

List of pages in this Trip Kit

Trip Kit Index

Airport Information For VMMC

Terminal Charts For VMMC

Revision Letter For Cycle 07-2023

Change Notices

Notebook

General Information

Location: MACAO MAC
ICAO/IATA: VMMC / MFM
Lat/Long: N22° 08.97', E113° 35.48'
Elevation: 20 ft

Airport Use: Public
Daylight Savings: Not Observed
UTC Conversion: -8:00 = UTC
Magnetic Variation: 3.0° W

Fuel Types: Jet A-1
Repair Types: Minor Airframe, Minor Engine
Customs: Yes
Airport Type: IFR
Landing Fee: Yes
Control Tower: Yes
Jet Start Unit: No
LLWS Alert: No
Beacon: No
Traffic Pattern Altitude: 1020 ft (1000 ft AGL)

Sunrise: 2207 Z
Sunset: 1045 Z

Runway Information

Runway: 16
Length x Width: 11024 ft x 148 ft
Surface Type: concrete
TDZ-Elev: 20 ft
Lighting: Edge, ALS, Centerline, REIL
Displaced Threshold: 1181 ft
Stopway: 197 ft

Runway: 34
Length x Width: 11024 ft x 148 ft
Surface Type: concrete
TDZ-Elev: 20 ft
Lighting: Edge, ALS, Centerline, REIL, TDZ
Displaced Threshold: 1214 ft
Stopway: 197 ft

Communication Information

ATIS: 126.400

Macao Tower: 119.400 Secondary

Macao Tower: 118.000

Macao Ground: 121.725

Macao Ground: 121.975 Secondary

Zhuhai Approach: 120.350

Zhuhai Approach: 119.775 Secondary

Hong Kong Approach: 119.100

Hong Kong Radar: 126.300 RCO

Fire Fighting Emergency: 123.100

Macau Heliport Helicopter: 123.500

1. GENERAL

1.1. ATIS

ATIS 126.4

1.2. NOISE ABATEMENT PROCEDURES

1.2.1. RUN-UP TESTS

Engine runs above ground idle power are not permitted between 2200-0700LT. Exception may be considered case by case, depending on actual operational analyses.

An engine ground run is defined as any engine start-up not associated with the planned ACFT departure. Maintenance or test running of jet engine not mounted on an ACFT is prohibited unless performed in a test cell of adequate design.

Engine ground running at idle power for duration not exceeding 15 minutes may be conducted on ACFT parking bays with previous coordination with APT Operation Coordination Center. Extension of such limitation is subject to APT Operation Coordination Center approval depending on APT conditions. Power runs above idle for maintenance purpose must be conducted at designated areas.

Initial requests for a ground run at any time should be made by telephone to APT Operation Coordination Center. The airline or the engine tester is responsible for ensuring that all safety precautions against injury to persons or damage to properties, ACFT, vehicles, marine vessels (when the jet blast is directed towards the sea) and equipment in the vicinity are adopted. When ready to conduct the engine run, clearance from MACAO Ground on 121.725 MHz. A listening watch must be maintained on the frequency throughout the engine run. The ACFT anti-collision beacons must be activated for the entire duration and MACAO Ground should be advised on its completion.

1.3. LOW VISIBILITY PROCEDURES (LVP)

LVP will be in force whenever

- TDZ RVR of RWY 34 is 800m or below; or
- ceiling is 200' or below; or
- VIS conditions decrease rapidly.

Pilots will be informed when LVP are in use via RTF or ATIS through the message "Low Visibility Procedure in force" .

1.4. PARKING INFORMATION

Advanced Visual Docking Guidance System available at stands A2, A4, A6, B2, B4 and B6.

1.5. OTHER INFORMATION

1.5.1. GENERAL

RWY 34 right-hand circuit.

1.5.2. PREFERENTIAL RWY SYSTEM

The preferential RWY is RWY 34, within the limits of a wind intensity (actual and/or forecasted) of no more than 10 KT as tailwind component.

If the tailwind component for RWY 34 is higher than 10 KT and the VIS or ceiling for RWY 16 are below minima for this RWY, no landings will be allowed unless specifically requested by the pilot.

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MACAO INTL

3 FEB 23

10-1P1

.AIRPORT.BRIEFING.

2. ARRIVAL

2.1. SPEED RESTRICTIONS

MAX 250 KT below FL 110 within Hong Kong airspace, unless otherwise instructed.

MAX 190 KT during approach turns.

2.2. NOISE ABATEMENT PROCEDURES

Landing on RWY 16:

- Maintain 218° track inbound on LOC course.
- Do not deviate from ZAO R-231, which defines the northern limit for flights landing on RWY 16 due to noise abatement for Zhuhai City.
- ACFT according to ICAO Annex 16 Chapter 2 will only be considered in a case-by-case basis. For Chapter 2 Noise ACFT, operation time between 2400-0800LT is not allowed.

2.3. CAT II OPERATIONS

RWY 34 approved for CAT II operations, special aircrew and ACFT certification required.

2.4. OTHER INFORMATION

To harmonize the implementation of PBN procedures, pilots of arriving ACFT are requested to report the type of approach on their initial contact with ATC.

3. DEPARTURE

3.1. START-UP AND PUSH-BACK PROCEDURES

For color coded push-back procedures refer to 10-9 pages.

Contact Ground/Tower for clearance request 5 minutes prior to start-up.

Pilots have to inform Ground/Tower about their call sign, parking bay number/ location and proposed flight level if it is different from the filed flight plan when making the call.

ACFT should not commence start-up, push-back or any other maneuver on the apron unless pilot has obtained clearance from MACAO Ground/Tower as appropriate.

ACFT start-up engines will be allowed by Tower after the engines clear the white taxi line protection.

3.2. SPEED RESTRICTIONS

MAX 250 KT below FL 110 within Hong Kong airspace, unless otherwise instructed.

3.3. NOISE ABATEMENT PROCEDURES

Take-off on RWY 34:

- Climb offset 15° (Right) to 400', turn RIGHT.
- Do not overshoot ZAO R-231, which defines the northern limit for flights taking off on RWY 34 due to noise abatement for Zhuhai City.

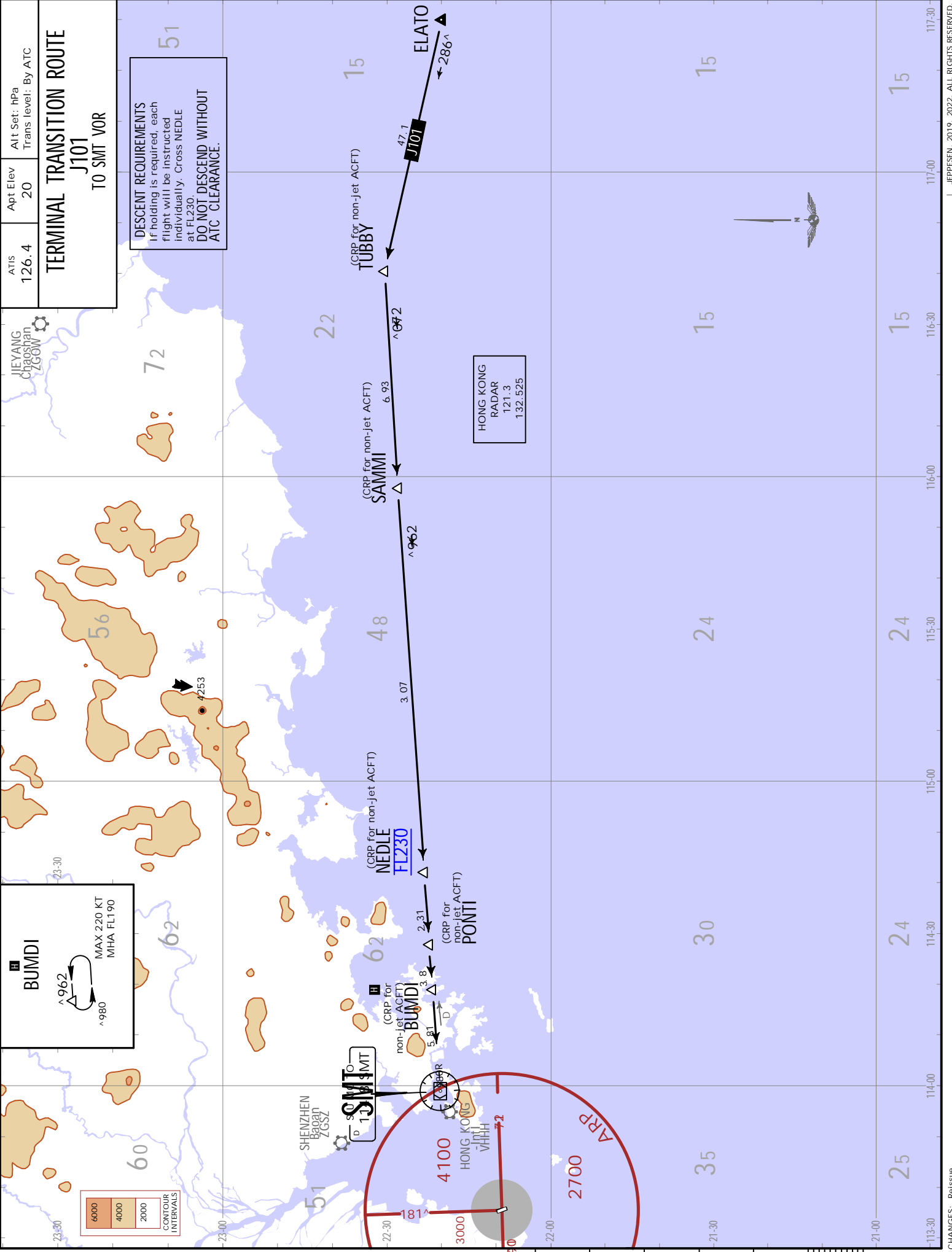
MACAO, PR OF CHINA
TERMINAL TRANSITION ROUTE

ATIS	Apt Elev	Alt Set: hPa
126.4	20	Trans level: By ATC

TERMINAL TRANSITION ROUTE
J101
 TO SMT VOR

DESCENT REQUIREMENTS
 If holding is required, each flight will be instructed individually. Cross NEDLE at FL230.
DO NOT DESCEND WITHOUT ATC CLEARANCE.

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 11 MAR 22
 Eff. 24 Mar. 10-2



BUMDI

MAX 220 KT
 MHA FL190

^962
 ^980

SMT
 113.1

HONG KONG RADAR
 121.3
 132.525



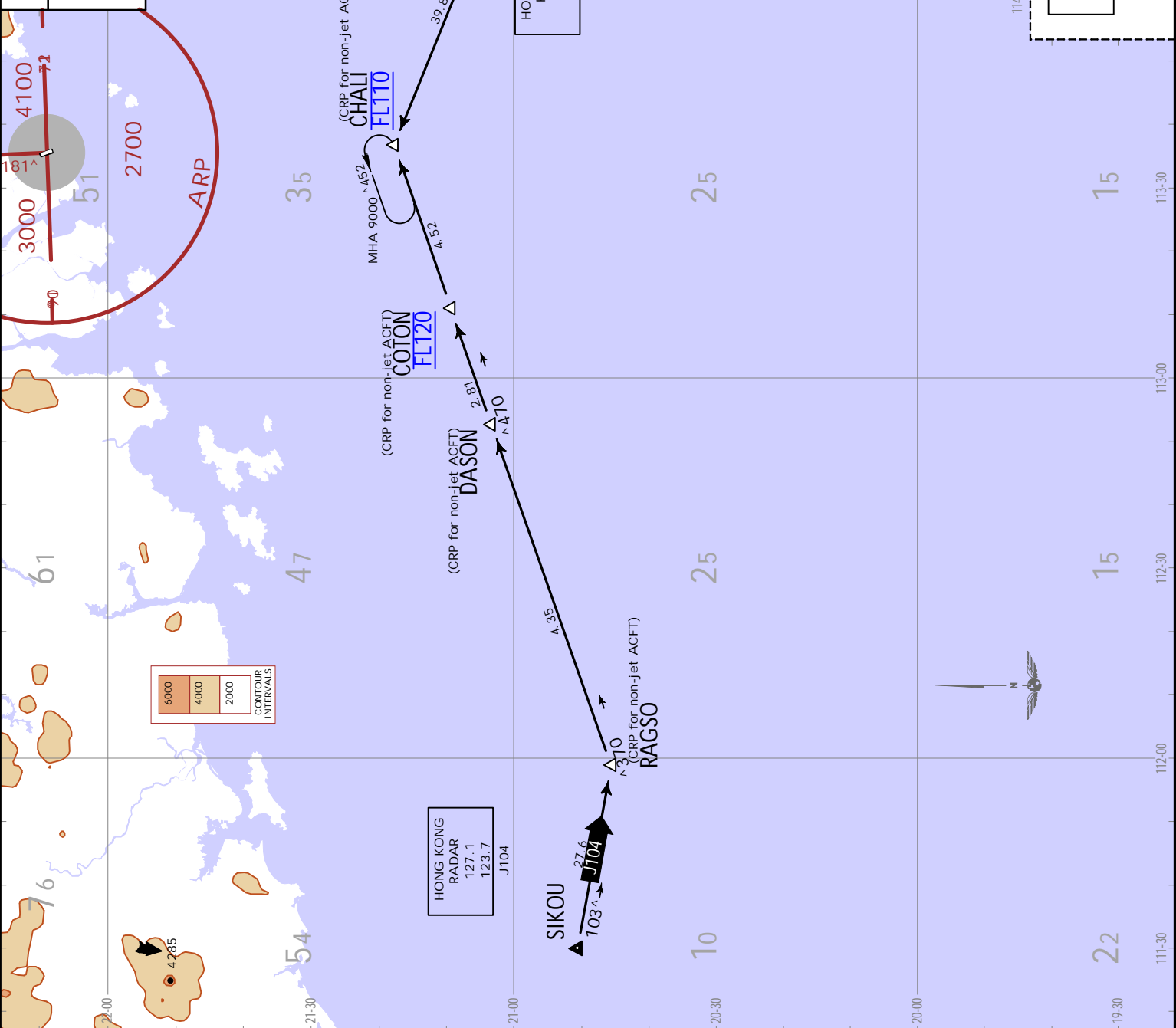
JEPPESEN
 11 MAR 22
 .Eff. 24 Mar. (10-2A)
VMC/MFM
 MACAO INTL

MACAO, PR OF CHINA
 .TERMINAL.TRANSITION.ROUTE.

ATIS	126.4
Apt Elev	20
Alt Set: hPa	
Trans level: By ATC	

TERMINAL TRANSITION ROUTES
J103, J104
TO CHALI

DESCENT REQUIREMENTS
 If holding is required, each flight will be instructed individually.
 Via J103: cross ISBAN at FL200, CHALI at FL110.
 Via J104: cross COTON at FL120, CHALI at FL110.
DO NOT DESCEND WITHOUT ATC CLEARANCE.



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 21 JAN 22 (10-2B) . Eff. 27 Jan.
MACAO, PR OF CHINA
 .RNAV.STAR

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ATIS 126.4	Apt Elev 20	Alt Set: hPa	Trans level: By ATC
RNP 1		GNSS required	

**BIGRO 1A [BIGR1A]
 BIGRO 7A [BIGR7A]
 RNAV (GNSS) ARRIVALS
 (ALL RWYS)**

**.SPEED: MAX 190 KT DURING
 APPROACH TURNS**

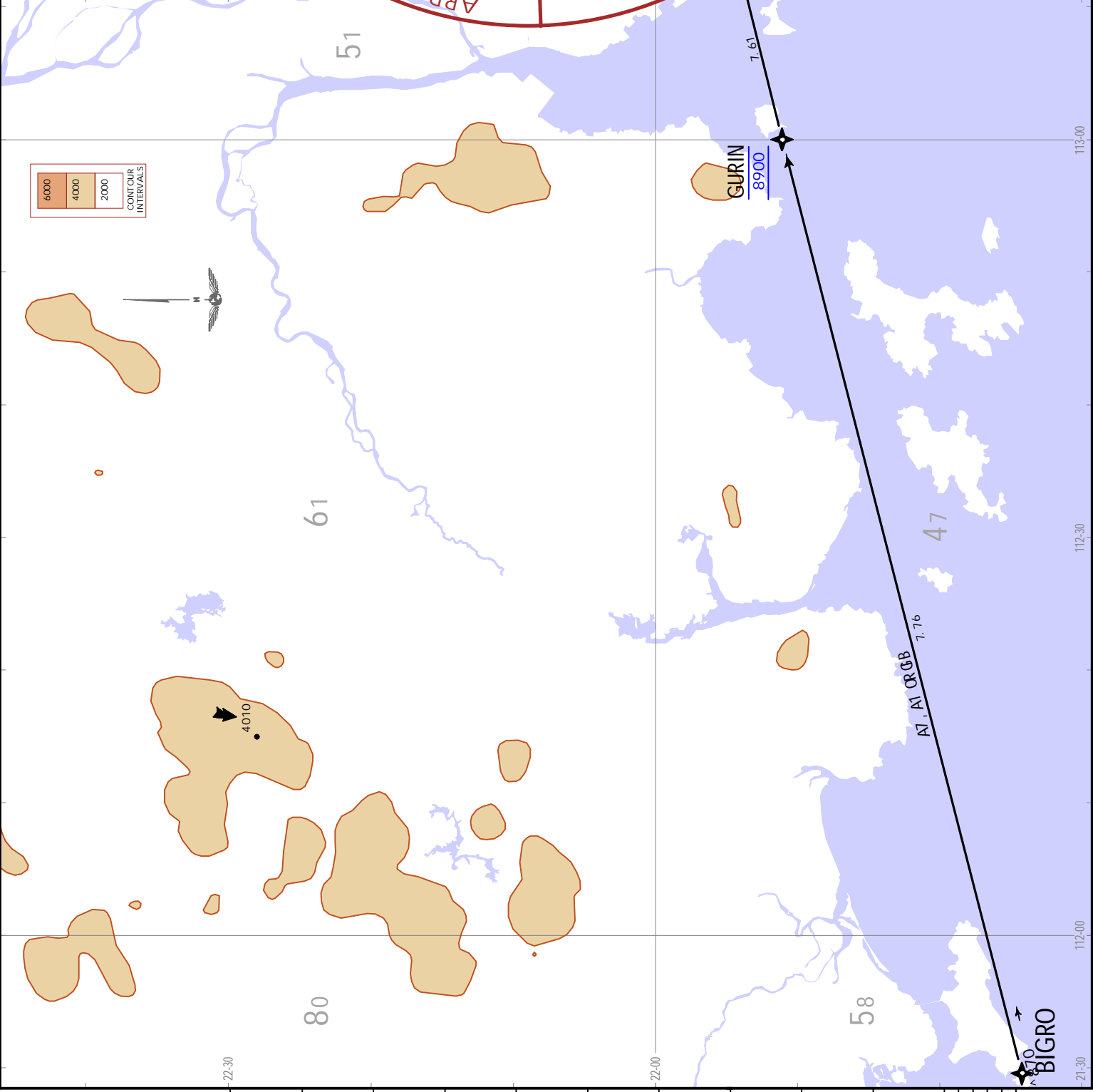
LOST COMMS	LOST COMMS	LOST COMMS	LOST COMMS
Comply with STAR, then Join:	BIGRO 1A: runway 16 approach.	BIGRO 7A: runway 34 approach.	LOST COMMS

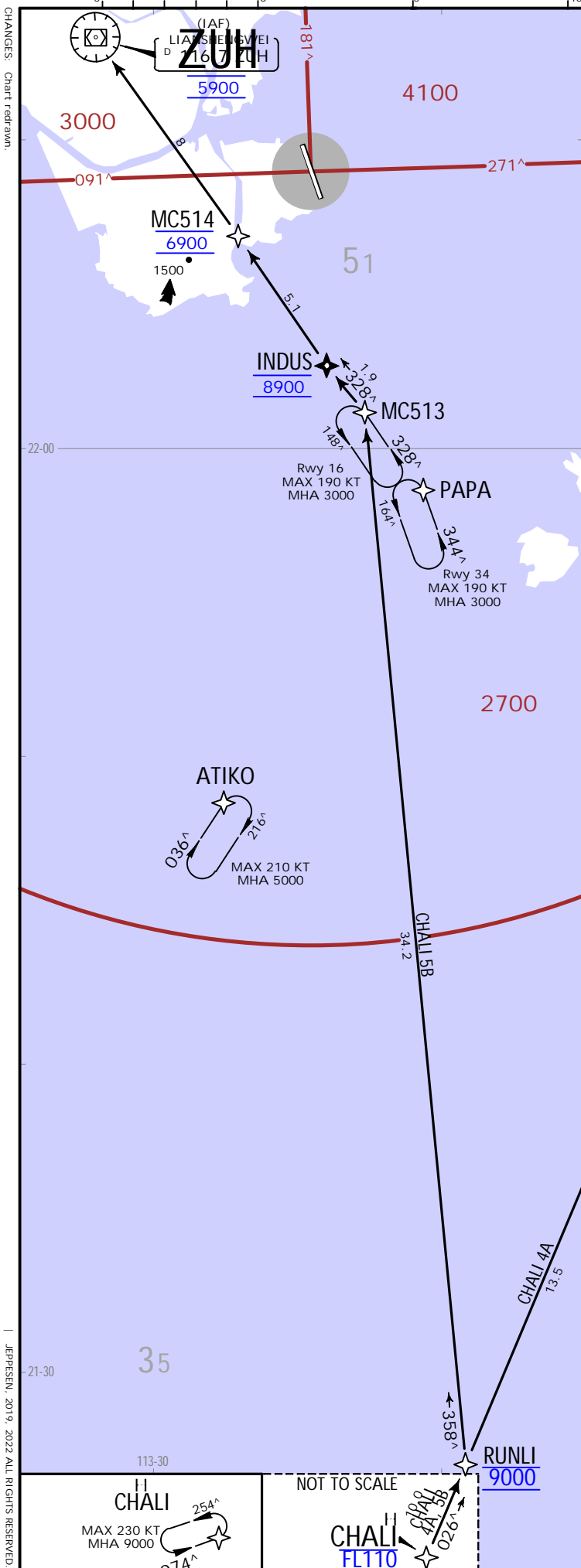
3
4100

FT./METER CONVERSION
 ONH
 8900' - 2700m
 5900' - 1800m

STAR	RWY	ROUTING
BIGRO 1A 1	16	To GURIN, then to UJ, then to ZUH.
BIGRO 7A 2	34	To GURIN, then to UJ.

For Non-RNP 1 approved aircraft or whose RNP 1 capability has been degraded use non-RNAV STAR:
 1 BIGRO 9A/ 2 BIGRO 6A.





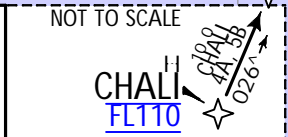
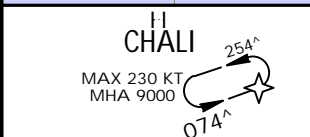
ATIS 126.4	Apt Elev 20	Alt Set: hPa Trans level: By ATC RNP 1 GNSS required If holding is required each flight will be instructed individually.
CHALI 4A [CHAL4A], CHALI 5B [CHAL5B] RNAV (GNSS) ARRIVALS (ALL RWYS) FOR NON-RNP 1 APPROVED AIRCRAFT OR WHOSE RNP 1 CAPABILITY HAS BEEN DEGRADED REPORT TO HK ATC AND EXPECT RADAR VECTOR SPEED: MAX 250 KT BELOW FL110 WITHIN HONG KONG AIRSPACE UNLESS OTHERWISE INSTRUCTED MAX 190 KT DURING APPROACH TURNS		
STAR	RWY	ROUTING
CHALI 4A	34	Descend from CHALI at FL110, turn LEFT via RUNLI to MC611. Cross RUNLI at 9000 and MC611 at or above 6000 descending to 3000. Do not descend without ATC clearance.
CHALI 5B	16	Descend from CHALI at FL110, turn LEFT to RUNLI, turn LEFT to MC513, then via INDUS and MC514 to ZUH. Cross RUNLI at 9000, INDUS at 8900, MC514 at 6900 and ZUH at 5900. Do not descend without ATC clearance.
LOST COMMS ▼ LOST COMMS ▼ LOST COMMS ▼ LOST COMMS ▲ LOST COMMS ▲ LOST COMMS ▲ LOST COMMS ▲ LOST COMMS COMMS		FL CONVERSION FL110 FL3353m FT/METER CONVERSION QNH 8900' - 2700m 6900' - 2100m 5900' - 1800m 3000' - 900m

30

114-00

FOR NON-RNP 1 APPROVED AIRCRAFT OR WHOSE RNP 1 CAPABILITY HAS BEEN DEGRADED REPORT TO HK ATC AND EXPECT RADAR VECTOR

**CHALI 4A [CHAL4A]
CHALI 5B [CHAL5B]
RNAV (GNSS) ARRIVALS
(ALL RWYS)**



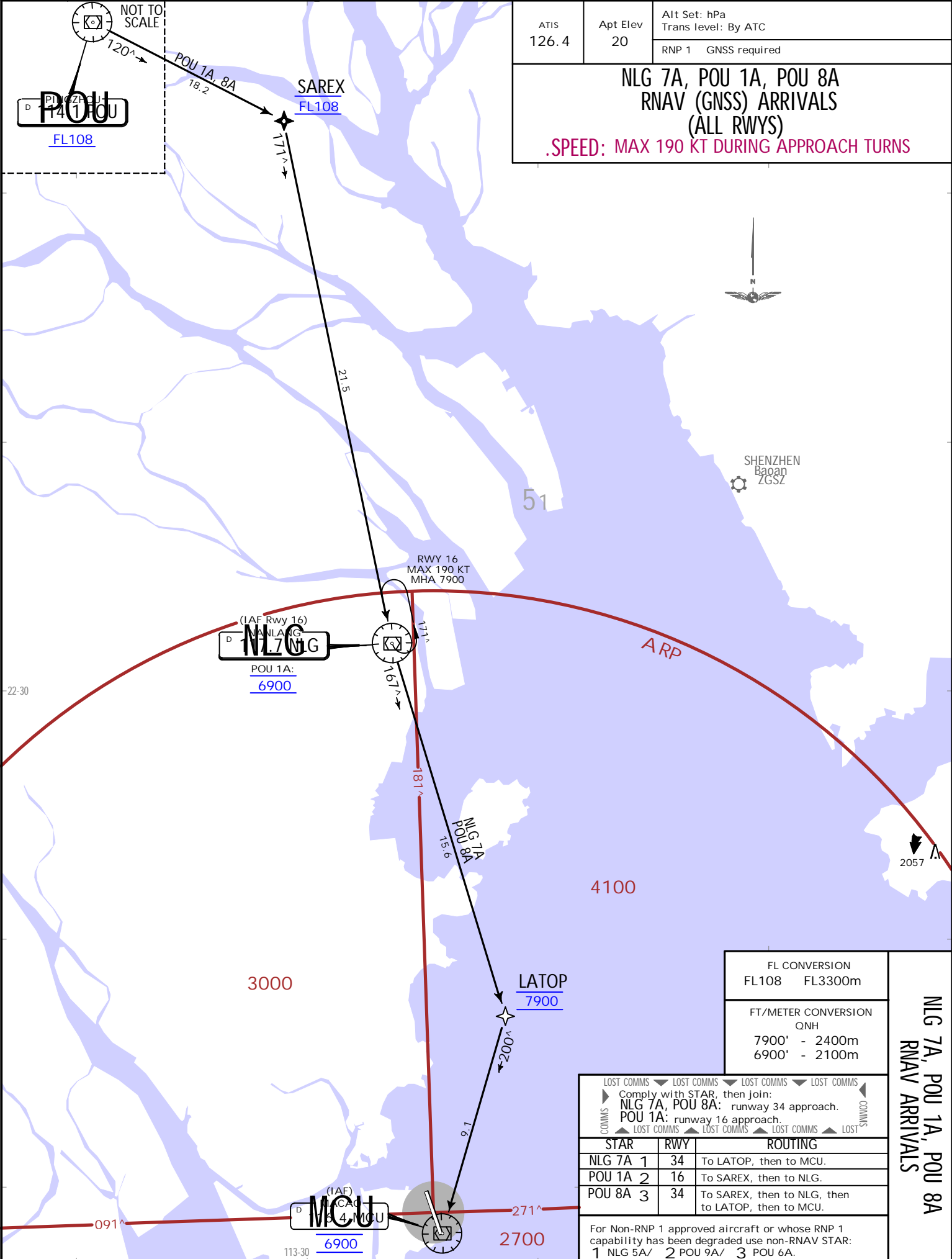
CHANGES: Bearings.

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ATIS 126.4	Apt Elev 20	Alt Set: hPa Trans Level: By ATC
RNP 1 GNS required		

**NLG 7A, POU 1A, POU 8A
RNAV (GNSS) ARRIVALS
(ALL RWYS)**

.SPEED: MAX 190 KT DURING APPROACH TURNS



FL CONVERSION	
FL108	FL3300m
FT/METER CONVERSION	
QNH	
7900'	- 2400m
6900'	- 2100m

LOST COMMS ▼ LOST COMMS ▼ LOST COMMS ▼ LOST COMMS ▲ LOST COMMS ▲ LOST COMMS ▲ LOST COMMS ▲ LOST COMMS Comply with STAR, then join: NLG 7A, POU 8A: runway 34 approach. POU 1A: runway 16 approach.		
STAR	RWY	ROUTING
NLG 7A 1	34	To LATOP, then to MCU.
POU 1A 2	16	To SAREX, then to NLG.
POU 8A 3	34	To SAREX, then to NLG, then to LATOP, then to MCU.

For Non-RNP 1 approved aircraft or whose RNP 1 capability has been degraded use non-RNAV STAR:
 1 NLG 5A/ 2 POU 9A/ 3 POU 6A.

**NLG 7A, POU 1A, POU 8A
RNAV ARRIVALS**

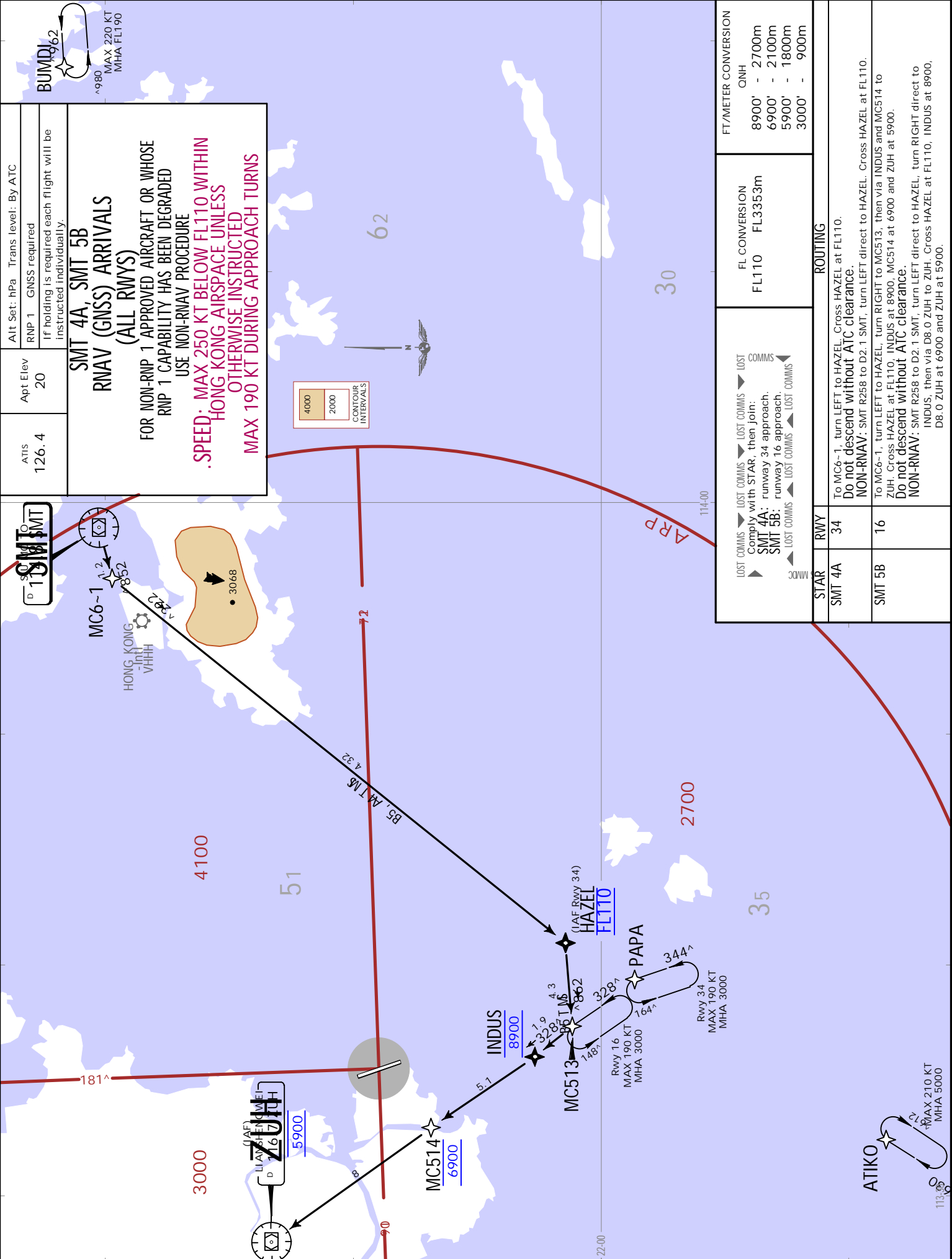
10 MAR 23 10-2D .EFF. 23 Mar.
 JEPPESEN MACAO, PR OF CHINA
 RNAV STAR

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10 MAR 23 10-2E .Eff. 23. Mar.

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.RNAV .STAR.



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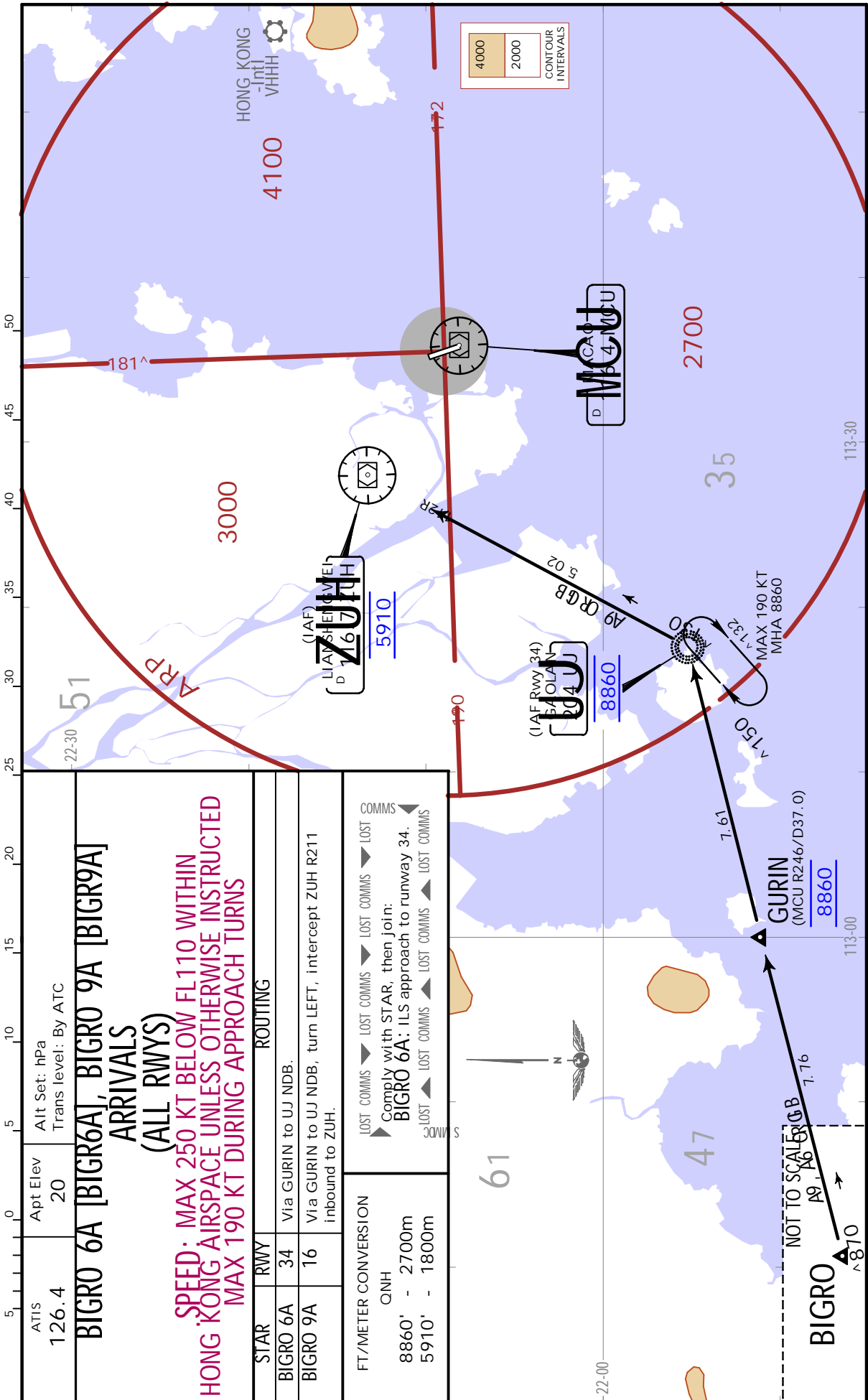
MACAO, PR OF CHINA

10 MAR 23

10-2F

.Eff.23.Mar.

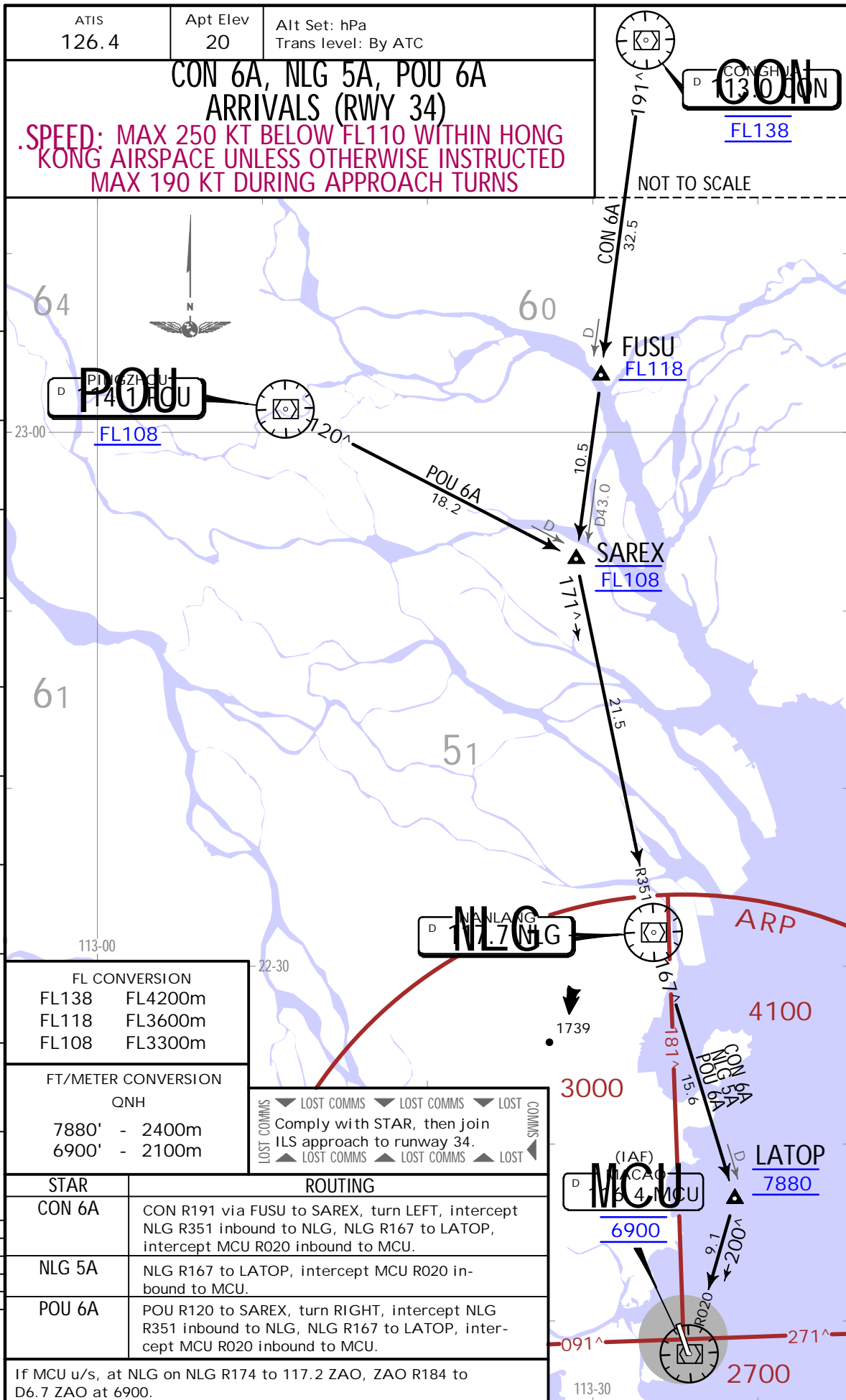
.STAR.



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10 MAR 23 (10-2G) .Eff.23.Mar.

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.STAR.



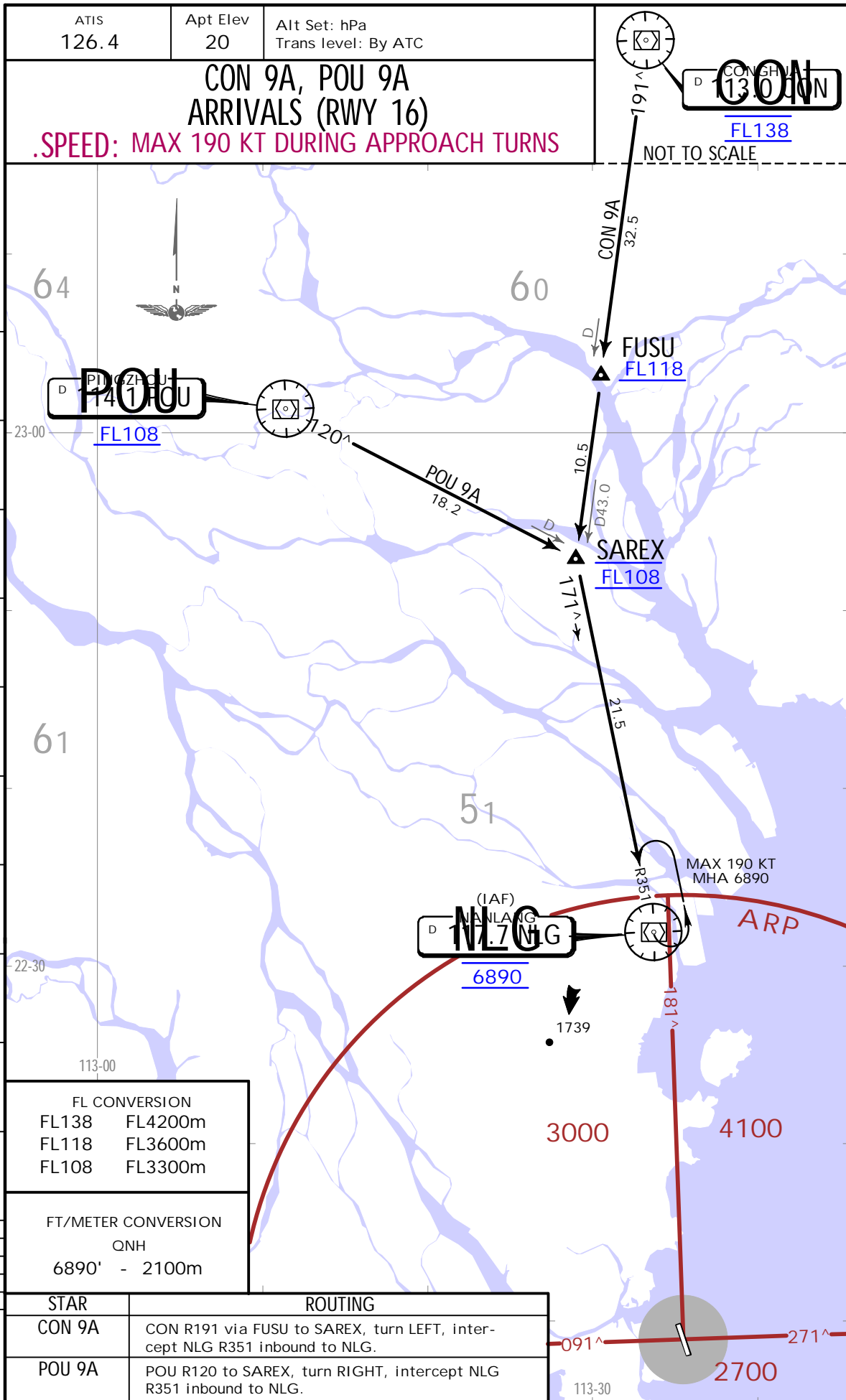
CHANGES: Bearings.

VMMC/MFM
MACAO INTL

JEPPESEN

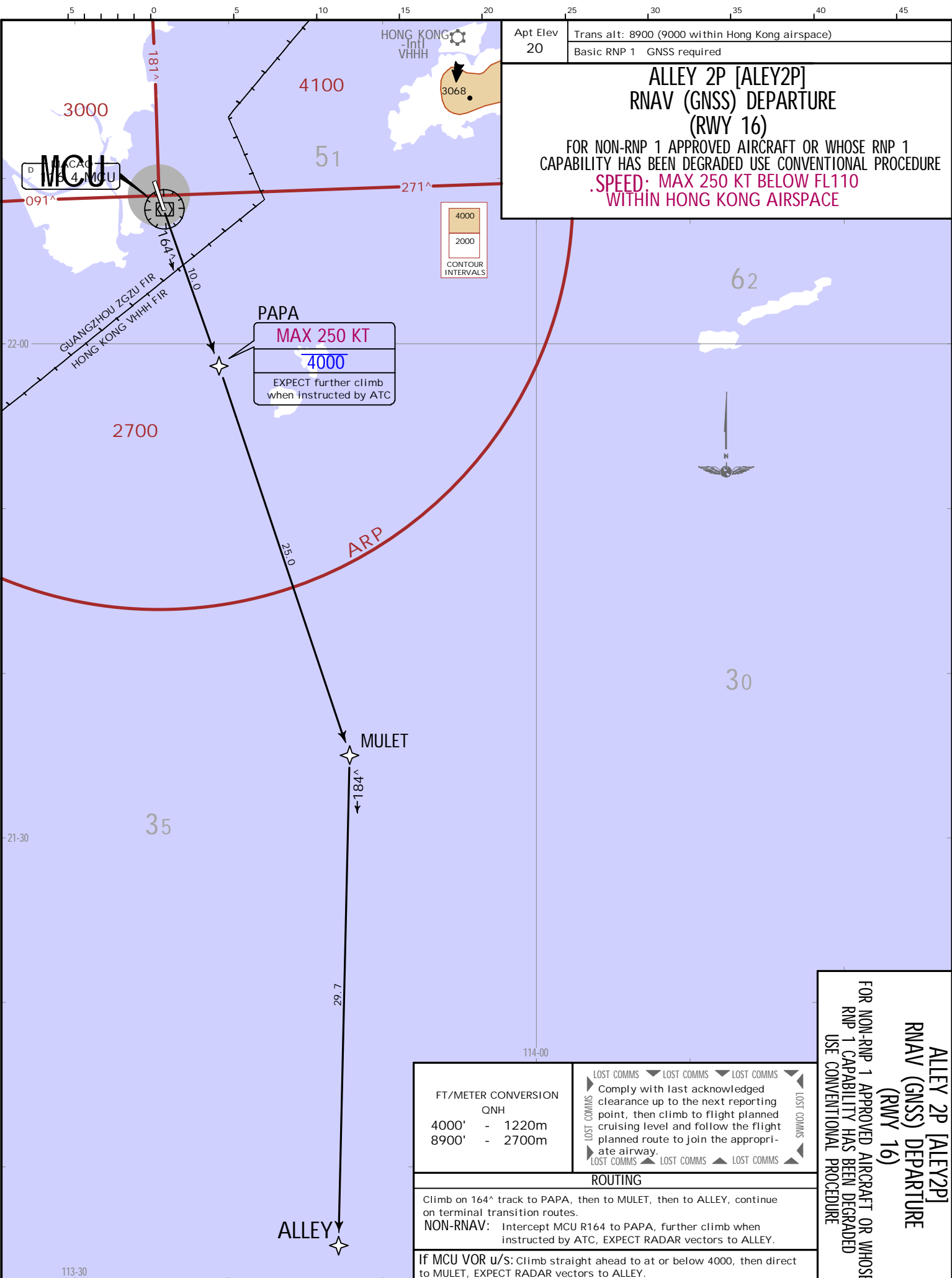
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.STAR.

21 JAN 22 (10-2H) .Eff.27.Jan.



CHANGES: Crossing and speed at PAPA: chart reimaged

VMMC/MFM
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PAPA MAX 250 KT 4000 EXPECT further climb when instructed by ATC

FT/METER CONVERSION	
QNH	
4000'	- 1220m
8900'	- 2700m

LOST COMMS ▼ LOST COMMS ▼ LOST COMMS ▼
 Comply with last acknowledged clearance up to the next reporting point, then climb to flight planned cruising level and follow the flight planned route to join the appropriate airway.
 ▲ LOST COMMS ▲ LOST COMMS ▲ LOST COMMS ▲

ROUTING

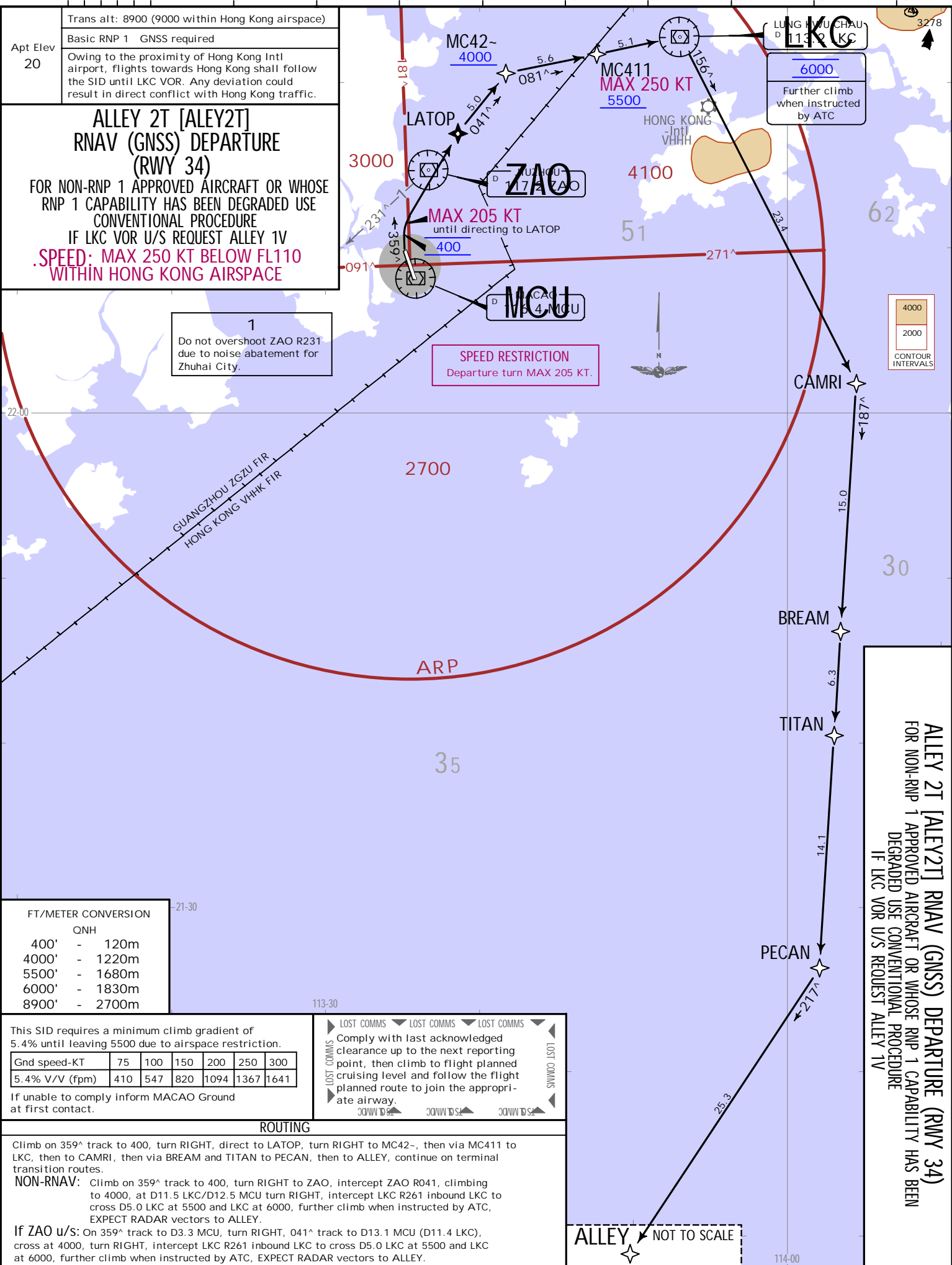
Climb on 164° track to PAPA, then to MULET, then to ALLEY, continue on terminal transition routes.
 NON-RNAV: Intercept MCU R164 to PAPA, further climb when instructed by ATC, EXPECT RADAR vectors to ALLEY.

If MCU VOR u/s: Climb straight ahead to at or below 4000, then direct to MULET, EXPECT RADAR vectors to ALLEY.

ALLEY 2P [ALEY2P] RNAV (GNSS) DEPARTURE (RWY 16) FOR NON-RNP 1 APPROVED AIRCRAFT OR WHOSE RNP 1 CAPABILITY HAS BEEN DEGRADED USE CONVENTIONAL PROCEDURE

JEPPESEN MACAO, PR OF CHINA
 21 JAN 22 10-3 .Eff: 27 Jan.
 .RNAV.SID.

CHANGES: Initial turn altitude; speed restriction at MC411; chart reindexed.



Trans alt: 8900 (9000 within Hong Kong airspace)
 Basic RNP 1 GNSS required
 Apt Elev 20
 Owing to the proximity of Hong Kong Intl airport, flights towards Hong Kong shall follow the SID until LKC VOR. Any deviation could result in direct conflict with Hong Kong traffic.

**ALLEY 2T [ALEY2T]
 RNAV (GNSS) DEPARTURE
 (RWY 34)**
 FOR NON-RNP 1 APPROVED AIRCRAFT OR WHOSE RNP 1 CAPABILITY HAS BEEN DEGRADED USE CONVENTIONAL PROCEDURE
 IF LKC VOR U/S REQUEST ALLEY 1V
**SPEED: MAX 250 KT BELOW FL110
 WITHIN HONG KONG AIRSPACE**

1
 Do not overshoot ZAO R231 due to noise abatement for Zhuhai City.

SPEED RESTRICTION
 Departure turn MAX 205 KT.

FT/METER CONVERSION

FT	METER
400'	120m
4000'	1220m
5500'	1680m
6000'	1830m
8900'	2700m

This SID requires a minimum climb gradient of 5.4% until leaving 5500 due to airspace restriction.

Gnd speed-KT	75	100	150	200	250	300
5.4% V/V (fpm)	410	547	820	1094	1367	1641

If unable to comply inform MACAO Ground at first contact.

LOST COMMS
 Comply with last acknowledged clearance up to the next reporting point, then climb to flight planned cruising level and follow the flight planned route to join the appropriate airway.

ROUTING

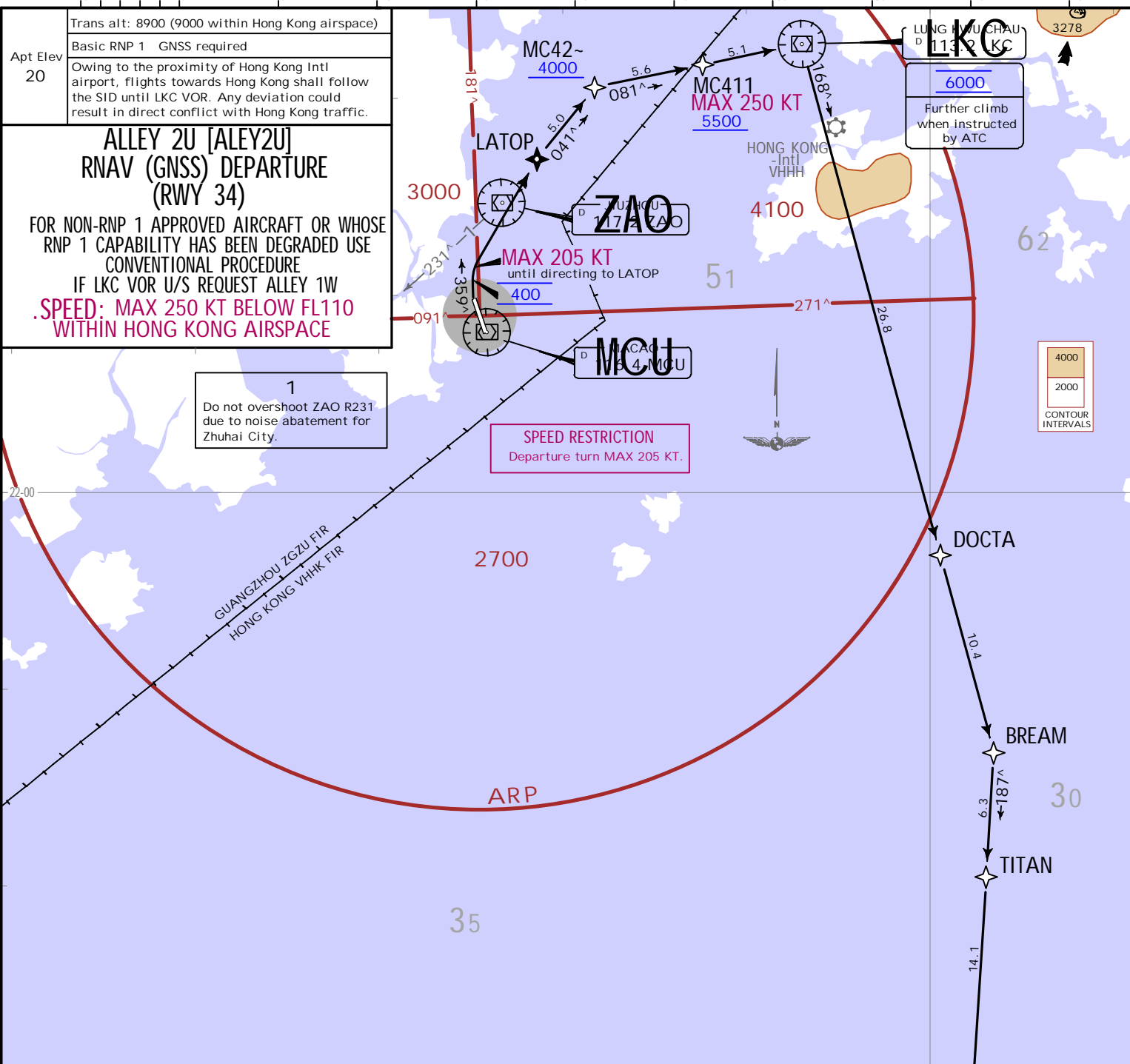
Climb on 359° track to 400, turn RIGHT, direct to LATOP, turn RIGHT to MC42-, then via MC411 to LKC, then to CAMRI, then via BREAM and TITAN to PECAN, then to ALLEY, continue on terminal transition routes.
 NON-RNAV: Climb on 359° track to 400, turn RIGHT to ZAO, intercept ZAO R041, climbing to 4000, at D11.5 LKC/D12.5 MCU turn RIGHT, intercept LKC R261 inbound LKC to cross D5.0 LKC at 5500 and LKC at 6000, further climb when instructed by ATC, EXPECT RADAR vectors to ALLEY.
 If ZAO u/s: On 359° track to D3.3 MCU, turn RIGHT, 041° track to D13.1 MCU (D11.4 LKC), cross at 4000, turn RIGHT, intercept LKC R261 inbound LKC to cross D5.0 LKC at 5500 and LKC at 6000, further climb when instructed by ATC, EXPECT RADAR vectors to ALLEY.

ALLEY 2T [ALEY2T] RNAV (GNSS) DEPARTURE (RWY 34)
 FOR NON-RNP 1 APPROVED AIRCRAFT OR WHOSE RNP 1 CAPABILITY HAS BEEN DEGRADED USE CONVENTIONAL PROCEDURE
 IF LKC VOR U/S REQUEST ALLEY 1V

VM/MC/MFM
 MACAO INTL
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 21 JAN 22 (10-3A) Eff: 27 Jan.
 MACAO, PR OF CHINA
 RNAV SID.

CHANGES: None

VMMG/MFM
MACAO INTL



Trans alt: 8900 (9000 within Hong Kong airspace)
Basic RNP 1 GNSS required
Apt Elev 20
Owing to the proximity of Hong Kong Intl airport, flights towards Hong Kong shall follow the SID until LKC VOR. Any deviation could result in direct conflict with Hong Kong traffic.

**ALLEY 2U [ALEY2U]
RNAV (GNSS) DEPARTURE
(RWY 34)**
FOR NON-RNP 1 APPROVED AIRCRAFT OR WHOSE RNP 1 CAPABILITY HAS BEEN DEGRADED USE CONVENTIONAL PROCEDURE
IF LKC VOR U/S REQUEST ALLEY 1W
**SPEED: MAX 250 KT BELOW FL110
WITHIN HONG KONG AIRSPACE**

1
Do not overshoot ZAO R231 due to noise abatement for Zhuhai City.

SPEED RESTRICTION
Departure turn MAX 205 KT.

4000
2000
CONTOUR INTERVALS

FT/METER CONVERSION

FT	METER
400'	120m
4000'	1220m
5500'	1680m
6000'	1830m
8900'	2700m

This SID requires a minimum climb gradient of 5.4% until leaving 5500 due to airspace restriction.

Gnd speed-KT	75	100	150	200	250	300
5.4% V/V (fpm)	410	547	820	1094	1367	1641

If unable to comply inform MACAO Ground at first contact.

LOST COMMS
Comply with last acknowledged clearance up to the next reporting point, then climb to flight planned cruising level and follow the flight planned route to join the appropriate airway.
LOST COMMS

ROUTING

Climb on 359° track to 400, turn RIGHT, direct to LATOP, turn RIGHT to MC42-, then via MC411 to LKC, then via DOCTA to BREAM, then via TITAN to PECAN, then to ALLEY, continue on terminal transition routes.
NON-RNAV: Climb on 359° track to 400, turn RIGHT to ZAO, intercept ZAO R041, climbing to 4000, at D11.5 LKC/D12.5 MCU turn RIGHT, intercept LKC R261 inbound LKC to cross D5.0 LKC at 5500 and LKC at 6000, further climb when instructed by ATC, EXPECT RADAR vectors to ALLEY.
If ZAO u/s: On 359° track to D3.3 MCU, turn RIGHT, 041° track to D13.1 MCU (D11.4 LKC), cross at 4000, turn RIGHT, intercept LKC R261 inbound LKC to cross D5.0 LKC at 5500 and LKC at 6000, further climb when instructed by ATC, EXPECT RADAR vectors to ALLEY.

**ALLEY 2U [ALEY2U]
RNAV (GNSS) DEPARTURE (RWY 34)**
FOR NON-RNP 1 APPROVED AIRCRAFT OR WHOSE RNP 1 CAPABILITY HAS BEEN DEGRADED USE CONVENTIONAL PROCEDURE
IF LKC VOR U/S REQUEST ALLEY 1W

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10 MAR 23 10-3B .EFF. 23 Mar.
RNAV.SID.

JEPPESEN
10 MAR 23 (10-3C). Eff. 23. Mar.

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MACAO INTL

MACAO, PR OF CHINA
.RNAV.SID.

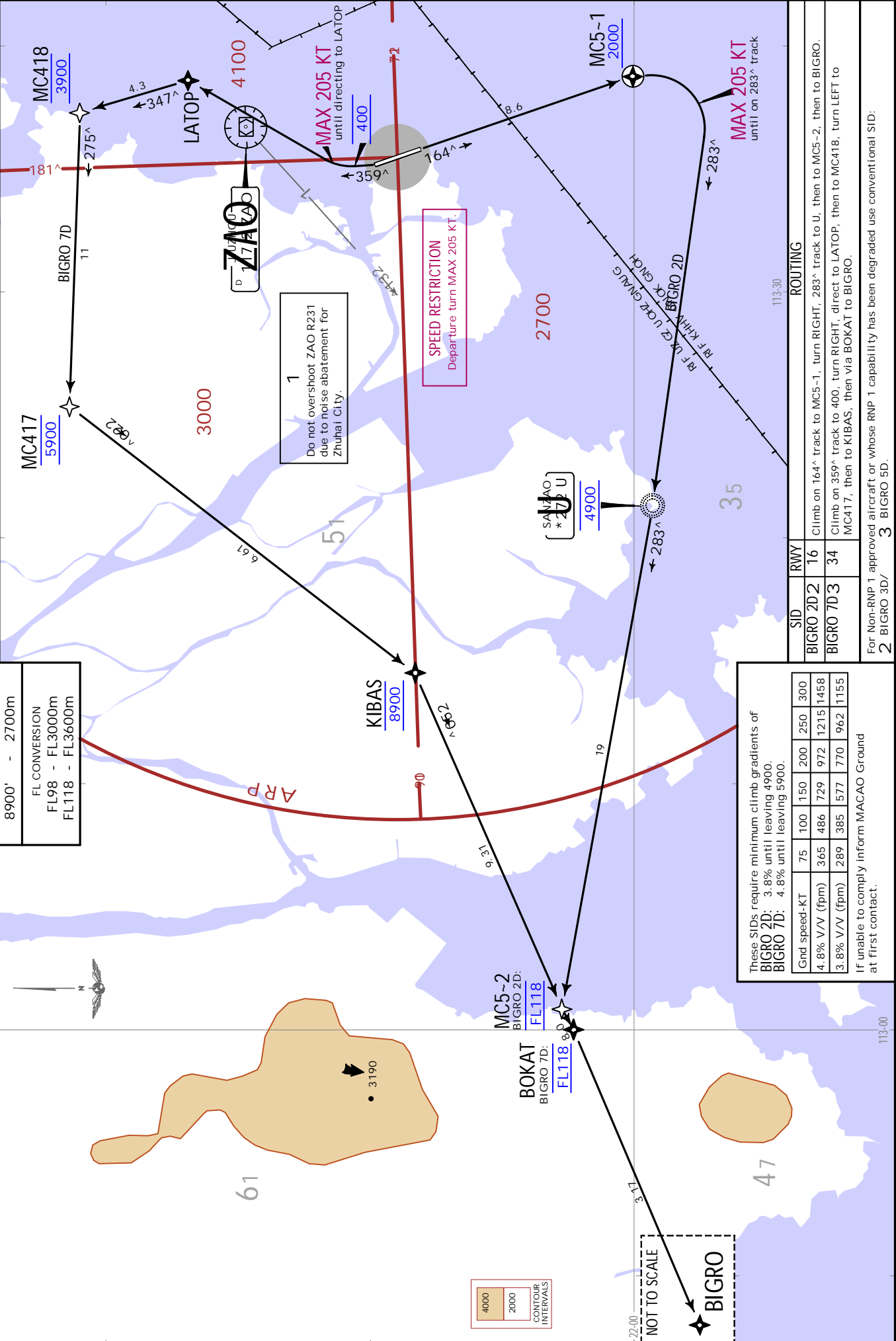
Trans alt: 8900 (9000 within Hong Kong airspace)
Basic RNP 1 - GNSS required

**BIGRO 2D [BIGR2D], BIGRO 7D [BIGR7D]
RNAV (GNSS) DEPARTURES (ALL RWYS)**

Apt Elev 20

FT./METER CONVERSION	
QNH	
400'	- 120m
2000'	- 610m
3900'	- 1200m
4900'	- 1500m
5900'	- 1800m
8900'	- 2700m

FL CONVERSION	
FL98	FL3000m
FL118	- FL3600m



ROUTING	
BIGRO 2D	16
BIGRO 7D	34

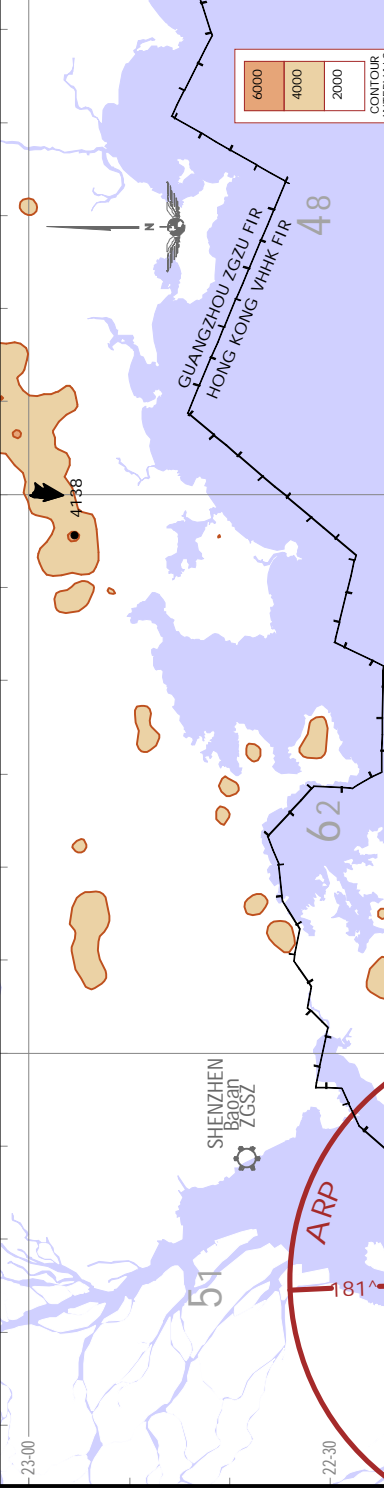
For Non-RNP 1 approved aircraft or whose RNP 1 capability has been degraded use conventional SID:
2 BIGRO 3D/ 3 BIGRO 5D.

SID	RWY
BIGRO 2D	16
BIGRO 7D	34

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 21 JAN 22 (10-3D) Eff. 27 Jan
 .RNAV.SID.

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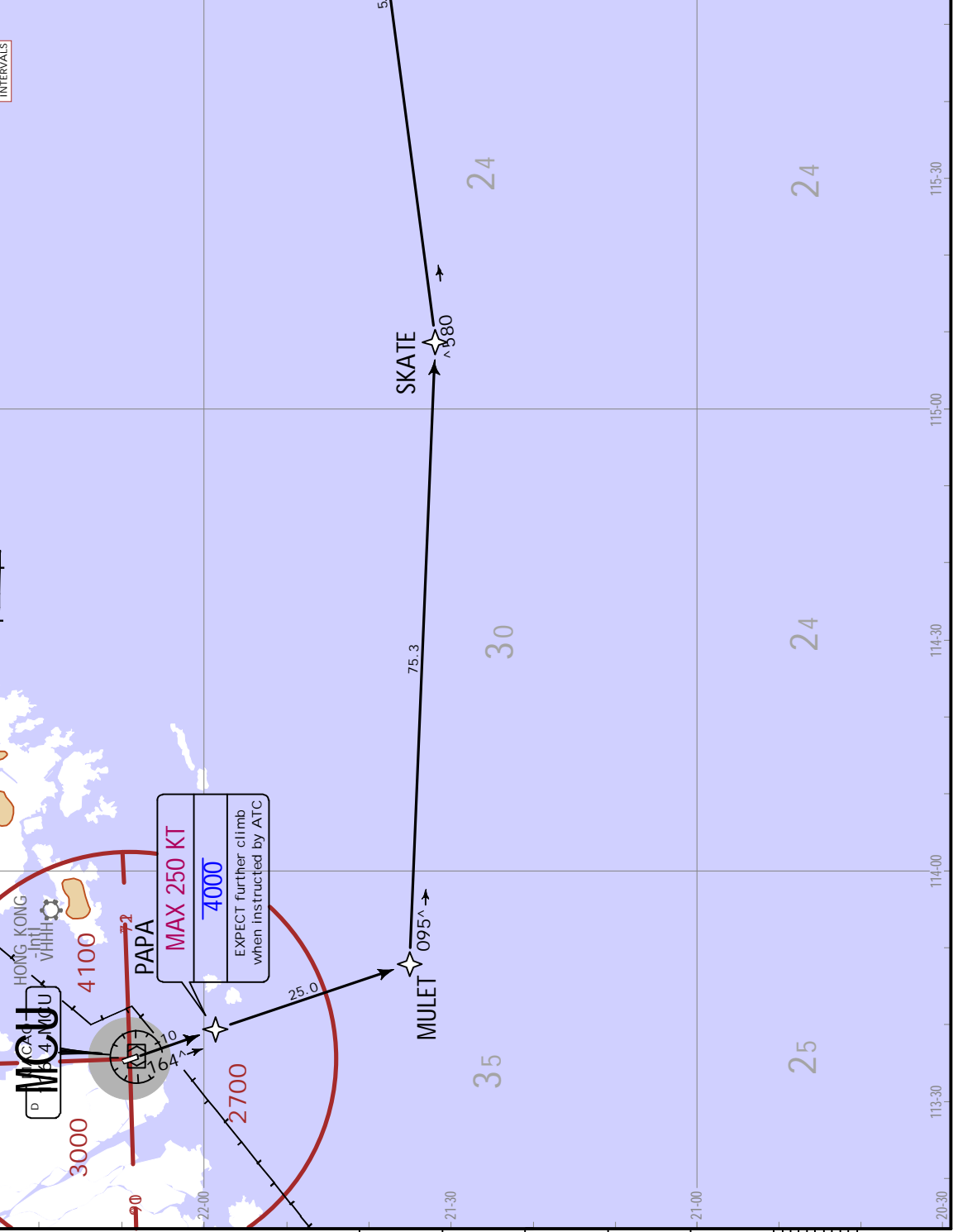
Apt Elev 20
 Basic RNP 1 GNSS required
CONGA 2P [CONG2P]
RNAV (GNSS) DEPARTURE
(RWY 16)
 FOR NON-RNP 1 APPROVED AIRCRAFT OR
 WHOSE RNP 1 CAPABILITY HAS BEEN DEGRADED
 USE CONVENTIONAL PROCEDURE
SPEED: MAX 250 KT BELOW FL110
WITHIN HONG KONG AIRSPACE



Trans alt: 8900 (9000 within Hong Kong airspace)
 FT./METER CONVERSION
 ONH
 4000' - 1220m
 8900' - 2700m

LOST COMMS
 Comply with last acknowledged clearance up to the next reporting point, then climb to flight planned cruising level and follow the flight planned route to join the appropriate airway.

ROUTING
 Climb on 164° track to PAPA, then to MULET, then to SKATE, then to CONGA, continue on terminal transition route.
NON-RNAV: Intercept MCU R164 to PAPA, further climb when instructed by ATC, EXPECT RADAR vectors to CONGA.
IF MCU VOR u/s: Climb straight ahead to at or below 4000, then direct to MULET, EXPECT RADAR vectors to CONGA.



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MACAO INTL

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21 JAN 22 10-3E .Eff.27.Jan.

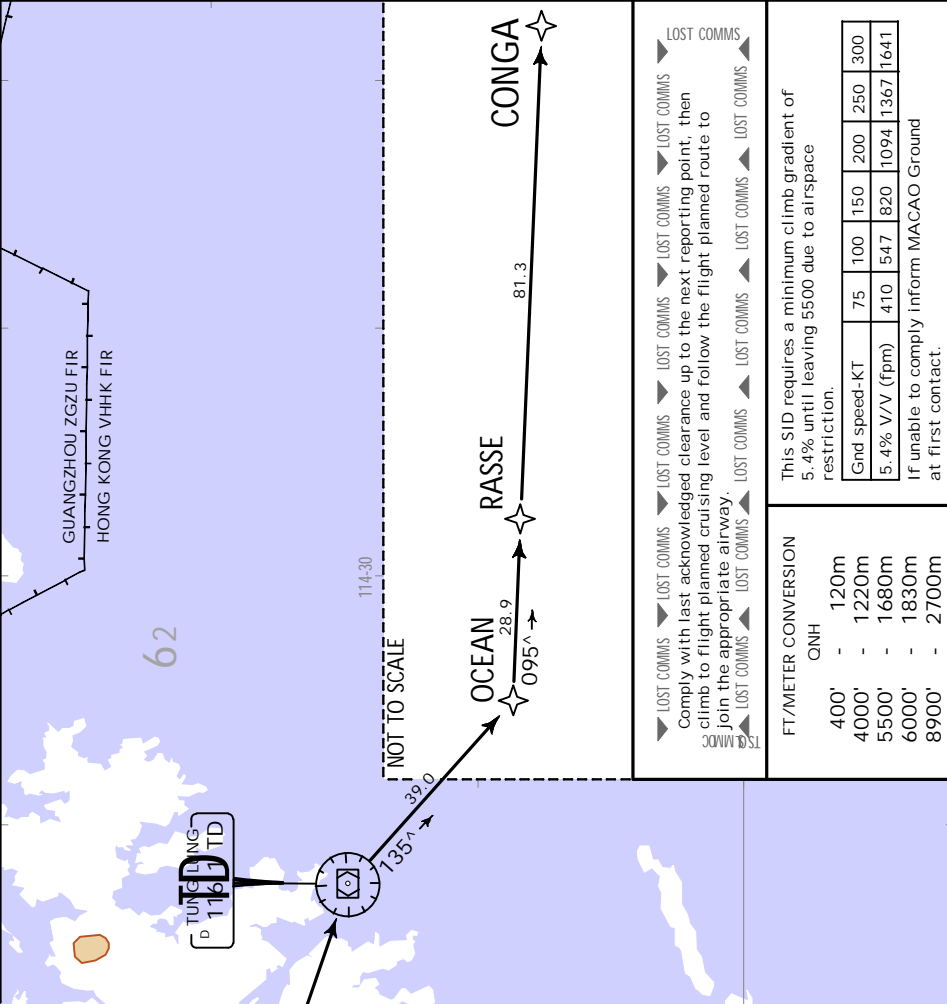
MACAO, PR OF CHINA
.RNAV.SID.

Trans alt.: 8900 (9000 within Hong Kong airspace)
Apt Elev 20
Basic RNP 1 GNSS required
Owing to the proximity of Hong Kong Intl airport, flights towards Hong Kong shall follow the SID until LKC VOR. Any deviation could result in direct conflict with Hong Kong traffic.

**CONGA 2T [CONG2T]
RNAV (GNSS) DEPARTURE
(RWY 34)**

FOR NON-RNP 1 APPROVED AIRCRAFT OR WHOSE RNP 1 CAPABILITY HAS BEEN DEGRADED USE CONVENTIONAL PROCEDURE
IF LKC VOR U/S REQUEST CONGA 1V

.SPEED: MAX 250 KT BELOW FL110 WITHIN HONG KONG AIRSPACE



NOT TO SCALE

FT/METER CONVERSION	
GNH	
400'	- 120m
4000'	- 1220m
5500'	- 1680m
6000'	- 1830m
8900'	- 2700m

This SID requires a minimum climb gradient of 5.4% until leaving 5500 due to airspace restriction.

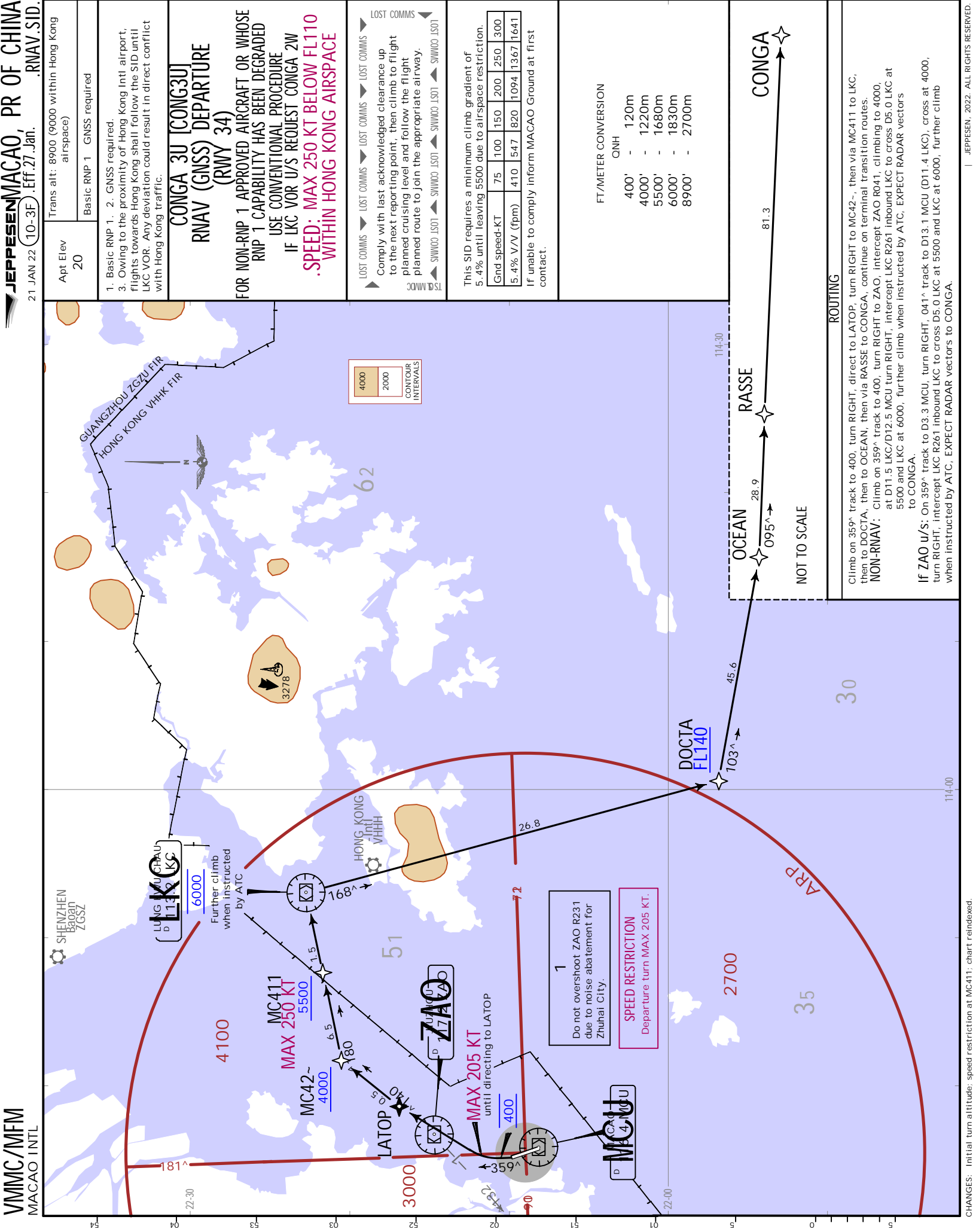
Gnd speed-KT	75	100	150	200	250	300
5.4% V/V (fpm)	410	547	820	1094	1367	1641

If unable to comply inform MACAO Ground at first contact.

ROUTING

Climb on 359° track to 400, turn RIGHT, direct to LATOP, turn RIGHT to MC42-, then via MC411 to LKC, then to TD, then to OCEAN, then via RASSE to CONGA, continue on terminal transition routes.
NON-RNAV: Climb on 359° track to 400, turn RIGHT to ZAO, intercept ZAO R041, climbing to 4000, at D11.5 LKC/D12.5 MCU turn RIGHT, intercept LKC R261 inbound LKC to cross D5.0 LKC at 5500 and LKC at 6000, further climb when instructed by ATC, EXPECT RADAR vectors to CONGA.
If ZAO U/S: On 359° track to D3.3 MCU, turn RIGHT, 041° track to D13.1 MCU (D11.4 LKC), cross at 4000, turn RIGHT, intercept LKC R261 inbound LKC to cross D5.0 LKC at 5500 and LKC at 6000, further climb when instructed by ATC, EXPECT RADAR vectors to CONGA.

CHANGES: Initial turn altitude: speed restriction at MC411; chart reindexed.



JEPPESEN MACAO, PR OF CHINA
 21 JAN 22 (10-3E) . Eff. 27 Jan' . RNAV . SID.

VM/MC/MFM
 MACAO INTL

Apt Elev 20
 Trans alt: 8900 (9000 within Hong Kong airspace)
 Basic RNP 1 GNSS required

1. Basic RNP 1. 2. GNSS required.
3. Owing to the proximity of Hong Kong Intl airport, flights towards Hong Kong shall follow the SID until LKC VOR. Any deviation could result in direct conflict with Hong Kong traffic.

**CONGA 3U [CONG3U]
 RNAV (GNSS) DEPARTURE
 (RWY 34)**
**FOR NON-RNP 1 APPROVED AIRCRAFT OR WHOSE RNP 1 CAPABILITY HAS BEEN DEGRADED USE CONVENTIONAL PROCEDURE.
 IF LKC VOR U/S REQUEST CONGA 2W**
.SPEED: MAX 250 KT BELOW FL110
WITHIN HONG KONG AIRSPACE

LOST COMMS \blacktriangleright LOST COMMS \blacktriangleright LOST COMMS \blacktriangleright LOST COMMS \blacktriangleright LOST COMMS
 \blacktriangleright Comply with last acknowledged clearance up to the next reporting point, then climb to flight planned cruising level and follow the flight planned route to join the appropriate airway.
 TSD.MDC \blacktriangleleft SWN00 LS01 \blacktriangleleft SWN00 LS01 \blacktriangleleft SWN00 LS01 \blacktriangleleft SWN00 LS01

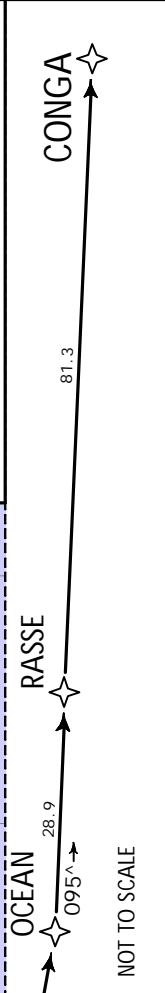
This SID requires a minimum climb gradient of 5.4% until leaving 5500 due to airspace restriction.

Gnd speed-KT	75	100	150	200	250	300
5.4% V/V (fpm)	410	547	820	1094	1367	1641

If unable to comply inform MACAO Ground at first contact.

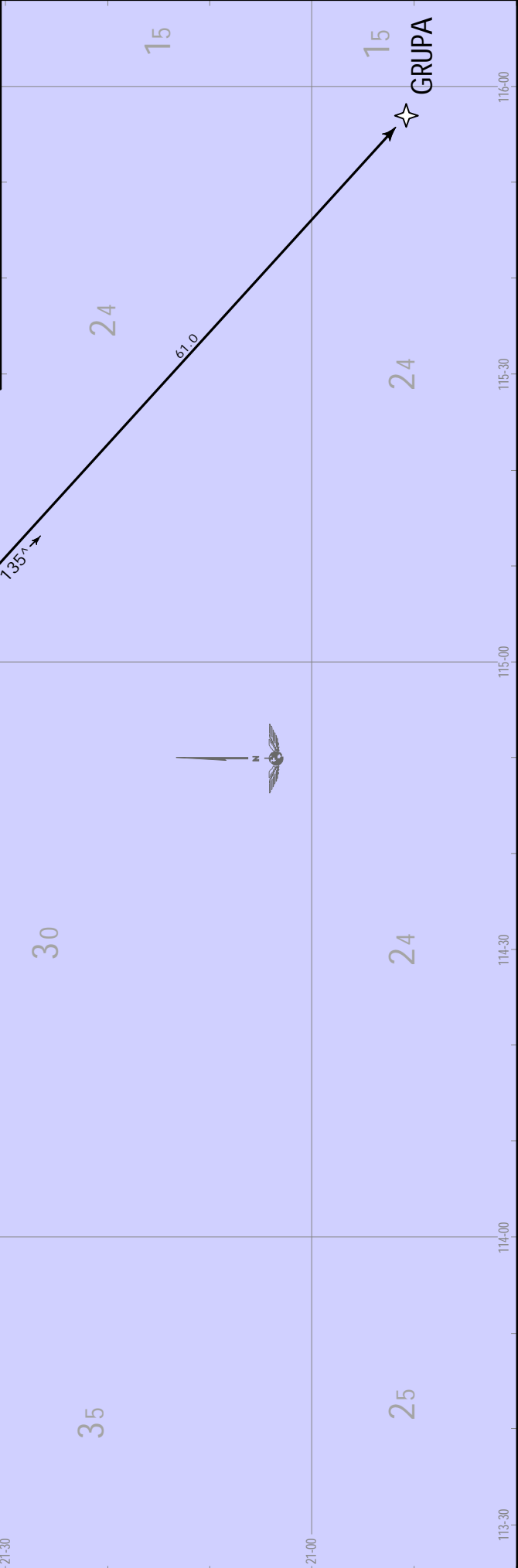
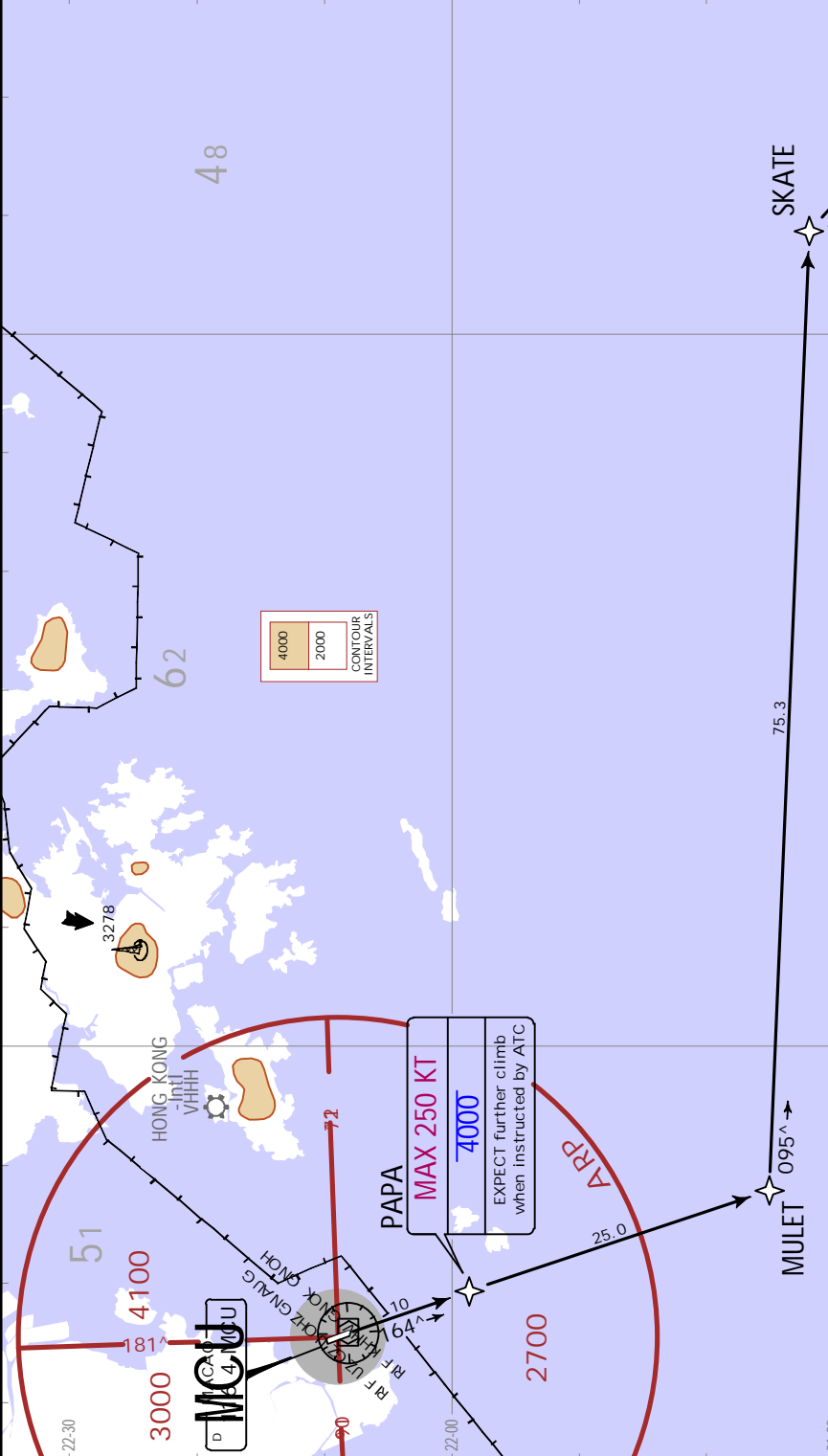
FT./METER CONVERSION

ONH	400'	-	120m
4000'	-	1220m	
5500'	-	1680m	
6000'	-	1830m	
8900'	-	2700m	



Climb on 359° track to 400, turn RIGHT, direct to LATOP, turn RIGHT to MC42-, then via MC411 to LKC, then to DOCTA, then to OCEAN, then via RASSE to CONGA, continue on terminal transition routes.
NON-RNAV: Climb on 359° track to 400, turn RIGHT to ZAO, intercept ZAO R041, climbing to 4000, at D11.5 LKC/D12.5 MCU turn RIGHT, intercept LKC R261 inbound LKC to cross D5.0 LKC at 5500 and LKC at 6000, further climb when instructed by ATC, EXPECT RADAR vectors to CONGA.
IF ZAO U/S: On 359° track to D3.3 MCU, turn RIGHT, 041° track to D13.1 MCU (D11.4 LKC), cross at 4000, turn RIGHT, intercept LKC R261 inbound LKC to cross D5.0 LKC at 5500 and LKC at 6000, further climb when instructed by ATC, EXPECT RADAR vectors to CONGA.

Apt Elev 20	Trans alt: 8900 (9000 within Hong Kong airspace) Basic RNP 1. GNSS required.
<p>GRUPA 2P [GRUP2P] RNAV (GNSS) DEPARTURE (RWY 16)</p> <p>FOR NON-RNP 1 APPROVED AIRCRAFT OR WHOSE RNP 1 CAPABILITY HAS BEEN DEGRADED USE CONVENTIONAL PROCEDURE SPEED: MAX 250 KT BELOW FL110 WITHIN HONG KONG AIRSPACE</p>	
<p>LOST COMMS ▼ LOST COMMS ▼ LOST COMMS ▼ LOST COMMS ▼ LOST COMMS ▼</p> <p>Comply with last acknowledged clearance up to the next reporting point, then climb to flight planned cruising level and follow the flight planned route to join the appropriate airway.</p> <p>▲ SWW001 JS01 ▲ SWW001 JS01 ▲ SWW001 JS01 ▲ SWW001 JS01 ▲ SWW001 JS01</p>	
<p>ROUTING</p> <p>Climb on 164° track to PAPA, then to MULET, then to SKATE, then to GRUPA, continue on terminal transition route.</p> <p>NON-RNAV: Intercept MCU R164 to PAPA, further climb when instructed by ATC. EXPECT RADAR vectors to GRUPA.</p> <p>IF MCU VOR u/s: Climb straight ahead to at or below 4000, then direct to MULET. EXPECT RADAR vectors to GRUPA.</p>	
<p>FT/METER CONVERSION</p> <p>CNH</p> <p>4000' - 1220m 8900' - 2700m</p>	



JEPPESEN MACAO, PR OF CHINA
 21 JAN 22 (10-3H) Eff: 27 Jan
 .RNAV.SID.

Apt Elev 20
 Trans alt: 8900 (9000 within Hong Kong airspace)
 Basic RNP 1: GNSS required.

Owing to the proximity of Hong Kong Intl airport, flights towards Hong Kong shall follow the SID until LKC VOR. Any deviation could result in direct conflict with Hong Kong traffic.

GRUPA 2T [GRUP2T] RNAV (GNSS) DEPARTURE (RWY 34)
 FOR NON-RNP 1 APPROVED AIRCRAFT OR WHOSE RNP 1 CAPABILITY HAS BEEN DEGRADED USE CONVENTIONAL PROCEDURE IF LKC VOR U/S REQUEST GRUPA 1V
SPEED: MAX 250 KT BELOW FL110 WITHIN HONG KONG AIRSPACE

LOST COMMS
 Comply with last acknowledged clearance up to the next reporting point, then climb to flight planned cruising level and follow the flight planned route to join the appropriate airway.
 SNNW00 .LS01 SNNW00 .LS01 SNNW00 .LS01 SNNW00 .LS01
 LOST COMMS

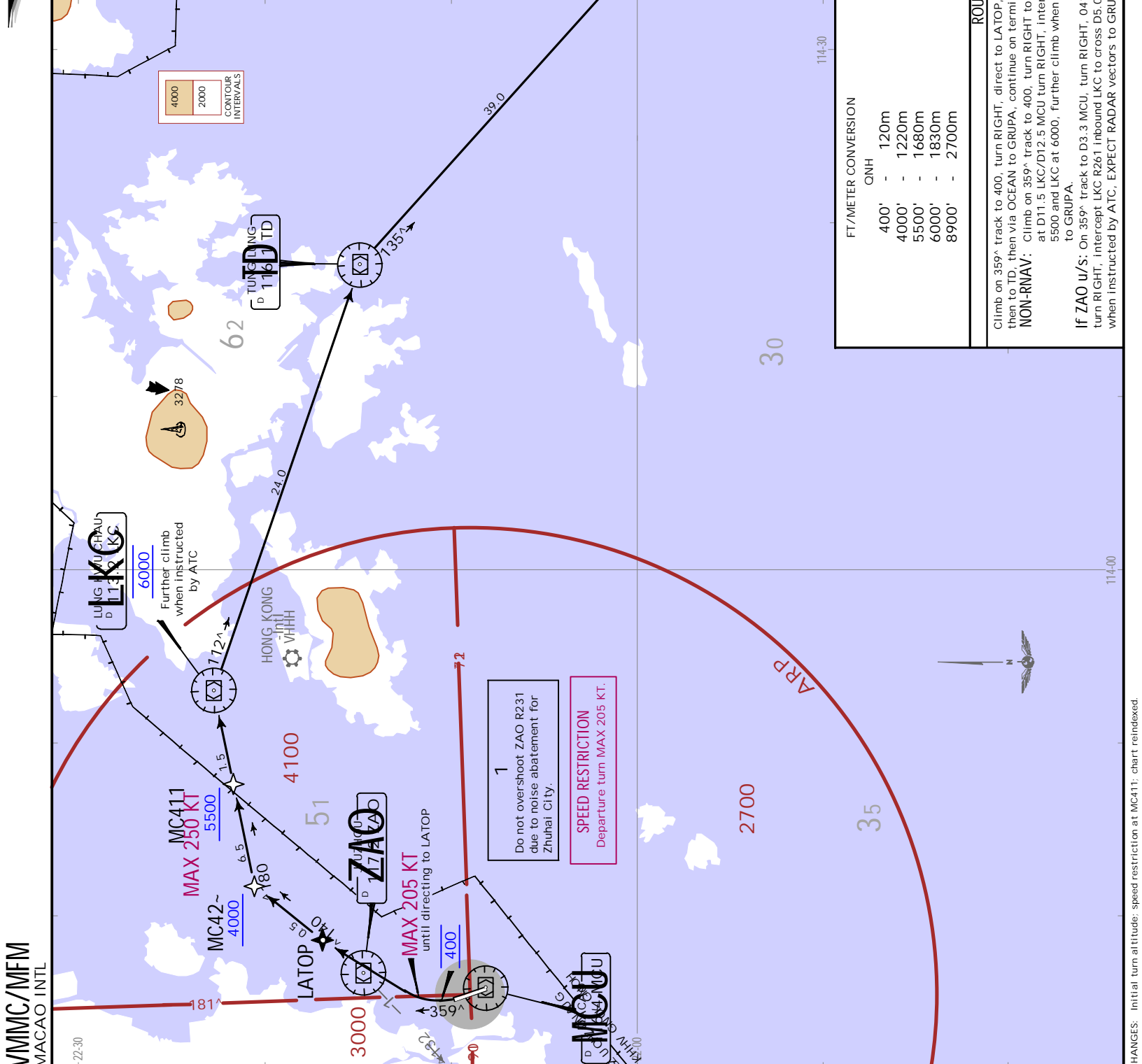
NOT TO SCALE
 OCEAN
 39.0
 36.0
GRUPA

This SID requires a minimum climb gradient of 5.4% until leaving 5500 due to airspace restriction.

Grnd speed-KT	75	100	150	200	250	300
5.4% V/V (fpm)	410	547	820	1094	1367	1641

If unable to comply inform MACAO Ground at first contact.

ROUTING
 Climb on 359° track to 400, turn RIGHT, direct to LATOP, turn RIGHT to MC42-, then via MC411 to LKC, then to TD, then via OCEAN to GRUPA, continue on terminal transition routes.
NON-RNAV: Climb on 359° track to 400, turn RIGHT to ZAO, intercept ZAO R041, climbing to 4000, at D11.5 LKC/D12.5 MCU turn RIGHT, intercept LKC R261 inbound LKC to cross D5.0 LKC at 5500 and LKC at 6000, further climb when instructed by ATC, EXPECT RADAR vectors to GRUPA.
If ZAO u/s: On 359° track to D3.3 MCU, turn RIGHT, 041° track to D13.1 MCU (D11.4 LKC), cross at 4000, turn RIGHT, intercept LKC R261 inbound LKC to cross D5.0 LKC at 5500 and LKC at 6000, further climb when instructed by ATC, EXPECT RADAR vectors to GRUPA.



CONTOUR INTERVALS

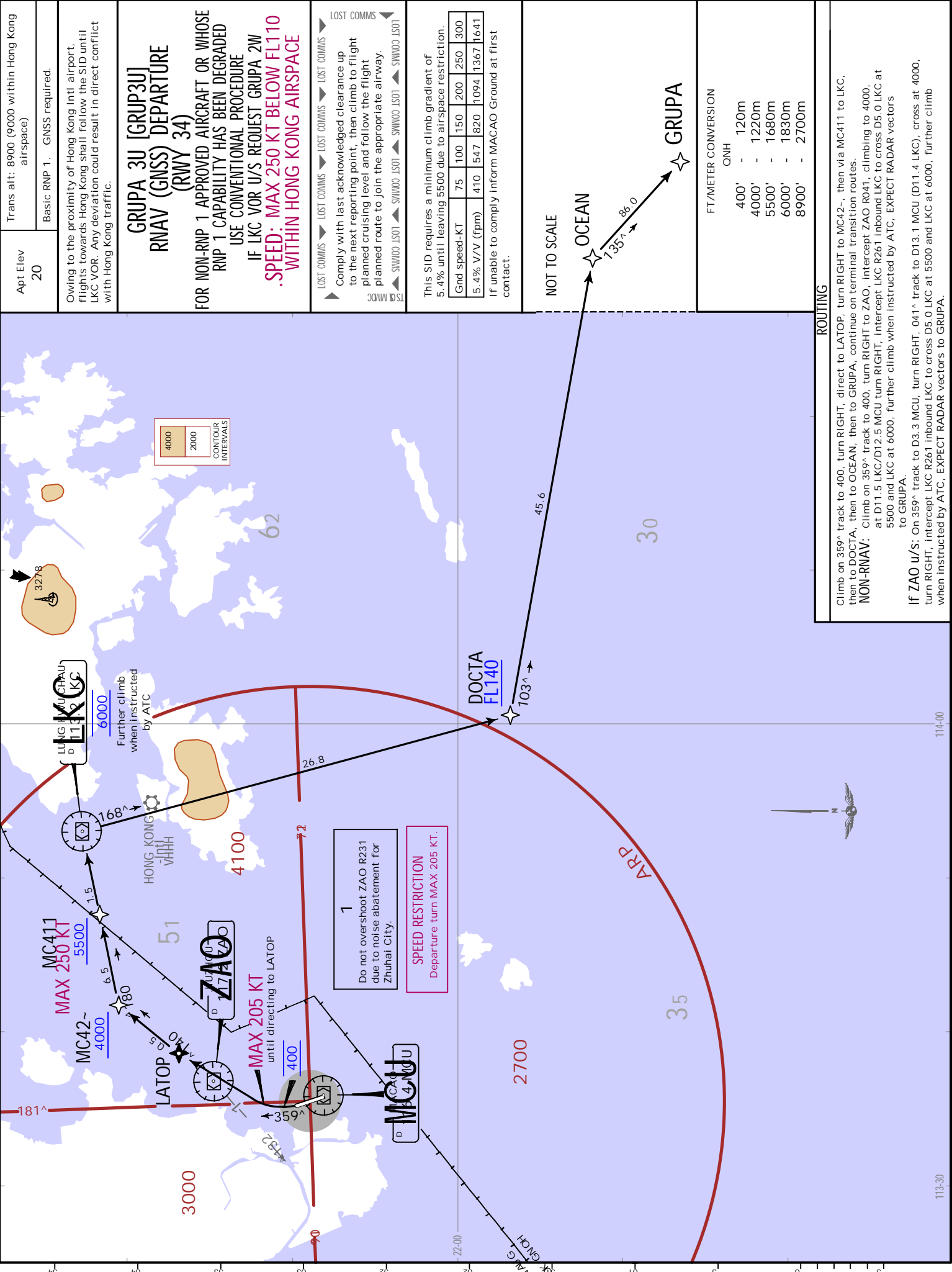
4000
2000

FT/METER CONVERSION

QNH	400'	120m
4000'	1220m	
5500'	1680m	
6000'	1830m	
8900'	2700m	



VMMC/MFM
 MACAO INTL



Trans alt: 8900 (9000 within Hong Kong airspace)
Apt Elev 20
Basic RNP 1. GNSS required.

Owing to the proximity of Hong Kong Intl airport, flights towards Hong Kong shall follow the SID until LKC VOR. Any deviation could result in direct conflict with Hong Kong traffic.

**GRUPEA 3U [GRUP3U]
RNAV (GNSS) DEPARTURE
(RWY 34)**

FOR NON-RNP 1 APPROVED AIRCRAFT OR WHOSE RNP 1 CAPABILITY HAS BEEN DEGRADED USE CONVENTIONAL PROCEDURE
IF LKC VOR U/S REQUEST GRUPEA 2W
**SPEED: MAX 250 KT BELOW FL110
WITHIN HONG KONG AIRSPACE**

LOST COMMS
Comply with last acknowledged clearance up to the next reporting point, then climb to flight planned cruising level and follow the flight planned route to join the appropriate airway.
LOST COMMS
SWW00 LS01 SWW00 LS01 SWW00 LS01 SWW00 LS01

This SID requires a minimum climb gradient of 5.4% until leaving 5500 due to airspace restriction.

Gnd speed-KT	75	100	150	200	250	300
5.4% V/V (fpm)	410	547	820	1094	1367	1641

If unable to comply inform MACAO Ground at first contact.

NOT TO SCALE
OCEAN
135°
86.0
GRUPEA

FT/METER CONVERSION

QNH	400'	120m
4000'	-	1220m
5500'	-	1680m
6000'	-	1830m
8900'	-	2700m

ROUTING
Climb on 359° track to 400, turn RIGHT, direct to LATOP, turn RIGHT to MC42, then via MC411 to LKC, then to DOCTA, then to OCEAN, then to GRUPEA, continue on terminal transition routes.
NON-RNAV: Climb on 359° track to 400, turn RIGHT to ZAO, intercept ZAO R041, climbing to 4000, at D11.5 LKC/D12.5 MCU turn RIGHT, intercept LKC R261 inbound LKC to cross D5.0 LKC at 5500 and LKC at 6000, further climb when instructed by ATC, EXPECT RADAR vectors to GRUPEA.
If ZAO U/S: On 359° track to D3.3 MCU, turn RIGHT, 041° track to D13.1 MCU (D11.4 LKC) cross at 4000, turn RIGHT, intercept LKC R261 inbound LKC to cross D5.0 LKC at 5500 and LKC at 6000, further climb when instructed by ATC, EXPECT RADAR vectors to GRUPEA.

VMMC/MFM
MACAO INTL



MACAO, PR OF CHINA

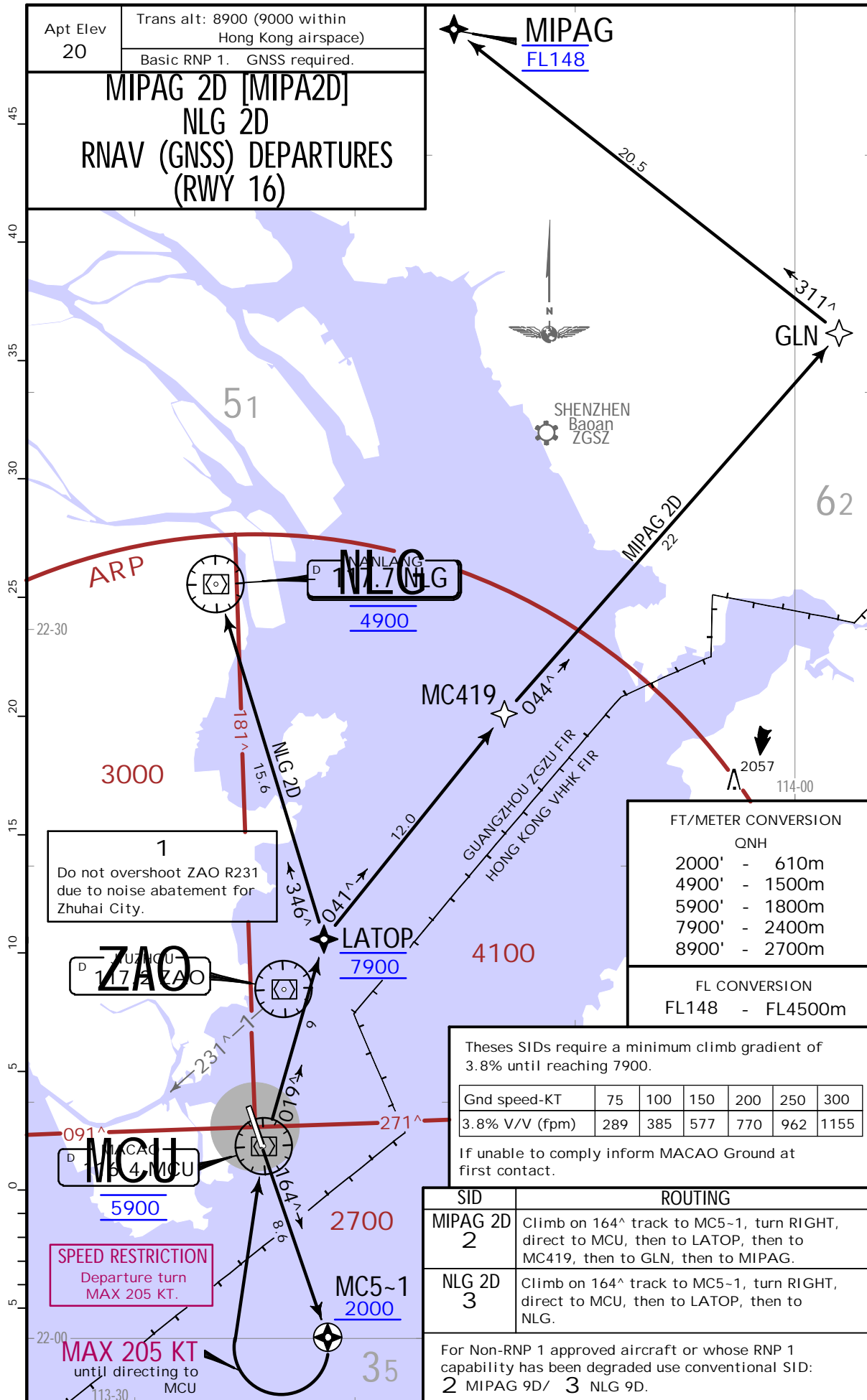
10 MAR 23

10-3K

.Eff.23.Mar.

.RNAV.SID.

Apt Elev 20
Trans alt: 8900 (9000 within Hong Kong airspace)
Basic RNP 1. GNSS required.
MIPAG 2D [MIPA2D]
NLG 2D
RNAV (GNSS) DEPARTURES (RWY 16)



1
Do not overshoot ZAO R231 due to noise abatement for Zhuhai City.

FT/METER CONVERSION	
QNH	
2000'	610m
4900'	1500m
5900'	1800m
7900'	2400m
8900'	2700m

FL CONVERSION	
FL148	FL4500m

These SIDs require a minimum climb gradient of 3.8% until reaching 7900.

Gnd speed-KT	75	100	150	200	250	300
3.8% V/V (fpm)	289	385	577	770	962	1155

If unable to comply inform MACAO Ground at first contact.

SID	ROUTING
MIPAG 2D 2	Climb on 164° track to MC5-1, turn RIGHT, direct to MCU, then to LATOP, then to MC419, then to GLN, then to MIPAG.
NLG 2D 3	Climb on 164° track to MC5-1, turn RIGHT, direct to MCU, then to LATOP, then to NLG.

SPEED RESTRICTION
Departure turn
MAX 205 KT.

MAX 205 KT
until directing to MCU

For Non-RNP 1 approved aircraft or whose RNP 1 capability has been degraded use conventional SID:
2 MIPAG 9D/ 3 NLG 9D.

VMMC/MFM
MACAO INTL



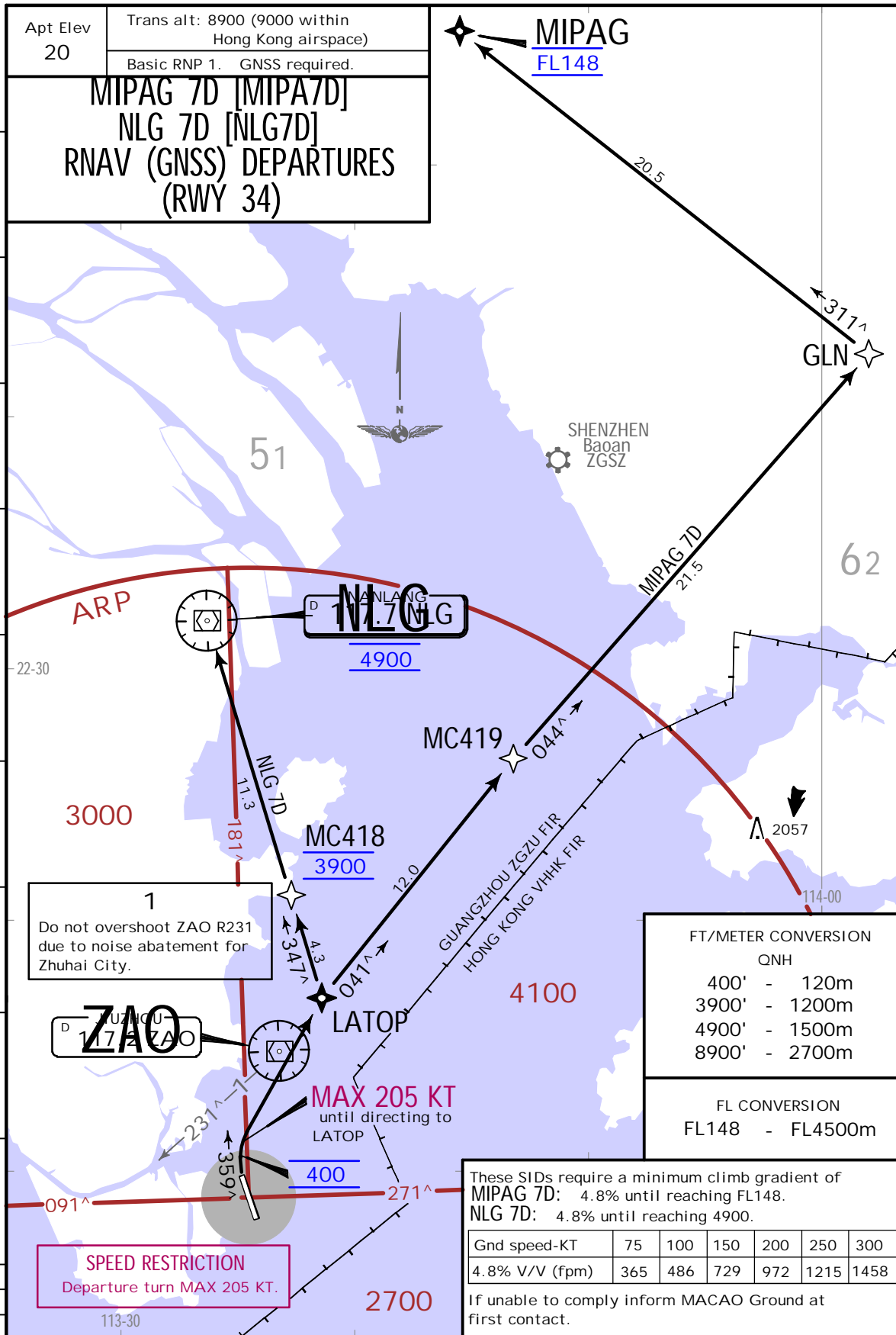
MACAO, PR OF CHINA

10 MAR 23

10-3L

.Eff.23.Mar.

.RNAV.SID.



SID	ROUTING
MIPAG 7D 2	Climb on 359 [^] track to 400, turn RIGHT, direct to LATOP, then to MC419, then to GLN, turn LEFT to MIPAG.
NLG 7D 3	Climb on 359 [^] track to 400, turn RIGHT, direct to LATOP, then via MC418 to NLG.

For Non-RNP 1 approved aircraft or whose RNP 1 capability has been degraded use conventional SID:
2 MIPAG 5D/ 3 NLG 5D.

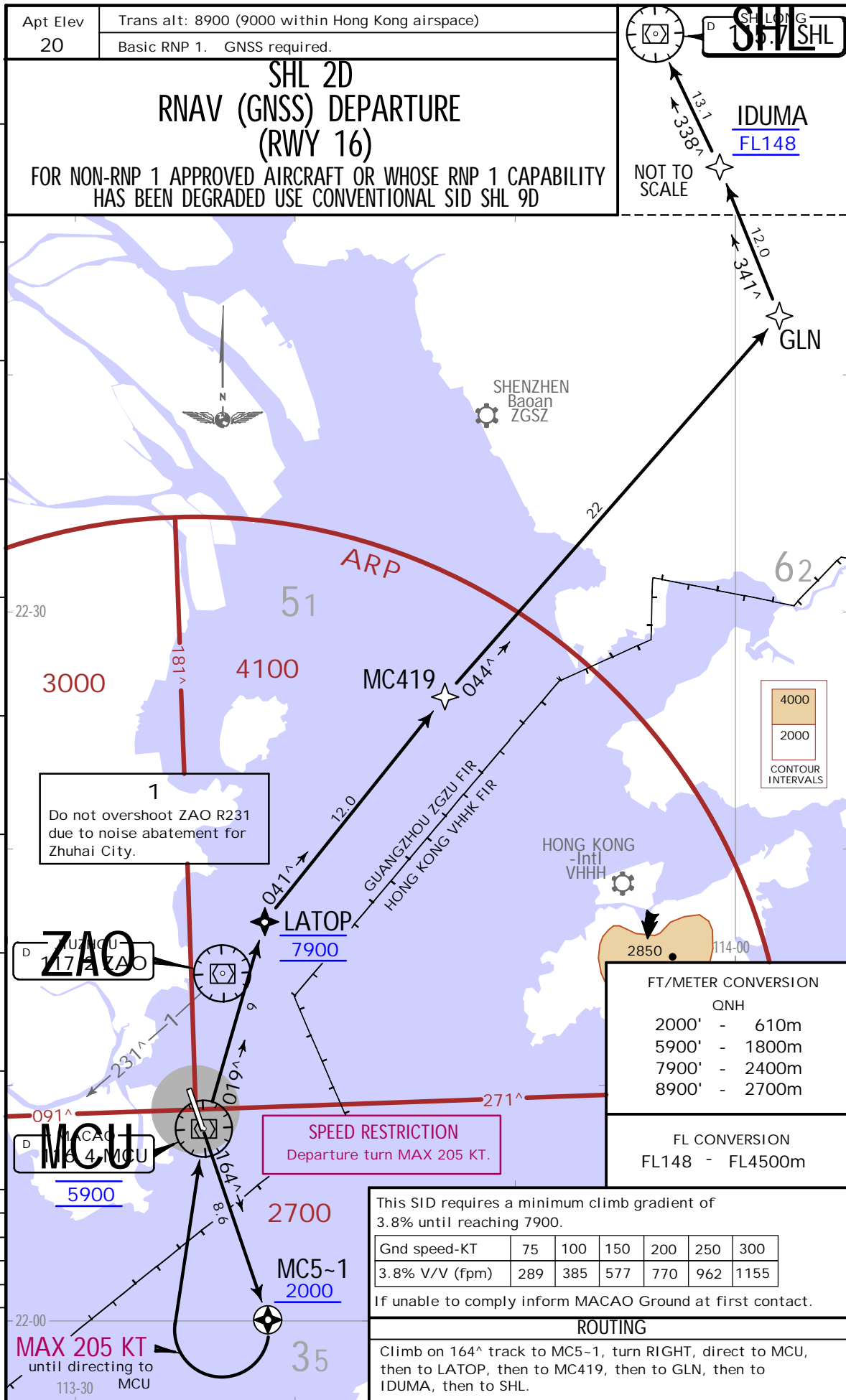
VMMC/MFM
MACAO INTL

JEPPESEN

MACAO, PR OF CHINA

10 MAR 23 (10-3M) .Eff.23.Mar.

.RNAV.SID.



CHANGES: GLN VOR replaced by GLN waypoint.

VMMC/MFM
MACAO INTL



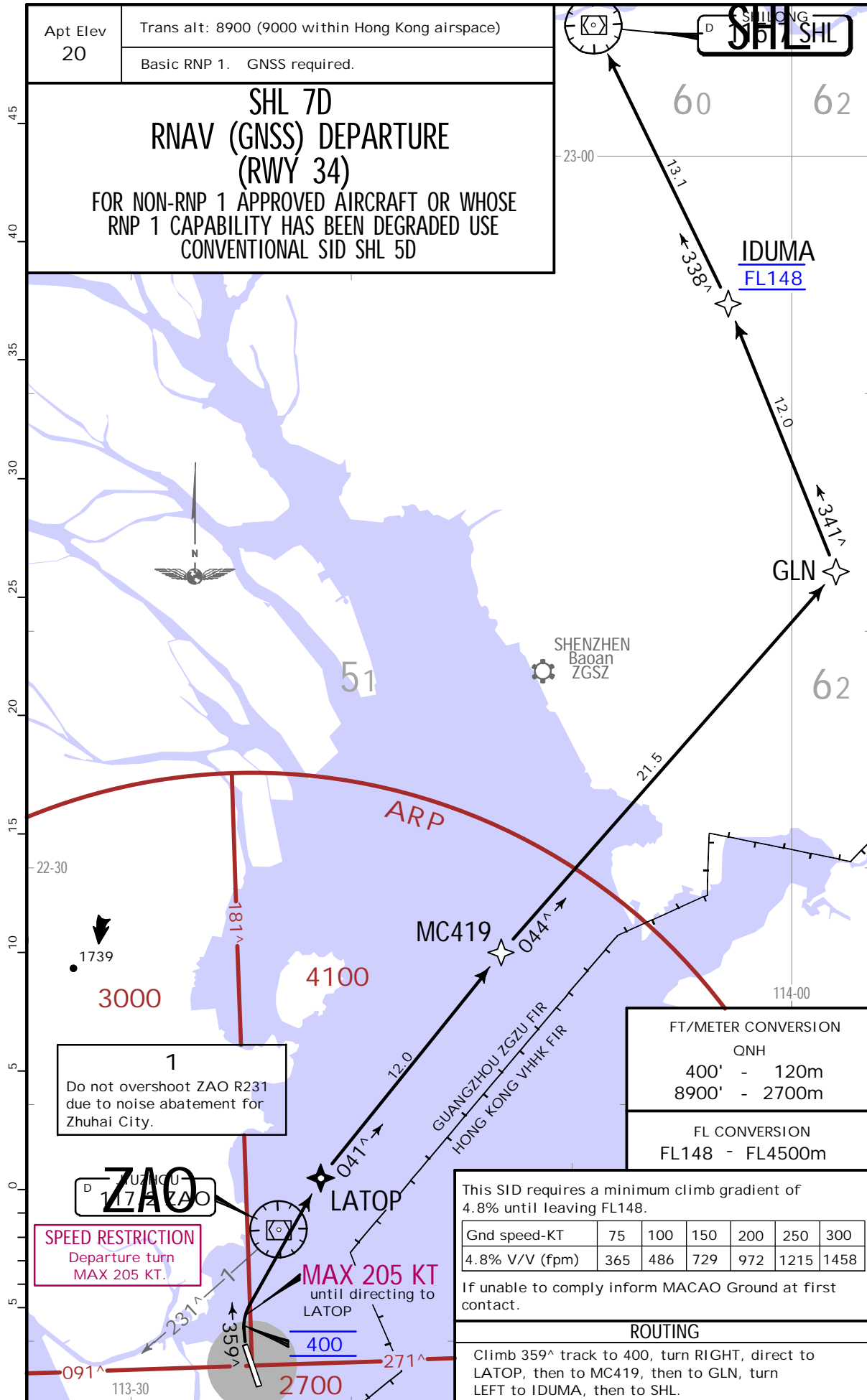
MACAO, PR OF CHINA

10 MAR 23 (10-3N) .Eff.23.Mar.

.RNAV.SID.

Apt Elev 20
Trans alt: 8900 (9000 within Hong Kong airspace)
Basic RNP 1. GNSS required.

SHL 7D
RNAV (GNSS) DEPARTURE
(RWY 34)
FOR NON-RNP 1 APPROVED AIRCRAFT OR WHOSE RNP 1 CAPABILITY HAS BEEN DEGRADED USE CONVENTIONAL SID SHL 5D



1
Do not overshoot ZAO R231 due to noise abatement for Zhuhai City.

SPEED RESTRICTION
Departure turn
MAX 205 KT.

MAX 205 KT
until directing to LATOP

FT/METER CONVERSION	
QNH	
400'	120m
8900'	2700m
FL CONVERSION	
FL148	FL4500m

This SID requires a minimum climb gradient of 4.8% until leaving FL148.

Gnd speed-KT	75	100	150	200	250	300
4.8% V/V (fpm)	365	486	729	972	1215	1458

If unable to comply inform MACAO Ground at first contact.

ROUTING
Climb 359° track to 400, turn RIGHT, direct to LATOP, then to MC419, then to IDUMA, then to SHL.

JEPPESEN MACAO, PR OF CHINA
 21 JAN 22 (10-3P) . Eff: 27 Jan.
 .RNAV.SID.

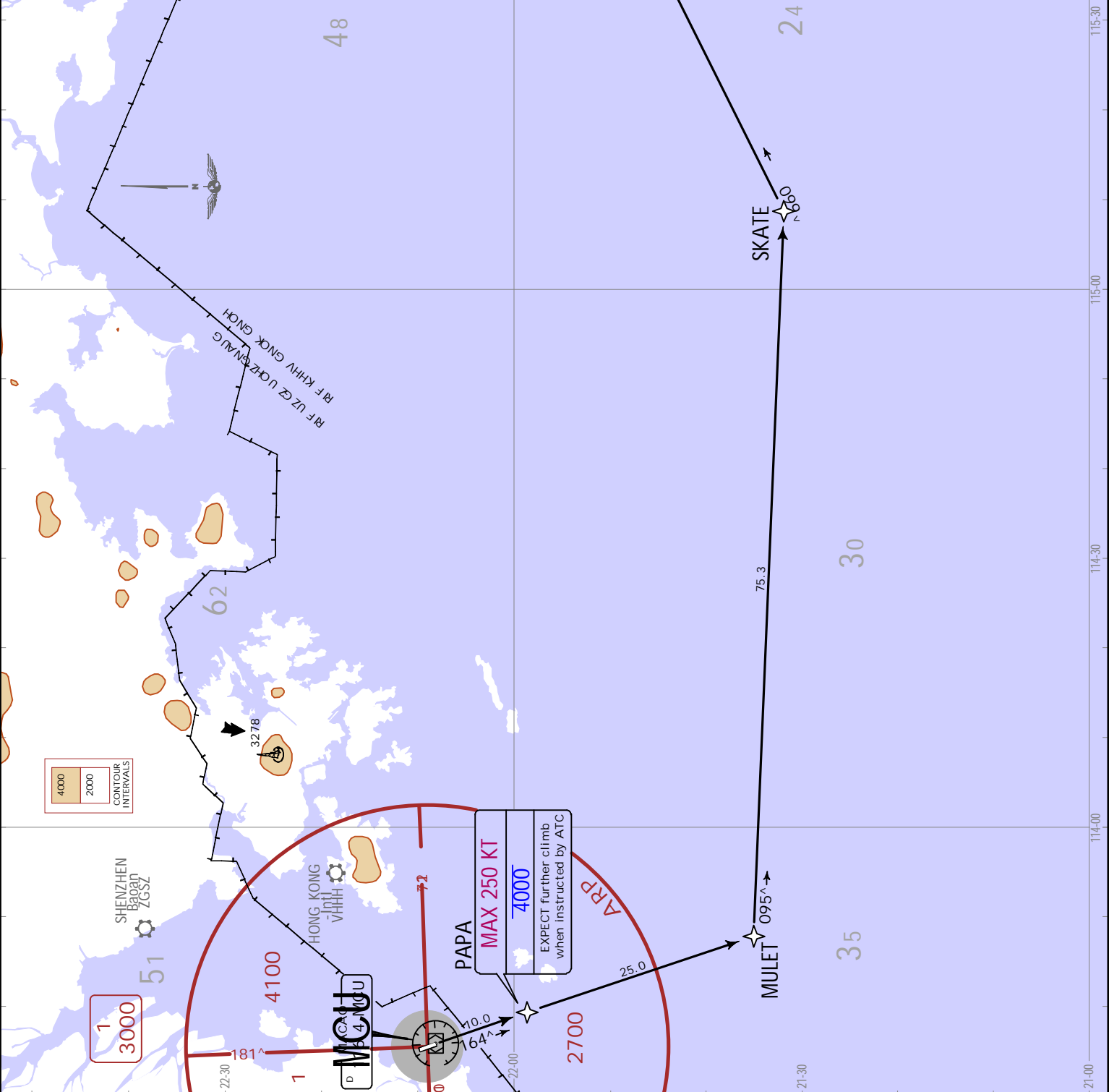
VMMC/MFM
 MACAO INTL

Trans alt: 8900 (9000 within Hong Kong airspace)
 Apt Elev 20
 Basic RNP 1. GNSS required.

SOSA 2P [SOSA2P]
RNAV (GNSS) DEPARTURE
(RWY 16)

FOR NON-RNP 1 APPROVED AIRCRAFT OR WHOSE RNP 1 CAPABILITY HAS BEEN DEGRADED USE CONVENTIONAL PROCEDURE

.SPEED: MAX 250 KT BELOW FL110
WITHIN HONG KONG AIRSPACE



FT/METER CONVERSION

ONH
 4000' - 1220m
 8900' - 2700m

COMMS ▼ LOST
 Comply with last acknowledged clearance up to the next reporting point, then climb to flight planned cruising level and follow the flight planned route to join the appropriate airway.

▼ LOST
 Comply with last acknowledged clearance up to the next reporting point, then climb to flight planned cruising level and follow the flight planned route to join the appropriate airway.

ROUTING

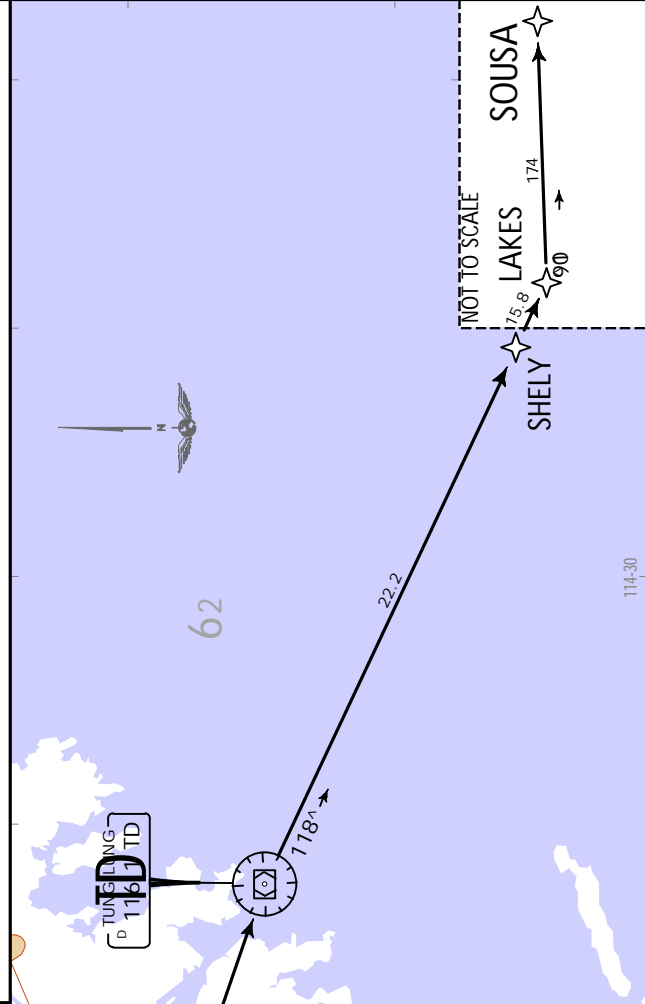
Climb on 164° track to PAPA, then to MULET, then to SKATE, then to SOSA, continue on terminal transition route.

NON-RNAV: Intercept MCU R164 to PAPA, further climb when instructed by ATC, EXPECT RADAR vectors to SOSA.

IF MCU VOR u/s: Climb straight ahead to at or below 4000, then direct to MULET, EXPECT RADAR vectors to SOSA.

Trans alt: 8900 (9000 within Hong Kong airspace)
Apt Elev 20
Basic RNP 1. GNS required.
Owing to the proximity of Hong Kong Intl airport, flights towards Hong Kong shall follow the SID until LKC VOR. Any deviation could result in direct conflict with Hong Kong traffic.

**SOU3A 3T [SOUS3T]
RNAV (GNSS) DEPARTURE
(RWY 34)**
FOR NON-RNP 1 APPROVED AIRCRAFT OR WHOSE RNP 1 CAPABILITY HAS BEEN DEGRADED USE CONVENTIONAL PROCEDURE
IF LKC VOR U/S REQUEST SOUSA 2V
.SPEED: MAX 250 KT BELOW FL110 WITHIN HONG KONG AIRSPACE



FT/METER CONVERSION

GNH	400'	-	120m
	4000'	-	1220m
	5500'	-	1680m
	6000'	-	1830m
	8900'	-	2700m

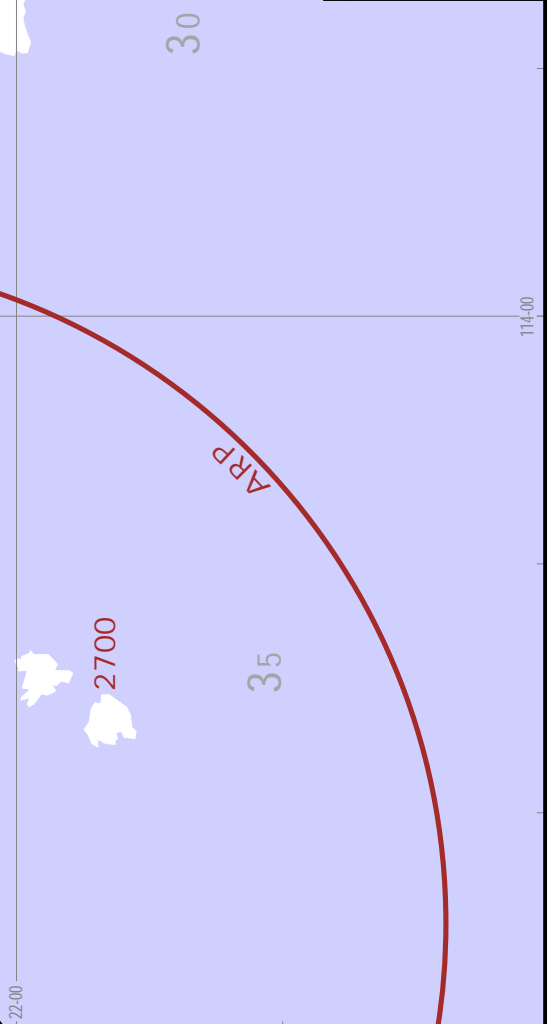
This SID requires a minimum climb gradient of 5.4% until leaving 5500 due to airspace restriction.

Gnd speed-KT	75	100	150	200	250	300
5.4% V/V (fpm)	410	547	820	1094	1367	1641

If unable to comply inform MACAO Ground at first contact.

ROUTING

Climb on 359° track to 400, turn RIGHT, direct to LATOP, turn RIGHT to MC42-, then via MC411 to LKC, then to TD, then via SHELLY to LAKES, then to SOUSA, continue on terminal transition routes.
NON-RNAV: Climb on 359° track to 400, turn RIGHT to ZAO, intercept ZAO R041, climbing to 4000, at D11.5 LKC/D12.5 MCU turn RIGHT, intercept LKC R261 inbound LKC to cross D5.0 LKC at 5500 and LKC at 6000, further climb when instructed by ATC, EXPECT RADAR vectors to SOUSA.
If ZAO u/s: On 359° track to D3.3 MCU, turn RIGHT, 041° track to D13.1 MCU (D11.4 LKC), cross at 4000, turn RIGHT, intercept LKC R261 inbound LKC to cross D5.0 LKC at 5500 and LKC at 6000, further climb when instructed by ATC, EXPECT RADAR vectors to SOUSA.



JEPPESEN
MACAO, PR OF CHINA
 21 JAN 22 (10-3S) Eff. 27 Jan
 .RNAV.SID.

VMMC/MFM
MACAO INTL

Trans alt: 8900 (9000 within Hong Kong airspace)
 Basic RNP 1. GNSS required.
 Owing to the proximity of Hong Kong Intl airport, flights towards Hong Kong shall follow the SID until LKC VOR. Any deviation could result in direct conflict with Hong Kong traffic.

**SOUA 3U [SOU3U]
 RNAV (GNSS) DEPARTURE
 (RWY 34)**
 FOR NON-RNP 1 APPROVED AIRCRAFT OR WHOSE RNP 1 CAPABILITY HAS BEEN DEGRADED USE CONVENTIONAL PROCEDURE IF LKC VOR U/S REQUEST SOUA 2W
SPEED: MAX 250 KT BELOW FL110 WITHIN HONG KONG AIRSPACE

LOST COMMS
 Comply with last acknowledged clearance up to the next reporting point, then climb to flight planned cruising level and follow the flight planned route to join the appropriate airway.
 SHIMWOO JS01 SHIMWOO JS01 SHIMWOO JS01 SHIMWOO JS01
 LOST COMMS
 This SID requires a minimum climb gradient of 5.4% until leaving 5500 due to airspace restriction.

Gnd speed-KT	75	100	150	200	250	300
5.4% V/V (rpm)	410	547	820	1094	1367	1641

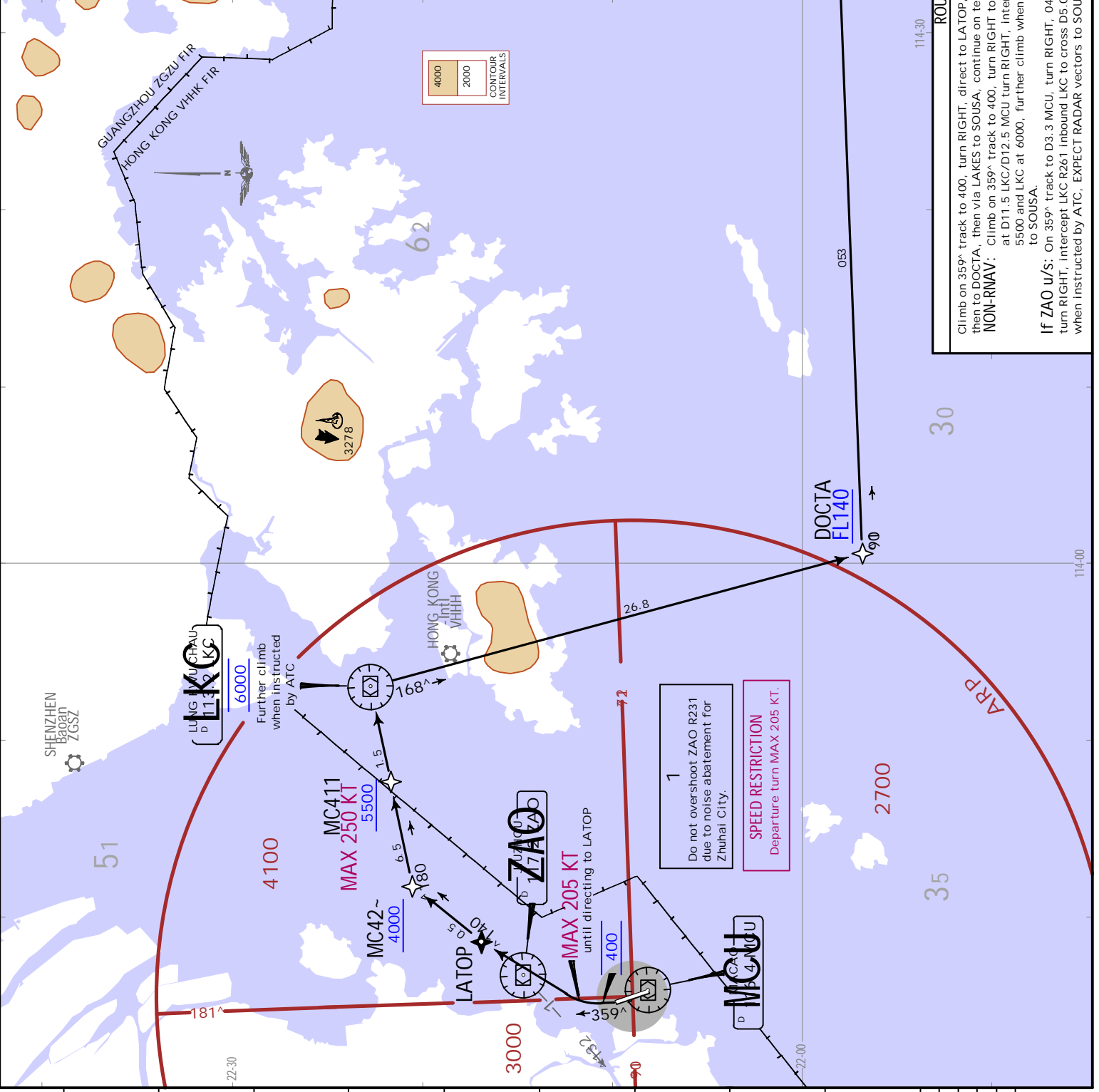
If unable to comply inform MACAO Ground at first contact.

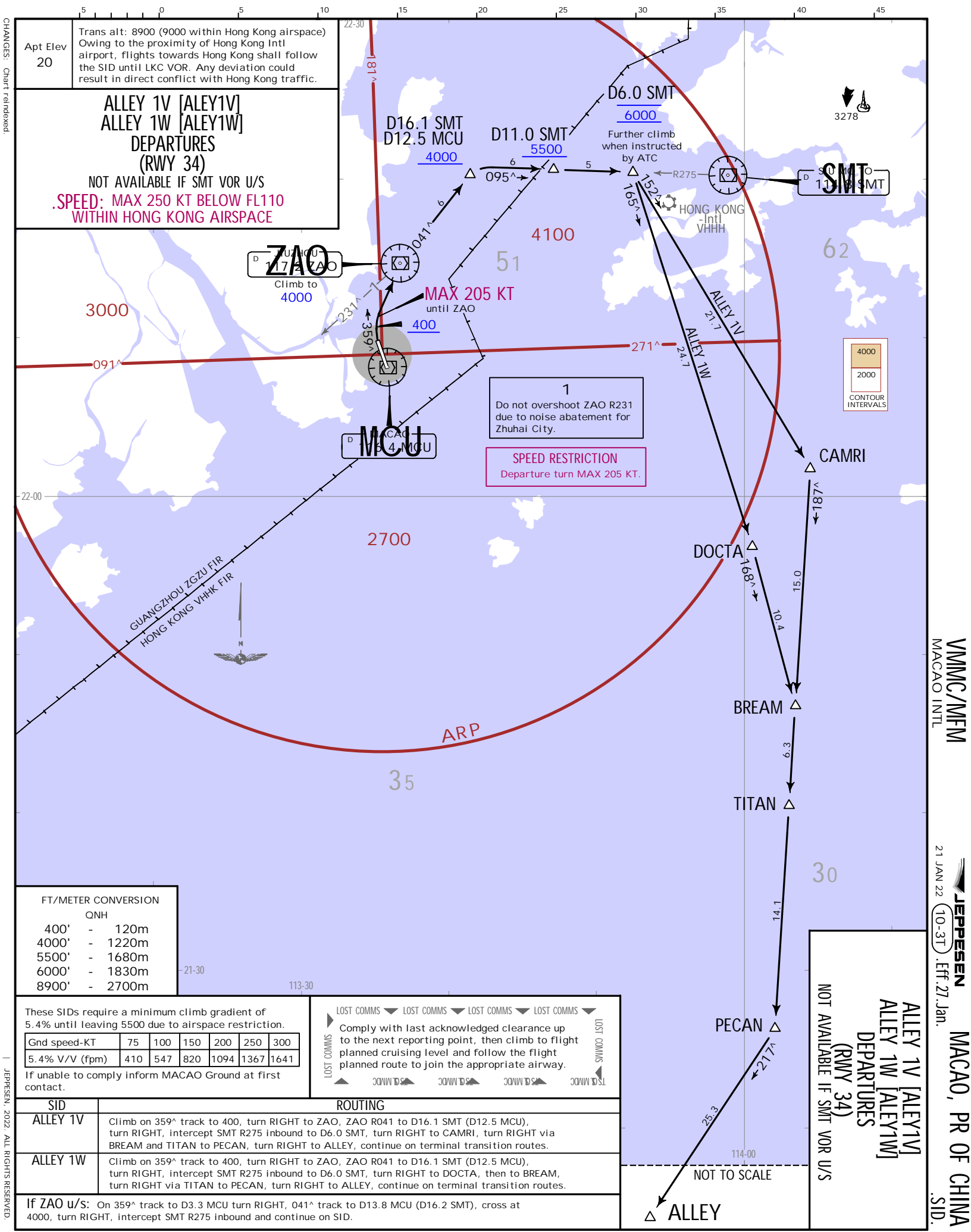
FT/METER CONVERSION

QNH	400'	120m
4000'	-	1220m
5500'	-	1680m
6000'	-	1830m
8900'	-	2700m

SOUSA
 LAKES 174
 NOT TO SCALE

ROUTING
 Climb on 359° track to 400, turn RIGHT, direct to LATOP, turn RIGHT to MC42-, then via MC411 to LKC, then to DOCTA, then via LAKES to SOUSA, continue on terminal transition routes.
NON-RNAV: Climb on 359° track to 400, turn RIGHT to ZAO, intercept ZAO R041, climbing to 4000, at D11.5 LKC/D12.5 MCU turn RIGHT, intercept LKC R261 inbound LKC to cross D5.0 LKC at 5500 and LKC at 6000, further climb when instructed by ATC, EXPECT RADAR vectors to SOUSA.
If ZAO u/s: On 359° track to D3.3 MCU, turn RIGHT, 041° track to D13.1 MCU (D11.4 LKC), cross at 4000, turn RIGHT, intercept LKC R261 inbound LKC to cross D5.0 LKC at 5500 and LKC at 6000, further climb when instructed by ATC, EXPECT RADAR vectors to SOUSA.





Apt Elev 20
 Trans alt: 8900 (9000 within Hong Kong airspace)
 Owing to the proximity of Hong Kong Intl airport, flights towards Hong Kong shall follow the SID until LKC VOR. Any deviation could result in direct conflict with Hong Kong traffic.

**ALLEY 1V [ALEY1V]
 ALLEY 1W [ALEY1W]
 DEPARTURES
 (RWY 34)**
 NOT AVAILABLE IF SMT VOR U/S
**SPEED: MAX 250 KT BELOW FL110
 WITHIN HONG KONG AIRSPACE**

ZAO
 Climb to 4000
MAX 205 KT
 until ZAO
 400

MCU
 Climb to 4000
MAX 205 KT
 until ZAO
 400

D6.0 SMT
 6000
 Further climb when instructed by ATC

D16.1 SMT
D12.5 MCU
 4000

D11.0 SMT
 5500

**ALLEY 1V [ALEY1V]
 ALLEY 1W [ALEY1W]
 DEPARTURES
 (RWY 34)**
 NOT AVAILABLE IF SMT VOR U/S

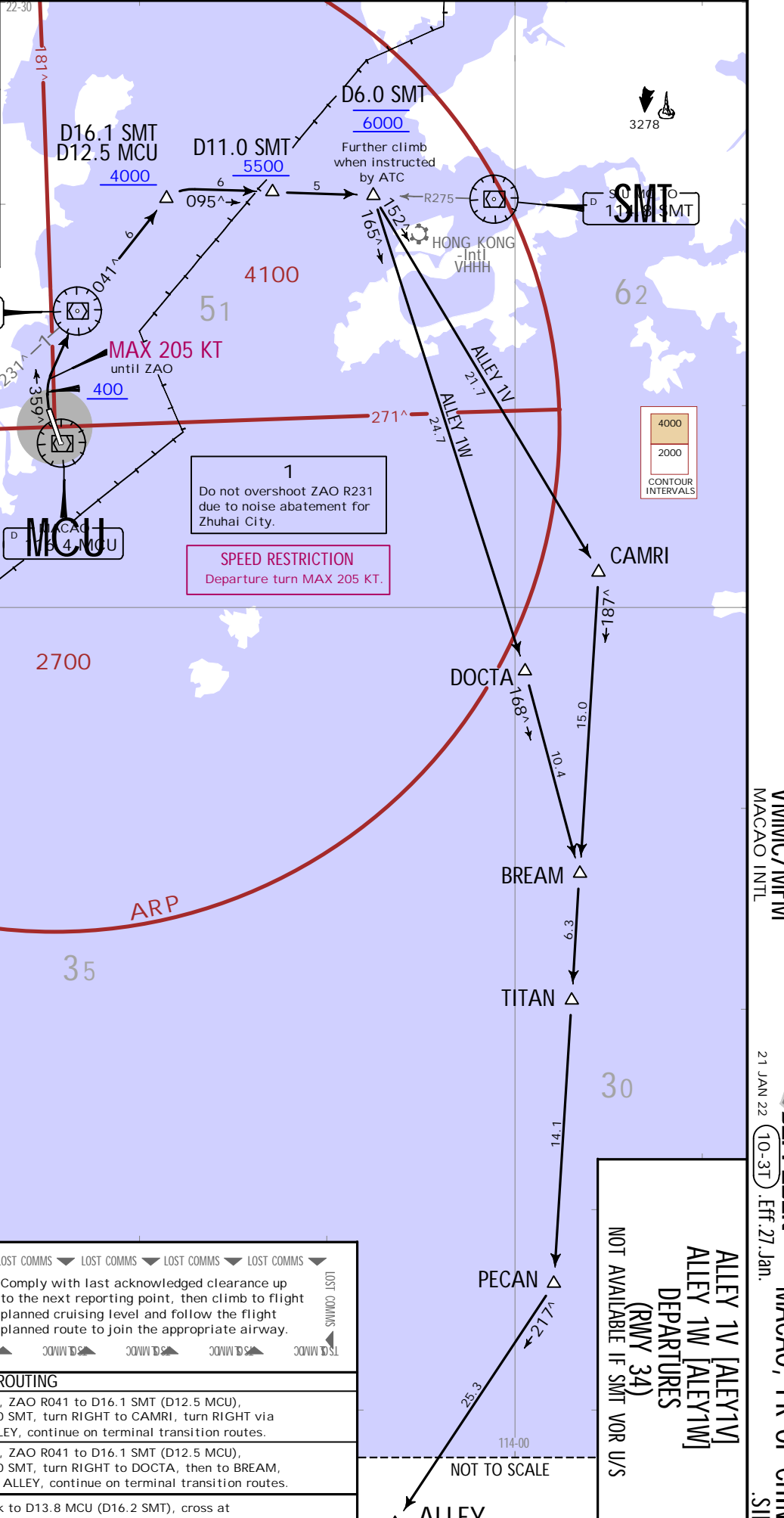
These SIDs require a minimum climb gradient of 5.4% until leaving 5500 due to airspace restriction.

Gnd speed-KT	75	100	150	200	250	300
5.4% V/V (fpm)	410	547	820	1094	1367	1641

If unable to comply inform MACAO Ground at first contact.

SID	ROUTING
ALLEY 1V	Climb on 359° track to 400, turn RIGHT to ZAO, ZAO R041 to D16.1 SMT (D12.5 MCU), turn RIGHT, intercept SMT R275 inbound to D6.0 SMT, turn RIGHT to CAMRI, turn RIGHT via BREAM and TITAN to PECAN, turn RIGHT to ALLEY, continue on terminal transition routes.
ALLEY 1W	Climb on 359° track to 400, turn RIGHT to ZAO, ZAO R041 to D16.1 SMT (D12.5 MCU), turn RIGHT, intercept SMT R275 inbound to D6.0 SMT, turn RIGHT to DOCTA, then to BREAM, turn RIGHT via TITAN to PECAN, turn RIGHT to ALLEY, continue on terminal transition routes.

If ZAO u/S: On 359° track to D3.3 MCU turn RIGHT, 041° track to D13.8 MCU (D16.2 SMT), cross at 4000, turn RIGHT, intercept SMT R275 inbound and continue on SID.



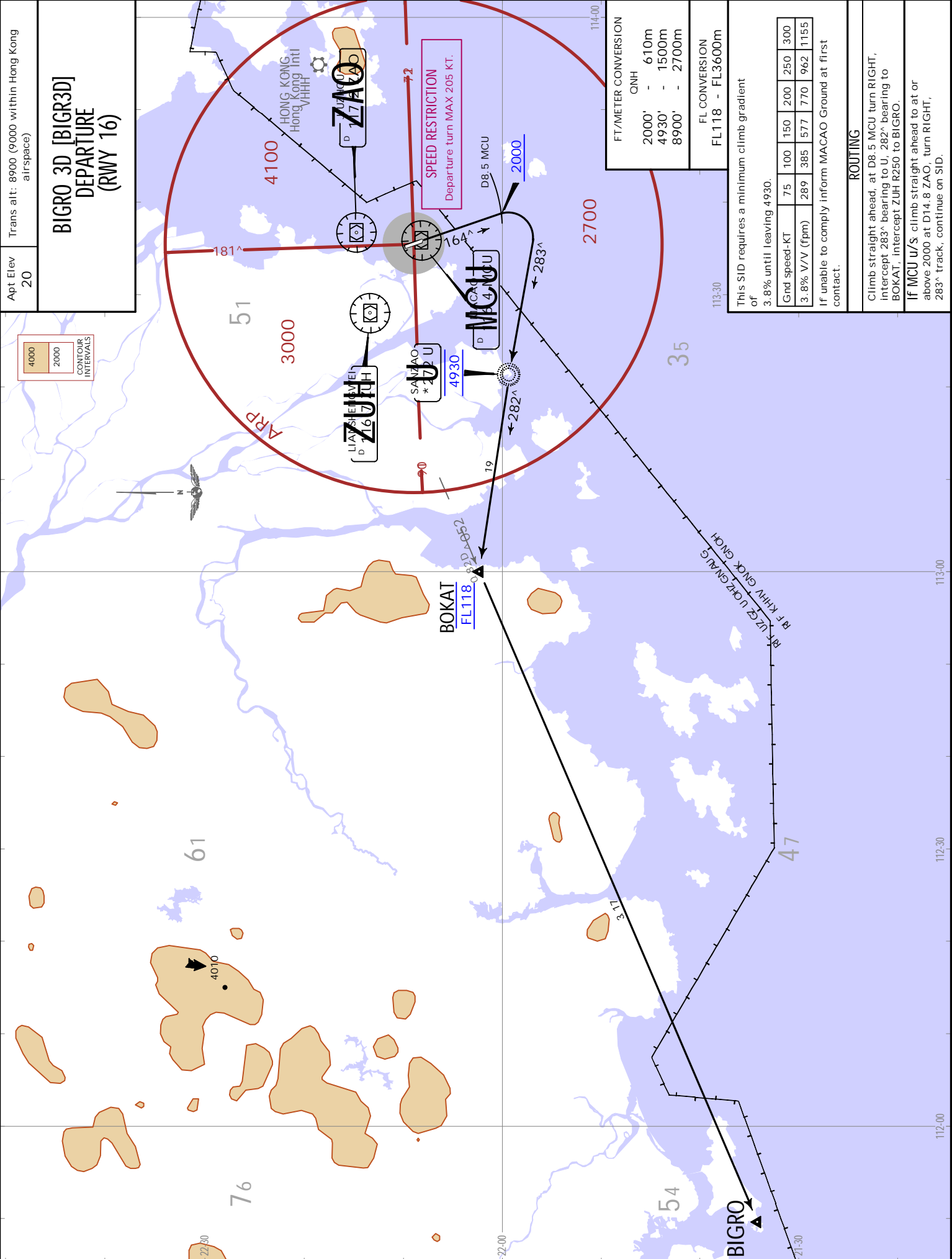
FT/METER CONVERSION

FT	METER
400'	120m
4000'	1220m
5500'	1680m
6000'	1830m
8900'	2700m

NOT TO SCALE

VMCM/MFM
MACAO INTL

JEPPESEN MACAO, PR OF CHINA
SID
21 JAN 22 (10-3U) Eff: 27 Jan.



JEPPESEN
 21 JAN 22 10-3V .Eff.27.Jan.
 VMCC/MFM
 MACAO INTL
 MACAO, PR OF CHINA
 .SID.

Trans alt: 8900
 (9000 within Hong Kong airspace)

**BIGRO 5D [BIGR5D]
 DEPARTURE
 (RWY 34)**

This SID requires a minimum climb gradient of 4.8% until leaving 5910.

Grnd speed-KT	75	100	150	200	250	300
4.8% V/V (fpm)	365	486	729	972	1215	1458

If unable to comply inform MACAO Ground at first contact.

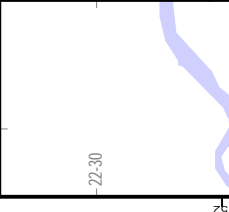
FT/METER CONVERSION

GNH

400'	-	120m
3940'	-	1200m
5910'	-	1800m
8900'	-	2700m

FL CONVERSION

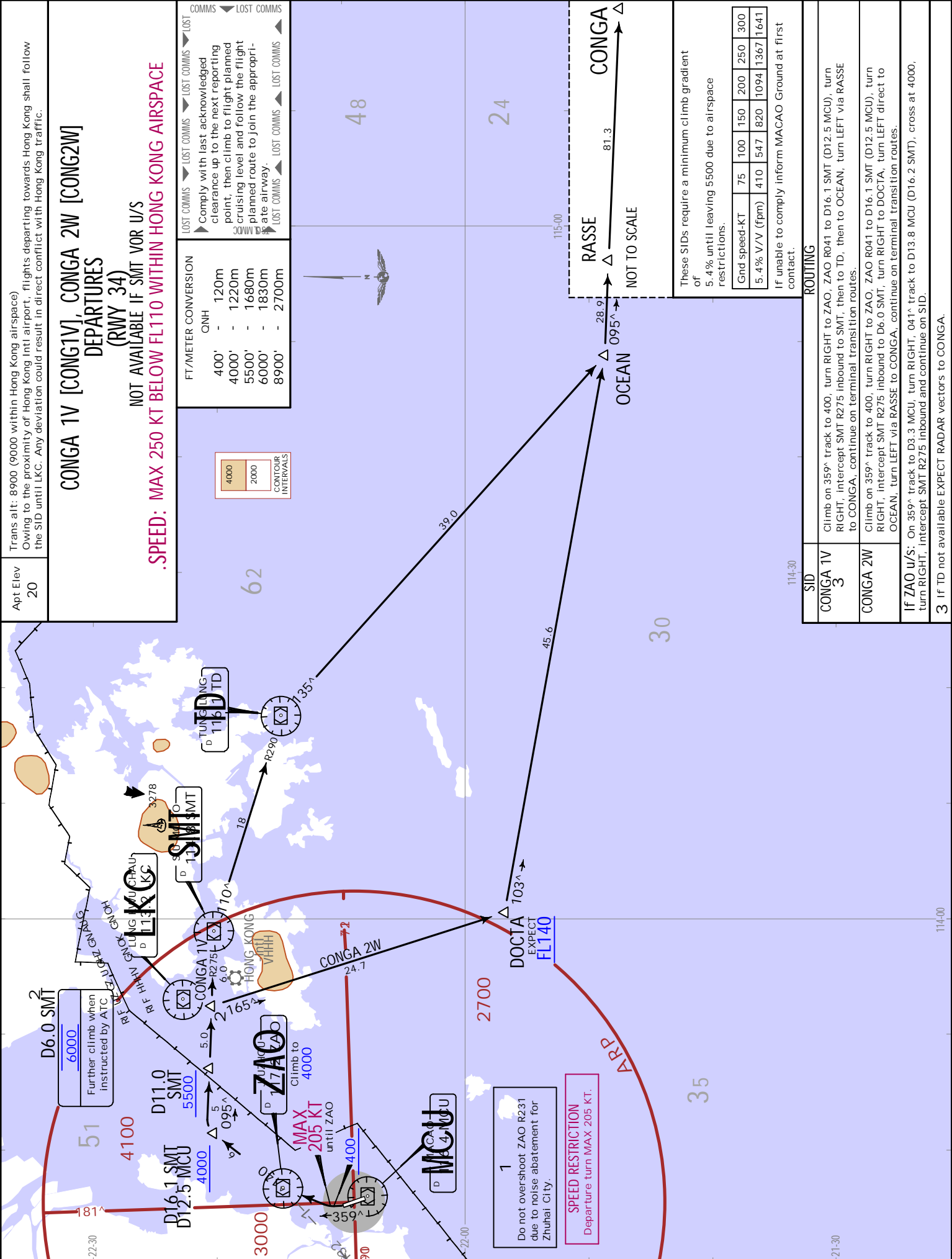
FL118 - FL3600m



ROUTING

Climb on 359° track to 400, turn RIGHT to ZAO, ZAO R041 to LATOP, turn LEFT, intercept SMT R275, at NLG R215 turn LEFT, intercept NLG R220 to KIBAS, turn RIGHT, intercept ZUH R250 via BOKAT to BIGRO.

If ZAO U/S: Climb on 359°, turn RIGHT at D3.3 MCU on track 041°, at D9.0 MCU turn LEFT to intercept SMT R275 at or above 3940. Then join original procedure.



CHANGE: MIPAG SIDs renumbered & revised; hearing to NLG.

VMM/C/MFM
MACAO INTL

Apt Elev 20
Trans alt: 8900 (9000 within Hong Kong airspace)

**MIPAG 1E [MIPATE], MIPAG 1F [MIPATF]
NLG 5D [NLG5D], NLG 9D
DEPARTURES
(ALL RWYS)**

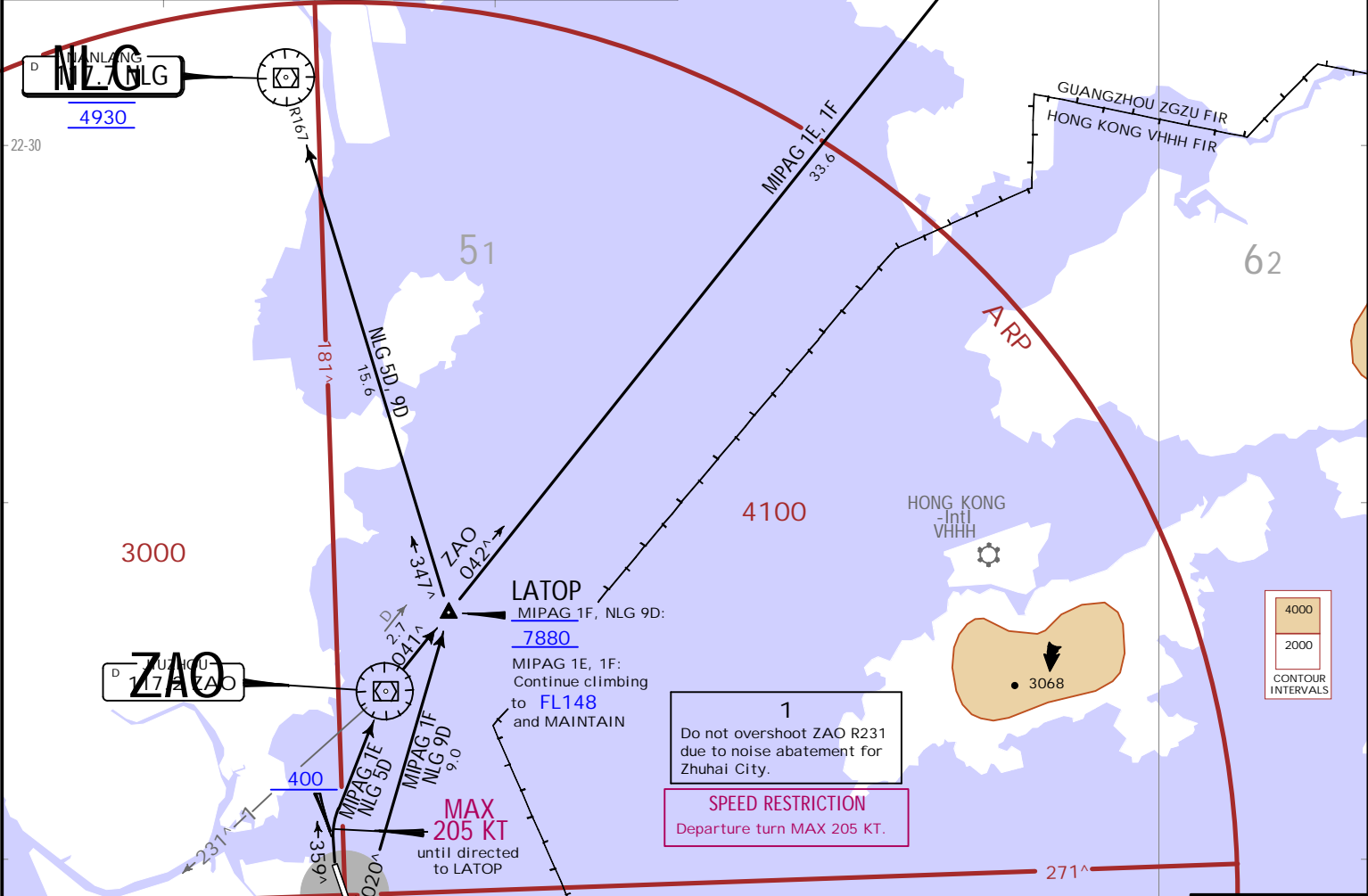
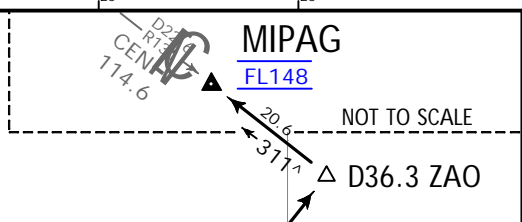
These SIDs require minimum climb gradients of
MIPAG 1E: 4.8% until reaching FL148.
NLG 5D: 4.8% until reaching 4930.
MIPAG 1F, NLG 9D: 3.8% until reaching 7880.

Gnd speed-KT	75	100	150	200	250	300
4.8% V/V (fpm)	365	486	729	972	1215	1458
3.8% V/V (fpm)	289	385	577	770	962	1155

If unable to comply inform MACAO Ground at first contact.

FT/METER CONVERSION	
QNH	
400'	- 120m
2000'	- 610m
4930'	- 1500m
5910'	- 1800m
7880'	- 2400m
8900'	- 2700m

FL CONVERSION	
FL148	- FL4500m



SID	RWY	ROUTING
MIPAG 1E	34	Climb on 359° track to 400, turn RIGHT to ZAO, ZAO R041 to LATOP, turn RIGHT, ZAO R042 to D36.3 ZAO, turn LEFT, intercept CEN R131 inbound to MIPAG.
MIPAG 1F	16	Climb straight ahead, at D8.5 MCU turn RIGHT, intercept MCU R197 inbound to MCU, MCU R020 to LATOP, turn RIGHT, intercept ZAO R042 to D36.3 ZAO, turn LEFT, intercept CEN R131 inbound to MIPAG. If MCU u/s: Climb straight ahead, to D14.8 ZAO at 2000 or above, turn RIGHT, intercept ZAO R195 inbound to ZAO, to D6.7 ZAO at 5910, depart ZAO on ZAO R041 to LATOP at 7880, continue on SID.
NLG 5D	34	Climb on 359° track to 400, turn RIGHT to ZAO, ZAO R041 to LATOP, turn LEFT, intercept NLG R167 inbound to NLG. If ZAO u/s: On 359° track to D3.3 MCU, turn RIGHT, 041° track, continue climbing, at D9.0 MCU turn LEFT, intercept NLG R167, continue on SID.
NLG 9D	16	Climb straight ahead, at D8.5 MCU turn RIGHT, intercept MCU R197 inbound to MCU, MCU R020 to LATOP, turn LEFT, intercept NLG R167 inbound to NLG. If MCU u/s: Climb straight ahead, to D14.8 ZAO at 2000 or above, turn RIGHT, intercept ZAO R195 inbound to ZAO, to D6.7 ZAO at 5910, depart ZAO on ZAO R041 to LATOP at 7880, continue on SID.

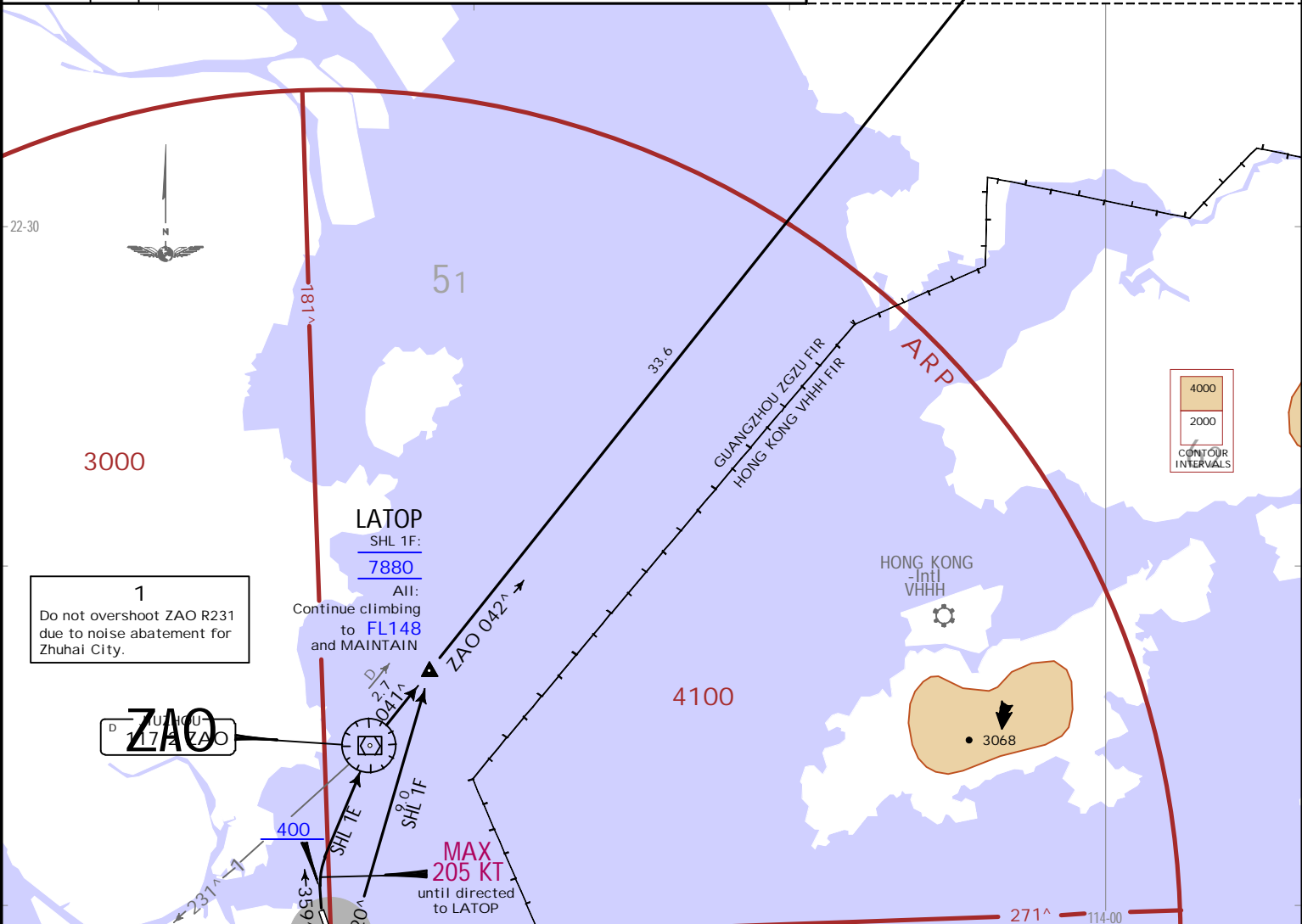
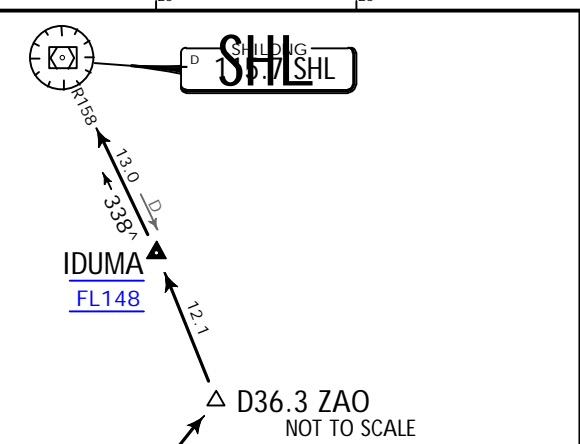
DEPARTURES (ALL RWYS)

MIPAG 1E [MIPATE]
MIPAG 1F [MIPATF]
NLG 5D [NLG5D]
NLG 9D

JEPPESSEN MACAO, PR OF CHINA
10 MAR 23 (10-3X1) .EFF: 23.Mar.
SID

CHANGES: SIDs renumbered & revised

Apt Elev 20	Trans alt: 8900 (9000 within Hong Kong airspace)	
SHL 1E, SHL 1F DEPARTURES (ALL RWYS)		
SID	RWY	ROUTING
SHL 1E	34	Climb on 359° track to 400, turn RIGHT to ZAO, ZAO R041 to LATOP, turn RIGHT, ZAO R042 to D36.3 ZAO, turn LEFT, 341° track to IDUMA, turn LEFT, intercept SHL R158 inbound to SHL.
SHL 1F	16	Climb straight ahead, at D8.5 MCU turn RIGHT, intercept MCU R197 inbound to MCU, MCU R020 to LATOP, turn RIGHT, intercept ZAO R042 to D36.3 ZAO, turn LEFT, 341° track to IDUMA, turn LEFT, intercept SHL R158 inbound to SHL. IF MCU u/s: Climb straight ahead to D14.8 ZAO at 2000 or above, turn RIGHT, intercept ZAO R195 inbound to ZAO, to D6.7 ZAO at 5910, depart ZAO on ZAO R041 to LATOP at 7880, continue on SID.



1
Do not overshoot ZAO R231 due to noise abatement for Zhuhai City.

LATOP
SHL 1F:
7880
All:
Continue climbing to FL148 and MAINTAIN

MAX 205 KT
until directed to LATOP

MCU
5910
Continue climbing to 7880

SPEED RESTRICTION
Departure turn
MAX 205 KT.

FT/METER CONVERSION	
QNH	
400'	120m
2000'	610m
5910'	1800m
7880'	2400m
8900'	2700m

FL CONVERSION	
FL148	FL4500m

These SIDs require minimum climb gradients of
 SHL 1E: 4.8% until leaving FL148.
 SHL 1F: 3.8% until leaving 7880.

Gnd speed-KT	75	100	150	200	250	300
4.8% V/V (fpm)	365	486	729	972	1215	1458
3.8% V/V (fpm)	289	385	577	770	962	1155

If unable to comply inform MACAO Ground at first contact.

**SHL 1E, SHL 1F
DEPARTURES
(ALL RWYS)**

VMCC/MFM
MACAO INTL

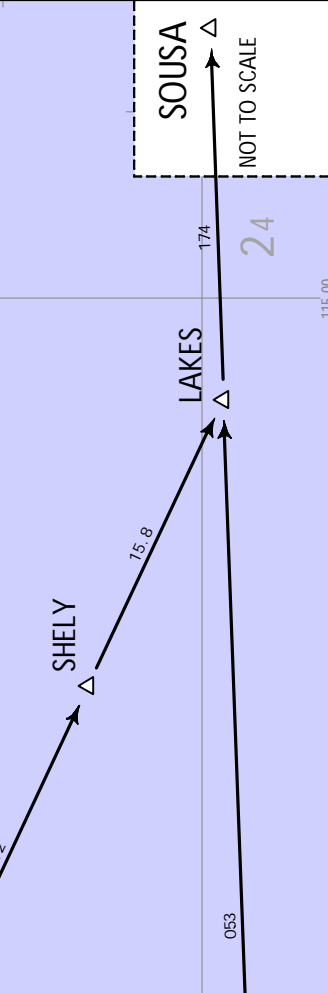
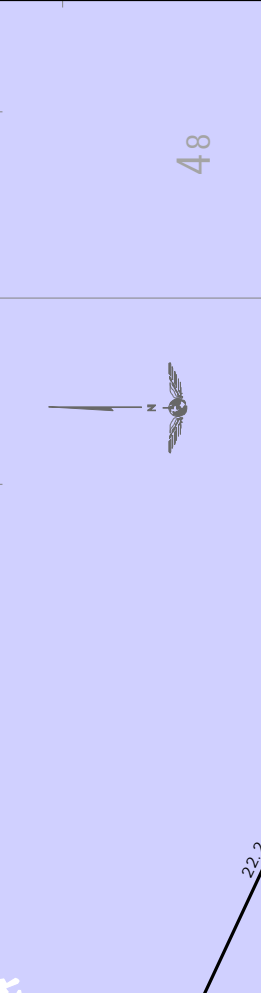
JEPPESSEN
10 MAR 23 (10-3X2)

EFF: 23.Mar.
MACAO, PR OF CHINA
SID

Trans alt: 8900 (9000 within Hong Kong airspace)
 Owing to the proximity of Hong Kong Intl airport, flights departing towards Hong Kong shall follow the SID until LKC. Any deviation could result in direct conflict with Hong Kong traffic.

SOUZA 2V [SOU2V], SOUSA 2W [SOU2W] DEPARTURES (RWY 34)
NOT AVAILABLE IF SMT U/S
.SPEED: MAX 250 KT BELOW FL110 WITHIN HONG KONG AIRSPACE

FT/METER CONVERSION	ONH
400'	120m
4000'	1220m
5500'	1680m
6000'	1830m
8900'	2700m

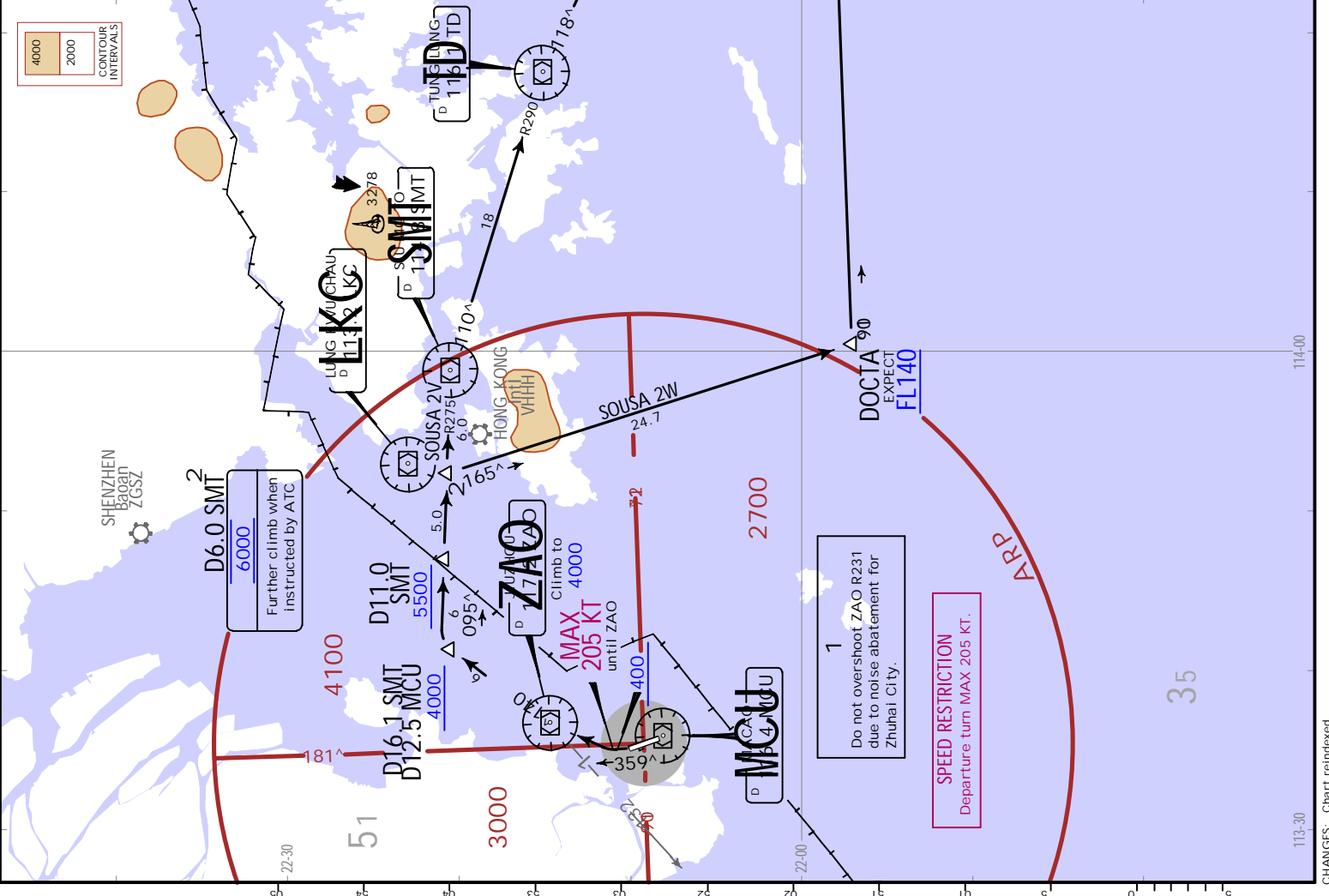


These SIDs require a minimum climb gradient of 5.4% until leaving 5500 due to airspace restrictions.

Gnd Speed-KT	75	100	150	200	250	300
5.4% V/V (fpm)	410	547	820	1094	1367	1641

If unable to comply inform MACAO Ground at first contact.

SID	ROUTING
SOUZA 2V 3	Climb on 359° track to 400, turn RIGHT to ZAO, ZAO R041 to D16.1 SMT (D12.5 MCU), turn RIGHT, intercept SMT R275 inbound to SMT, then to TD, turn RIGHT to SHELLY, then to LAKES, turn LEFT to SOUSA, continue on terminal transition routes.
SOUZA 2W	Climb on 359° track to 400, turn RIGHT to ZAO, ZAO R041 to D16.1 SMT (D12.5 MCU), turn RIGHT, intercept SMT R275 inbound to D6.0 SMT, turn RIGHT to DOCTA, turn LEFT via LAKES to SOUSA, continue on terminal transition routes.
If ZAO U/S:	On 359° track to D3.3 MCU, turn RIGHT, 041° track to D13.8 MCU (D16.2 SMT), cross at 4000, turn RIGHT, intercept SMT R275 inbound and continue on SID.
3	If TD not available EXPECT RADAR vectors to SHELLY.



MACAO, PR OF CHINA
 .TERMINAL.TRANSITION.ROUTE.

Apt Elev
 20
 Trans alt: 8900 (9000 within Hong Kong airspace)

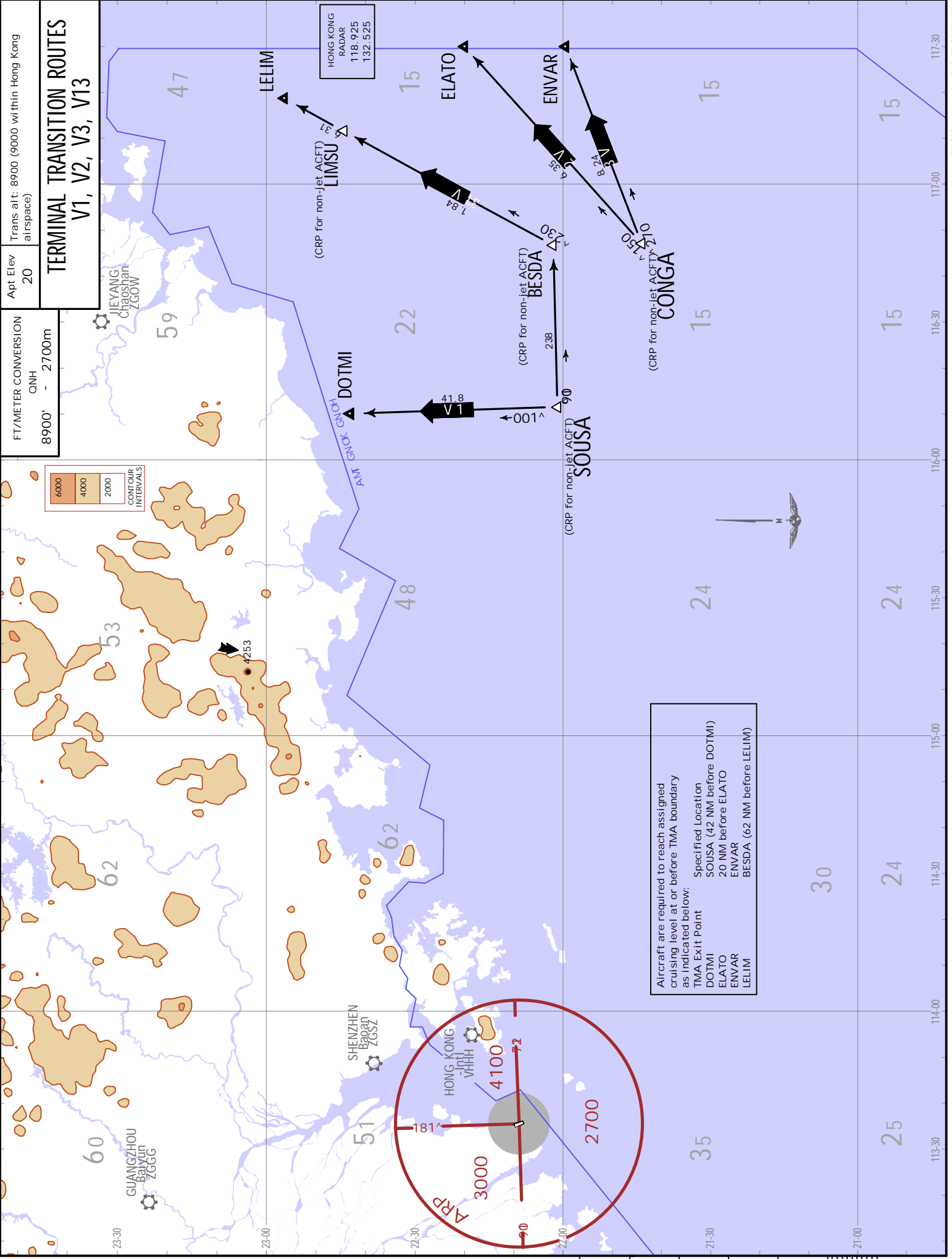
FT/METER CONVERSION
 ONH
 8900' - 2700m

TERMINAL TRANSITION ROUTES
 V1, V2, V3, V13

JIEYANG
 Chaozhou
 ZGOW

HONG KONG
 RADAR
 118.925
 132.525

LELIM



6000
 4000
 2000
 CONTOUR
 INTERVALS

Aircraft are required to reach assigned
 cruising level at or before TMA boundary
 as indicated below:

TMA Exit Point	Specified Location
SOUSA	42 NM before DOTMI
ENVAR	20 NM before ELATO
BESDA	62 NM before LELIM

ANTENNA
 GNDH

SHENZHEN
 Baoan
 ZGSZ

HONG KONG
 VHHH

GUANGZHOU
 Baiyun
 ZGGG

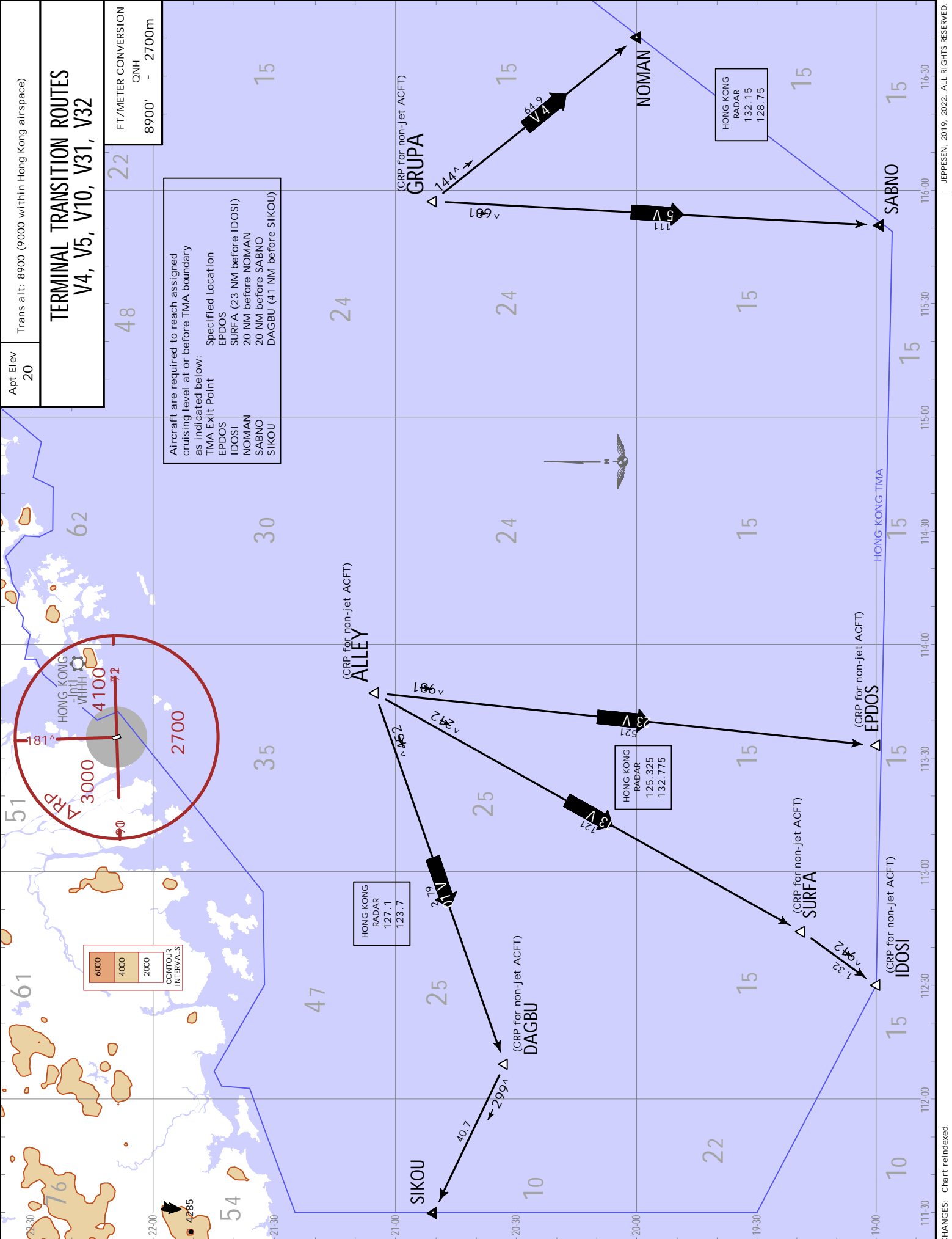
VMMC/MFM
 MACAO INTL
 21 JAN 22
 Eff. 27 Jan.
 (10-3X5)

JEPPESEN

VMMC/MFM
MACAO INTL

JEPPESEN
Eff: 27 Jan. 2022 (10-3X6)

MACAO, PR OF CHINA
TERMINAL TRANSITION ROUTE



VMMC/MFM

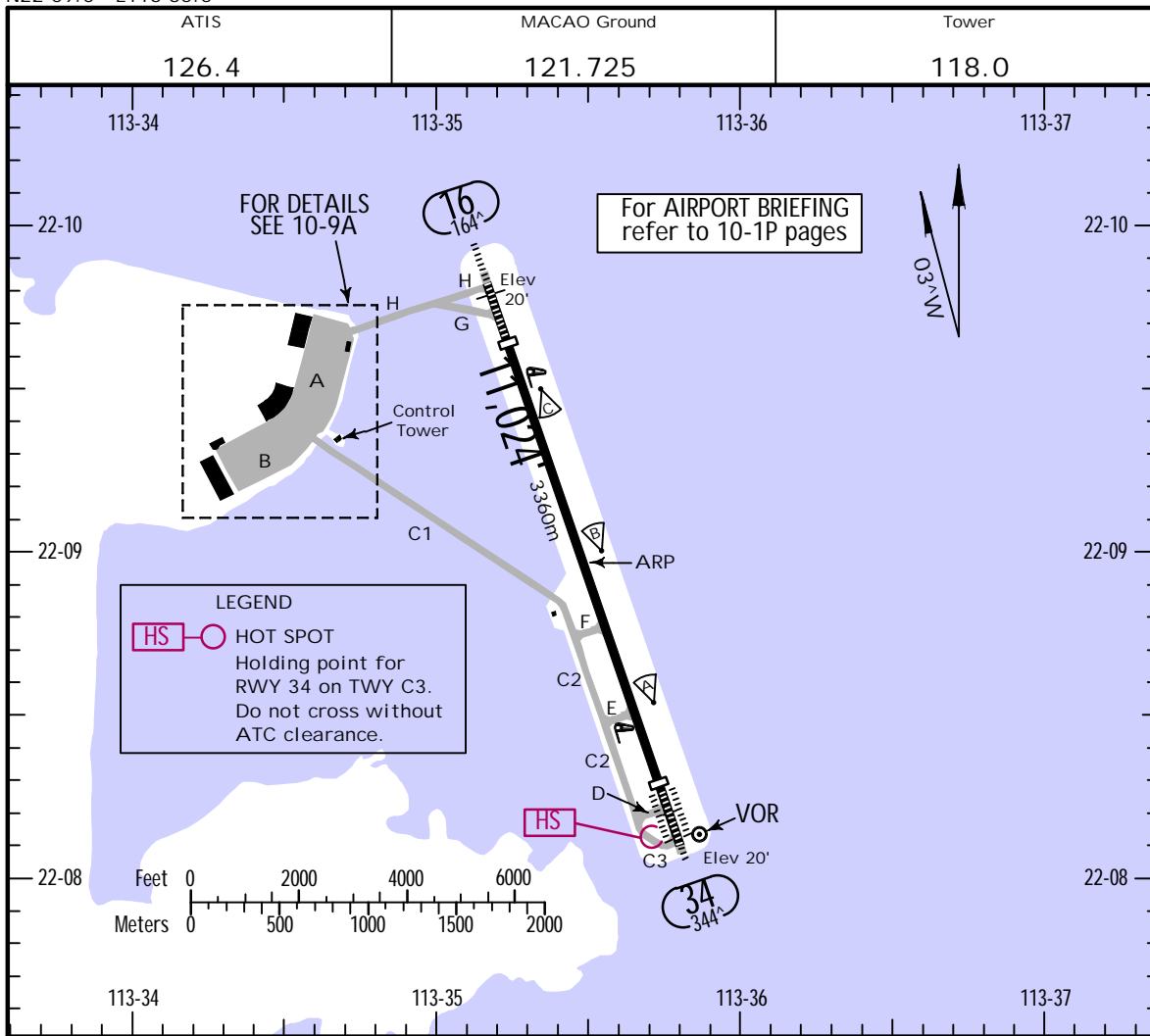
Apt Elev 20
N22 09.0 E113 35.5

JEPPESSEN

27 JAN 23 (10-9)

MACAO, PR OF CHINA

MACAO INTL



ADDITIONAL RUNWAY INFORMATION

RWY		USABLE LENGTHS		TAKE-OFF	WIDTH
		Threshold	Glide Slope		
16	HIRL 1 2CL 3HIALS PAPI (3.0°)	RVR 9843'	3000m 4	67	148' 45m
34	HIRL 1 2CL 3HIALS SFL TDZ PAPI-R (3.0°)	RVR 9810'	2990m 5		

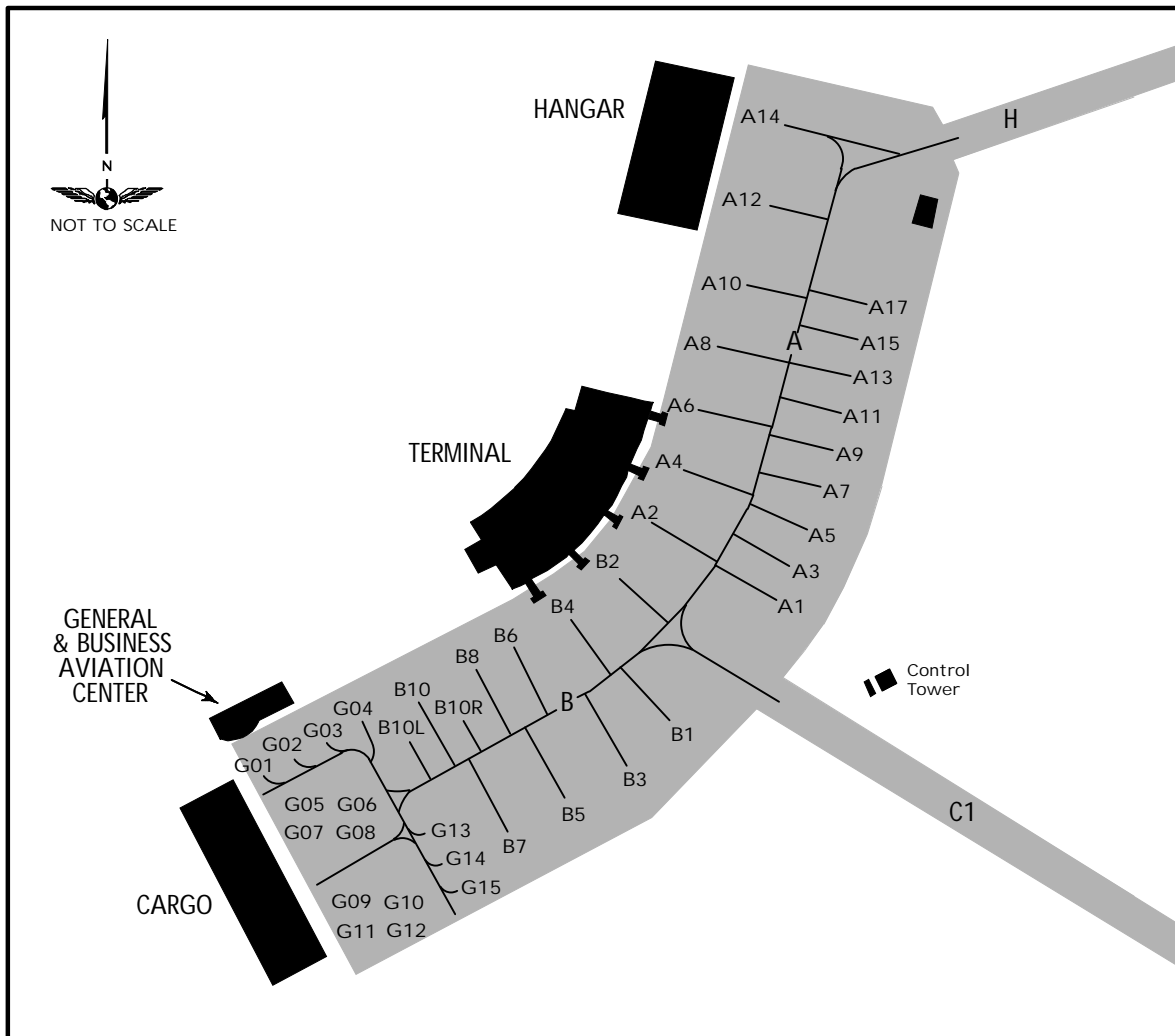
- 1 spacing 60m.
 - 2 REIL.
 - 3 spacing 30m.
 - 4 LDA 9400' 2865m
 - 5 LDA 9613' 2930m
 - 6 TAKE-OFF RUN AVAILABLE
- RWY 16:
From rwy head 10,581' (3225m)
twy G int 10,105' (3080m)
- RWY 34:
From rwy head 10,827' (3300m)
twy D int 10,171' (3100m)
twy E int 8301' (2530m)
twy F int 6611' (2015m)
- 7 Additional 197' /60m available as stopway.

.Std. TAKE-OFF						
RL & CL & relevant RVR	RL & CL	RL & RCLM	RL or CL	RL or RCLM	Adequate Vis Ref	
		DAY	NIGHT	DAY	DAY	NIGHT
TDZ R175m Mid R175m Rollout R175m	R200m	R300m		R400m	R/V500m	NA

VMMC/MFM

JEPPesen
27 JAN 23 (10-9A)

MACAO, PR OF CHINA
MACAO INTL



INS COORDINATES

STAND No.	COORDINATES	STAND No.	COORDINATES
A1	N22 09.4 E113 34.6	B5	N22 09.3 E113 34.5
A2	N22 09.5 E113 34.5	B6	N22 09.4 E113 34.4
A3	N22 09.4 E113 34.7	B7	N22 09.2 E113 34.5
A4	N22 09.5 E113 34.6	B8 thru B10	N22 09.4 E113 34.4
A5	N22 09.4 E113 34.7	G01 thru G08	N22 09.3 E113 34.3
A6	N22 09.5 E113 34.6	G09	N22 09.2 E113 34.3
A7	N22 09.5 E113 34.7	G10 thru G12	N22 09.2 E113 34.4
A8	N22 09.6 E113 34.6	G13	N22 09.3 E113 34.4
A9	N22 09.5 E113 34.7	G14, G15	N22 09.2 E113 34.4
A10	N22 09.6 E113 34.6		
A11	N22 09.5 E113 34.7		
A12	N22 09.7 E113 34.6		
A13	N22 09.5 E113 34.7		
A14	N22 09.7 E113 34.6		
A15	N22 09.5 E113 34.7		
A17	N22 09.6 E113 34.7		
B1	N22 09.3 E113 34.6		
B2	N22 09.4 E113 34.5		
B3	N22 09.3 E113 34.5		
B4	N22 09.4 E113 34.5		

CHANGES: B10L and B10R available.

ADVANCED VISUAL DOCKING GUIDANCE SYSTEM (AVDGS)

1. START-OF-DOCKING

The system is started by pressing one of the aircraft type buttons on the operator panel. When the button has been pressed, " WAIT " will be displayed.

2. CAPTURE

The floating arrows indicate that the system is activated and in capture mode, searching for an approaching aircraft.

It shall be checked that the correct aircraft type is displayed. The lead-in line shall be followed.

THE PILOT MUST NOT PROCEED BEYOND THE BRIDGE, UNLESS THE ARROWS HAVE BEEN SUPERSEDED BY THE CLOSING RATE BAR.

3. TRACKING

When the aircraft has been caught by the laser, the floating arrow is replaced by the yellow centerline indicator.

A flashing red arrow indicates the direction to turn.

The vertical yellow arrow shows position in relation to the centerline. This indicator gives correct position and azimuth guidance.

4. CLOSING RATE

The closing rate is the final countdown from a specific distance to the stop position. A yellow vertical closing rate bar/centerline indicator appears with or without a digital countdown, depending on the configuration.

The closing rate bar represents the distance from stop, it consists of a number of rows representing 2' /0.5m per row. Each row turns off as the aircraft approaches stop (reducing the length of the bar, bottom upwards) and as the last row turns off, less than the interval for one row remains until " STOP " appears.

A digital countdown shows the distance to stop numerically, starting from 98' /30m.

The digital countdown also uses different decrements during the closing rate process.

Metric digital count starting with 3' /1m decrements from 98' /30m down to 7' /2m followed by 1' /0.2m decrements from 7' /2m down to 1' /0.2m and then followed by " STOP " .

The pictures illustrate aircraft in the closing rate distance from stop position, slightly left of the center line. The red arrow indicates the direction to steer.

5. ALIGNED TO CENTER

The aircraft is at the displayed distance from the stop position. The absence of any direction arrow indicates an aircraft on the centerline.

6. SLOW DOWN (DECREASE SPEED)

AVDGS is configured with a slowdown active zone (distances set from the stop position, between 20' /6m to 79' /24m) according to an acceptable docking speed (max allowed speed, 7' /2m/s).

Note: When 7' /2m/s is rounded down to a single digit, it is approximately 7 km/h, 4 mph or 3 knots.

If the aircraft is approaching faster than the accepted speed, the system will show " SLOW " or " SLOW DOWN " as a warning to the pilots.

7. AZIMUTH GUIDANCE

The aircraft is at the displayed distance from the stop-position. The yellow arrow indicates an aircraft to the right of the centerline, and the red flashing arrow indicates the direction to turn.

8. STOP POSITION REACHED

When the correct stop-position is reached, the display will show " STOP " with a red border or with red lights.

9. DOCKING COMPLETED

When the aircraft has parked, " OK " will be displayed.

10. CHOCK ON

" CHOCK ON " will be displayed, when the ground staff has put the chocks in front of the nose wheel and press the Chocks On button on the Operator Panel.

11. STOP SHORT

If the aircraft is found standing still but has not reached the intended stop position, the message " STOP OK " will be shown after a pre-configured time.

12. WAIT

If some object is blocking the view toward the approaching aircraft or the detected aircraft is lost during docking close to " STOP " , the display will show " WAIT " .

The docking will continue as soon as the blocking object has disappeared or the system detects the aircraft again.

THE PILOT MUST NOT PROCEED BEYOND THE BRIDGE, UNLESS THE " WAIT " MESSAGE HAS BEEN SUPERSEDED BY THE CLOSING RATE BAR.

13. SLOW (IN ABNORMAL SITUATIONS)

This display can be shown for two reasons:

A) BAD WEATHER CONDITION

During heavy fog, rain or snow, the visibility for the docking system can be reduced. When the system is activated and in capture mode, the display will disable the floating arrows and display "SLOW" and the aircraft Type.

As soon as the system detects the approaching aircraft, the vertical closing rate bar will appear.

If the system has been configured in this mode to make a shortened ID verification (check of engine position excluded), the aircraft symbol will blink to give attention.

B) AIRCRAFT LOST DURING DOCKING

If the aircraft is lost during docking far out from the bridge or PBB area, the display will show "SLOW". As soon as the system detects the approaching aircraft, the vertical closing rate bar will re-appear.

THE PILOT MUST NOT PROCEED BEYOND THE BRIDGE, UNLESS THE CLOSING RATE BAR IS SHOWN.

14. AIRCRAFT VERIFICATION FAILURE

During entry into the stand, the aircraft geometry is being checked.

If, for any reason, aircraft verification is not made 39'/12m before the stop-position, the display will first show "WAIT" and make a second verification check. If this fails "STOP" and "ID FAIL" will be displayed.

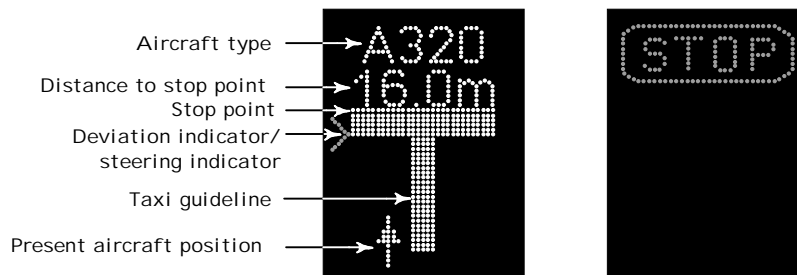
THE PILOT MUST NOT PROCEED BEYOND THE BRIDGE WITHOUT MANUAL GUIDANCE, UNLESS THE WAIT MESSAGE HAS BEEN SUPERSEDED BY THE CLOSING RATE BAR.

15. TOO FAST

If the aircraft approaches with a speed higher than the docking system can handle, the message "STOP TOO FAST" will be displayed. The docking system must be re-started or the docking procedure completed by manual guidance.

DISPLAY OF IMAGES AND FUNCTIONS ON THE PANEL

Examples:



Depending on the system type, displays can be slightly different or additional.

COLOR-CODED PUSHBACK PROCEDURES

STAND NUMBER	RWY 16/34 DEPARTURE	
	Normal pushback and start-up	Pushback after engine start-up
A1 thru A15, A17, B1 thru B6, B8	BLUE	BLUE
B7, B10, B10L, B10R	GREEN	GREEN/PINK
G01 thru G15	FOLLOW BREAKAWAY POINT X, Y OR Z	NOT AUTHORIZED

COLOR CODE	DETAILED DESCRIPTION
BLUE	Aircraft pushback facing South or North depending on Runway-in-use. If necessary, special instruction will be issued by Control Tower. Startup can be commenced after the engines cross the white taxi line protection.
GREEN	<p>Pushback of aircraft with wingspan less than 118'/36m on B7, B10L, B10R shall be done by pushing the aircraft tail towards GAP and then towed forward until breakaway point 1. This applies in normal situation or if aircraft with APU problem requires starting up engine on stand while no aircraft is parked on G05 to G08.</p> <p>Pushback of aircraft with wingspan equal to or greater than 118'/36m on B7, B10 shall be done by pushing the aircraft tail towards GAP and then towed forward until breakaway point 2. This applies in normal situation or if aircraft with APU problem requires starting up engine on stand while no aircraft is parked on G05 to G08.</p> <p>Except for startup on stands due to APU problem, other startup can only be commenced when the pushback finishes at breakaway point.</p>
PINK	The pink procedure requires pushing the aircraft tail towards North until either the beginning of Taxiway C1 for Rwy 16 departure or taxiway A for Rwy 34 departure. Except for startup on stands due to APU problem, other startup can only be commenced when the pushback finishes. The procedure applies for pushback of aircraft with APU problem, which requires to start up engine on stand B7, B10, B10L or B10R while aircraft is parked on G05 thru G08.

Remarks

- For aircraft parked on stands B1 and B3, no simultaneous pushback is allowed.
- For aircraft start-up on the stand, coordination shall be done in advance among ATC, Pilot and AOCC (for follow-me to inspect the surrounding area of the aircraft involved) in order to guarantee ground safety.
- The breakaway point 1 mentioned above is the one at B7 and breakaway point 2 is the one between B5 and B7.
- For blue procedure, the color code may be omitted in the air-ground communication between ATC and pilot.

G01 thru G15 PUSHBACK/TOW PROCEDURES

AIRCRAFT STAND	After pushback/towing nose wheel on breakaway point
G01 thru G06	X
G07 thru G10	Y
G11 thru G15	Z

Remarks

- All GA arrivals will be guided by follow-me to the designated aircraft stands.
- The breakaway points are located on the taxiway centre line:
X behind G03, Y ahead of G10 and Z behind G13.
- NO simultaneous pushback/tow operations on breakaway points
Y and Z are allowed.
- NO engine start up on stand before pushback/tow is allowed.
Exception can be considered for aircraft parked on G06, G08, G10
or G13 with coordination made in advance among AOCC,
Ground Handling Agent (GHA), pilot and ATC.

VMMC/MFM



FASA AIR OPS
MACAO, PR OF CHINA
MACAO INTL

STRAIGHT-IN RWY		A	B	C	D
16	1 LOC	720' (700') V3600m	720' (700') V3600m	720' (700') V3600m	720' (700') V3600m
	RNP Z (AR)	270' (250')	270' (250')	270' (250')	280' (260')
	2 RNP 0.2	V900m	V900m	V900m	V1000m
	ALS out	V1300m	V1300m	V1300m	V1300m
	RNP Z (AR)	270' (250')	270' (250')	280' (260')	300' (280')
	RNP 0.2	V900m	V900m	V1000m	V1100m
	ALS out	V1300m	V1300m	V1300m	V1300m
RNP Z (AR)	300' (280')	310' (290')	330' (310')	350' (330')	
2 RNP 0.3	V1100m	V900m	V1300m	V1400m	
ALS out	V1300m	V1400m	V1400m	V1500m	
RNP Z (AR)	310' (290')	330' (310')	350' (330')	370' (350')	
RNP 0.3	V1100m	V1300m	V1400m	V1500m	
ALS out	V1400m	V1400m	V1500m	V1600m	
1 3 RNP Y	970' (950') V5000m	970' (950') V5000m	970' (950') V5000m	970' (950') V5000m	
34	4 CAT 2 ILS	120' (100') RA100' R350m	120' (100') RA100' R350m	120' (100') RA100' R350m	120' (100') RA100' R350m
	4 ILS	220' (200') R800m	220' (200') R800m	220' (200') R800m	220' (200') R800m
	ALS out	V1200m	V1200m	V1200m	V1200m
	1 4 LOC	310' (290') V1200m	310' (290') V1200m	310' (290') V1200m	310' (290') V1600m
	ALS out	V1400m	V1400m	V1400m	V1600m
	RNP	540' (520') V2700m	540' (520') V2700m	540' (520') V2700m	540' (520') V2700m
	4 LNAV/VNAV	570' (550') V2900m	570' (550') V2900m	570' (550') V2900m	570' (550') V2900m
	RNP	570' (550') V2900m	570' (550') V2900m	570' (550') V2900m	570' (550') V2900m
	1 4 LNAV	550' (530') V2000m	550' (530') V2000m	550' (530') V2400m	550' (530') V3200m
	1 4 VOR	550' (530') V2000m	550' (530') V2000m	550' (530') V2400m	550' (530') V3200m

- 1 Continuous Descent Final Approach.
- 2 Missed apch climb gradient MIN 3.0%.
- 3 Missed apch climb gradient MIN 3.0% up to 5500'.
- 4 Missed apch climb gradient MIN 5.4% up to 5500'.

CIRCLE-TO-LAND 5	100 KT	135 KT	160 KT	D
WITH PRESCRIBED FLIGHT TRACKS TO RWY 16	660' (640') cei1500' V6000m	770' (750') cei1500' V6000m	870' (850') cei1500' V6000m	NOT APPLICABLE

5 After apch to rwy 16: NOT APPLICABLE.

TAKE-OFF							
Low Visibility Take-off				RL or RCLM	RL or CL	Adequate Vis Ref	
RL & CL & relevant RVR	RL & CL	RL & RCLM	RL or CL			DAY	NIGHT
		TDZ R175m Mid R175m Rollout R175m	R200m	R300m		R/V400m	

VMMC/MFM
MACAO INTL

JEPPESEN
30 DEC 22 (11-1)

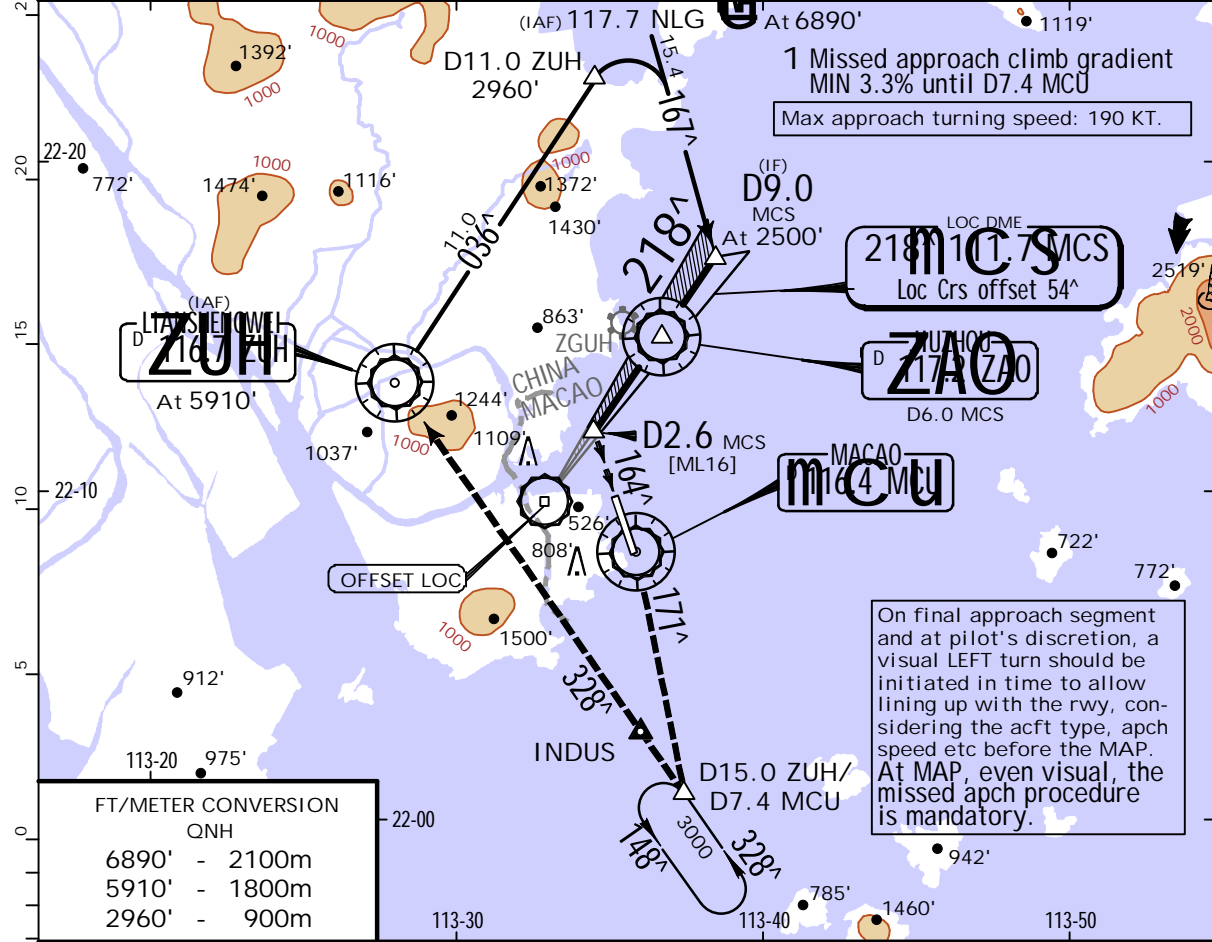
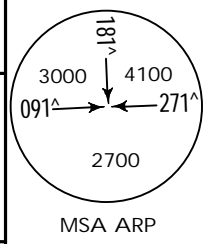
MACAO, PR OF CHINA
1 LOC DME Z Rwy 16

ATIS 126.4	*HONG KONG Radar 126.3	*ZHUHAI Approach 120.35	MACAO Tower 118.0	Ground 121.725
LOC MCS 111.7	Final Apch Crs 218 [^]	D6.0 MCS 1800' (1780')	MDA(H) 720' (700')	Apt Elev 20'

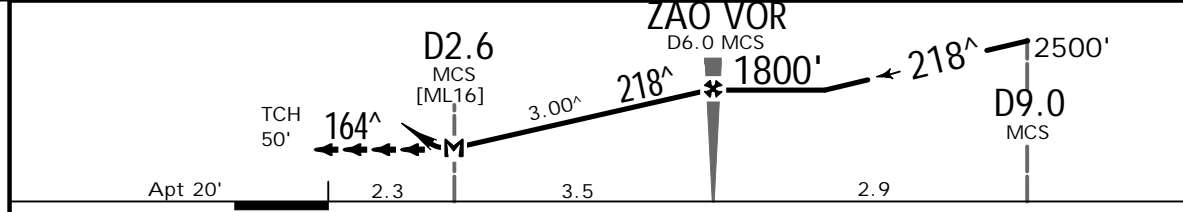
BRIEFING STRIP

MISSED APCH: Climb on R-344 inbound MCU VOR to 4000'. At MCU VOR track on R-171 to D7.4 MCU and expect Radar vectoring from Hong Kong Radar to cross INDUS at 5910' to establish on R-148 ZUH VOR. Cross ZUH VOR at 5910' or as directed. When required join holding at D7.4/R-171 MCU or as directed. MAX 185 KT during turns. Missed approach requires a minimum climb of MIN 3.3% until D7.4 MCU.

Alt Set: hPa Apt Elev: 1 hPa Trans level: By ATIS Trans alt: 9000'



MCS DME	3.0	4.0	5.0	6.0
ALTITUDE	845'	1163'	1482'	1800'



Gnd speed-Kts	70	90	100	120	140	160	HIALS REIL PAPI	185 KT MAX LT	4000'	inbound MCU R-344	MCU 116.4
Descent Angle	3.00 [^]	372	478	531	637	849					

.State.	LANDING	CIRCLE-TO-LAND
	MDA(H) 720' (700')	
	ALS out	

A	V3600m	A	NOT APPLICABLE
B			
C			
D			

VMMC/MFM
MACAO INTL

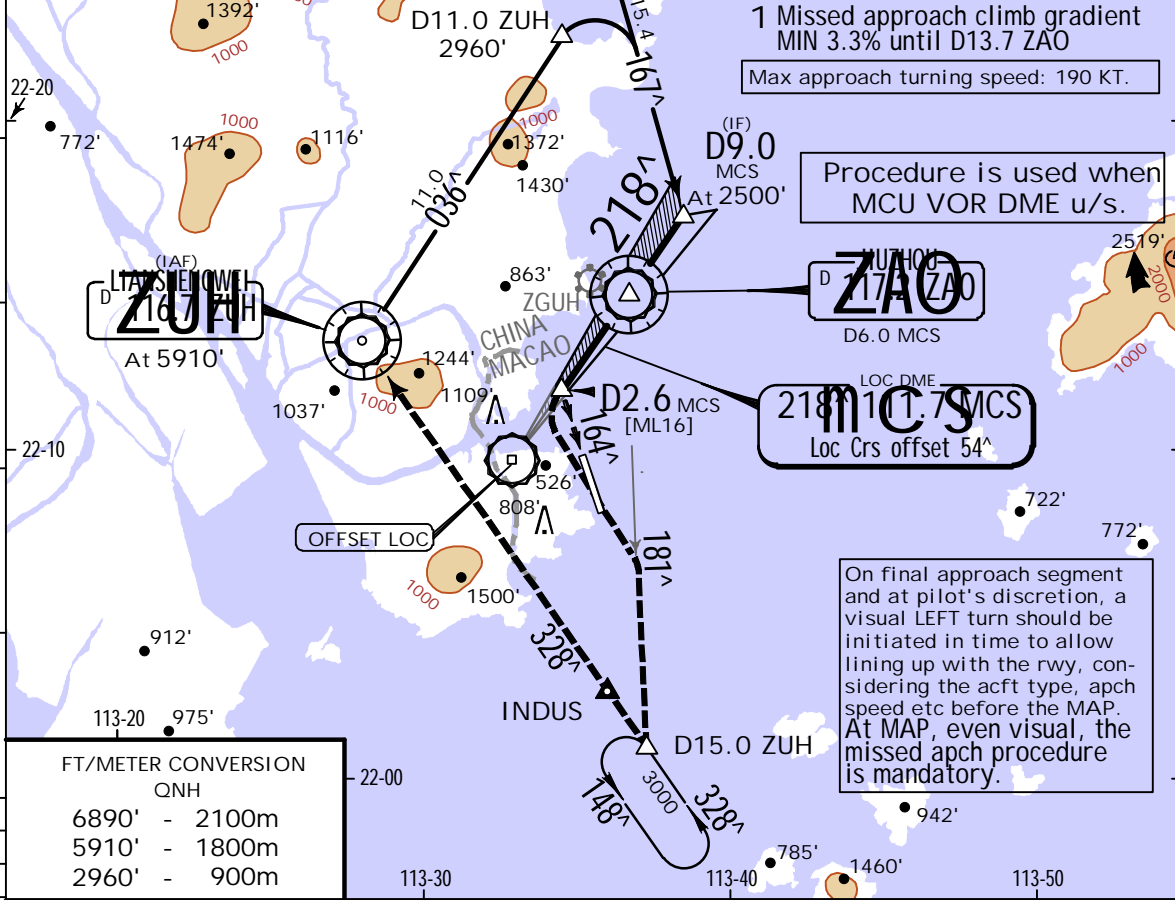


MACAO, PR OF CHINA
1 LOC DME Y Rwy 16

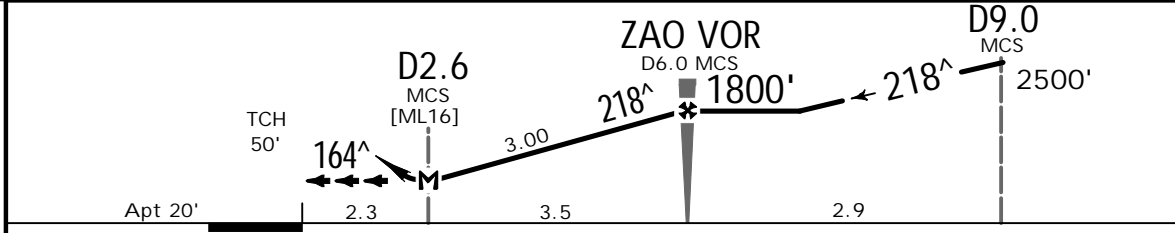
30 DEC 22 (11-2)

ATIS 126.4	*HONG KONG Radar 126.3	*ZHUHAI Approach 120.35	MACAO Tower 118.0	Ground 121.725
LOC MCS 111.7	Final Apch Crs 218 [^]	D6.0 MCS 1800' (1780')	MDA(H) 720' (700')	Apt Elev 20'

Alt Set: hPa Apt Elev: 1 hPa Trans level: By ATIS Trans alt: 9000'



MCS DME	3.0	4.0	5.0	6.0
ALTITUDE	845'	1163'	1482'	1800'



Gnd speed-Kts	70	90	100	120	140	160	HIALS REIL PAPI PAPI 185 KT MAX LT 4000' ZAO 117.2 ↑ onto R-181
Descent Angle 3.00 [^]	372	478	531	637	743	849	

.State.	LANDING	CIRCLE-TO-LAND
	MDA(H) 720' (700')	
	ALS out	

A	V3600m	A	NOT APPLICABLE
B			
C			
D			

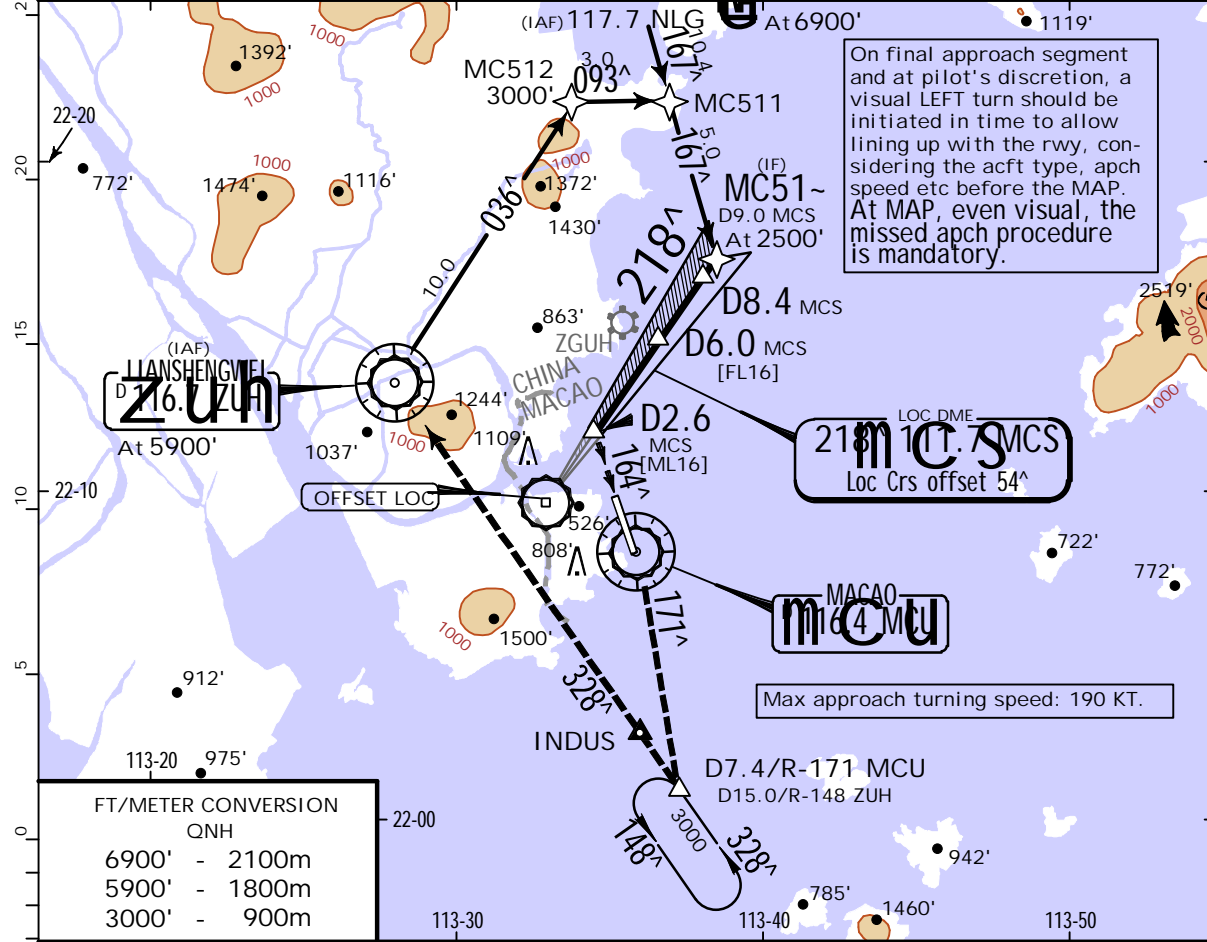
CHANGES: Conversion table.

VMMC/MFM
MACAO INTL

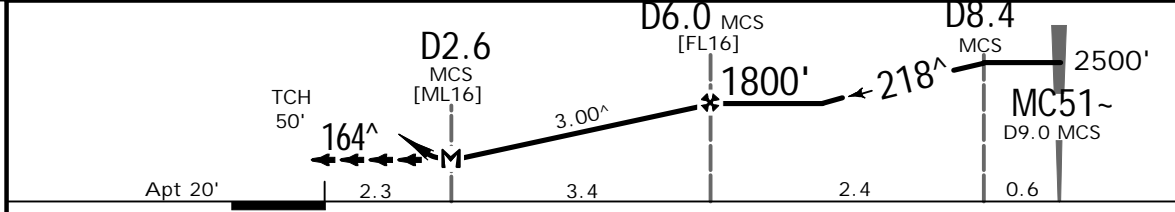
JEPPESEN
30 DEC 22 (11-3)

MACAO, PR OF CHINA
RNAV LOC DME X Rwy 16

ATIS 126.4	*HONG KONG Radar 126.3	*ZHUHAI Approach 120.35	MACAO Tower 118.0	Ground 121.725
LOC MCS 111.7	Final Apch Crs 218 [^]	D6.0 MCS 1800' (1780')	MDA(H) 720' (700')	Apt Elev 20'
MISSED APCH: Climb on R-344 inbound MCU VOR to 4000'. At MCU VOR track on R-171 to D7.4 MCU and expect Radar vectoring from Hong Kong Radar to cross INDUS at 5900' to join R-148 inbound ZUH VOR and cross ZUH VOR at 5900', or as directed. When required, join holding at D7.4/R-171 MCU or proceed as directed. MAX 185 KT during turns.				<p>MSA ARP</p>
Alt Set: hPa		Apt Elev: 1 hPa		Trans level: By ATIS
				Trans alt: 9000'



MCS DME	3.0	4.0	5.0	6.0
ALTITUDE	845'	1163'	1482'	1800'



Gnd speed-Kts	70	90	100	120	140	160	HIALS REIL PAPI PAPI 185 KT MAX LT 4000' on R-344 MCU 116.4 MCU 116.4
Descent Angle	3.00 [^]	372	478	531	637	849	
MAP at D2.6 MCS							

.State.	LANDING	CIRCLE-TO-LAND
	MDA(H) 720' (700')	
	ALS out	

A	V3600m	A	NOT APPLICABLE
B			
C			
D			

CHANGES: Conversion table.

VMMC/MFM
MACAO INTL

JEPPESEN
30 DEC 22 (11-4)

MACAO, PR OF CHINA
MISSED APCH CLIMB GRADIENT MIN 5.4%
ILS Z Rwy 34

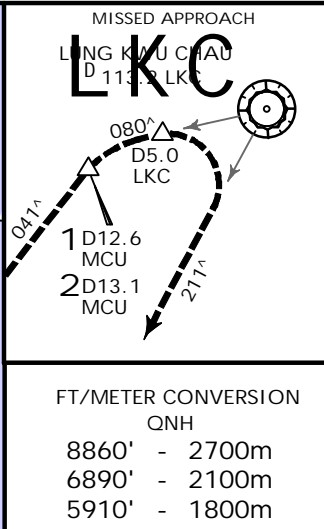
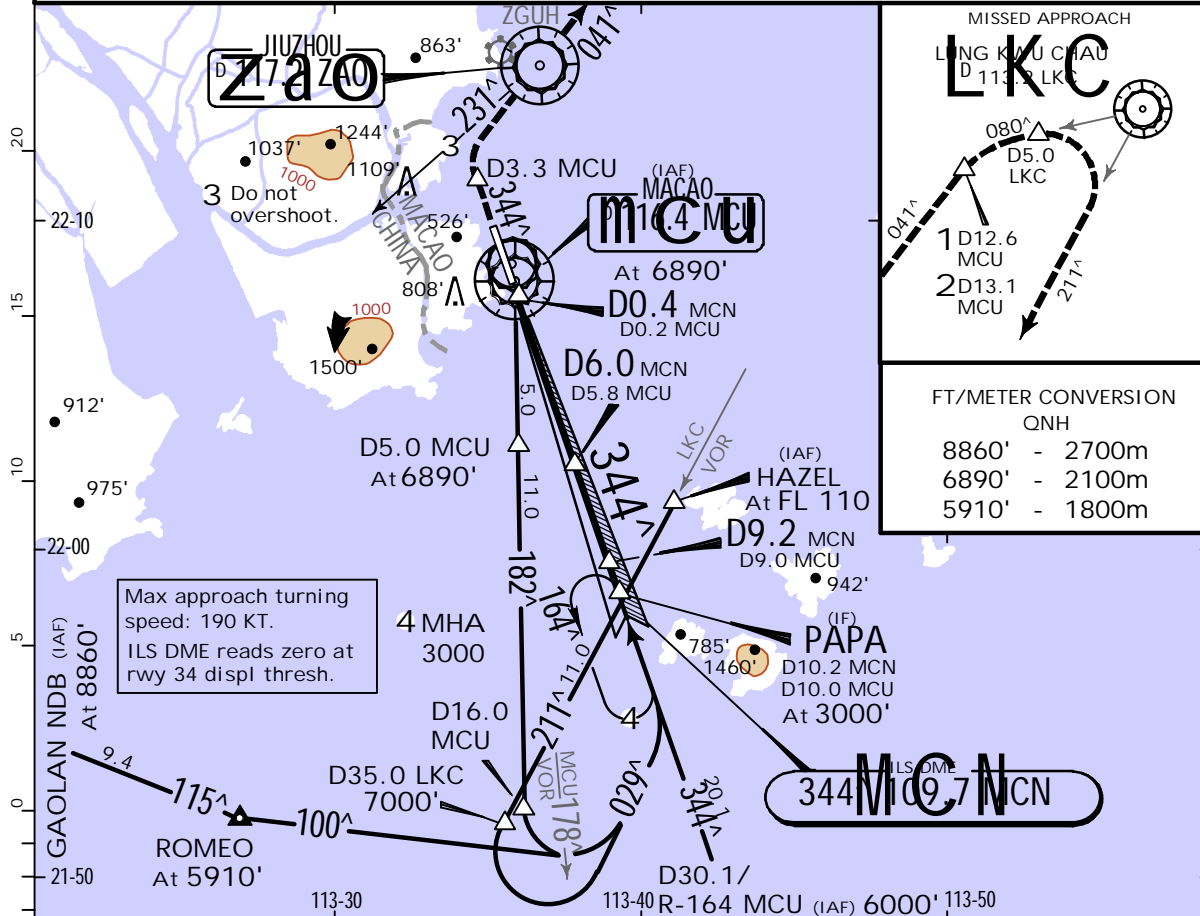
ATIS 126.4	*HONG KONG Radar 126.3	*ZHUHAI Approach 120.35	MACAO Tower 118.0	Ground 121.725
LOC MCN 109.7	Final Apch Crs 344 [^]	D9.2 MCN 3000' (2980')	ILS DA(H) 220' (200')	Apt Elev 20'

BRIEFING STRIP™

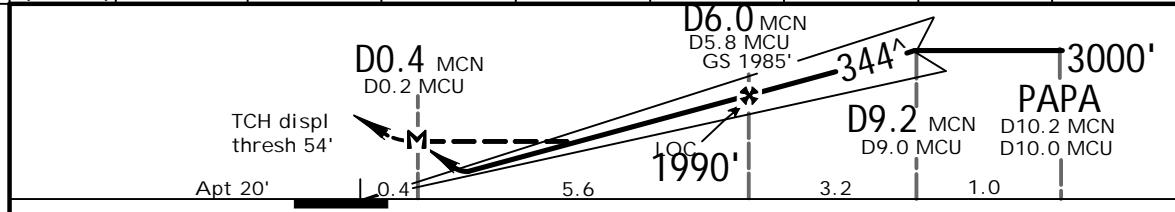
MISSED APCH:
1 With ZAO VOR: Climb on rwy hdg to 600'. At or before D3.3 MCU turn RIGHT to ZAO VOR, climbing to 3940'. Leave ZAO VOR on R-041. At D12.6 MCU turn RIGHT to intercept R-260 inbound LKC VOR, continue climbing to 6000'.
2 W/o ZAO VOR: Climb on rwy hdg. At D3.3 MCU turn RIGHT on track 041[^], at D13.1 MCU and 3940' turn RIGHT to intercept R-260 inbound LKC VOR, continue climbing to 6000'.
Continuation: At D5.0 LKC and at or above 5500' turn RIGHT to establish on R-211 LKC and at D35.0 LKC descend to 3000' and turn LEFT on track 029[^] to intercept final approach track, or expect radar vectoring by Hong Kong ATC via the most expeditious means to final approach. MAX 185 KT during turns.

MSA ARP

Alt Set: hPa Apt Elev: 1 hPa Trans level: By ATC Trans alt: 9000'



LOC (GS out)	MCN DME ALTITUDE	1.0 392'	2.0 711'	3.0 1029'	4.0 1348'	5.0 1666'	6.0 1985'	7.0 2303'
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Gnd speed-Kts	70	90	100	120	140	160	HIALS-II REIL PAPI	Refer to Missed Apch above
ILS GS or LOC Descent Angle	3.00 [^]	372	478	531	637	743		
MAP at D0.4 MCN/D0.2 MCU								

.State.				STRAIGHT-IN LANDING Missed apch climb gradient MIN 5.4%		CIRCLE-TO-LAND	
ILS DA(H) 220' (200')		LOC (GS out) MDA(H) 310' (290')					
FULL		ALS out					
A/B				V1200m	V1400m	For Circle-to-land procedure with prescribed flight tracks see 19-10.	
C	R800m	V1200m					
D				V1600m			
1 Climb gradient up to 5500'.							

VMMC/MFM
MACAO INTL

JEPPesen

30 DEC 22 (11-4A)

MISSED APCH CLIMB GRADIENT MIN 5.4%

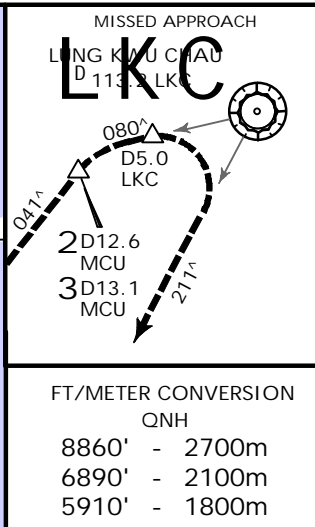
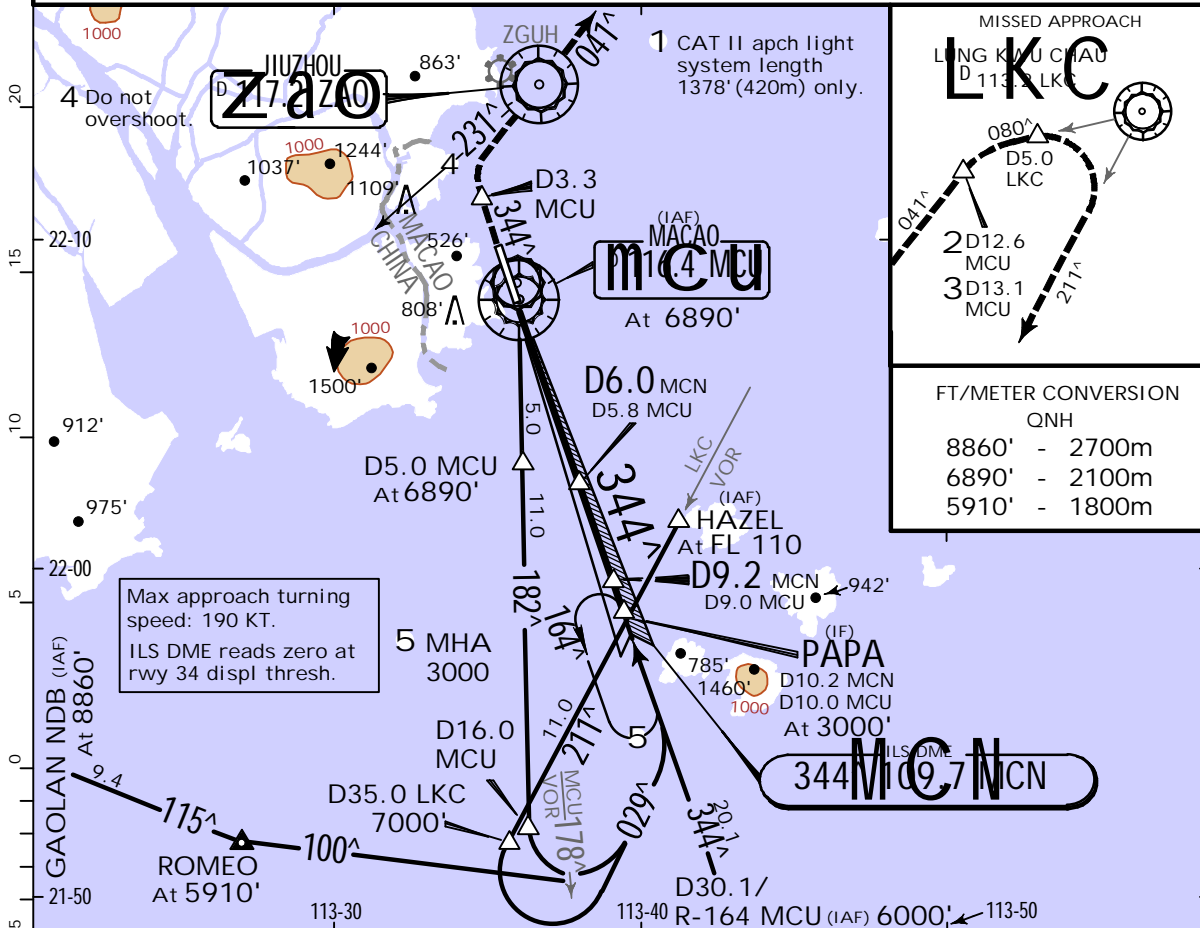
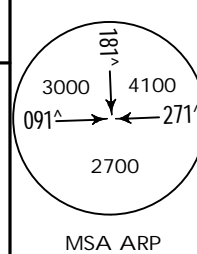
MACAO, PR OF CHINA
1 CAT II ILS Z Rwy 34

ATIS 126.4	*HONG KONG Radar 126.3	*ZHUHAI Approach 120.35	MACAO Tower 118.0	Ground 121.725
LOC MCN 109.7	Final Apch Crs 344 [^]	D9.2 MCN 3000' (2980')	CAT II ILS RA 100' DA(H) 120' (100')	Apt Elev 20'

BRIEFING STRIP

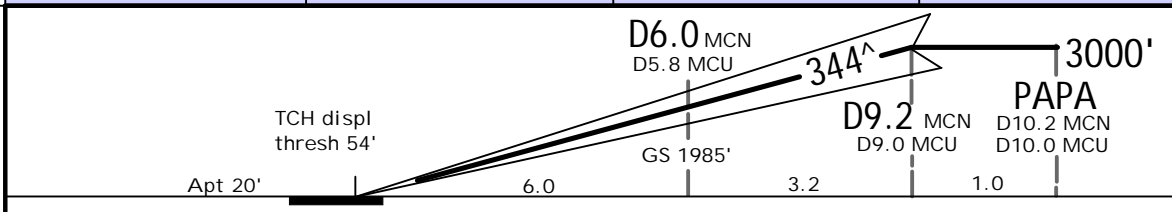
MISSED APCH:
2 With ZAO VOR: Climb on rwy hdg to 600'. At or before D3.3 MCU turn RIGHT to ZAO VOR, climbing to 3940'. Leave ZAO VOR on R-041. At D12.6 MCU turn RIGHT to intercept R-260 inbound LKC VOR, continue climbing to 6000'.
3 W/o ZAO VOR: Climb on rwy hdg. At D3.3 MCU turn RIGHT on track 041[^], at D13.1 MCU and 3940' turn RIGHT to intercept R-260 inbound LKC VOR, continue climbing to 6000'.
Continuation: At D5.0 LKC and at or above 5500' turn RIGHT to establish on R-211 LKC and at D35.0 LKC descend to 3000' and turn LEFT on track 029[^] to intercept final approach track, or expect radar vectoring by Hong Kong ATC via the most expeditious means to final approach. MAX 185 KT during turns.

Alt Set: hPa Apt Elev: 1 hPa Trans level: By ATC Trans alt: 9000'
 Special Aircrew & Acft Certification Required.



FT/METER CONVERSION

QNH	
8860'	- 2700m
6890'	- 2100m
5910'	- 1800m



Gnd speed-Kts	70	90	100	120	140	160	HIALS-II REIL PAPI	Refer to Missed Apch above
GS	3.00 [^]	372	478	531	637	743		

State. STRAIGHT-IN LANDING
 Missed apch climb gradient MIN 5.4% 1
 CAT II ILS
 RA 100'
 DA(H) 120' (100')

R350m
 1 Climb gradient up to 5500'.

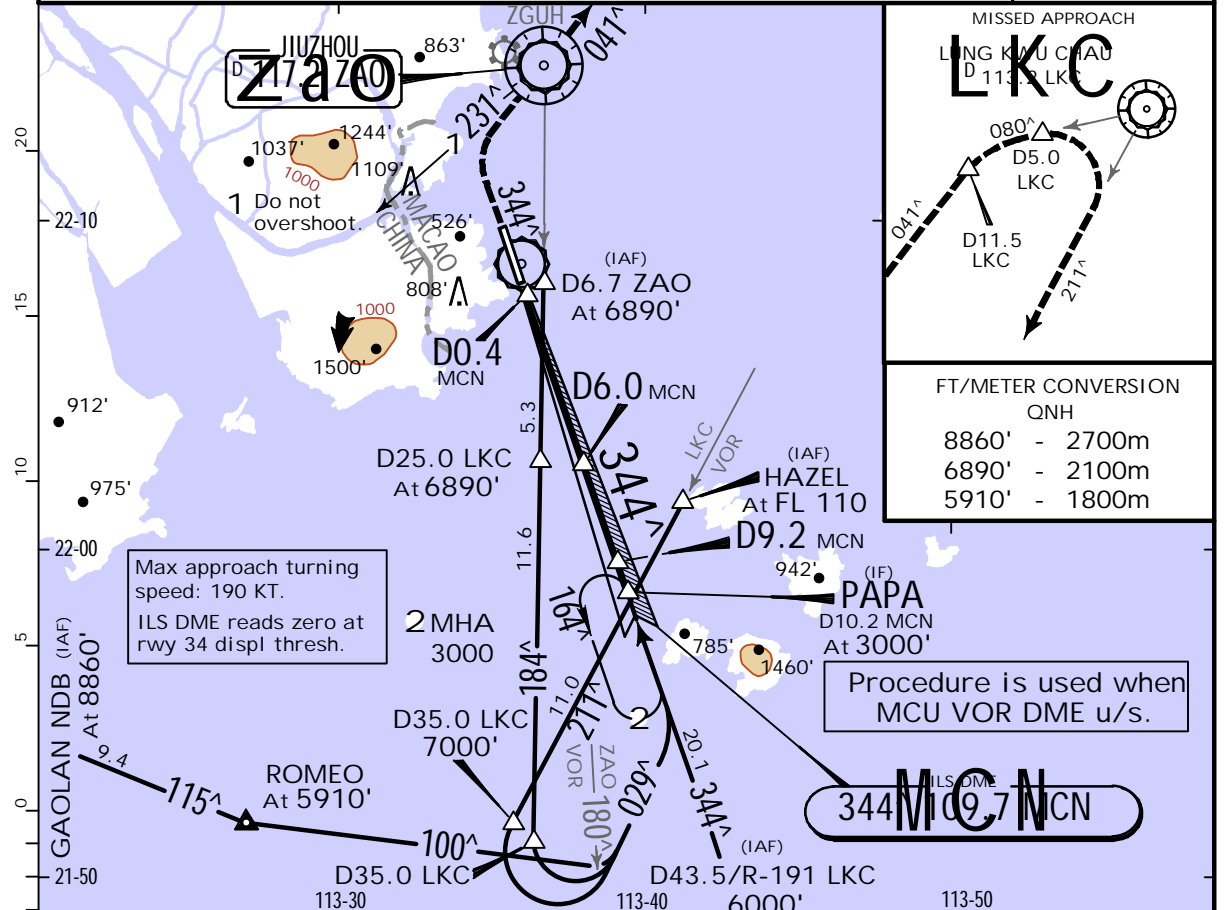
VMMC/MFM
MACAO INTL

30 DEC 22 (11-5)

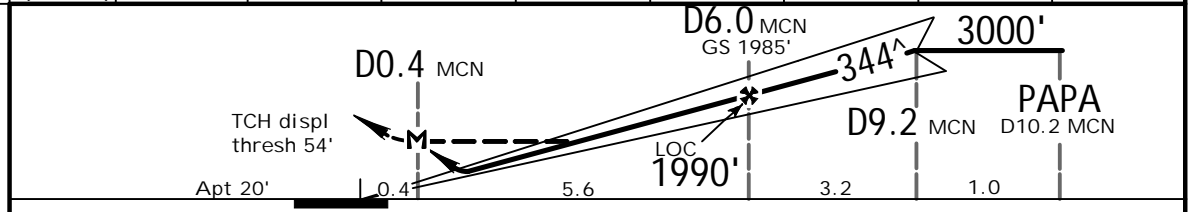
MISSED APCH CLIMB
GRADIENT MIN 5.4%

MACAO, PR OF CHINA
ILS Y Rwy 34

ATIS 126.4	*HONG KONG Radar 126.3	*ZHUHAI Approach 120.35	MACAO Tower 118.0	Ground 121.725
LOC MCN 109.7	Final Apch Crs 344 [^]	D9.2 MCN 3000' (2980')	ILS DA(H) 220' (200')	Apt Elev 20'
MISSED APCH: Climb on rwy hdg to 600', turn RIGHT to ZAO VOR climbing to 3940'. Leave ZAO VOR on R-041, at D11.5 LKC turn RIGHT to intercept R-260 inbound LKC VOR, continue climbing to 6000'. At D5.0 LKC and at or above 5500' turn RIGHT to establish on R-211 LKC and at D35.0 LKC descend to 3000' and turn LEFT on track 029 [^] to intercept final approach track, or expect radar vectoring by Hong Kong ATC via the most expeditious means to final approach. MAX 185 KT during turns.				
Alt Set: hPa		Apt Elev: 1 hPa		Trans level: By ATC
		Trans alt: 9000'		



LOC (GS out)	MCN DME ALTITUDE	1.0 392'	2.0 711'	3.0 1029'	4.0 1348'	5.0 1666'	6.0 1985'	7.0 2303'
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Gnd speed-Kts	70	90	100	120	140	160	HIALS-II REIL PAPI	600'	3940'	185 KT	ZAO 117.2
ILS GS or LOC Desc Angle	3.00 [^]	372	478	531	637	849		↑	RT	MAX	
MAP at D0.4 MCN											

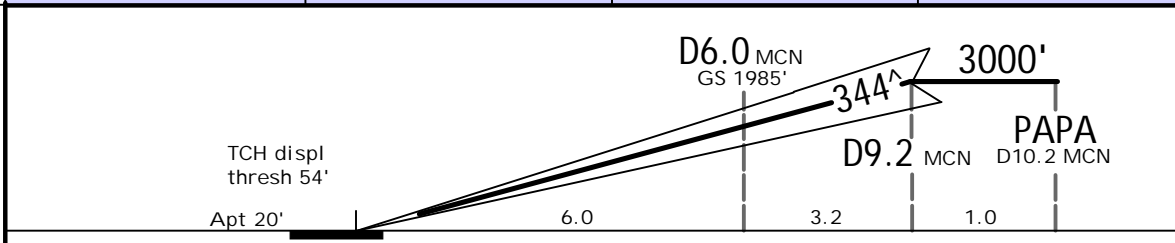
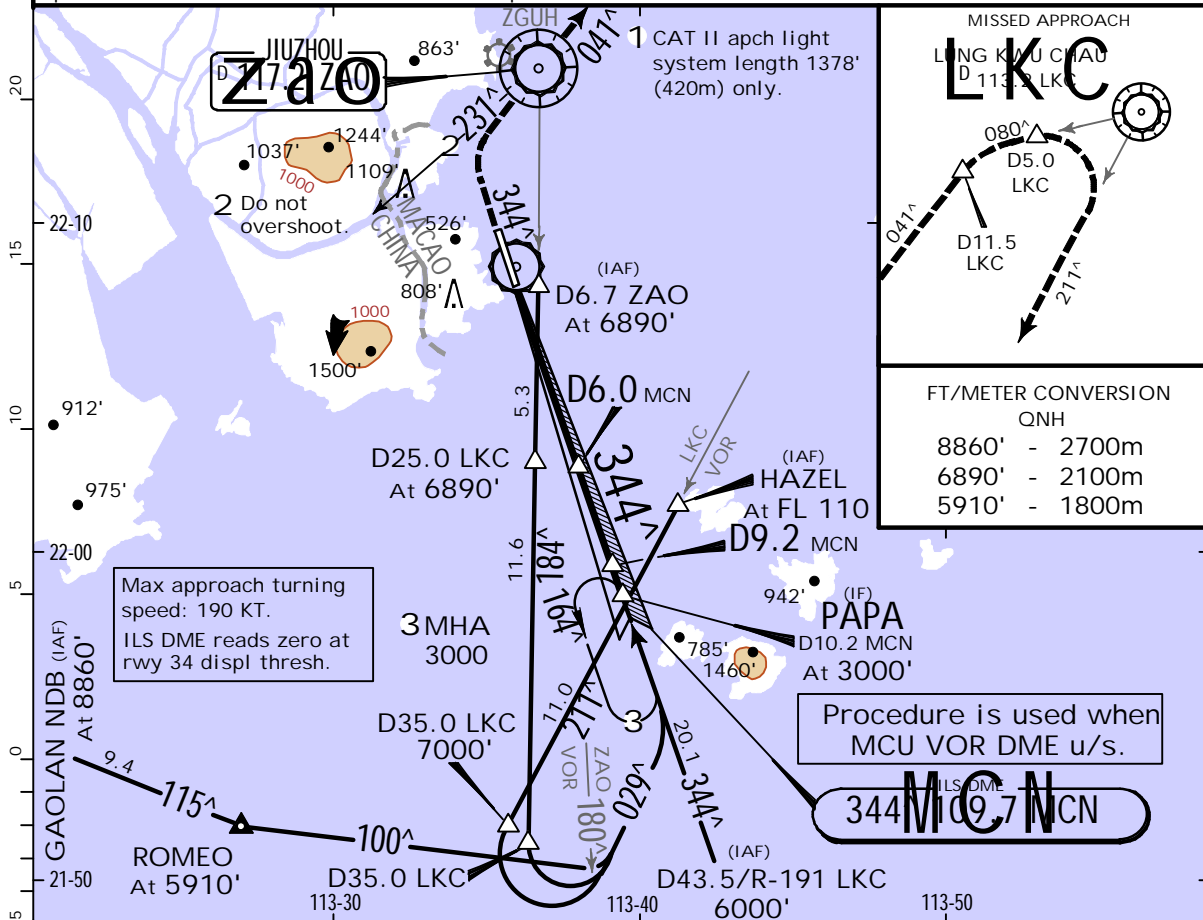
.State.				STRAIGHT-IN LANDING				CIRCLE-TO-LAND			
				Missed apch climb gradient MIN 5.4%							
ILS DA(H) 220' (200')		LOC (GS out) 310' (290')		ILS DA(H) 220' (200')		LOC (GS out) 310' (290')					
FULL		ALS out		FULL		ALS out					
A/B										For Circle-to-land procedure with prescribed flight tracks see 19-10.	
C	R800m	V1200m	V1200m	V1400m	V1400m						
D			V1600m								
1 Climb gradient up to 5500'.											

VMMC/MFM
MACAO INTL

JEPPESEN
30 DEC 22 (11-5A) MISSED APCH CLIMB GRADIENT MIN 5.4%

MACAO, PR OF CHINA
1 CAT II ILS Y Rwy 34

ATIS 126.4	*HONG KONG Radar 126.3	*ZHUHAI Approach 120.35	MACAO Tower 118.0	Ground 121.725
LOC MCN 109.7	Final Apch Crs 344 [^]	D9.2 MCN 3000' (2980')	CAT II ILS RA 100' DA(H) 120' (100')	Apt Elev 20'
MISSED APCH: Climb on rwy hdg to 600', turn RIGHT to ZAO VOR climbing to 3940'. Leave ZAO VOR on R-041, at D11.5 LKC turn RIGHT to intercept R-260 inbound LKC VOR, continue climbing to 6000'. At D5.0 LKC and at or above 5500' turn RIGHT to establish on R-211 LKC and at D35.0 LKC descend to 3000' and turn LEFT on track 029 [^] to intercept final approach track, or expect radar vectoring by Hong Kong ATC via the most expeditious means to final approach. MAX 185 KT during turns.				<p>MSA ARP</p>
Alt Set: hPa		Apt Elev: 1 hPa		Trans level: By ATC
Special Aircrew & Aircraft Certification Required.				



Gnd speed-Kts	70	90	100	120	140	160	HIALS-II	600'	3940'	185 KT	ZAO
GS	3.00 [^]	372	478	531	637	849	REIL	↑	↗	MAX	117.2
							PAPI		RT		

State. STRAIGHT-IN LANDING
Missed apch climb gradient MIN 5.4% 1
CAT II ILS
RA 100'
DA(H) 120' (100')

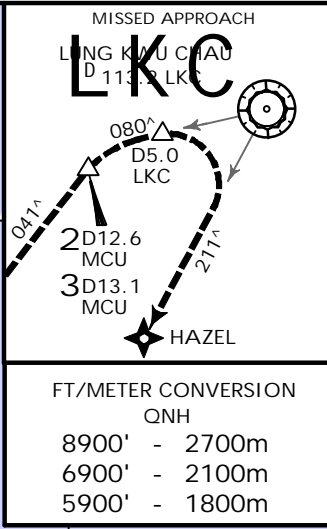
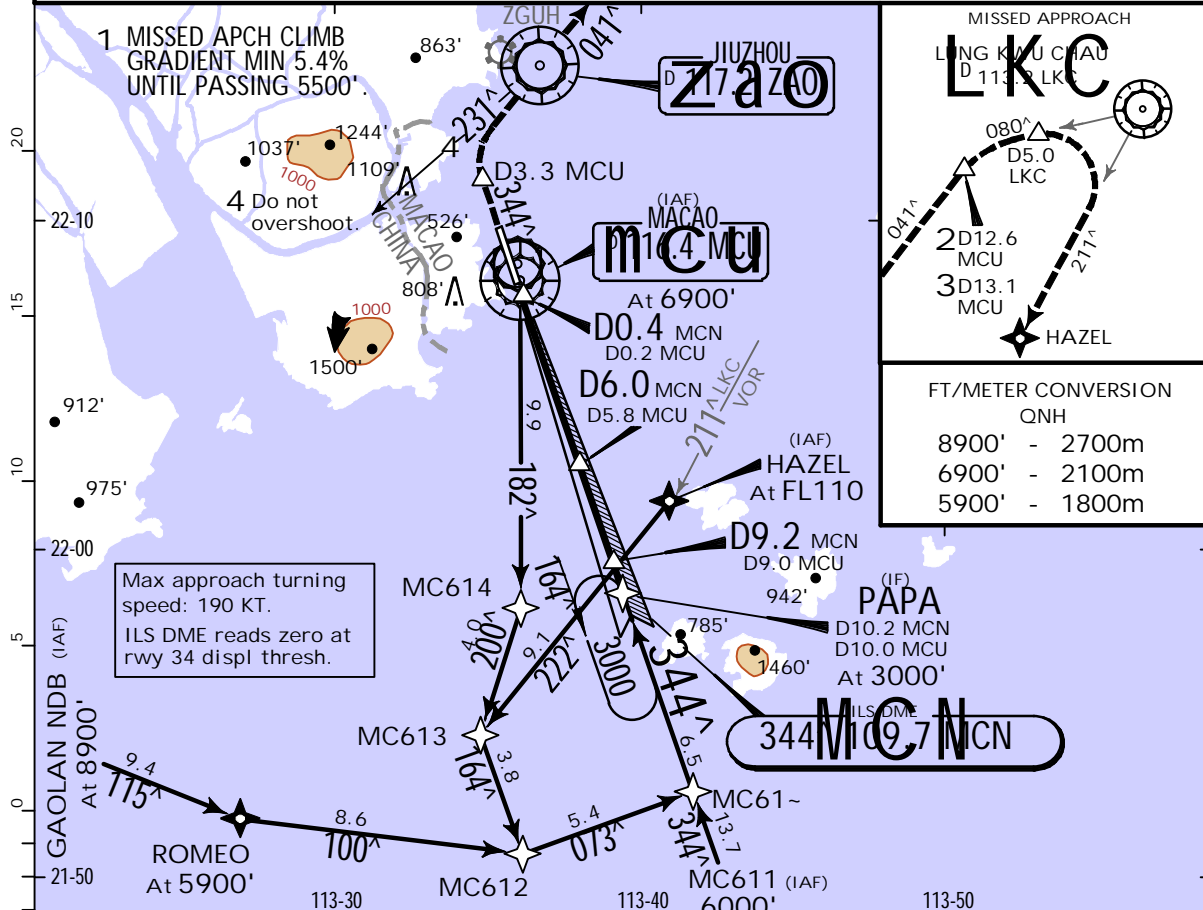
R350m
1 Climb gradient up to 5500'.

VMMC/MFM
MACAO INTL

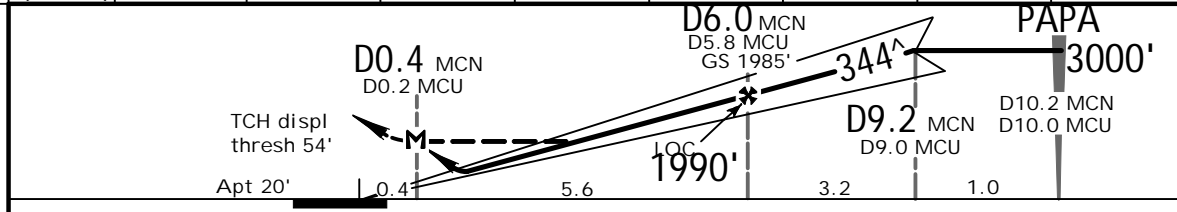
30 DEC 22 (11-6)

MACAO, PR OF CHINA
1 RNAV ILS X Rwy 34

ATIS 126.4	*HONG KONG Radar 126.3	*ZHUHAI Approach 120.35	MACAO Tower 118.0	Ground 121.725
LOC MCN 109.7	Final Apch Crs 344 [^]	D9.2 MCN 3000' (2980')	ILS DA(H) 220' (200')	Apt Elev 20'
MISSED APCH: 2 With ZAO VOR: Climb on rwy hdg to 600'. At or before D3.3 MCU turn RIGHT to ZAO VOR, climbing to 3940'. Leave ZAO VOR on R-041. At D12.6 MCU turn RIGHT to intercept R-260 inbound LKC VOR, continue climbing to 6000'. 3 W/o ZAO VOR: Climb on rwy hdg. At D3.3 MCU turn RIGHT on track 041 [^] , at D13.1 MCU and 3940' turn RIGHT to intercept R-260 inbound LKC VOR, continue climbing to 6000'. Continuation: At D5.0 LKC and at or above 5500' turn RIGHT onto R-211 LKC to HAZEL. Descend to 3000' and continue via MC613, MC612, MC61- to PAPA. MAX 185 KT during turns.				<p>MSA ARP</p>
Alt Set: hPa		Apt Elev: 1 hPa		Trans level: By ATC
				Trans alt: 9000'



LOC (GS out)	MCN DME ALTITUDE	1.0 392'	2.0 711'	3.0 1029'	4.0 1348'	5.0 1666'	6.0 1985'	7.0 2303'
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Gnd speed-Kts	70	90	100	120	140	160	HIALS-II REIL PAPI Refer to Missed Apch above
ILS GS or LOC Descent Angle	3.00 [^]	372	478	531	637	743	
MAP at D0.4 MCN/D0.2 MCU							

STRAIGHT-IN LANDING Missed apch climb gradient MIN 5.4% ILS DA(H) 220' (200') LOC (GS out) MDA(H) 310' (290')				CIRCLE-TO-LAND	
FULL		ALS out		ALS out	
A/B	R800m	V1200m	V1200m	V1400m	For Circle-to-land procedure with prescribed flight tracks see 19-10.
C					
D			V1600m		

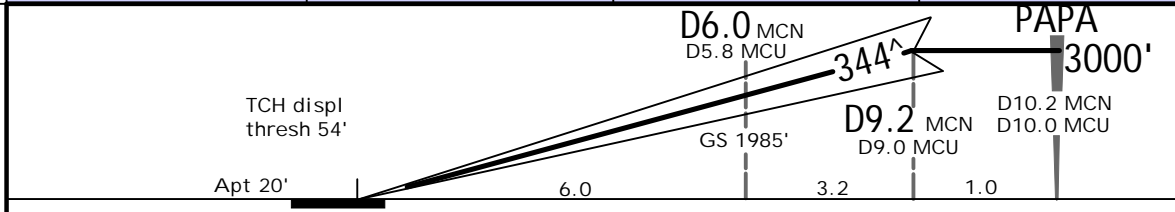
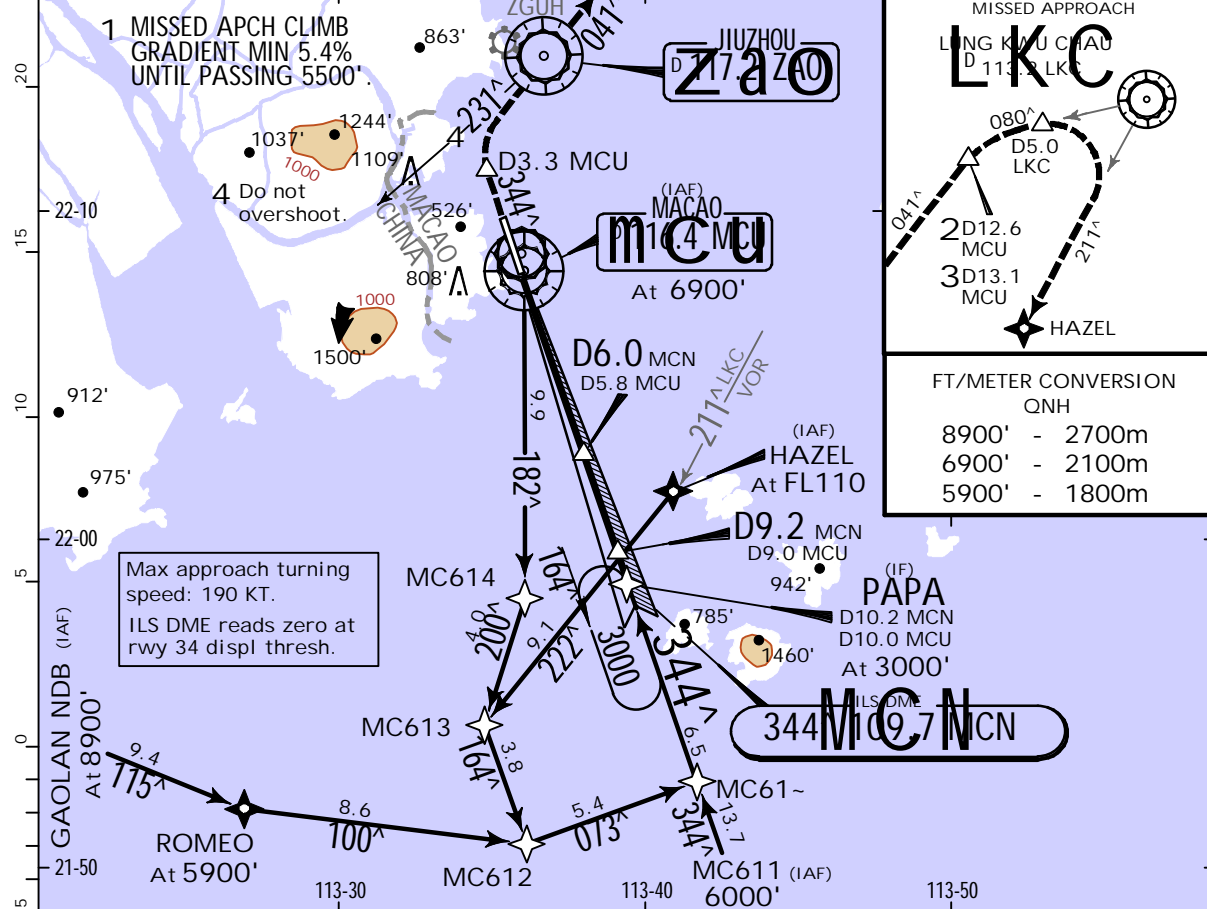
VMMC/MFM
MACAO INTL

JEPPESEN MACAO, PR OF CHINA
30 DEC 22 (11-6A) 1 CAT II RNAV ILS X Rwy 34

ATIS 126.4	*HONG KONG Radar 126.3	*ZHUHAI Approach 120.35	MACAO Tower 118.0	Ground 121.725
LOC MCN 109.7	Final Apch Crs 344 [^]	D9.2 MCN 3000 ['] (2980 ['])	CAT II ILS RA 100' DA(H) 120' (100')	Apt Elev 20'
MISSED APCH: 2 With ZAO VOR: Climb on rwy hdg to 600'. At or before D3.3 MCU turn RIGHT to ZAO VOR, climbing to 3940'. Leave ZAO VOR on R-041. At D12.6 MCU turn RIGHT to intercept R-260 inbound LKC VOR, continue climbing to 6000'. 3 W/o ZAO VOR: Climb on rwy hdg. At D3.3 MCU turn RIGHT on track 041 [^] , at D13.1 MCU and 3940' turn RIGHT to intercept R-260 inbound LKC VOR, continue climbing to 6000'. Continuation: At D5.0 LKC and at or above 5500' turn RIGHT onto R-211 LKC to HAZEL. Descend to 3000' and continue via MC613, MC612, MC61~ to PAPA. MAX 185 KT during turns.				<p>MSA ARP</p>

Alt Set: hPa Apt Elev: 1 hPa Trans level: By ATC Trans alt: 9000'

1. Special Aircrew & Aircraft Certification Required. 2. CAT II apch light system length 1378' (420m) only.



Gnd speed-Kts	70	90	100	120	140	160	HIALS-II REIL PAPI	Refer to Missed Apch above
GS	3.00 [^]	372	478	531	637	743		

State.
 STRAIGHT-IN LANDING
 Missed apch climb gradient MIN 5.4% 1
 CAT II ILS
 RA 100'
 DA(H) 120' (100')

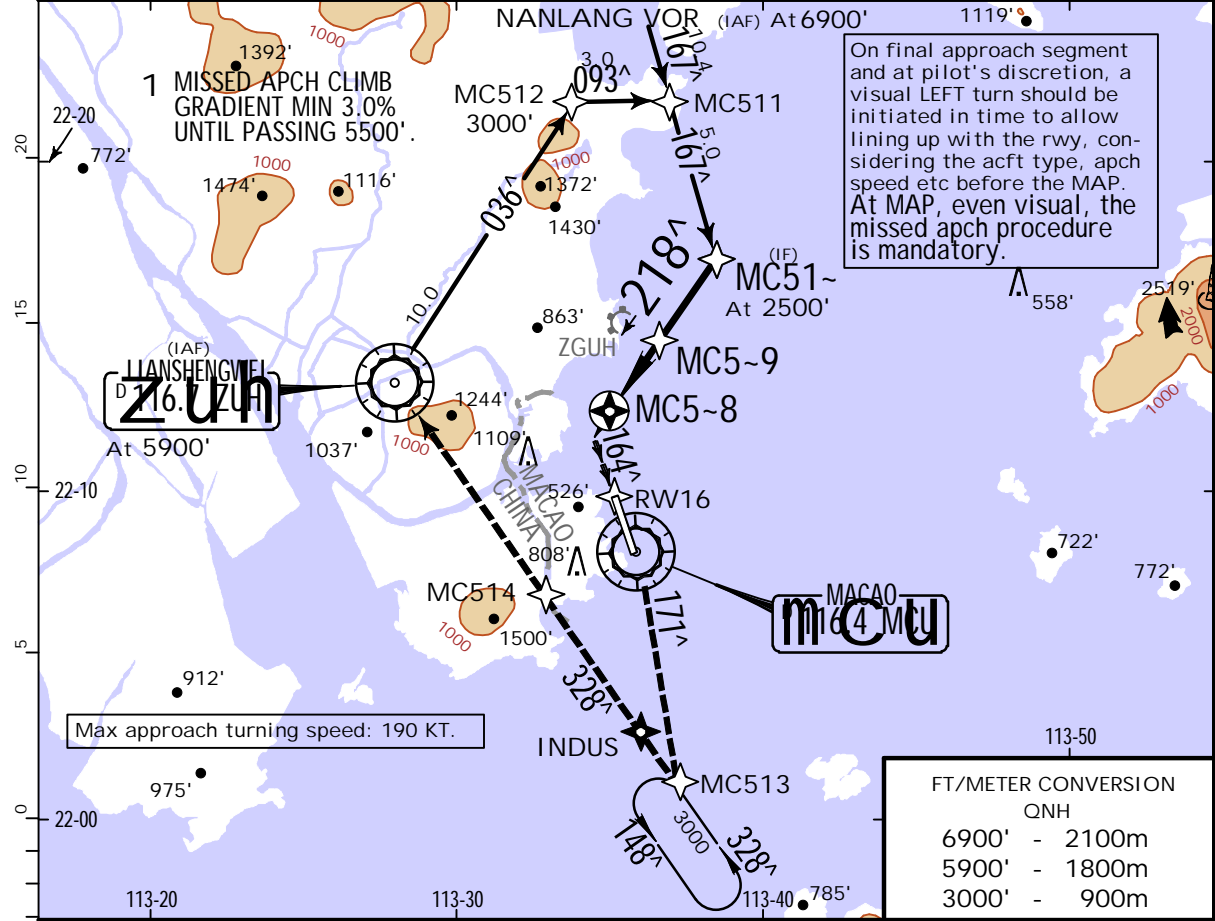
R350m
 1 Climb gradient up to 5500'.

VMMC/MFM
MACAO INTL

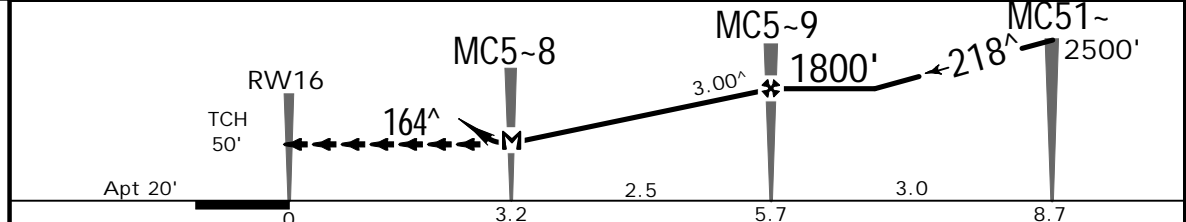
JEPPESEN
30 DEC 22 (12-1)

MACAO, PR OF CHINA
1 RNP Y Rwy 16 (LNAV)

ATIS 126.4	*HONG KONG Radar 126.3	*ZHUHAI Approach 120.35	MACAO Tower 118.0	Ground 121.725
RNAV	Final Apch Crs 218 [^]	MC5-9 1800' (1780')	LNAV MDA(H) 970' (950')	Apt Elev 20'
MISSED APCH: Turn Left and climb on 164 [^] to RW16, then via MCU VOR to MC513. Initial climb to 4000' and expect Radar vectoring from Hong Kong Radar to cross INDUS at 5900'. Track via MC514 to ZUH VOR at 5900', or as directed. When required, join holding at MC513 at 3000', or as directed. MAX 185 KT during turns.				
Alt Set: hPa	Apt Elev: 1 hPa	Trans level: By ATC	Trans alt: 9000'	MSA ARP
RNP apch.				



DIST to MC5-8	1.0	2.0
ALTITUDE	1290'	1610'



Gnd speed-Kts	70	90	100	120	140	160	HIALS REIL PAPI PAPI	Refer to Missed Apch above
Descent Angle 3.00 [^]	372	478	531	637	743	849		
MAP at MC5-8								

State. Missed apch climb gradient MIN 3.0% up to 5500'

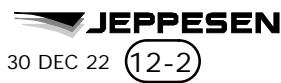
LNAV MDA(H) 970' (950')

ALS out

CIRCLE-TO-LAND

A		A	
B	V5000m	B	NOT APPLICABLE
C		C	
D		D	

VMMC/MFM
MACAO INTL

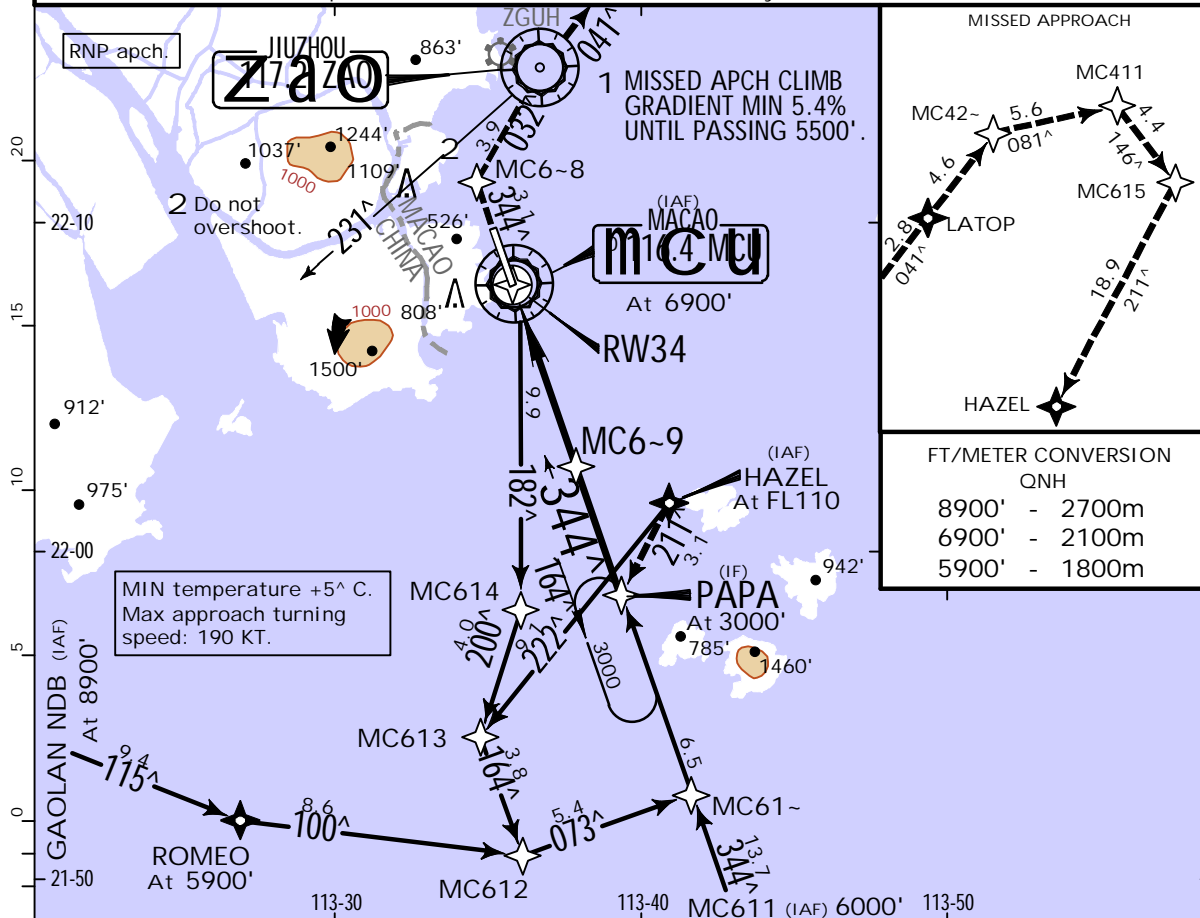


MACAO, PR OF CHINA
1 RNP Rwy 34

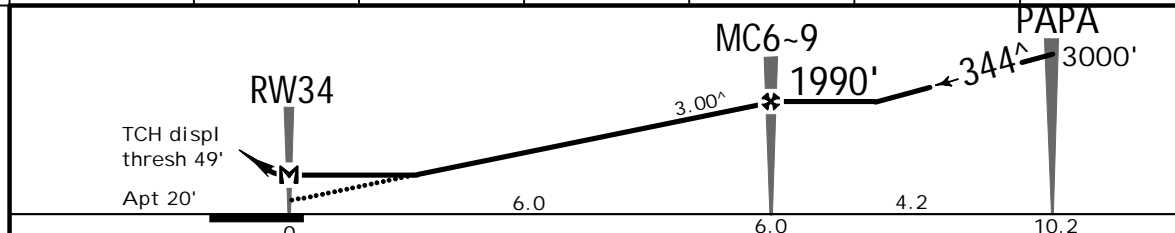
30 DEC 22 (12-2)

ATIS 126.4	*HONG KONG Radar 126.3	*ZHUHAI Approach 120.35	MACAO Tower 118.0	Ground 121.725
RNAV	Final Apch Crs 344 [^]	MC6-9 1990' (1970')	LNAV/VNAV DA(H) 540' (520')	Apt Elev 20'
MISSED APCH: Climb to MC6-8 at 600' or above, then climbing turn RIGHT to ZAO VOR, LATOP, MC42- at 3940' or above. Track to MC411 at or above 5500' and continue climb to 6000', or as directed. Fly via MC615 onto 211 [^] to HAZEL, PAPA, MC613 and MC612, or as directed. When requested, join holding at PAPA at 3000' or above, or as directed. MAX 185 KT during turns.				<p>MSA ARP</p>

Alt Set: hPa Apt Elev: 1 hPa Trans level: By ATC Trans alt: 9000'



DIST to RW34	1.0	2.0	3.0	4.0	5.0	6.0
ALTITUDE	390'	710'	1030'	1350'	1670'	1990'



Gnd speed-Kts	70	90	100	120	140	160	HIALS-II REIL PAPI Refer to Missed Apch above
Descent Angle 3.00 [^]	372	478	531	637	743	849	
MAP at RW34							

.State.	STRAIGHT-IN LANDING		CIRCLE-TO-LAND	
	Missed apch climb gradient MIN 5.4% until passing 5500'			
LNAV/VNAV	540' (520')	570' (550')		
ALS out				

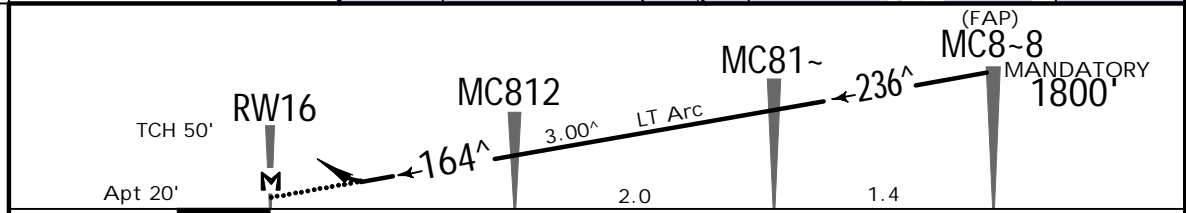
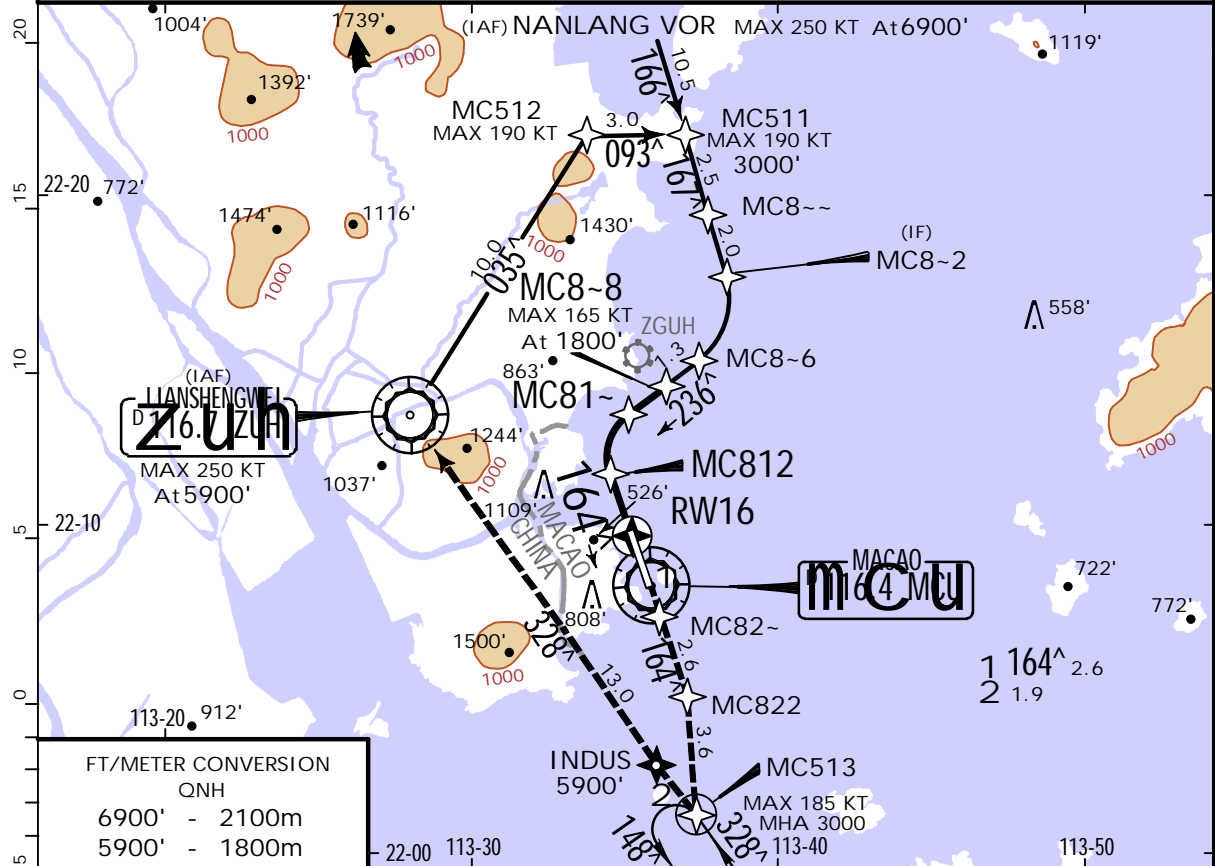
A/B			For Circle-to-land procedure with prescribed flight tracks see 19-10.
C	V2700m	V2900m	
D			

VMMC/MFM
MACAO INTL

JEPPESSEN
30 DEC 22 (12-20)

MACAO, PR OF CHINA
RNP Z Rwy 16 (AR)

ATIS 126.4	*HONG KONG Radar 126.3	*ZHUHAI Approach 120.35	MACAO Tower 118.0	Ground 121.725
RNAV	Final Apch Crs 164 [^]	MC8-8 MANDATORY 1800' (1780')	RNP 0.20 DA(H) Refer to Minimums	Apt Elev 20'
MISSED APCH: Climb to 4000' via missed approach track to MC513 and expect Radar vectoring from Hong Kong Radar to cross INDUS at 5900'. Track to ZUH VOR at 5900', or as directed. When required, join holding at MC513 at 3000', or proceed as directed.				
Alt Set: hPa		Apt Elev: 1 hPa		Trans level: By ATC
Trans alt: 9000'				
RF required. RNP 0.2 or 0.3 required from MC8-- to RW16.				
1. Authorization Required. 2. MIN temperature +5°C.				



Gnd speed-Kts	70	90	100	120	140	160	HIALS REIL PAPI	4000' ↑ MC513
Glide Path Angle	3.00 [^]	372	478	531	637	849		
MAP at DA								

.State.	RNP 0.20 (required until RW16)				STRAIGHT-IN LANDING				RNP 0.30 (required until RW16)					
	Missed apch		climb		gradient		MIN		Missed apch		climb		gradient	
	3.0%		2.5%		3.0%		2.5%		3.0%		2.5%		3.0%	
	DA(H)	ABC: 270' (250')	AB: 270' (250')	C: 280' (260')	D: 300' (280')	DA(H)	A: 300' (280')	B: 310' (290')	C: 330' (310')	D: 350' (330')	DA(H)	A: 310' (290')	B: 330' (310')	C: 350' (330')

PANS OPS	ALS out		ALS out		ALS out		ALS out
	A						
	B	V900m	V1300m	V900m	V1300m	V1100m	V1400m
	C						
D	V1000m	V1100m	V1300m	V1400m	V1500m	V1600m	V1500m

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**MACAO, PR OF CHINA
VOR DME Rwy 34**

30 DEC 22 (13-1) MISSED APCH CLIMB GRADIENT MIN 5.4%

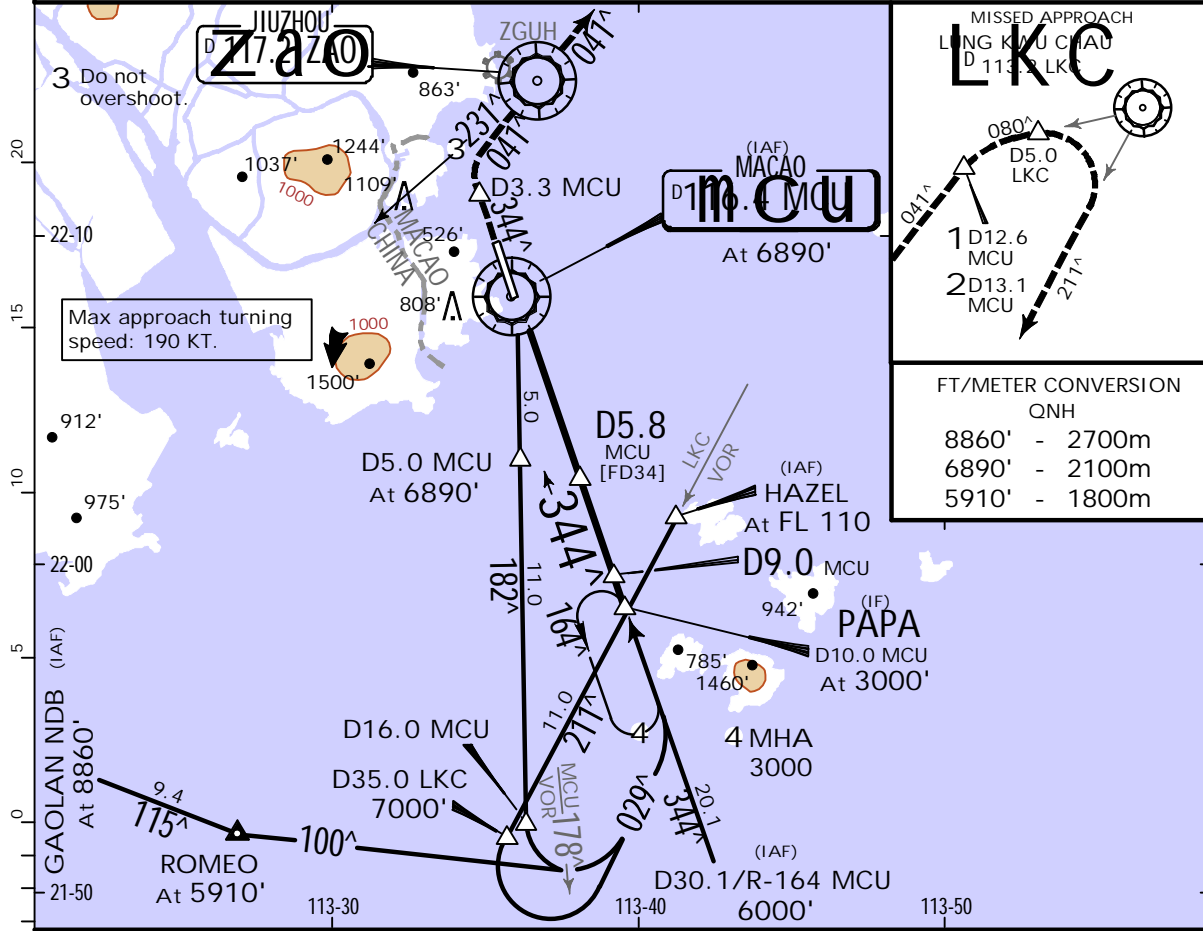
ATIS 126.4	*HONG KONG Radar 126.3	*ZHUHAI Approach 120.35	MACAO Tower 118.0	Ground 121.725
VOR MCU 116.4	Final Apch Crs 344 [^]	D5.8 MCU 1990' (1970')	MDA(H) 550' (530')	Apt Elev 20'

BRIEFING STRIP™

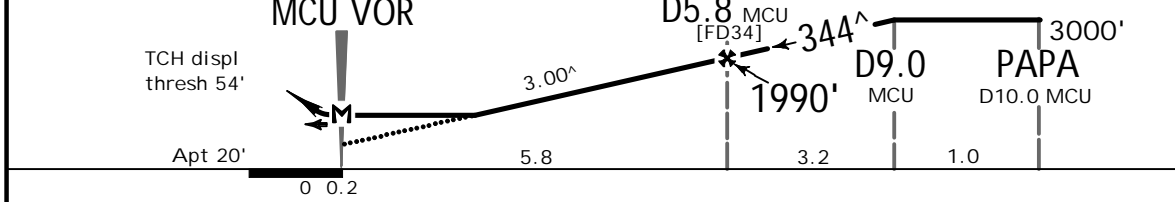
MISSED APCH:
1 With ZAO VOR: Climb on rwy hdg to 600'. At or before D3.3 MCU turn RIGHT to ZAO VOR, climbing to 3940'. Leave ZAO VOR on R-041. At D12.6 MCU turn RIGHT to intercept R-260 inbound LKC VOR, continue climbing to 6000'.
2 W/o ZAO VOR: Climb on rwy hdg. At D3.3 MCU turn RIGHT on track 041[^], at D13.1 MCU and 3940' turn RIGHT to intercept R-260 inbound LKC VOR, continue climbing to 6000'.
Continuation: At D5.0 LKC and at or above 5500' turn RIGHT to establish on R-211 LKC and at D35.0 LKC descend to 3000' and turn LEFT on track 029[^] to intercept final approach track, or expect radar vectoring by Hong Kong ATC via the most expeditious means to final approach. MAX 185 KT during turns.

MSA ARP

Alt Set: hPa Apt Elev: 1 hPa Trans level: By ATC Trans alt: 9000'



MCU DME	2.0	3.0	4.0	5.0	6.0	7.0
ALTITUDE	770'	1088'	1407'	1725'	2044'	2362'



Gnd speed-Kts	70	90	100	120	140	160
Descent Angle	3.00 [^]	372	478	531	637	849

MAP at MCU VOR

.State.		STRAIGHT-IN LANDING Missed apch climb gradient MIN 5.4% up to 5500' MDA(H) 550' (530')		CIRCLE-TO-LAND	
A/B	V2000m	ALS out		For Circle-to-land procedure with prescribed flight tracks see 19-10.	
C	V2400m	ALS out			
D	V3200m	ALS out			

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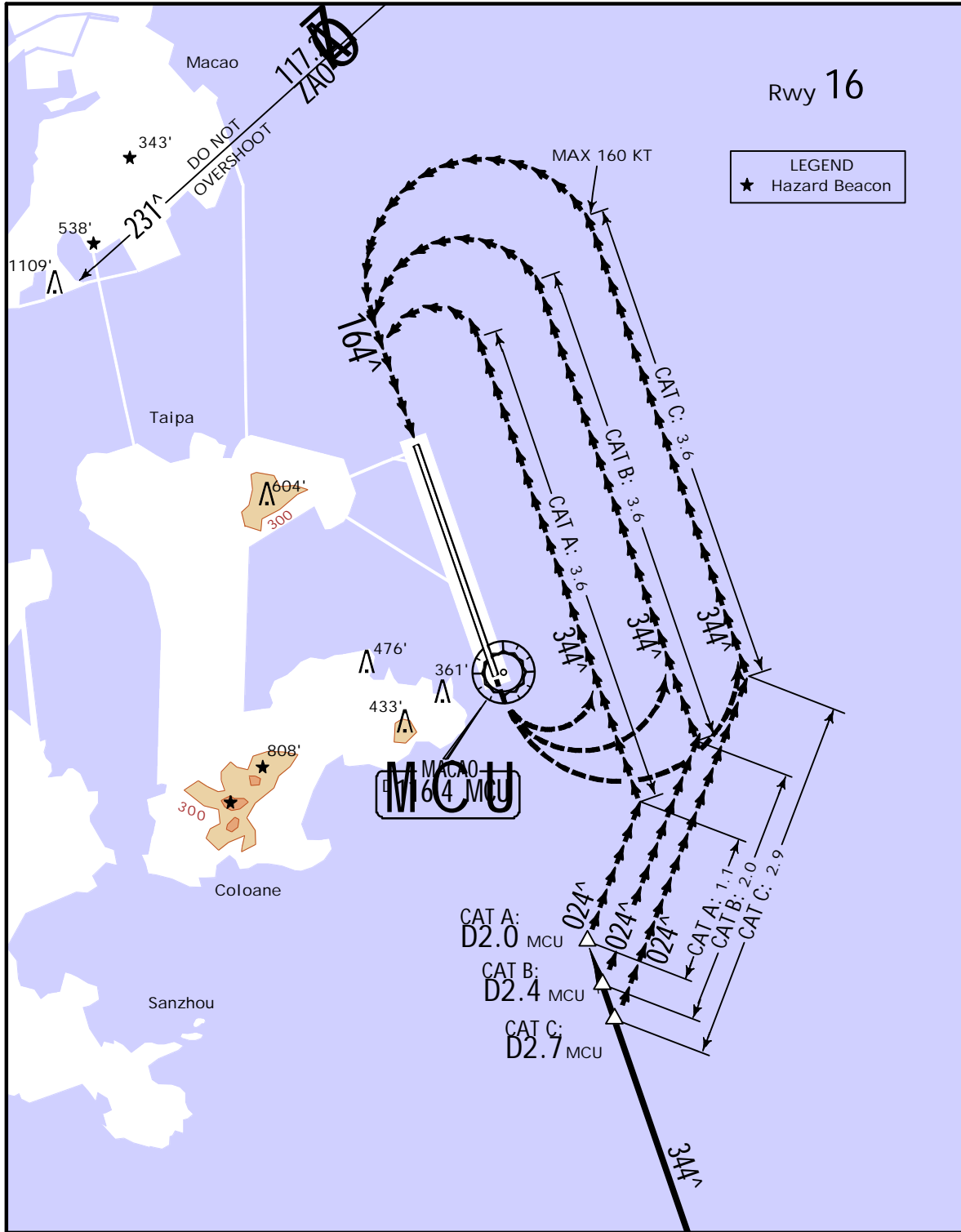
MACAO, PR OF CHINA

30 DEC 22 (19-10)

MACAO INTL

Apt Elev 20'

CIRCLE-TO-LAND
WITH PRESCRIBED FLIGHT TRACKS



.State.		..CEILING.REQUIRED..	
	Max Kts.	MDA(H)	
A	100	660' (640')	1500' - V6000m
B	135	770' (750')	1500' - V6000m
C	160	870' (850')	1500' - V6000m
D		NOT APPLICABLE	

Chart changes since cycle 06-2023

ADD = added chart, REV = revised chart, DEL = deleted chart.

ACT	PROCEDURE IDENT	INDEX	REV DATE	EFF DATE
MACAO, (MACAO INTL - VMMC)				

TERMINAL CHART CHANGE NOTICES

No Chart Change Notices for Airport VMMC