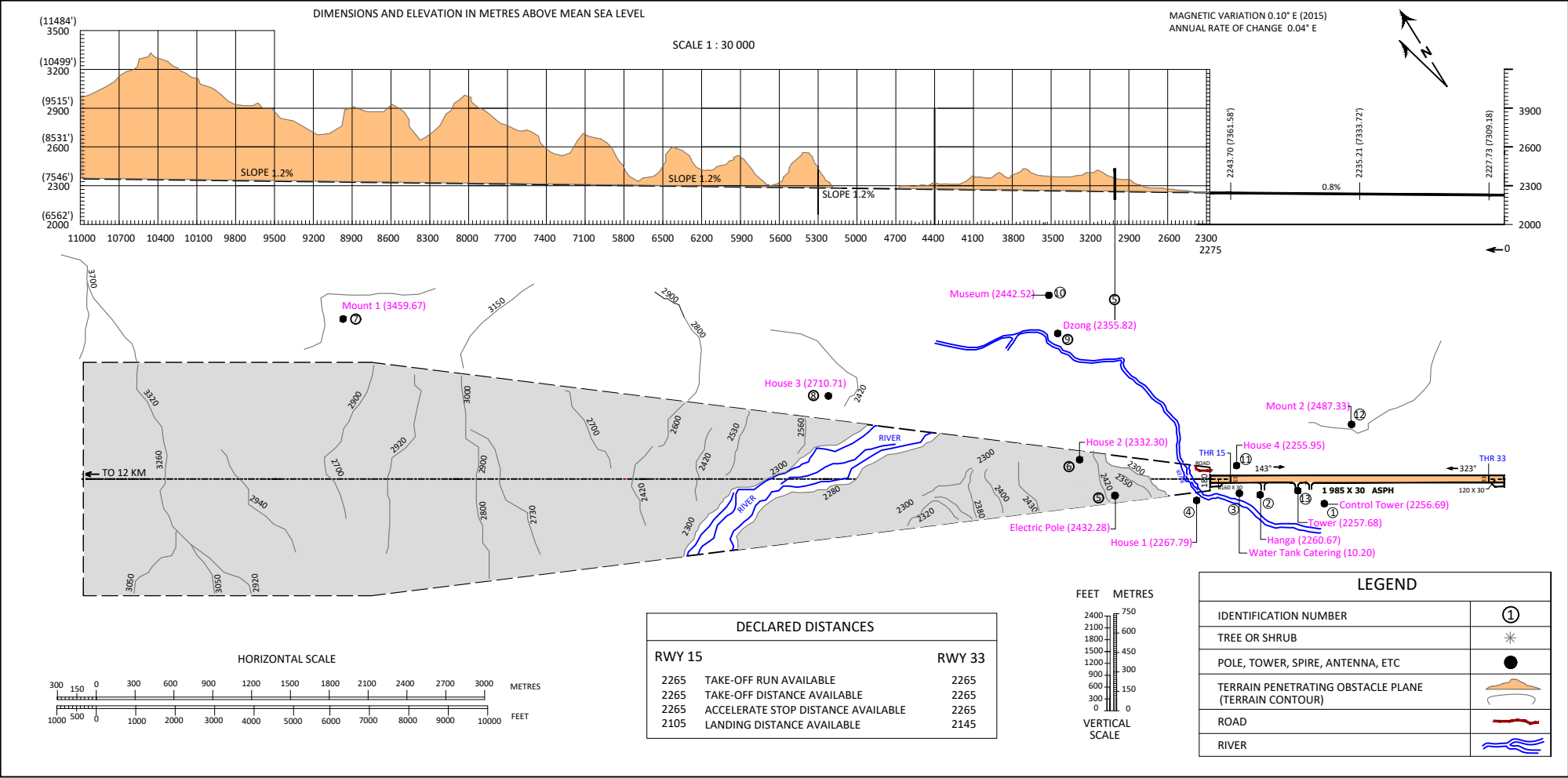
RUNWAY 15



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AERODROME OBSTACLE CHART - ICAO
TYPE A (OPERATING LIMITATIONS)

PARO / Paro International Airport
RUNWAY 33



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RNP AR – CLOUD BREAK PROCEDURE at Paro International Airport (VQPR)

1. INTRODUCTION

- 1.1 This RNP AR – Cloud break procedure is designed for VQPR in accordance with the criteria as stipulated in the ICAO PANS-PS (Doc 8168) Vol.II and RNP AR Manual (DoC 9905).
- 1.2 A full arrival, approach and missed approach strategy have been designed for both Runway 33/15 by Navblue, airbus Company whose logo will appear on the STAR and RNP AR Cloud break procedure Chart.
- 1.3 The RNAV (RNP) Cloud break procedure to VQPR is designed to enhance the overall safety of the operation by facilitating the aircraft energy management and to increase the accessibility of the airport.

2. APPROVED USERS, EQUIPMENT AND OPERATIONS

- 2.1 For the VQPR RNAV (RNP) Cloud break procedure, the operators shall ensure that they hold all necessary operational approvals as a part of the operations Specifications of the AOC from its authority including the Baro VNAV Approval in order to conduct the RNAV (RNP) Cloud break procedure to VQPR. (Ref to ICAO PBN Manual , Doc 9613)
- 2.2 The operator must have a Special Authorization from its authority in order to use the RNP AR – Cloud break procedure to VQPR.
- 2.3 The operator shall seek authorization from Bhutan Civil Aviation Authority to conduct VQPR RNP AR – Cloud break procedure at Paro.
- 2.4 The operator is responsible of conducting a Flight Operational Safety Assessment (FOSA) including Flight Simulation of the procedure.
- 2.5 The RNP AR Approach procedure requires a navigation accuracy of RNP 0.3 and RF-leg capability.

3. NAMING OF RNP AR Cloud break procedure

There are three RNP AR Cloud procedure to RWY 15 and 33 . The new ICAO naming convention is used as RNAV (RNP) X RWY15/33

4. RAIM CHECK

During flight planning or before dispatching the aircraft, the pilot shall ensure a RAIM check with a mask angle appropriate to the terrain (Minimum mask angle 5°)

5. LIMITATION OF THE PROCEDURE

The procedure is designed for a temperature down to -10° C (temperature correction of the barometric altimeter is not required)

6. RNP CAPABILITY LOST

If the RNP capability is lost, ATC shall be informed as soon as possible the alternate course of the action from the pilots of the concerned aircraft.

List of waypoints:

Waypoint	Latitude	Longitude
BJENA	27°25'04.9000"N	090°03'04.5300"E
BOGOP	26°44'01.5000"N	089°44'49.5000"E
GTSHO	27°22'36.0000"N	089°47'54.0000"E
PR704	27°23'14.2470"N	089°26'10.5270"E
PR706	27°21'28.7330"N	089°26'49.9880"E
PR708	27°20'01.3390"N	089°28'15.5050"E
PR710	27°19'47.7700"N	089°29'56.1630"E
PR712	27°16'46.4090"N	089°32'21.1340"E
PR714	27°15'40.0700"N	089°31'41.7620"E
PR722	27°13'23.8860"N	089°28'25.9220"E
PR724	27°13'27.8130"N	089°25'46.3580"E
PR728	27°14'37.8510"N	089°21'27.4780"E
PR730	27°19'10.0600"N	089°18'20.1150"E
PR732	27°14'35.9090"N	089°31'03.6970"E
PR734	27°13'45.1210"N	089°30'27.7270"E
PR736	27°11'19.0580"N	089°26'20.8970"E
PR738	27°11'09.3070"N	089°25'14.5690"E
PR740	27°10'59.4240"N	089°23'06.7380"E
PR742	27°10'28.1180"N	089°16'24.5760"E
PR744	27°09'36.8360"N	089°13'17.2460"E
PR746	27°12'25.5210"N	089°30'59.5930"E
PR750	27°21'29.4940"N	089°19'24.5030"E
PR752	27°23'59.0900"N	089°25'13.1110"E
PR754	27°23'05.1580"N	089°40'03.3250"E
PR777	27°06'04.9130"N	089°31'44.3330"E
PR780	26°58'06.1780"N	089°32'40.4900"E
PR782	26°51'59.5000"N	089°40'05.0560"E
PR784	27°22'14.9030"N	089°53'30.1540"E
PR786	27°13'33.0220"N	089°54'51.9240"E
PR790	27°25'04.5560"N	089°32'35.6400"E
PR792	27°23'39.5750"N	089°33'04.9670"E
PR794	27°01'50.9250"N	089°35'32.0970"E
PR796	27°00'49.6000"N	089°30'01.5090"E
PR798	27°05'05.0720"N	089°31'51.3590"E
PR799	27°22'05.1840"N	089°17'39.0390"E
PR808	27°24'20.7330"N	089°25'45.6500"E
PR810	27°26'17.8700"N	089°23'26.1840"E
PR812	27°27'27.9730"N	089°21'43.7780"E
PR814	27°28'56.8980"N	089°18'24.3830"E
PR816	27°28'32.5620"N	089°17'04.6530"E

PR818	27°24'17.6560"N	089°16'00.2150"E
PR820	27°14'19.3030"N	089°30'28.5740"E
PR826	27°14'02.6900"N	089°23'37.5170"E
PR828	27°13'38.2240"N	089°24'42.3820"E
PR830	27°11'33.2210"N	089°28'55.6440"E
PR842	27°14'53.3100"N	089°17'29.4920"E
PR848	27°08'04.5940"N	089°31'30.2730"E
PR850	27°18'46.5160"N	089°36'26.1690"E
PR852	27°20'53.8040"N	089°39'16.7990"E
PR854	27°22'44.3760"N	089°45'39.5280"E
PR888	27°08'26.7280"N	089°10'56.1170"E
PRC51	27°17'44.7540"N	089°30'17.9720"E
PRC52	27°22'16.3380"N	089°29'29.8060"E
PRC53	27°23'23.5140"N	089°22'33.8460"E
PRC54	27°28'43.1610"N	089°24'09.8340"E
PRC55	27°25'57.6910"N	089°18'48.5830"E
PRC56	27°19'51.7590"N	089°13'54.7210"E
PRC57	27°18'28.2210"N	089°22'45.4530"E
PRC58	27°17'46.7660"N	089°27'14.1800"E
PRC60	27°17'38.9570"N	089°24'36.9270"E
PRC61	27°03'28.5270"N	089°17'05.5780"E
PRC62	27°13'00.9010"N	089°37'17.2650"E
PRC63	27°18'09.0210"N	089°24'46.9040"E
PRC64	27°16'11.3310"N	089°09'12.1410"E
PRC65	27°09'14.7770"N	089°21'59.9220"E
PRC66	27°07'36.1930"N	089°26'29.3160"E
PRC67	27°14'44.1970"N	089°45'01.9700"E
PRC68	27°24'11.3820"N	089°29'22.3580"E
PRC69	27°20'59.8620"N	089°23'25.3870"E
PRC70	27°06'36.2470"N	089°37'18.6820"E
PRC71	26°57'05.5770"N	089°33'45.6610"E
PRC72	27°04'33.5220"N	089°26'17.1100"E
PRC73	27°15'35.8410"N	089°47'21.1800"E
SUBSU	26°58'55.3000"N	088°51'49.8000"E

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STAR recommended coding table :

BJENA 1A :

Seq N°	PT	W/P ID	Overfly	CRS Val °T (°M)	DIST val	ALT ONE	SPD LMT	NAV PERF	RADIUS val	ARC CTR ID
10	IF	BJENA	-	-	-	-	-	1.000 NM	-	-
20	TF	PR784	-	251.7 (251.8)	8.977 NM	-	-	1.000 NM	-	-
30	TF	GTSHO	-	274.0 (274.2)	5.000 NM	+ 17500.00 FT	230 KT	1.000 NM	-	-

BOGOP1A :

Seq N°	PT	W/P ID	OverFly	CRS Val °T (°M)	DIST val	ALT ONE	SPD LMT	NAV PERF	RADIUS val	ARC CTR ID
10	IF	BOGOP	-	-	-	-	-	1.000 NM	-	-
20	TF	PR782	N	331.9 (332.0)	9.005 NM	-	-	1.000 NM	-	-
30	TF	PR780	N	312.6 (312.8)	9.000 NM	-	-	1.000 NM	-	-
40	TF	PR777	N	354.0 (354.1)	8.000 NM	+ 16000.00 FT	185 KT	1.000 NM	-	-

BOGOP1B :

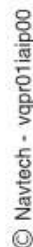
Seq N°	PT	W/P ID	OverFly	CRS Val °T (°M)	DIST val	ALT ONE	SPD LMT	NAV PERF	RADIUS val	ARC CTR ID
10	IF	BOGOP	-	-	-	-	-	1.000 NM	-	-
20	TF	PR786	N	16.9 (017.0)	30.777 NM	-	250 KT	1.000 NM	-	-
30	RF	GTSHO	-	274.0 (274.1)	12.576 NM	+ 17500.00 FT	230 KT	1.000 NM	7.000 NM	PRC73

SUBSU1A :

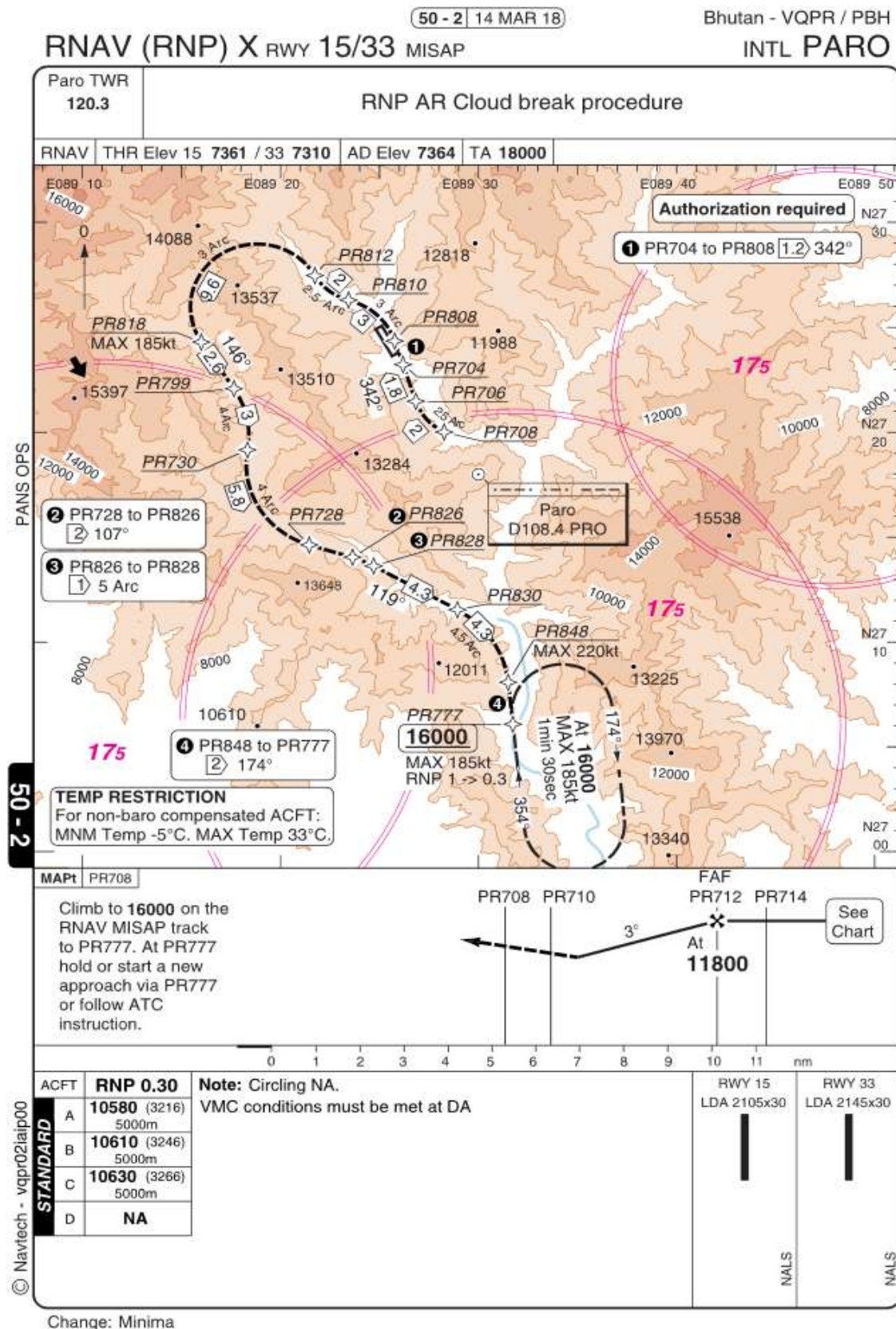
Seq N°	PT	W/P ID	OverFly	CRS Val °T (°M)	DIST val	ALT ONE	SPD LMT	NAV PERF	RADIUS val	ARC CTR ID
10	IF	SUBSU	-	-	-	-	-	1.000 NM	-	-
20	TF	PR888	N	060.9 (060.9)	19.522 NM	+ 17000.00 FT	185 KT	1.000 NM	-	-

NEW IFR HOLDINGS

HLDG ID/FIX/WPT COORDINATES	INBD TR (°MAG)	DIRECTION OF PTN	MAX IAS (KTS)	MNM-MAX HLDG LVL (FL/FT MSL)	TIME (MIN) DIS OUBD	Controlling Unit and Frequency
PR777 27°06'04.9130"N 089°31'44.3330"E	354	Right	185	16 000ft	90 sec	PARO TWR 120.3 Mhz
PR888 27°08'26.7280"N 089°10'56.1170"E	061	Left	185	17 000ft	90 sec	
GTSHO 27°22'36.0000"N 089°47'54.0000"E	Left	230	230	17 500ft	90 sec	



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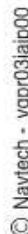


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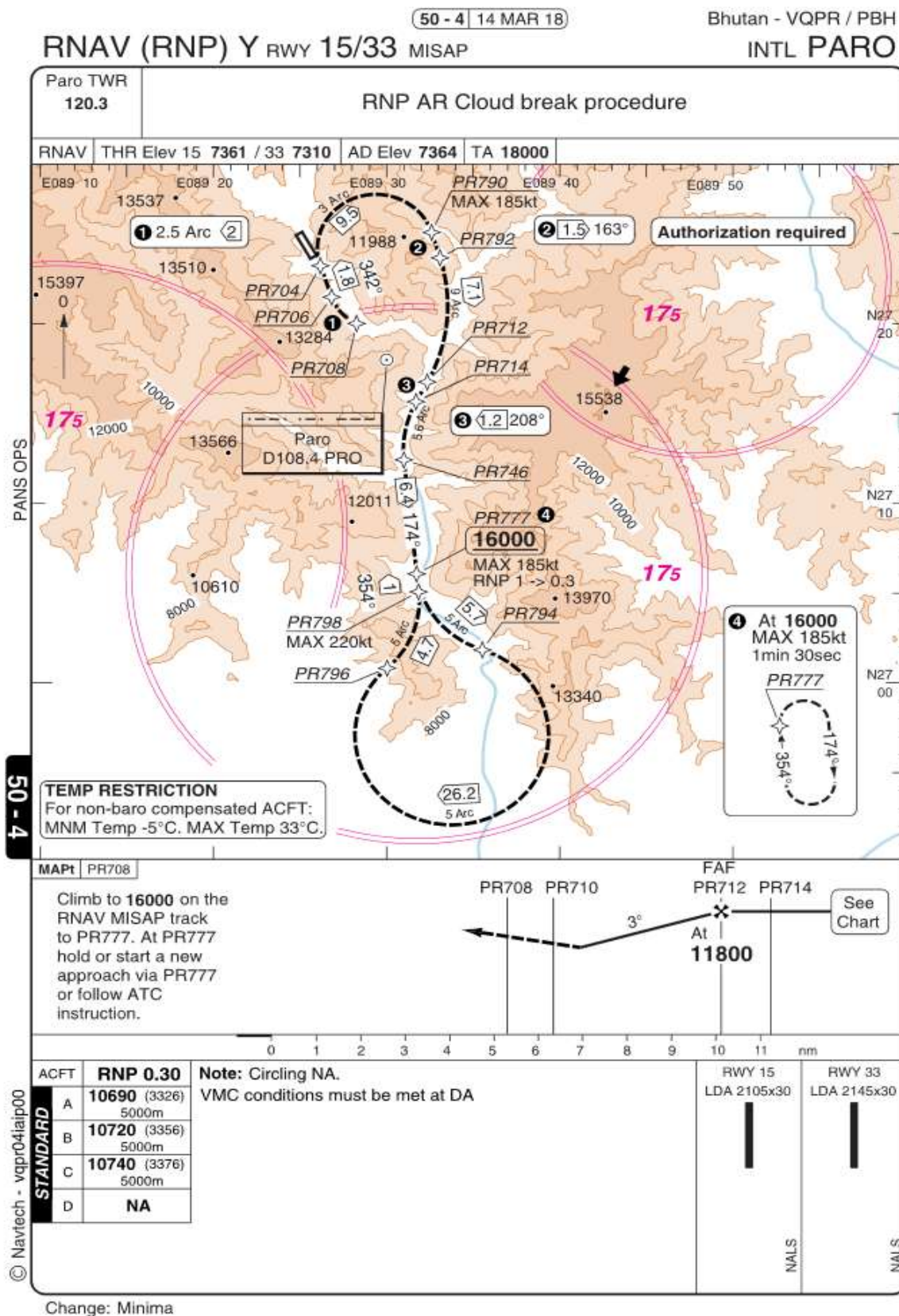
Recommended coding table RNAV(RNP) X RWY 15/33:

Seq N°	PT	W/P ID	OverFly	Fix role	TD	CRS Val °T (°M)	DIST val (NM)	ALT ONE	SPD LMT (KT)	VRT ANG	NAV PERF	RADIUS val (NM)	ARC CTR ID
10	IF	GTSHO		IAF				+ 17500 FT	230		0.3NM		
20	TF	PR754	N			274.000 (274.1)	7.000	+ 15700 FT			0.3 NM		
30	TF	PR752	N			273.940 (274.060)	13.237		185		0.3 NM		
40	RF	PR750			L	214.827 (214.947)	6.000	+ 15400 FT			0.3 NM	5.831	PRC63
50	RF	PR730			L	189.994 (190.114)	2.526	+ 13800 FT			0.3 NM	5.831	PRC63
60	RF	PR728			L	106.823 (106.943)	5.808				0.3 NM	4.000	PRC57
70	TF	PR724	N			106.823 (106.943)	4.018	+ 13100 FT			0.3 NM		
80	RF	PR722		IF	L	76.298 (076.418)	2.400	+ 12600 FT			0.3NM	4.497	PRC58
90	RF	PR714			L	028.057 (028.057)	3.798				0.3 NM	4.497	PRC58
100	TF	PR712	N			27.936 (028.056)	1.248	@ 11800 FT	145		0.3 NM		
10	IF	PR888		IAF				+ 17000 FT	185		0.3 NM		
20	TF	PR744	N			60.947 (061.067)	2.400				0.3 NM		
30	RF	PR742			R	85.000 (085.120)	2.934				0.3 NM	7.000	PRC61
40	TF	PR740	N			85.000 (085.120)	6.000	+ 14400 FT			0.3 NM		
50	TF	PR738	N			85.051 (085.171)	1.907	+ 13600 FT			0.3NM		
60	RF	PR736			L	76.261 (076.381)	1.000	+ 13100 FT			0.3 NM	6.500	PRC60
70	RF	PR734		IF	L	36.742 (036.862)	4.487	+ 12400 FT			0.3 NM	6.500	PRC60
80	RF	PR732			L	27.931 (028.051)	1.000				0.3 NM	6.500	PRC60
90	TF	PR714	N			27.931 (028.051)	1.207				0.3 NM		
100	TF	PR712	N			27.936 (028.056)	1.248	@ 11800 FT	145		0.3 NM		
10	IF	PR777		IAF				+ 16000 FT	185		0.3NM		
20	TF	PR746	N	IF		354.000 (354.120)	6.360				0.3 NM		
30	RF	PR714			R	27.936 (028.056)	3.342				0.3 NM	5.643	PRC62
40	TF	PR712	N			27.936 (028.056)	1.248	@ 11800 FT	145		0.3 NM		
10	IF	PR712		FAF				@ 11800 FT	145		0.3 NM		
20	RF	PR710			L	261.000 (261.120)	4.585			-3	0.3 NM	2.070	PRC51
30	RF	PR708		MAPT	R	296.167 (296.287)	1.535	@ 9850 FT		-3	0.3 NM	2.500	PRC52
40	RF	PR706			R	341.540 (341.660)	1.980				0.3NM	2.500	PRC52
50	TF	PR704	N			341.539 (341.659)	1.849				0.3NM		
60	TF	PR808	N			341.534 (341.654)	1.165				0.3 NM		
70	RF	PR810			L	285.000 (285.120)	2.959				0.3 NM	3.000	PRC53
80	RF	PR812			R	330.000 (330.120)	1.964				0.3 NM	2.500	PRC54
90	RF	PR818			L	146.334 (146.454)	9.614		185		0.3 NM	3.000	PRC55
100	TF	PR799	N			146.334 (146.454)	2.645				0.3 NM		
110	RF	PR730			R	189.994 (190.114)	3.047				0.3 NM	4.000	PRC56
120	RF	PR728			L	106.823 (106.943)	5.808				0.3NM	4.000	PRC57
130	TF	PR826				106.942 (106.942)	2.018				0.3 NM		
140	RF	PR828			R	118.885 (119.005)	1.048				0.3 NM	5.000	PRC65
150	TF	PR830				118.885 (119.005)	4.299				0.3 NM		
160	RF	PR848			R	173.998 (174.118)	4.325		220		0.3 NM	4.500	PRC66
170	TF	PR777				173.998 (174.118)	2.000	+ 16000 FT	185		0.3 NM		

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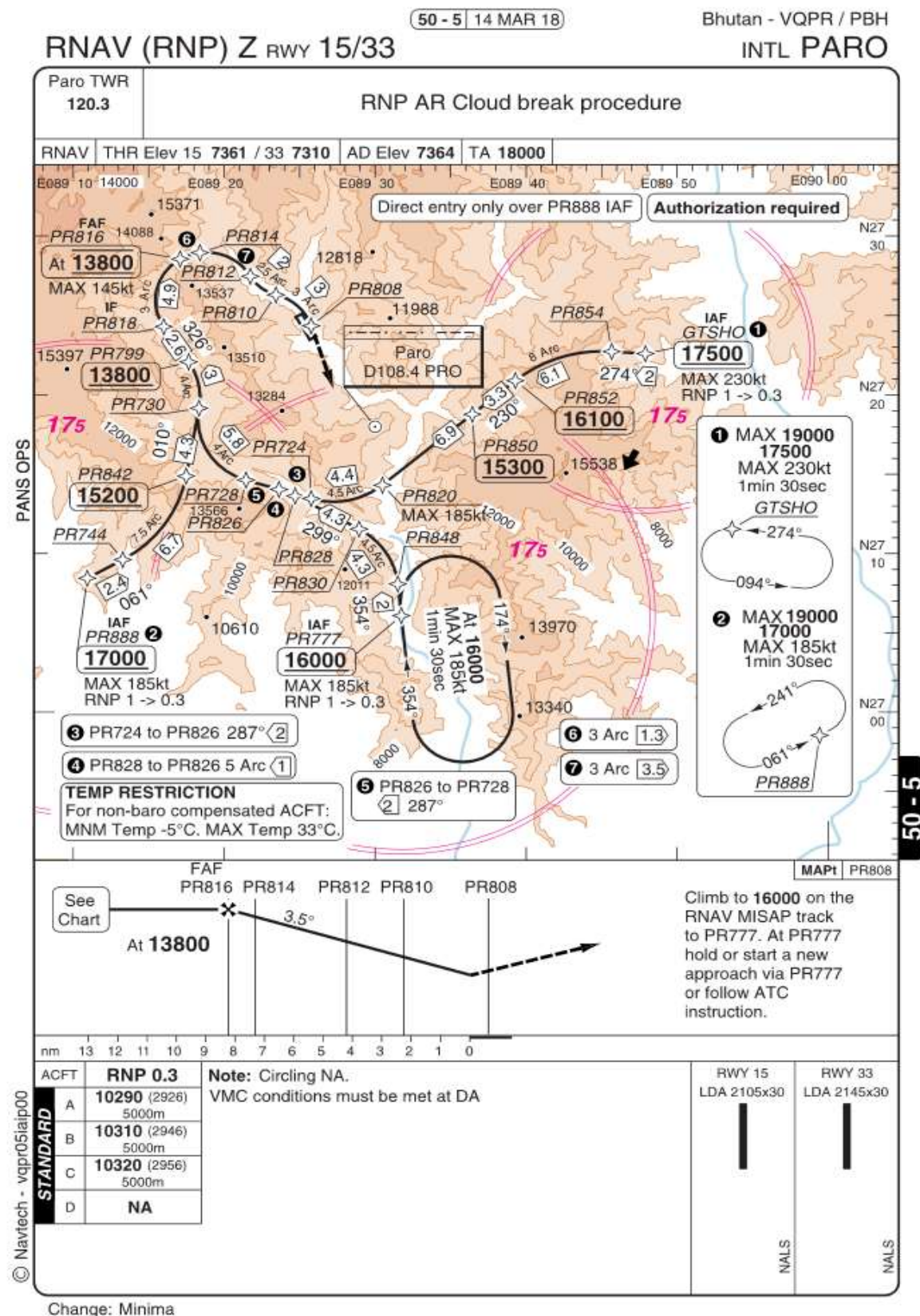


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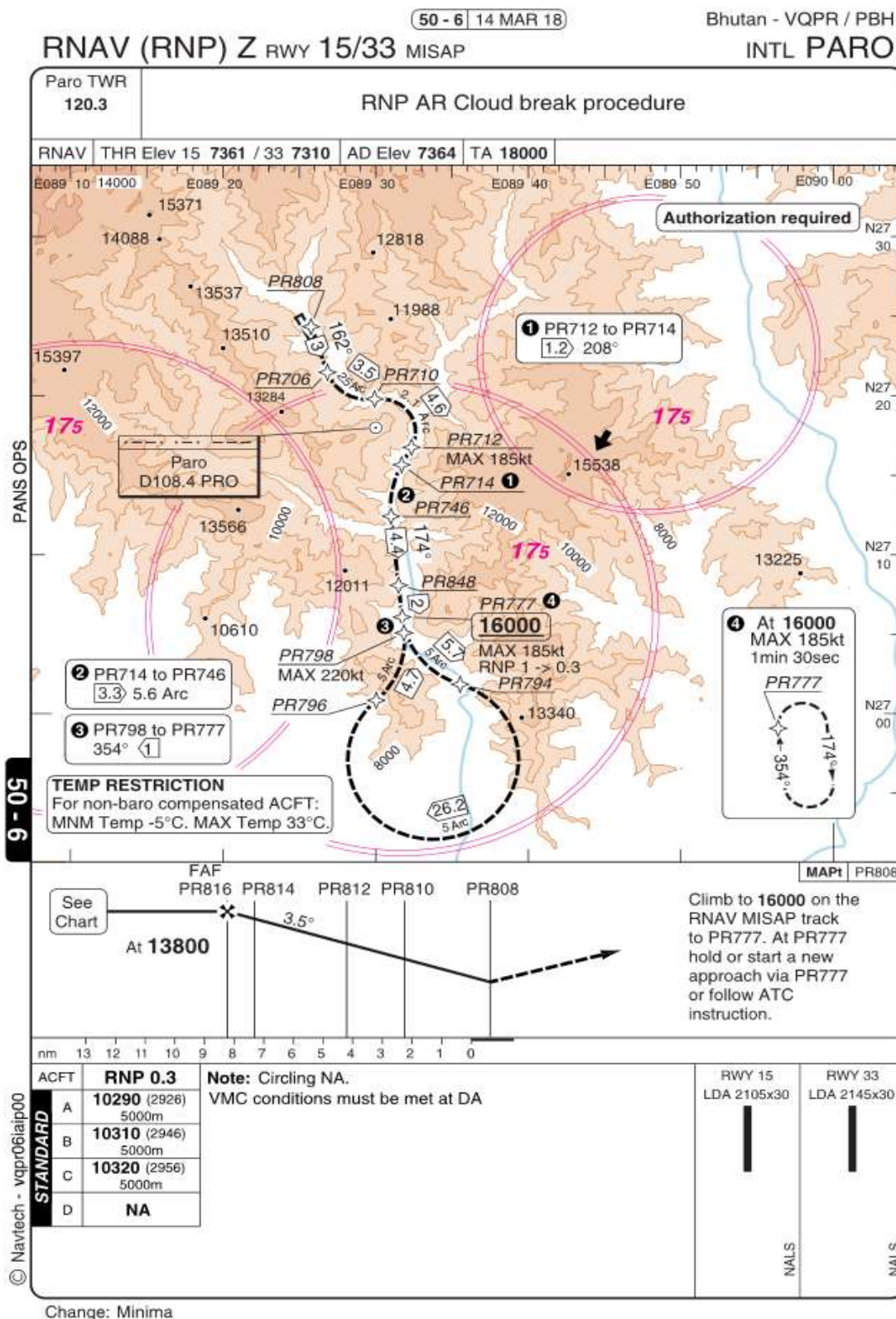
Recommended coding table RNAV(RNP) Y RWY 15/33:

Seq N°	PT	W/P ID	OverFly	Fix role	TD	CRS Val °T (°M)	DIST val (NM)	ALT ONE	SPD LMT (KT)	VRT ANG	NAV PERF	RADIUS val (NM)	ARC CTR ID
10	IF	GTSHO		IAF				+ 17500 FT	230		0.3 NM		
20	TF	PR754	N			274.000 (274.120)	7.000	+ 15700 FT			0.3 NM		
30	TF	PR752	N			273.940 (274.060)	13.237		185		0.3 NM		
40	RF	PR750			L	214.827 (214.947)	6.000	+ 15400 FT			0.3 NM	5.831	PRC63
50	RF	PR730			L	189.994 (190.114)	2.526	+ 13800 FT			0.3 NM	5.831	PRC63
60	RF	PR728			L	106.823 (106.943)	5.808				0.3 NM	4.000	PRC57
70	TF	PR724	N			106.823 (106.943)	4.018	+ 13100 FT			0.3 NM		
80	RF	PR722		IF	L	76.298 (076.418)	2.400	+ 12600 FT			0.3 NM	4.497	PRC58
90	RF	PR714			L	27.937 (028.057)	3.798				0.3 NM	4.497	PRC58
100	TF	PR712	N			27.936 (028.056)	1.248	@ 11800 FT	145		0.3 NM		
10	IF	PR888		IAF				+ 17000 FT	185		0.3 NM		
20	TF	PR744	N			60.947 (061.067)	2.400				0.3 NM		
30	RF	PR742			R	85.000 (085.120)	2.934				0.3 NM	7.000	PRC61
40	TF	PR740	N			85.000 (085.120)	6.000	+ 14400 FT			0.3 NM		
50	TF	PR738	N			85.051 (085.171)	1.907	+ 13600 FT			0.3 NM		
60	RF	PR736			L	76.261 (076.381)	1.000	+ 13100 FT			0.3 NM	6.500	PRC60
70	RF	PR734		IF	L	36.742 (036.862)	4.487	+ 12400 FT			0.3 NM	6.500	PRC60
80	RF	PR732			L	27.931 (028.051)	1.000				0.3 NM	6.500	PRC60
90	TF	PR714	N			27.931 (028.051)	1.207				0.3 NM		
100	TF	PR712	N			27.936 (028.056)	1.248	@ 11800 FT	145		0.3 NM		
10	IF	PR777		IAF				+ 16000 FT	185		0.3 NM		
20	TF	PR746	N	IF		354.000 (354.120)	6.360				0.3 NM		
30	RF	PR714			R	27.936 (028.056)	3.342				0.3 NM	5.643	PRC62
40	TF	PR712	N			27.936 (028.056)	1.248	@ 11800 FT	145		0.3 NM		
10	IF	PR712		FAF				@ 11800 FT	145		0.3 NM		
20	RF	PR710			L	261.000 (261.120)	4.585			-3	0.3 NM	2.070	PRC51
30	RF	PR708		MAPT	R	296.167 (296.287)	1.535	@ 9850 FT		-3	0.3 NM	2.500	PRC52
40	RF	PR706			R	341.540 (341.660)	1.980				0.3 NM	2.500	PRC52
50	TF	PR704	N			341.539 (341.659)	1.849				0.3 NM		
60	RF	PR790			R	162.880 (163.000)	9.493		185		0.3 NM	3.000	PRC68
70	TF	PR792	N			162.880 (163.000)	1.478				0.3 NM		
80	RF	PR712			R	207.941 (208.061)	7.079				0.3 NM	9.000	PRC69
90	TF	PR714	N			207.941 (208.061)	1.248				0.3 NM		
100	RF	PR746			L	173.994 (174.114)	3.342				0.3 NM	5.643	PRC62
110	TF	PR777	N			173.995 (174.115)	6.360				0.3 NM		
120	RF	PR794			L	108.484 (108.604)	5.720				0.3 NM	5.000	PRC70
130	RF	PR796			R	48.112 (048.232)	26.151				0.3 NM	5.000	PRC71
140	RF	PR798			L	354.002 (354.122)	4.723		220		0.3 NM	5.000	PRC72
150	TF	PR777	N			354.001 (354.121)	1.000	+ 16000 FT	185		0.3 NM		

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Recommended coding table RNAV(RNP) Z RWY 15/33:

Seq N°	PT	W/P ID	OverFly	Fix role	TD	CRS Val °T (°M)	DIST val (NM)	ALT ONE	SPD LMT (KT)	VRT ANG	NAV PERF	RADIUS val (NM)	ARC CTR ID
10	IF	PR888		IAF				+ 17000 FT	185		0.3 NM		
20	TF	PR744	N			60.947 (061.067)	2.400				0.3 NM		
30	RF	PR842			L	9.988 (010.108)	6.677	+ 15200 FT			0.3 NM	7.500	PRC64
40	TF	PR730	N			9.988 (010.108)	4.333				0.3 NM		
50	RF	PR799			L	326.466 (326.466)	3.047				0.3 NM	4.000	PRC56
60	TF	PR818	N	IF		326.346 (326.466)	2.645				0.3 NM		
70	RF	PR816			R	59.086 (059.206)	4.856	@ 13800 FT	145		0.3 NM	3.000	PRC55
10	IF	PR777		IAF				+ 16000 FT	185		0.3 NM		
20	TF	PR848	N			354.000 (354.120)	2.000				0.3 NM		
30	RF	PR830			L	298.917 (299.037)	4.325				0.3 NM	4.500	PRC66
40	TF	PR828	N			298.917 (299.037)	4.299				0.3 NM		
50	RF	PR826			L	286.869 (286.989)	1.048				0.3 NM	5.000	PRC65
60	TF	PR728	N			286.839 (286.959)	2.018				0.3 NM		
70	RF	PR730			R	09.994 (010.114)	5.808				0.3 NM	4.000	PRC57
80	RF	PR799			L	326.346 (326.466)	3.047				0.3 NM	4.000	PRC56
90	TF	PR818	N	IF		326.346 (326.466)	2.645				0.3 NM		
100	RF	PR816			R	59.086 (059.206)	4.856	@ 13800 FT	145		0.3 NM	3.000	PRC55
10	IF	GTSHO		IAF				+ 17500 FT	230		0.3 NM		
20	TF	PR854	N			274.000 (274.120)	2.000				0.3 NM		
30	RF	PR852			L	230.139 (230.259)	6.117	+ 16100 FT			0.3 NM	8.000	PRC67
40	TF	PR850	N			230.139 (230.259)	3.300	+ 15300 FT			0.3 NM		
50	TF	PR820	N			230.118 (230.238)	6.923		18		0.3 NM		
60	RF	PR724			R	286.855 (286.975)	4.460				0.3 NM	4.497	PRC58
70	TF	PR826	N			286.856 (286.976)	2.000				0.3 NM		
80	TF	PR728	N			286.839 (286.959)	2.018				0.3 NM		
90	RF	PR730			R	09.994 (010.114)	5.808				0.3 NM	4.000	PRC57
100	RF	PR799			L	326.346 (326.466)	3.047				0.3 NM	4.000	PRC56
110	TF	PR818	N	IF		326.346 (326.466)	2.645				0.3 NM		
120	RF	PR816			R	59.086 (059.206)	4.856	@ 13800 FT	145		0.3 NM	3.000	PRC55
10	IF	PR816		FAF				@ 13800 FT	145		0.3 NM		
20	RF	PR814			R	83.130 (083.250)	1.258			-3.5	0.3 NM	3.000	PRC55
30	RF	PR812			R	150.000 (150.120)	3.500			-3.5	0.3 NM	3.000	PRC55
40	RF	PR810			L	105.000 (105.120)	1.964			-3.5	0.3 NM	2.500	PRC54
50	RF	PR808		MAPT	R	161.531 (161.651)	2.959	@ 10200 FT		-3.5	0.3 NM	3.000	PRC53
60	TF	PR706	N			161.531 (161.651)	3.014				0.3 NM		
70	RF	PR710			L	81.000 (081.120)	3.515				0.3 NM	2.500	PRC52
80	RF	PR712			R	207.941 (208.061)	4.585		185		0.3 NM	2.070	PRC51
90	TF	PR714	N			207.941 (208.061)	1.248				0.3 NM		
100	RF	PR746			L	173.994 (174.114)	3.342				0.3 NM	5.643	PRC62
110	TF	PR848	N			173.995 (174.115)	4.360				0.3 NM		
120	TF	PR777	N			173.998 (174.118)	2.000				0.3 NM		

130	RF	PR794			L	108.484 (108.604)	5.720				0.3 NM	5.000	PRC70
140	RF	PR796			R	48.112 (048.232)	26.151				0.3 NM	5.000	PRC71
150	RF	PR798			L	354.002 (354.122)	4.723		220		0.3 NM	5.000	PRC72
160	TF	PR777	N			354.001 (354.121)	1.000	+ 16000 FT	185		0.3 NM		