General Info
Macao, MAC
N 22° 09.0’ E113° 35.5’ Mag Var: 1.8°W
Elevation: 20’
Public, Control Tower, IFR, Landing Fee, Customs
Pattern Altitude: 1000 feet AGL
Fuel: 100LL, Jet A-1
Repairs: Minor Airframe, Minor Engine

Time Zone Info: GMT+8:00 no DST

Runway Info
Runway 16-34 11024’ x 148’ concrete

Runway 16 (163.0°M) TDZE 20’
Lights: Edge, ALS, Centerline
Displaced Threshold Distance 1181’
Stopway Distance 197’

Runway 34 (343.0°M) TDZE 20’
Lights: Edge, ALS, Centerline, TDZ
Right Traffic
Displaced Threshold Distance 1214’
Stopway Distance 197’

Communications Info
ATIS 126.4
Macao Tower 118.0
Macao Ground Control 121.975
Macao Ground Control 121.725

Notebook Info
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 121.72 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 ‘ATC Low Visibility Procedure in force’.

1.4. PARKING INFORMATION

1.5. OTHER INFORMATION

1.5.1. GENERAL
Birds in vicinity of APT.

1.5.2. PREFERENTIAL RWY SYSTEM
The preferential RWY is RWY 34, withing 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.

2. ARRIVAL

2.1. SPEED RESTRICTIONS
MAX 250 KT below FL110 within Hong Kong airspace, unless otherwise instructed.
MAX 190 KT during approach turns.

2.2. NOISE ABATEMENT PROCEDURES
Landing on RWY 16:
Maintain 215’ track inbound on LOC course.
Do not deviate from ZAO R-230, 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.

3. DEPARTURE

3.1. START-UP & PUSH-BACK PROCEDURES
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 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 FL110 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-230, which defines the northern limit for flights taking off on RWY 34 due to noise abatement for Zhuhai City.
**VMMC/MFM**  
**MACAO INTL**  
**STAR**  

<table>
<thead>
<tr>
<th>STAR</th>
<th>RWY</th>
<th>ROUTING</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIGRO 6A</td>
<td>34</td>
<td>Via GURIN to UJ</td>
</tr>
<tr>
<td>BIGRO 9A</td>
<td>16</td>
<td>Via GURIN to UJ, turn LEFT,  Intercept ZUH R-212 inbound to ZUH.</td>
</tr>
</tbody>
</table>

**Actual Descent Clearance Will Be As Directed By ATC**

**Changes:**
- RWYS 34, 16 ARRIVALS
- BIGRO 6A: ILS approach to runway 34.
- BIGRO 9A: LOC/DME approach to runway 16.

**Comply with STAR, then join:**
- ILS approach to runway 34.
- LOC/DME approach to runway 16.

**Actual Descent Clearance Will Be As Directed By ATC**
1. Climb instruction will be issued by Hong Kong ATC. EXPECT notification of final cruising level at least 10 minutes prior to crossing TMA boundary.

2. Expect notification of final cruising level at least 10 minutes prior to crossing TMA boundary. Owing to the proximity of Hong Kong Intl airport, pilots departing towards Hong Kong shall follow the SID until LKC. Any deviation could result in direct conflict with Hong Kong traffic.

3. In Hong Kong airspace, unless otherwise instructed. Do not overshoot ZAO due to noise abatement for Zhuhai City.

4. These SIDs require a minimum climb gradient of 328' per NM (5.4%) until leaving 5500' due to airspace restriction.

5. FT/METER CONVERSION

<table>
<thead>
<tr>
<th>QNH</th>
<th>400'</th>
<th>4000'</th>
<th>5500'</th>
<th>6000'</th>
<th>9000'</th>
</tr>
</thead>
<tbody>
<tr>
<td>1013 hPa</td>
<td>120m</td>
<td>1220m</td>
<td>1680m</td>
<td>1830m</td>
<td>2700m</td>
</tr>
</tbody>
</table>

6. Gnd speed-KT

<table>
<thead>
<tr>
<th>75</th>
<th>100</th>
<th>150</th>
<th>200</th>
<th>250</th>
<th>300</th>
</tr>
</thead>
<tbody>
<tr>
<td>328' per NM</td>
<td>410</td>
<td>547</td>
<td>820</td>
<td>1084</td>
<td>1367</td>
</tr>
</tbody>
</table>

7. MAX 205 KT during departure turn.

FT/METER CONVERSION

400' - 1220m
9000' - 2700m

MAX 205 KT during departure turn.

SPEED RESTRICTION

MAX 250 KT below FL110 within Hong Kong airspace, unless otherwise instructed.

ATTOL 1P [ATOL1P]
RWY 16 DEPARTURE
FOR SIDS Rwy 34 REFER TO CHARTS 10-3A & 10-3B

ATTOL 1U [ATOL1U]
ATTOL 1W [ATOL1W]
RWY 34 DEPARTURES
IF ZAO U/S
REFER TO CHART 10-3B

Further climb when instructed by ATC.

SPEED RESTRICTION

MAX 250 KT below FL110 within Hong Kong airspace, unless otherwise instructed.
MACAO, PR OF CHINA

ATTOL 1U [ATOL1U]
ATTOL 1W [ATOL1W]
RWY 34 DEPARTURES

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

APR ELEV 20°

ATTOL 1U

SID: T25.7 E113.54

LANE 14 SWY 34 DEPARTURES

1. Climbing instruction will be issued by Hong Kong ATC.
2. Expect notification of final cruising level at least 10 minutes prior to crossing TMA boundary.
3. Obey the proximity of Hong Kong Intl airport, pilots departing towards Hong Kong shall follow the SID until LKC. Any deviation could result in direct conflict with Hong Kong traffic.

APR ELEV 20°

ATTOL 1W

SID: T25.7 E113.54

LANE 14 SWY 34 DEPARTURES

1. Climbing instruction will be issued by Hong Kong ATC.
2. Expect notification of final cruising level at least 10 minutes prior to crossing TMA boundary.
3. Obey the proximity of Hong Kong Intl airport, pilots departing towards Hong Kong shall follow the SID until LKC. Any deviation could result in direct conflict with Hong Kong traffic.

APR ELEV 20°

MAX 205 KT during departure turn.

SPEED RESTRICTION
MAX 250 KT below FL110 within Hong Kong airspace, unless otherwise instructed.

These SIDs require a minimum climb gradient of 326° per NM (5.4%) until leaving 5500' due to airspace restriction.

Ground speed-KT
75 100 150 200 250 300
328° per NM (5.4%) until leaving 5500' due to airspace restriction.

MAX 205 KT during departure turn.

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MAX 250 KT below FL110 within Hong Kong airspace, unless otherwise instructed.

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MAX 250 KT below FL110 within Hong Kong airspace, unless otherwise instructed.

MAX 205 KT during departure turn.
**BIGRO 6D [BIGR6D]**

**RWY 34 DEPARTURE**

**IF ZAO U/S**

**TRANS LEVEL:** By ATC

**TRANS ALT:** 9000'

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**FT/METER CONVERSION**

<table>
<thead>
<tr>
<th>FL</th>
<th>METER</th>
</tr>
</thead>
<tbody>
<tr>
<td>3940'</td>
<td>1200m</td>
</tr>
<tr>
<td>9000'</td>
<td>2700m</td>
</tr>
</tbody>
</table>

**QNH**

**At** FL98: Climb to FL118

**At** 3940': Climb to FL98

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**CHANGES:**

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

2. MAX 250 KT below FL110 within Hong Kong airspace, unless otherwise instructed.

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**BIGRO**

N21 34.2 E111 49.6

This SID requires a minimum climb gradient of 292' per NM (4.8%) until leaving 5910'.

Qnd speed-KT:

<table>
<thead>
<tr>
<th>500</th>
<th>600</th>
<th>700</th>
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<td>175</td>
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<td>215</td>
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292' per NM:

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<th>600</th>
<th>700</th>
<th>800</th>
<th>900</th>
</tr>
</thead>
<tbody>
<tr>
<td>292</td>
<td>352</td>
<td>412</td>
<td>472</td>
<td>532</td>
</tr>
</tbody>
</table>

If unable to comply inform MACAO Ground at first contact.

**MAX 205 KT during departure turn**

**ROUTING**

On 358° track, at MCU 3.3 DME turn RIGHT. 340° track to D9 MCU, turn LEFT; intercept SMT R-274, at NLG R-214 turn LEFT; intercept NLG R-219 to D14 ZUH/D29.5 NLG, turn RIGHT, intercept ZUH R-249 via BOKAT to BIGRO.

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**MACAO, PR OF CHINA**

**LISIANG**

N21 31.9 E113 35.8

**D14 NLG**

N22 21.3 E113 26.7

**D29.5 NLG**

N22 08.3 E113 16.3

**A1 FL118**

**A1 3940’**

Climb to FL910

**A1 FL98**

Climb to FL118

**MACAO**

N22 13.3 E113 18.0

**D116.4 MCU**

N22 08.1 E113 35.9

**Latop**

D9 MCU

N22 16.9 E113 36.3

**NLG**

D117.7 NLG

N22 08.1 E113 35.9

**MACAO INTL**

D116.7 ZUH

N22 08.1 E113 35.9
1. Ensure ATC clearance before reaching the next reporting point, then comply with last acknowledged clearance to the next reporting point, and follow the flight planned route.

2. Do not overshoot ZAO R-230 due to noise abatement for Zhuhai City.

3. If TD not available, expect radar vectors to CONGA.

4. On 358° track, at MCU 3.3 DME turn RIGHT, 040° track, at MCU 13.1 DME (LKC 11.4 DME) turn LEFT via RASSE to CONGA, continue on flight planned route V 2 or V 3.

5. Climb on 358° track to 400', turn RIGHT to ZAO, ZAO R-230 due to noise abatement for Zhuhai City.

6. If TD not available, expect radar vectors to CONGA.

7. These SIDs require a minimum climb gradient of 328' per NM (5.4%) until leaving 5500' due to airspace restrictions.

8. Inbound to LKC, turn to OCEAN, turn LEFT via RASSE to CONGA, continue on flight planned route V 2 or V 3.

9. Further climb when instructed by ATC.
These SIDs require a minimum climb gradient of 328' per NM (5.4%) until leaving 5500'.

Climb on 358° track to 400', turn RIGHT to ZAO, ZAO R-040 to D16.1 SMT (D12.5 MCU), turn RIGHT, intercept SMT R-274 inbound to SMT, then to TD, then to OCEAN, turn LEFT via RASSE to CONGA, continue on flight planned route V2 or V3.

If TD not available expect radar vectors to CONGA.

On 358° track, at MCU 3.3 DME turn RIGHT, 040° track, at MCU 13.8 DME (SMT 16.2 DME) turn RIGHT, intercept SMT R-274 inbound to SMT, then to TD, then to OCEAN, turn LEFT via RASSE to CONGA, continue on flight planned route V2 or V3.

These SIDs require a minimum climb gradient of 328' per NM (5.4%) until leaving 5500' due to airspace restrictions.

Aircraft leaving Hong Kong TMA at ELATO have to reach their assigned cruising level 20 NM prior to ELATO.

Climb instruction will be issued by Hong Kong ATC. EXPECT notification of final cruising level at least 10 minutes prior to crossing TMA boundary.

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

For Zhuhai City.

RASSE

CONGA 1W

CONGA 1V

MWMC/MFM

Envir.

CONGA 1W

CONGA 1V

MWMC/MFM

Envir.

CONGA 1W

CONGA 1V

MWMC/MFM

Envir.

CONGA 1W

CONGA 1V

MWMC/MFM

Envir.

CONGA 1W

CONGA 1V

MWMC/MFM

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CONGA 1W

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MWMC/MFM

Envir.
JeppView 3.5.2.0

GRUPA 1P [GRUP1P]
RWY 16 DEPARTURE
FOR SIDS RWY 34
REFER TO CHARTS 10-3L TO 10-3P

- Climb instruction will be issued by Hong Kong ATC.
- CLIMB TO FL 400.
- Further climb when instructed by ATC.
- Speed restriction: MAX 205 KT during departure turn.

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

- Use high altitude route directives as appropriate.

- Speed restriction: MAX 205 KT during departure turn. MAX 250 KT below FL 110 within Hong Kong airspace, unless otherwise instructed.

- FT/METER CONVERSION
  - 4000' = 1220m
  - 9000' = 2700m

- CLIMB TO FL 400.

- Don't overshoot the minimum climb gradient.

- Do not exceed noise abatement altitudes.

- Slowed descent when appropriate.

- Slowed descent when appropriate.

- Slowed descent when appropriate.
MACAO INTL

SID ROUTING

GRUPA 1W [GRUP1W]

RWY 34 DEPARTURES

IF ZAO U/S

NOT AVAILABLE IF SMT U/S

GRUPA 1V [GRUP1V]

GRUPA 1W [GRUP1W]

RWY 34 DEPARTURES

IF ZAO U/S

NOT AVAILABLE IF SMT U/S

GRUPA 1W [GRUP1W]

RWY 34 DEPARTURES

IF ZAO U/S

NOT AVAILABLE IF SMT U/S

GRUPA 1V [GRUP1V]

GRUPA 1W [GRUP1W]

RWY 34 DEPARTURES

IF ZAO U/S

NOT AVAILABLE IF SMT U/S

GRUPA 1V [GRUP1V]

GRUPA 1W [GRUP1W]

RWY 34 DEPARTURES

IF ZAO U/S

NOT AVAILABLE IF SMT U/S

GRUPA 1V [GRUP1V]

GRUPA 1W [GRUP1W]

RWY 34 DEPARTURES

IF ZAO U/S

NOT AVAILABLE IF SMT U/S

GRUPA 1V [GRUP1V]

GRUPA 1W [GRUP1W]

RWY 34 DEPARTURES

IF ZAO U/S

NOT AVAILABLE IF SMT U/S

GRUPA 1V [GRUP1V]

GRUPA 1W [GRUP1W]

RWY 34 DEPARTURES

IF ZAO U/S

NOT AVAILABLE IF SMT U/S

GRUPA 1V [GRUP1V]

GRUPA 1W [GRUP1W]

RWY 34 DEPARTURES

IF ZAO U/S

NOT AVAILABLE IF SMT U/S

GRUPA 1V [GRUP1V]

GRUPA 1W [GRUP1W]

RWY 34 DEPARTURES

IF ZAO U/S

NOT AVAILABLE IF SMT U/S

GRUPA 1V [GRUP1V]

GRUPA 1W [GRUP1W]

RWY 34 DEPARTURES

IF ZAO U/S

NOT AVAILABLE IF SMT U/S

Apt Elev

20'

Trans level: At or above

Trans alt: 9000'

1. Climb instruction will be issued by Hong Kong ATC.
2. Expect notification of final cruising level at least 10 minutes prior to crossing TMA boundary.
3. Owing to the proximity of Hong Kong Int'l airport, pilots departing towards Hong Kong shall follow the SID until LKC. Any deviation could result in direct conflict with Hong Kong traffic.

Do not overshoot ZAO R-230 due to noise abatement for Zhuhai City.

COMMS LOST

3. At or above

Note: After 4 Jul 2008 0901Z, this chart may no longer be valid. Disc 12-2008

Changes: New chart.
NLG 6D
RWY 34 DEPARTURE
IF ZAO U/S

MAX 205 KT during departure turn.

SANDI 1P [SAND1P]
RWY 16 DEPARTURE
FOR SIDS RWY 34
REFER TO CHARTS 10-3U & 10-3V

SPEED RESTRICTION
MAX 250 KT below FL110 within Hong Kong airspace, unless otherwise instructed.

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

Intercept MCU R-163 via PAPA and MULET to HERON, turn RIGHT to SANDI, continue on flight planned route V 6 or V 7.

This SID requires a minimum climb gradient of:
292' per NM (4.8%) until reaching 4930'
9000' - 2700m

If unable to comply inform MACAO Ground at first contact.

MAX 205 KT during departure turn.

On 358° track, at MCU 3.3 DME turn RIGHT, 040° track to D9 MCU, turn LEFT, intercept NLG

ROUTEING
Intercept MCU R-163 via PAPA and MULET to HERON, turn RIGHT to SANDI, continue on flight planned route V 6 or V 7.

CHANGES: New chart.

LOST COMM LOST COMM LOST COMM
Climb to 4000' if unable to comply.
Further climb when instructed by ATC.

MACAO
N22 08.1 E113 35.9

PAPA
N21 58.7 E113 35.9

CH:\nCH:\nCH:\n
LOST COMM LOST COMM LOST COMM
Climb to 4000' if unable to comply.
Further climb when instructed by ATC.

MACAO
N22 08.1 E113 35.9

PAPA
N21 58.7 E113 35.9

CH:\nCH:\nCH:\n
LOST COMM LOST COMM LOST COMM
Climb to 4000' if unable to comply.
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MACAO
N22 08.1 E113 35.9

PAPA
N21 58.7 E113 35.9
1. Climb instruction will be issued by Hong Kong ATC.

2. Climb instruction will be issued by Hong Kong ATC.

3. Owing to the proximity of Hong Kong Int airport, pilots departing towards Hong Kong shall follow the SID until LKC. Any deviation could result in a direct conflict with Hong Kong traffic.

SANDI 1U (SANDI 1U), SANDI 1W (SANDI 1W)

**RWY 34 DEPARTURES**

**SANDI 1U**

IF ZAO U/S REFER TO CHART 10-3V

**SANDI 1W**

**RWY 34 DEPARTURES**

**MAX 250 KT below FL110 within Hong Kong airspace, unless otherwise instructed.**

**SPEED RESTRICTION**

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

**FT/METER CONVERSION**

Gnd speed-KT: 75 150 200 250 300

328' per NM (5.4%) due to airspace restriction.

**SID ROUTING**

**SID**

**MACAO**

**116.4 MCU**

N22 06.7 E113 35.9

**SANDI 1U**

Climb on 358° track to 400', turn RIGHT to ZAO, ZAO R-040 to D11.5 LKC (D12.5 MCU), turn RIGHT, intercept LKC R-259 inbound to LKC, then to CUTLE, turn RIGHT via PERCH to SANDI, continue on flight planned route V 6 or 7.

**SANDI 1W**

Climb on 358° track to 400', turn RIGHT to ZAO, ZAO R-040 to D16.1 SMT (D12.5 MCU), turn RIGHT, intercept SMT R-274 inbound to D6 SMT, turn RIGHT to CUTLE, turn RIGHT via PERCH to SANDI, continue on flight planned route V 6 or 7.

**MAX 205 KT during departure turn.**

**SANDI 1U**

**SANDI 1W**

**COMMS LOST**

**NEW CHART.**

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1. Climb instruction will be issued by Hong Kong ATC. EXPECT notification of final cruising level at least 10 minutes prior to crossing TMA boundary. Owing to the proximity of Hong Kong Int airport, pilots departing towards Hong Kong shall follow the SID until LKC. Any deviation could result in direct conflict with Hong Kong traffic.

2. Expect notification of final cruising level at least 10 minutes prior to crossing TMA boundary.

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

MAX 205 KT during departure turn.

Intercept MCU R-163 via PAPA to MULET, turn LEFT to SKATE, turn LEFT to SOUSA, continue on flight planned route V 1.

These SIDs require a minimum climb gradient of 2% for climb of 1000' per NM. If unable to comply, inform MACAO Ground at first contact.
Climb instruction will be issued by Hong Kong ATC.

**EXPECT** notification of final cruising level at least 10 minutes prior to crossing TMA boundary. Owing to the proximity of Hong Kong Int airport, any deviation towards Hong Kong shall follow the SID until LKC. Any deviation could result in direct conflict with Hong Kong traffic.

**FT/METER CONVERSION**

<table>
<thead>
<tr>
<th>QNH</th>
<th>4000'</th>
<th>5000'</th>
<th>6000'</th>
<th>7000'</th>
<th>8000'</th>
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<tbody>
<tr>
<td>1200m</td>
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<td>3762</td>
<td>3939</td>
<td>4117</td>
<td>4294</td>
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<tr>
<td>1600m</td>
<td>4701</td>
<td>4879</td>
<td>5056</td>
<td>5234</td>
<td>5411</td>
</tr>
<tr>
<td>1800m</td>
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<td>5411</td>
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<td>5942</td>
</tr>
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<td>2000m</td>
<td>5765</td>
<td>5942</td>
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<td>2500m</td>
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<td>6751</td>
<td>6929</td>
<td>7106</td>
<td>7283</td>
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</table>

Max 250 KT below FL110 within Hong Kong airspace, unless otherwise instructed.

If unable to comply inform MACAO ground at first contact.

Max 205 KT during departure turn.

These SIDs require a minimum climb gradient of 328' per NM (5.4%) until leaving 5500' due to airspace restrictions.

**MAX 250 KT during departure turn.**

On 358° track, at MCU 3.5 DME turn RIGHT, 040° track, at MCU 13.1 DME (LKC 11.4 DME) turn RIGHT, intercept LKC R-259 inbound to LKC, then to TD, then to LAKES, turn LEFT to SOUSA, continue on flight planned route V 1.

At or above 360° track, at MCU 3.5 DME turn RIGHT, 040° track, at MCU 13.1 DME (LKC 11.4 DME) turn RIGHT, intercept LKC R-259 inbound to LKC, then to CUTLE, turn LEFT via LAKES, continue on flight planned route V 1.

Climb on 358° track to 400', turn RIGHT to ZAO, ZAO R-259 to D16.1 SMT (D12.5 MCU), turn RIGHT, intercept SMT R-274 inbound to SMT, then to TD, then to LAKES, turn LEFT to SOUSA, continue on flight planned route V 1.

Climb to Climb to 116.4 MCU (LKC R-032.8)/

**FT/METER CONVERSION**

<table>
<thead>
<tr>
<th>QNH</th>
<th>4000'</th>
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<th>6000'</th>
<th>7000'</th>
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<td>7283</td>
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Max 250 KT below FL110 within Hong Kong airspace, unless otherwise instructed.

If unable to comply inform MACAO ground at first contact.

Max 205 KT during departure turn.

These SIDs require a minimum climb gradient of 328' per NM (5.4%) until leaving 5500' due to airspace restrictions.

**MAX 250 KT below FL110 within Hong Kong airspace, unless otherwise instructed.**

If TD not available expect radar vectors to SOUSA.
2. Climb instruction will be issued by Hong Kong ATC. 

3. Owing to the proximity of Hong Kong Int airport, pilots departing towards Hong Kong shall follow the SID until LKC. Any deviation could result in direct conflict with Hong Kong traffic.

3. On 358° track, at MCU 3.3 DME (SMT 16.2 DME) turn RIGHT, 040° track, at MCU 13.8 DME (SMT 16.2 DME) turn RIGHT, intercept SMT R-274 inbound to SMT, then to TD, then to LAKES, turn LEFT via LAKES to SOUSA, continue on flight planned route V.

On 358° track, at MCU 3.3 DME turn RIGHT, 040° track, at MCU 13.8 DME turn RIGHT, intercept SMT R-274 inbound to D6 SMT, turn RIGHT to CUTLE, turn LEFT to SOUSA, continue on flight planned route V.

MAX 205 KT during departure turn.

If TD not available expect radar vectors to SOUSA.

If unable to comply inform MACAO Ground at first contact.

These SIDs require a minimum climb gradient of 2% at or above 2000' MSL.

At or above 2000' MSL, turn to left at 12° C and 1500'.

At or above 4000' MSL, turn to right at 12° C and 1500'.

Additional 197'/60m available as stopway.
STOPPING GUIDANCE SYSTEM

The PAPA will provide a correct stop position information. The system consists of a board with several vertical white marks, corresponding to different types of aircraft and a vertical white light bar.

Stop guidance is presented as a vertical white bar of light on the PAPA board. The white bar of light moves toward left as aircraft approach the stop position. When the bar is aligned with the white vertical marks of the corresponding aircraft type, it is on the correct STOP POSITION.

If the white lamp of guidance system fails, interpret that this means STOP.
### JEPPESEN

**VMMC/MFM**

**MACAO, PR OF CHINA**

**MACAO INTL**

**LOC DME Rwy 16**

#### STRAIGHT-IN RWY

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
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</thead>
<tbody>
<tr>
<td>16</td>
<td>LOC DME</td>
<td>720° (700')</td>
<td>720° (700')</td>
</tr>
<tr>
<td></td>
<td>V3600m</td>
<td>V3600m</td>
<td>V3600m</td>
</tr>
<tr>
<td>34</td>
<td>CAT 2 ILS</td>
<td>120° (100')</td>
<td>120° (100')</td>
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<tr>
<td></td>
<td>RA100° R530m</td>
<td>RA100° R530m</td>
<td>RA100° R530m</td>
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<tr>
<td></td>
<td>ILS</td>
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</tr>
<tr>
<td>ALS out</td>
<td>R800m</td>
<td>R800m</td>
<td>R800m</td>
</tr>
<tr>
<td>LOC</td>
<td>310° (290')</td>
<td>310° (290')</td>
<td>310° (290')</td>
</tr>
<tr>
<td>ALS out</td>
<td>R1200m</td>
<td>R1200m</td>
<td>R1200m</td>
</tr>
<tr>
<td>VOR DME</td>
<td>550° (530')</td>
<td>550° (530')</td>
<td>550° (530')</td>
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</tbody>
</table>

#### VMMC/MFM

**MACAO, PR OF CHINA**

**MACAO INTL**

**LOC DME Rwy 16**

**JEPPESEN**

**JeppView 3.5.2.0**

**MACAO, PR OF CHINA**

**MACAO INTL**

**LOC DME Rwy 16**

#### CIRCLE-TO-LAND

<table>
<thead>
<tr>
<th>100 KT</th>
<th>135 KT</th>
<th>160 KT</th>
<th>205 KT</th>
</tr>
</thead>
<tbody>
<tr>
<td>660° (640')</td>
<td>770° (750')</td>
<td>870° (850')</td>
<td>NOT</td>
</tr>
</tbody>
</table>

**TO APPLICABLE**

**TAKE-OFF RWY 16, 34**

**LVP must be in Force**

**Approved Operators**

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIL, CL &amp; mult. RVR req</td>
<td>RL, CL &amp; mult. RVR req</td>
<td>RCLM (DAY only) or RL</td>
<td>RCLM (DAY only) or RL</td>
</tr>
</tbody>
</table>

**MAP at D2.6 MCS**

**ALTITUDE**

<table>
<thead>
<tr>
<th>115°30'</th>
<th>115°30'</th>
<th>115°30'</th>
<th>115°30'</th>
</tr>
</thead>
<tbody>
<tr>
<td>115°30'</td>
<td>115°30'</td>
<td>115°30'</td>
<td>115°30'</td>
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</table>

**ATIS**

<table>
<thead>
<tr>
<th>126.4</th>
<th>126.3</th>
<th>120.35</th>
<th>118.0</th>
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</thead>
<tbody>
<tr>
<td>121.72</td>
<td>121.97</td>
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<td></td>
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</table>

**JAA MINIMUMS**

**LOC MCS**

<table>
<thead>
<tr>
<th>111.7</th>
<th>120°</th>
<th>217°</th>
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</thead>
<tbody>
<tr>
<td>ZAO VOR</td>
<td>1800° (1780')</td>
<td>720° (700')</td>
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**MINIMUMS**

**LOC**

<table>
<thead>
<tr>
<th>11.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>1109'</td>
</tr>
</tbody>
</table>

**550° (530')**

**VOR DME**

| 550° (530') |
| V2000m |
| VS2000m |

**CONSIDERATIONS**

**Transalt:** By ATC

**Transalt:** 9000'

**WHOLESOME**

**NOT APPLICABLE**

**CHANGES:** Apt and location name.

**MACAO INTL**

**CIRCLE-TO-LAND**

**WITH PRESCRIBED FLIGHT TRACKS**

**MISSED APPROACH**

1. With ZAO VOR. Climb on rwy hdg to 600'. At or before D3.3 MCU turn RIGHT to ZAO VOR, climbing to 600'.
   - Leave ZAO VOR on R-040. At D12.6 MCU turn right to intercept R-259 inbound, continue climbing to 600'.

2. With ZAO VOR. Climb on rwy hdg. At D3.3 MCU turn RIGHT on track 040°, at D13.1 MCU and R-30.0° from ZAO until intercept R-259 inbound LKC VOR, continue climbing to 600'.
   - Continue climbing at D3.0° LKC and at or above 5500' turn RIGHT to establish on R-210 LKC and at D3.0° LKC descend to 3000' and turn LEFT to track 028° 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.

**MISSING PAP**

- Max approach turning speed: 190 KT.

**CAT A:**

- Max approach turning speed: 190 KT.

**REFERENCES**

- Grid speed-Kts: 70 90 110 120 140 160
- Descent Gradient: 5.24% or (3.0%) glide
- MDA/H: 1750' (MDA/H) 550' (H)
- MSA: 1164' MDA

**CEILING REQUIRED**

- MDA/H: 1750' (MDA/H) 550' (H)
- MSA: 1164' MDA

**NOT APPLICABLE**

- MDA/H: 1750' (MDA/H) 550' (H)
- MSA: 1164' MDA

**CHANGES:** None.

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