MEXICO CITY (MEX/MMMX)

Elevation 7316ft

CATEGORY B

AV brief – required

BAV AV brief not yet available

GENERAL

- Benito Juarez Intl is located in the E suburbs of Mexico City on a high plateau surrounded by mountains.

B787

Nuisance STATUS message “RECIRC FAN UPR”. Boeing have confirmed that this message will occur on occasions when operating at airfields of greater than 4000' elevation. The message can be regarded as nuisance and only needs to be recorded in the aircraft eLog if it remains active for the duration of the flight. BAV 787s have reported a number of these nuisance messages; in each case it has cleared once airborne.

Threats

CFIT

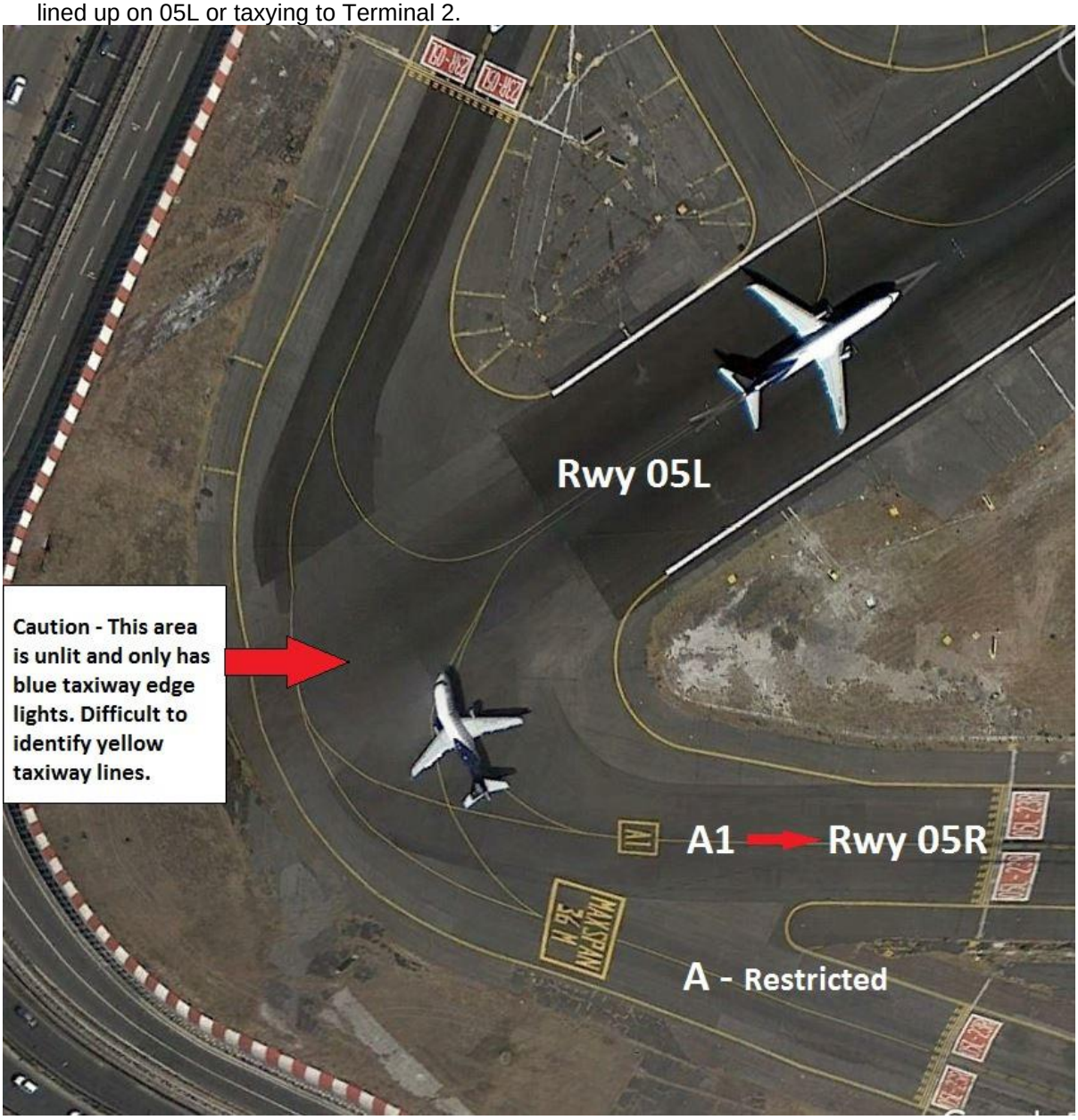
- Consider how weather avoidance should be handled as this may take you away from the published profile.
- Highest terrain is the ACTIVE VOLCANO Mt Popocatepetl, nearly 18,000ft amsl at 35 nm SE.
- Range of mountains running S from a position about 18 nm E of the airfield and some 7 nm SE of the Rwys 23 approach paths. 10,000ft contour is reached at 15 nm and there is a peak to nearly 13,600ft amsl at 20 nm E.
- At 15 nm range, on the far side of the city, is a range of mountains curving from NW round to S. 10,000ft contour lies about 17 nm W and 15 nm SW. The terrain reaches nearly 13,000ft amsl by 16 nm SW.
- Notable isolated spot elevation to the NE, rounded up to the nearest 50ft: 038°/22 nm 10,200ft amsl.
- Closer in is high ground commencing 5 nm N and reaching nearly 10,300ft amsl at 10 nm N.
- **Accurate navigation to and from radio facilities is required to maintain adequate terrain clearance. Raw data should also be used, as a backup, to ensure accurate track keeping in accordance with published procedures.**
- As of April 2019, there is continuing evidence of false G/S capture on runway 23L. Crews should exercise extreme caution and verify G/S accuracy with distance/altitude checks prior to following the G/S.
- False Localiser capture has occurred using ILS 05R and ILS 23L.

Runway Excursion

- Unstable approaches in particular to rwy 05R due being high and/or fast at 1000R.
- Do not confuse streetlights N of the runways with Rwy lights.
- Rubber slicks near the end of the Rwys give slippery conditions when wet.
- Limited lateral guidance on rwys as centreline lights often u/s. Rwy 05R/23L centreline markings faded throughout and particularly at the midpoint.
- Potential for late runway changes – See Approach section.
- Runways can be slow to drain off water.

Runway Incursion

- The runways are marked left and right in Spanish; “Izquierda” = left, “Derecha” = right.
- Caution when cleared to cross 05L that you are following the A1 taxiway. It is easy to end up lined up on 05L or taxying to Terminal 2.



- Runway lighting intensity is low with no centreline lights. Rwy turn offs and taxiways do not have centreline lighting. Runway turn offs identified by blue taxiway edge lights and are difficult to see at night especially at the end of 05R.

Mid Air/Ground Collision

- Local traffic is controlled in Spanish.
- Exercise extreme CAUTION while taxying and parking. Some taxiway guidelines give much reduced separation from other aircraft, obstacles and airport road traffic.
- Apron lights and vehicles are bright making it difficult to see aircraft on the other runway during the takeoff/landing roll or taxiing in front of you.
- Twy A unsuitable for heavy jets.
- While taxying for take-off Rwy 05R via threshold 05L an aircraft may well be cleared (in Spanish) to land on Rwy 05L; experience suggests it is prudent to be well clear of Rwy 05L and its

undershoot as quickly as possible.

- There is a service road that runs parallel to Twy H1 which is not depicted on the Lido charts. At night it is brightly lit and there is the possibility of confusing it with Twy H1. When taxying in this area, especially when crossing an active runway, ensure SA is maintained.

Special Considerations

- The airfield elevation of 7316ft gives a high TAS of about IAS + 15% and consequently a high ground speed and large turn radii. (High temperatures will compound this effect.)
- A low platform altitude co-incident with completion of the final turn onto Rwy 05L/R and G/S intercept can significantly increase the workload. Establishing the aircraft in the landing configuration early will reduce ground speed and workload for the final approach.
- Mt Popocatepetl is an ACTIVE VOLCANO so Volcanic Ash encounters are possible. For every flight to MEX, Global Operations will contact the station and establish the state of the operation. This information will be passed to flight crew. Should volcanic ash affect/have the potential to affect MEX, the GOCC will update the flight crew by -60 mins to ETA with a recommendation to divert to CUN/MMUN or continue to destination – BAV crews can use the following website and suitable self-judgement to decide the best cause of action
- (https://volcano.si.edu/volcano.cfm?vn=341090).
  This flight-watch procedure enables the flight to be planned with the Destination Alternate GDL/MMGL rather than CUN/MMUN.

ARRIVAL

Diversion Airports			
CANCUN	CUN/MMUN	696 nm/080°T	CAT A
GUADALAJARA	GDL/MMGL*	248 nm/285°T	CAT A
HOUSTON	IAH/KIAH	666 nm/018°T	CAT A
DALLAS(Fort Worth)	CUN/MMUN	813 nm/007°T	CAT A

Others that may be used include: Miami and Phoenix.

*GDL/MMGL – are familiar with 747 aircraft as other carriers operate the aircraft there and so should have appropriate ground handling equipment

- When under radar control position reports may be omitted.
- Transition Altitude is 18,500ft.
- Enroute area QNHs are used.
- There is a speed restriction of 250 kts max within 30 nm of MEX VOR/DME below 18,000ft.
- MAP SHIFT has been experienced during let down and arrival.

STARs

- ATC may take you off a STAR using a heading to intercept a radial to the SLM e.g. heading 280 intercept 340R SLM. Radials are equivalent to the different STAR tracks from the North and ATC will clear you to descend via the STAR even though following a radial. When furthest West, ATC may clear you direct SMO or MAVEK (same position).
- Crews can expect ATC to give speeds as per the STAR with a deceleration from 200 kts to 160 kts at SMO/MAVEK.

Approach

- With the high airfield altitude, consider using FL200 as the 10,000ft check. Observe altitude limitations for flap extension in case ATC require a speed reduction.
- Approaches from the north route via Santa Lucia (SLM) to Mateo (SMO). It is important to establish whether ATC expect you to “descend VIA” or in accordance with their clearances and monitor carefully all altitude selections.

CAUTION: ***If cleared to ‘descend VIA’ crews are reminded to confirm the lowest published altitude relating to their specific STAR clearance. The potential for confusion exists, as some altitudes are published which are relevant ONLY to transitions beyond the SLM VOR.***

- 70% of the time you can expect to land on 05R and is the more challenging of the two in order to achieve stability by 1000R.
- The wind in the valley can change so a last-minute change to runway 23L should be considered when briefing and worth setting up in the FMC for quicker access. If this is done then ensure the transition is correctly sequenced prior to activating it.

- ATC is generally good, but it is not uncommon to be taken off the published arrival and given a heading to intercept a VOR radial (e.g. heading 280 intercept 340R SLM), with the remainder of the approach as published. Radials used by ATC are often equivalent to one of the other STARs. When vectored to the West and arriving on 05R, ATC may clear you direct SMO or MAVEK (same position). Consider how to handle these requirements.
- Expect ATC speed control for Rwy 05R of 200 kts to SMO (SLM for Rwy 23L) and 160 kts thereafter.
- If flying the ILS approach, brief the procedure for capturing the G/S from above. Note the numerous reports of false G/S captures.
- Use of the RNAV approach improves the transition from the STAR to the approach as well as mitigating against G/S issues commonly reported by crews.
- It is recommended that the aircraft is fully configured with the landing checklist completed prior to making the turn to finals to minimise workload and improve capacity to monitor effectively.
- The VOR/DME 05L procedure requires a 3.25° angle of descent, which has caused difficulty when not anticipated.
- If offered, a switch to Rwy 05L should be resisted due to shortened track miles.
- A side step to land on Rwy 23R, following an ILS 23L let down, is also sometimes used. The threshold to Rwy 23R is further displaced than that of 23L.
- Landing clearance may be given while the Rwy is still occupied.

BAV Crew Reports
• Crew report (Oct10) that if taken off STAR from the N or E on a radar heading to intercept inbound radials, ATC may instruct a descent in accordance with the procedure and expect original STAR FL/alts to be complied with. • As of April 2019, continuing crew reports of unreliable Rwy 23L G/S, exercise caution. Crosscheck against other navaids to ensure correct descent profile.

- Some STAR pages depict minimum crossing FL/Alts at fixed radii from SLM.
- Positively confirm with ATC if in any doubt about cleared level and check against Radar Minimum Altitudes chart.

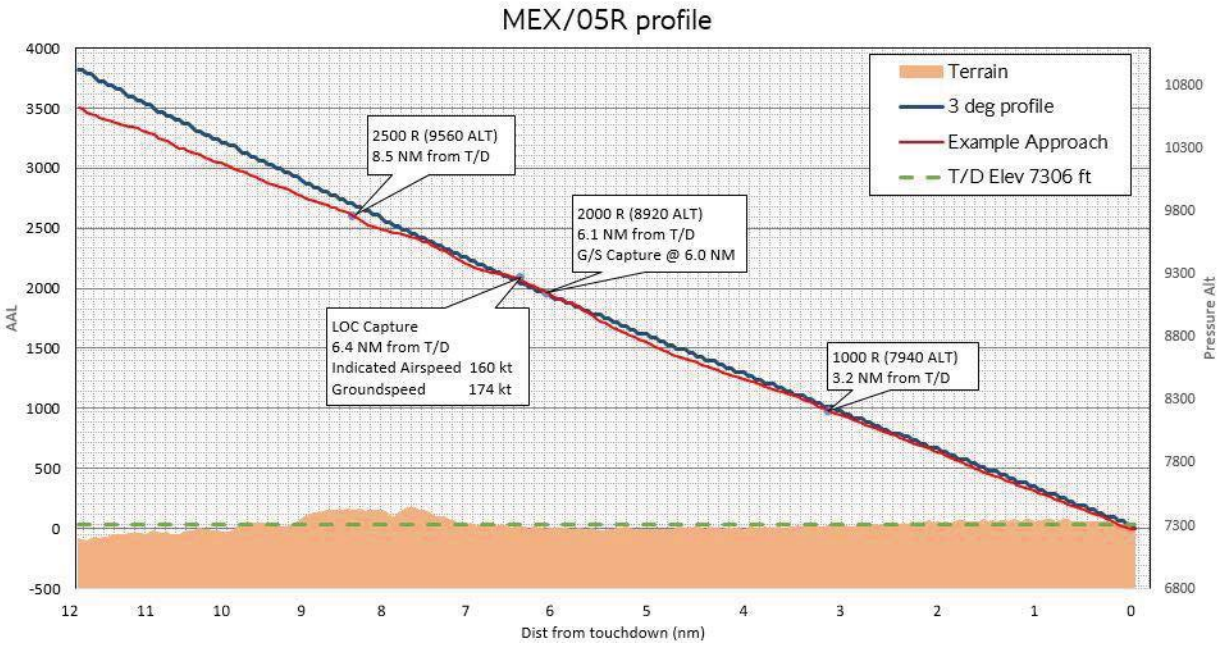
RWY 05R

The approach requires capture of the G/S very quickly after rolling wings level on the LOC. Any delay in descending to the platform altitude of 8800ft (1500 Aal), as you start the turn onto final approach, can result in “chasing” the G/S from above, with only 500ft available to get stable.

- Approach starts at SMO. MAVEK is the RNAV waypoint coincident with the SMO VOR.
- Arrival at the SMO is generally in accordance with the published STAR, or via ATC instruction to intercept an inbound radial (commonly the 340 Radial – which is not on the approach plate).
- Once at SMO you will be cleared for the ILS, with the expectation that you follow the published lateral and vertical profiles.

Note: ILS DME ONE is a procedural approach defined by conventional navaids. ILS DME TWO is essentially the same approach but defined by RNAV waypoints.

- LNAV works well for the lateral profile, with LOC armed as you start the final turn. This is a 113° turn which when combined with the increased radius of turn due high GS, can result in going through the LOC, even though it will have captured.
- VNAV works well for the descent from SMO; in order to avoid inadvertently capturing 8800' and destabilising the approach, it is recommended to set 8400ft (i.e. 1000' aal) in the MCP in preparation for a possible G/S capture from above. In this situation, crews should monitor that VNAV adheres to the procedural altitude constraints as programmed into the FMC. If you decide to use a different vertical mode you will need to set appropriate values in the MCP. It is vital to promptly descend to 8800ft and to arm the G/S as soon as you capture the LOC and be prepared to capture the G/S from above.
- The following plots show the relationship between Altitude and Radio Altimeter during the approach. They show approximately what distance from touchdown the aircraft should be in order to capture a 3° G/S. Additionally, the red line shows that approaches regularly follow an approximate 3° profile from above 12,000ft. The recommendation is to have an intermediate flap setting from SMO to ensure the aircraft does not drift above the profile.

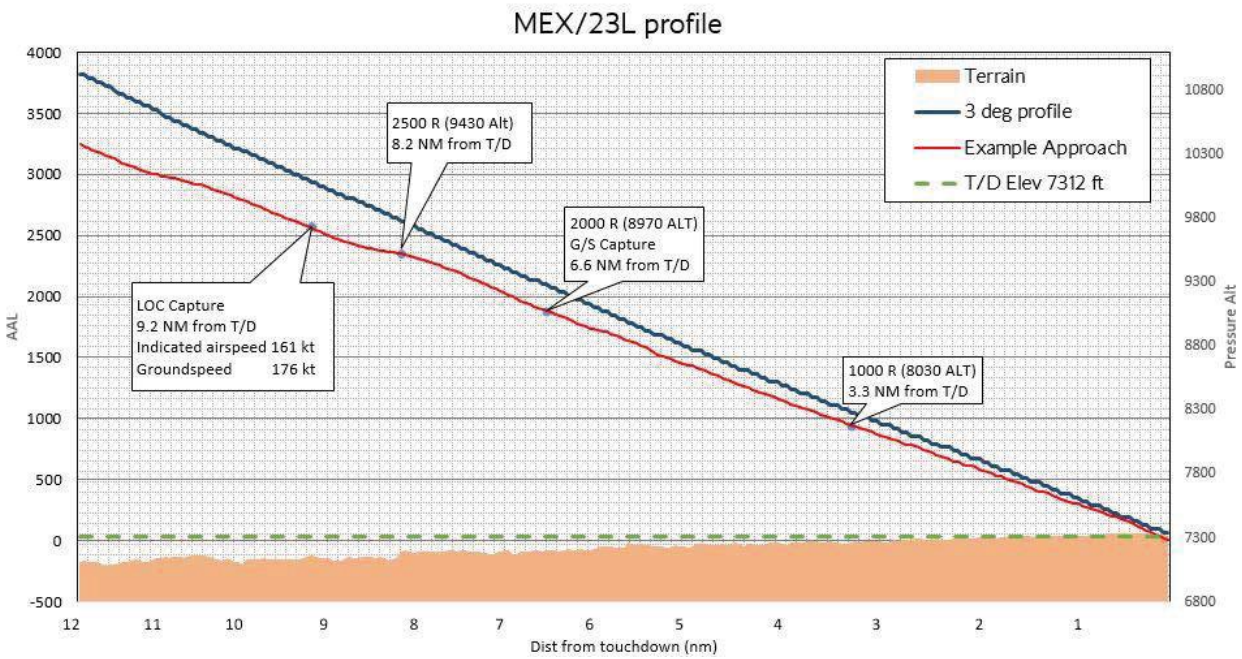


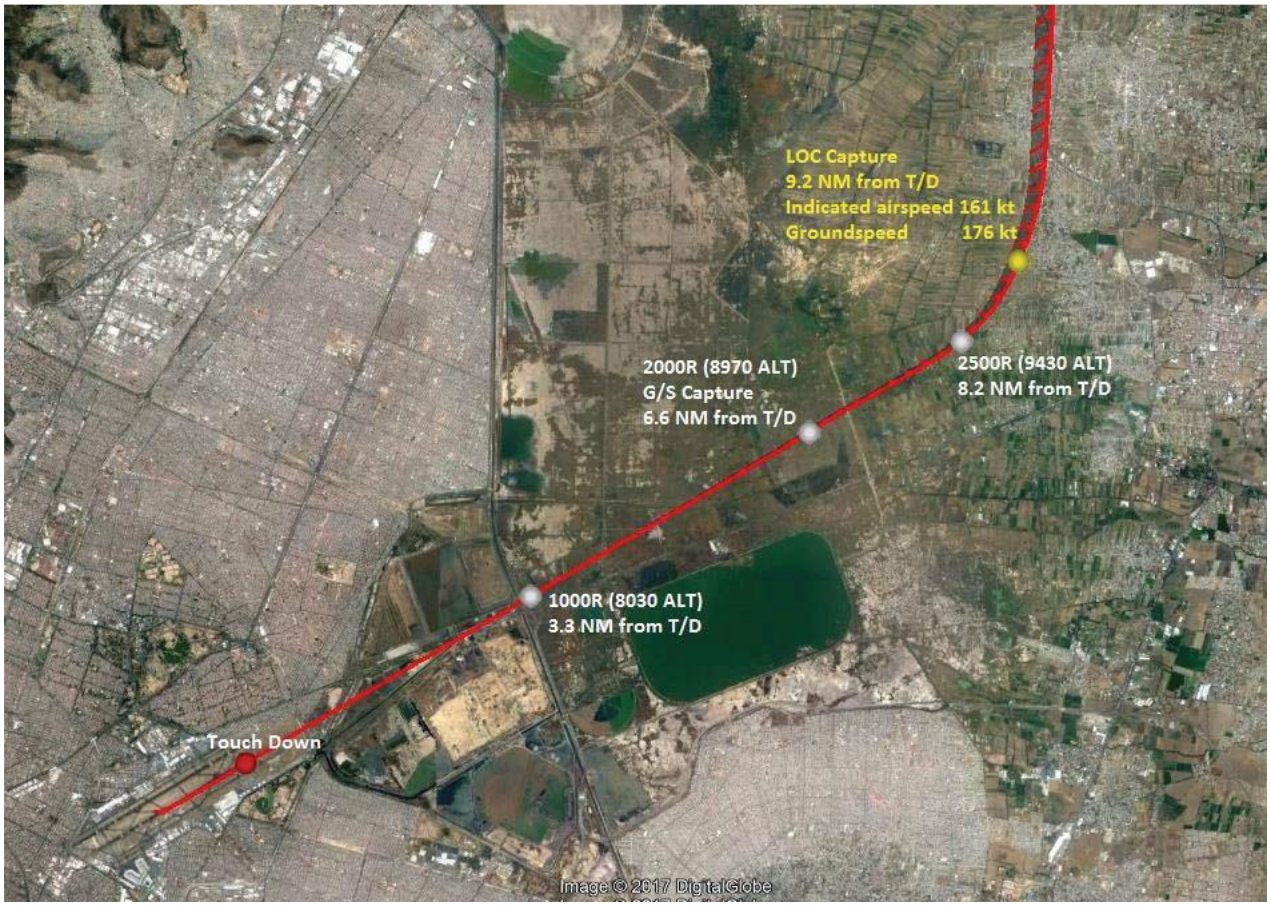
- Experience shows that during the turn to finals, a RoD of approximately 900fpm helps maintain the profile and a similar RoD is expected once the G/S is captured. Since the temperature is generally above ISA, then an increased RoD will be observed when descending on the glidepath of a Non Precision Approach.

RWY 23L

- Approach to rwy 23L starts from SLM.
- The profiles lends itself to “running in” on the LOC below the G/S, which should make the approach easier to manage than 05R.
- When intercepting the LOC, LNAV may parallel the LOC without capturing it. Ensure LOC is captured early on so that the G/S can be captured, thereby reducing the likelihood of having to capture the G/S from above.
- A switch to 23R may be offered which increases track miles to touchdown.
- Terrain constraints mean that ATC are sometimes forced to achieve separation by quite aggressive speed control.
- Go-Around is towards terrain.

The following plots show the relationship between Altitude and Radio Altimeter during the approach. It shows approximately what distance from touchdown the aircraft should be in order to capture a 3° G/S.


MEX/23L profile
Terrain
3 deg profile
Example Approach
T/D Elev 7312 ft
2500 R (9430 Alt)
8.2 NM from T/D
2000 R (8970 ALT)
G/S Capture
6.6 NM from T/D
1000 R (8030 ALT)
3.3 NM from T/D
LOC Capture
9.2 NM from T/D
Indicated airspeed 161 kt
Groundspeed 176 kt
AAL
Pressure Alt
Dist from touchdown (nm)


LOC Capture
9.2 NM from T/D
Indicated airspeed 161 kt
Groundspeed 176 kt
2000R (8970 ALT)
G/S Capture
6.6 NM from T/D
2500R (9430 ALT)
8.2 NM from T/D
1000R (8030 ALT)
3.3 NM from T/D
Touch Down
Image © 2017 DigitalGlobe

GROUND

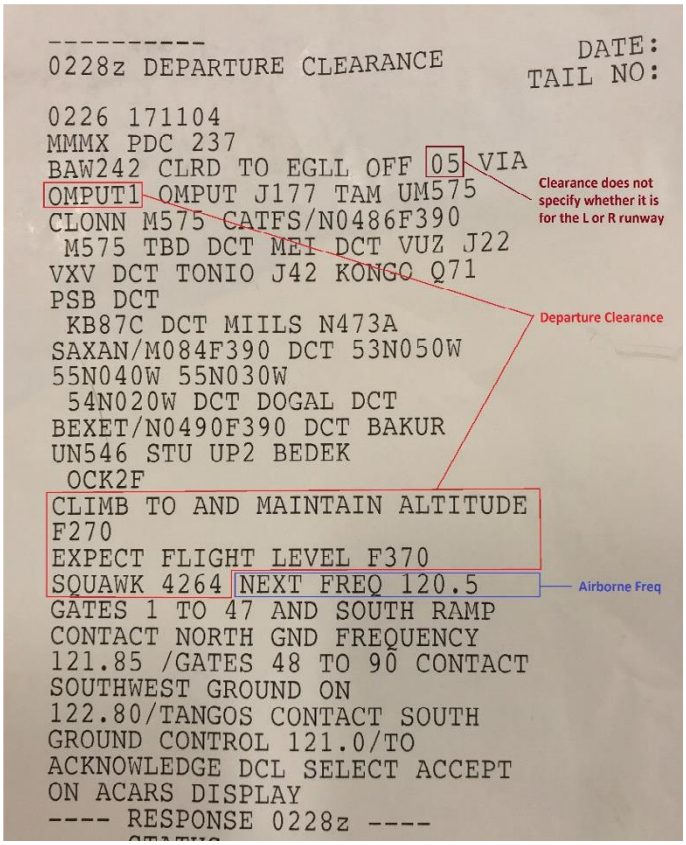
- Engine Out Taxi (EOT) not approved.
- BA aircraft usually parked at Stand 31A and are marshalled on at an oblique angle.
- Marshalling is good, but expect to see two wing men and watch out for the main marshaller on top of a truck.

BAV Crew Reports

- GPU and Air Trucks available at 15 mins notice – A long time to wait if APU fails during engine start at the high altitude.
- Pushback tug only just capable of pushing back a lightly loaded 747.
- Caution advised when taxying to Rwy 05R. Crew reports (2010) indicate signage confusing where Twy A1 splits from Twy A.

DEPARTURE

- PDC is available and is obtained in the same way as it is at LHR/LGW. It is currently not done via CPDLC. Note the key points highlighted below.



- If departing Rwy 05R entry is via Twy A1. Entry via Twy B2 will also give the full length (TORA 3985 m).

B747

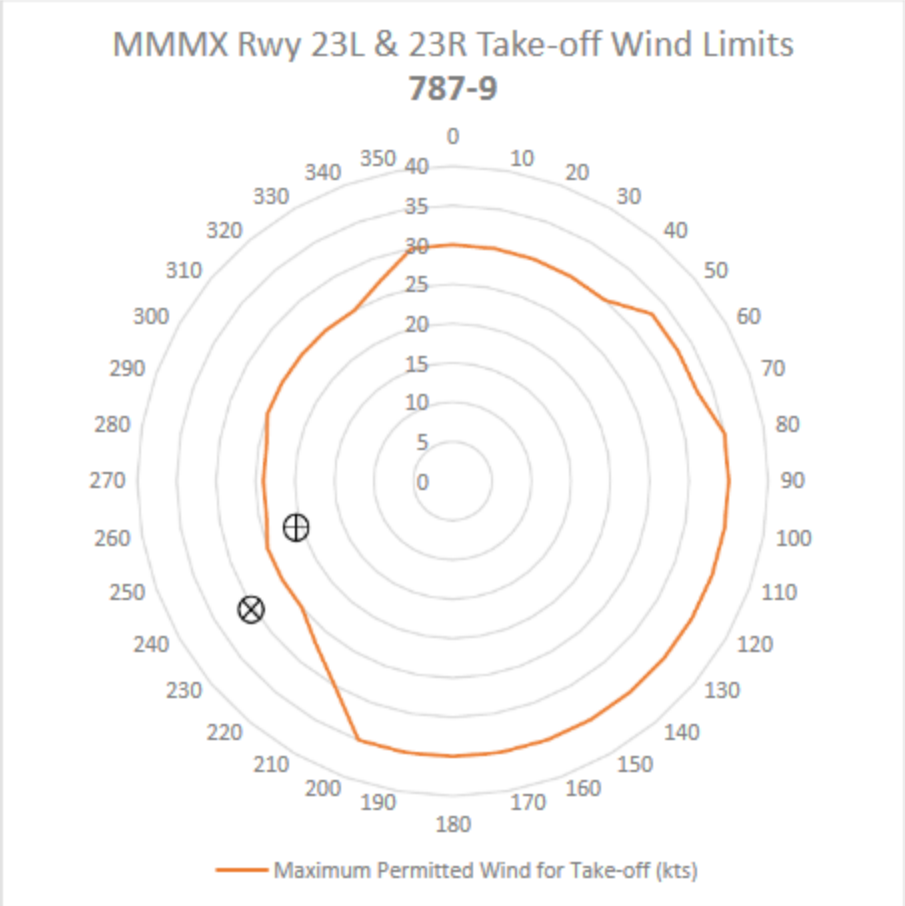
- All departures use 747 FCOM SP.NAP Noise Abatement Procedure.

B747 B777

- This is a performance restrictive airfield. Use all available fleet performance improvement procedures e.g. Packs OFF, Alternate Fwd CG. Due to the high airfield elevation, it is important to manage distractions, especially when using the Packs OFF procedure such that the aircraft is reconfigured before cabin altitude issues arise.

B787

- Rwy 23L/R Special Takeoff cross-wind limits apply. See MMMX Takeoff Wind Limits Chart for B787-8 and B787-9 below:

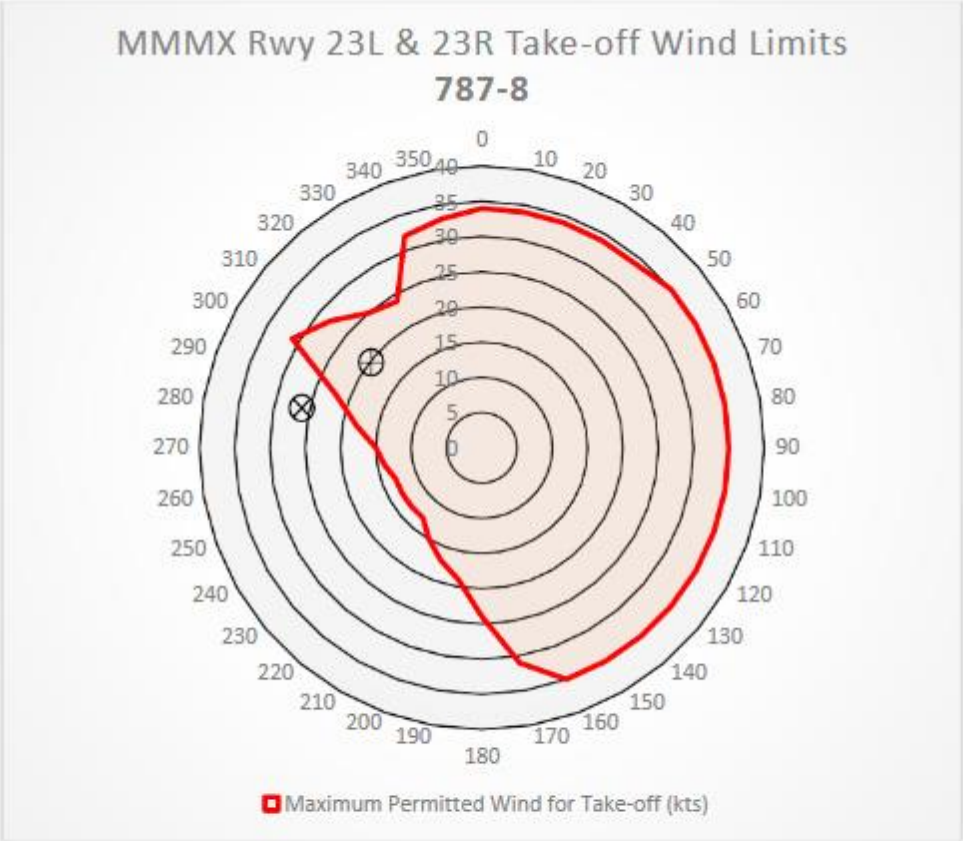


Note: statistical data shows winds rarely exceed 15kts.

Examples:

⊕ Wind 240/20 – takeoff RWY 23L/R permitted

⊗ Wind 230/30 – takeoff RWY 23L/R not permitted



Note: statistical data shows winds rarely exceed 15kts.

Examples:

⊕ Wind 310/20 – takeoff RWY 23L/R permitted

⊗ Wind 280/25 – takeoff RWY 23L/R not permitted

ALL

- The ground staff will carry out a preliminary takeoff calculation before asking you for an MTOW. For info, the temperature will almost always drop by a couple of ° and the pressure will rise a little before take-off. Wind is not as predictable.
- The design of the airport is such that, on pushback, you will be blocking the main taxiway in use for departures and arrivals. Sometimes, starting one on stand may be a good option.
- Expect extensive pushback delays (especially when Rwy 05 is in use) due to congestion on taxiway B.

B747

- Hung/Hot starts are a possibility. Recommendation is to carry out manual engine starts, one at a time, and awaiting max motoring before putting the fuel in.

B787

- Normal engine start is recommended.

ALL

- Departures from Rwy 05L are more restricted by obstacles than those from Rwy 05R.
- Departures from Rwys 23L/R have a higher workload due to the proximity of terrain and ETP requirements.
- Departing Rwys 05L/05R ATC may issue a speed restriction as low as 180 kts; advise ATC unable to comply if delay to flap retraction/acceleration is unacceptable.
- If routed direct TAMPICO or direct PACHUCA on departure bear in mind isolated spot elevation MEX 038°/22 nm 10,200ft amsl.
- Reports have been received from other operators indicating the reluctance of Mexico Tower to pass recent up to date weather and airfield data, e.g. tailwinds on take-off or standing water on runways; this has led to significant degradation of aircraft performance. Crews suspecting that information has not been reported are advised to contact the Tower direct or other aircraft as appropriate.

WEATHER

DRY SEASON – Nov to Apr

- Mainly dry and sunny with a few light showers.
- Early morning radiation fog, which may be dense, is a possibility.
- On occasions depressions move S into the Gulf of Mexico and the slow moving cold front may give low cloud and poor visibility over a wide area.
- Strong to gale force N winds may persist for some time behind the cold front. These winds give rise to dust and poor visibility at the airfield.
- There may be early morning mist and smog, dissipating by mid-day.

WET SEASON – May to Oct

- Pronounced diurnal build-up of convective cloud with frequent afternoon thunderstorms.
- In Jul and Aug rain falls almost daily.
- Thick layer cloud and continuous rain may move in from the E.
- On rare occasions the weather may be influenced by HURRICANES in the Bay of Campeche to the E.
- Bad weather affecting Mexico City also usually affects Acapulco.

OPERATIONAL INFORMATION

Handling Agent	BA/RAMP MENZIES AVIATION
Handling Agent VHF	132.45
Potable Water	UPLIFT PERMITTED

IF ONLY Electrical Power is required	Use ground power at all times
If BOTH electrical power and air conditioning is required:	Use both ground services at all times