

SAN DIEGO (SAN/KSAN)

Elevation 17ft

CATEGORY B

AV brief – required

BAV AV brief – not yet available

GENERAL

- The busiest single-runway airport in the US, and second busiest single runway in the world (after LGW).
- Airfield is surrounded by the city.
- Mexican border is 12 nm S.
- 95% of the time the active runway will be Rwy 27.
- Fog or a low lying marine layer of cloud can appear during the late evening or early morning. This forces SAN into an alternating Rwy 09 and 27 operation. This operation accepts a number of arrivals onto Rwy 09 then a number of departures from Rwy 27 then back and forth until the weather changes or traffic dissipates. This may cause arrival and departure delays.
- Even the most cursory of glances at the charts for San Diego should be enough for any pilot to realise that SAN neatly encompasses most of the Flight Ops Safety Plan threats.

Threats

CFIT

- Terrain rises rapidly to the E with a peak to nearly 2,800ft asl at 12 nm final Rwy 27.
- 20 nm E there is a mountain range running N-S with terrain to over 4,000ft asl reaching over 6,500ft asl at 31 nm NE.
- Closer in are buildings and terrain to 500ft asl within 1.5 nm N and E.
- At 5 nm final Rwy 27 there are obstructions and terrain just to the right of centreline up to nearly 1,100ft asl and at 1 nm final there are buildings to almost 500ft asl just left of centreline.
- Early evening arrivals on the westerly runway may be made looking into sun. The ground based visual aids are very difficult to see in these conditions.
- Caution advised with handling the FMC if cleared off the RNAV arrival and direct to VYDDA.

Mid Air Collision

- Local traffic generated from Montgomery, Miramar and Gillespie to the N and E, Brown Field to the SE and North Island 3 nm S.
- San Diego area has a very complex Class B airspace and it is therefore essential to retain a high level of situational awareness in particular with VFR and military traffic.
- VFR traffic crosses the Rwy 27 final approach between OKAIN and REEBO.
- San Diego Brown Field (SDM) is located 6 NM South of OKAIN and its final approach crosses the SAN final approach course at 9 NM at 2,400'.
- Aircraft inbound to SAN can be held at 3,600' until crossing the SDM final.
- A review of TCAS RA manoeuvres would be prudent.

Threats

Runway Excursion

- Thresholds of both runways are considerably displaced. Rwy 27 threshold is displaced by 550 m and Rwy 09 by 250 m. The rest of the difference between TORA and LDA lengths on Rwy 09 is at the far end of the runway to provide sufficient RESA (Rwy End Safety Area).
- Deep landings pose a significant threat of a runway excursion on either runway. This is particularly the case when operating a 777-300. Careful consideration should be given to aircraft handling for the landing and the subsequent actions should a touchdown not occur where it was briefed.
- When calculating landing performance for heavier aircraft, consider brake energy. At higher landing weights it is possible to achieve a stop at the desired runway turnoff point while also putting brake energy into, or very close to, the CAUTION zone. On occasions, full reverse thrust and/or rolling to a later exit may be necessary.
- Steep 3.5 degree LOC/RNAV approach to a short runway, wide runway, with a large inset threshold and close proximity to built up areas on approach may give the impression of an unusual perspective. Care should be taken to fly a stable path to the correct aiming point, and to avoid undershooting.
- Consider a review of the baulked landing technique.
- RWY 27 TDZ has four markers (This differs from the Vistair Audio Visual briefing, which shows five markings).

Runway Incursion

- Arrival and departure operations may require the active runway to be crossed. Ensure clearance to cross the runway has been received from ATC prior to doing so.

Loss of Control

- With winds over 10 kts expect turbulence and possible WINDSHEAR (tailwind becoming an on shore headwind at about 500ft aal) on the Rwy 27 approach.
- Judicious use of the speedbrake may be required to manage energy into what is likely to be a high workload steep approach – consider how you might manage this to avoid a low speed event if distraction occurs.

ARRIVAL

Diversions Airports

LOS ANGELES	LAX/KLAX	095 nm/320°T	CAT B
PHOENIX INTL	PHX/KPHX	264 nm/081°T	CAT B
LAS VEGAS	LAS/KLAS	225 nm/027°T	CAT B
ONTARIO INTL (USA)	ONT/KONT	082 nm/345°T	CAT B
SAN FRANCISCO	SFO/KSFO	389 nm/319°T	CAT B

- You will likely brief for the RNAV and the LOC, but experience tells us that ATC are likely to give you the choice.
- Crews can expect a LUCKI 1 STAR for Rwy 27 or a BARET 5 STAR for Rwy 09.
- When flying a LUCKI 1 STAR expect to cross TRIXI at 12,000' at 270 kts, then 210 kts between HSKER and BARET then 180/170 kts from LYNDI to REEBO.
- ATC may give part of BARET 5 STAR for Rwy 27 if they think aircraft is non-RNAV.
- The descent profile follows a CDA from the top of descent and together with a steeper glide path will require proactive energy management throughout the arrival in order to meet the Stabilised Approach Criteria (SAC) at 1,000' aal. This is particularly critical during the intermediate approach. ATC have been briefed on BA's SAC.

Approach

- Typical arrival will be a Visual Approach but an RNAV approach is also available for both Rwys.
- There is an ILS to Rwy 09 and a LOC approach to Rwy 27 with the speed constraints as described above.
- While flying an approach to Rwy 27, be aware you may be asked to fly 180 kts to REEBO which is 5.2 NM from touchdown and thereafter fly a 3.5 glide path.
- On approach to Rwy 27, ATC may reduce the distance to touchdown by providing radar vectors to REEBO which has terrain just to the north of it.
- PAPIs for Rwy 27 are set at 3.5°. Rwy 09 does not have PAPIs.
- Rwy is 60 m wide.
- Approach glidepaths for both Rwys have recently been changed. Rwy 27 approach is now significantly steeper at 3.5° in order to match the PAPIs. Please ensure this is considered at the approach briefing stage for energy management purposes.
- Due to the continuous descent and straight in profile from top of descent, approaches to Rwy 27 require effective energy management. This is in order to achieve SAC, reduce workload load during the later stages of the approach and avoid any terrain issues.
- The familiar speed/DME distance gates of 180/6D, 170/5D and 160/4D may be a little optimistic, and a lot happens at 2000ft.
- The 1000ft auto-callout will occur at 1200–1300ft, so to be stable, consideration should be given to lowering the gear no later than 2000ft baro.
- It isn't uncommon to see RODs of around 1000fpm, so pre-briefing changes to the standard flight path deviation calls might be in order.

GROUND

- Intermediate holding points for heavy jets are located on taxiways B and C. They are parallel to the Rwy to minimise the effects of jet blast.
- 747 aircraft are required to taxi with the two outboard engines at idle. Only the inboard engines may be used above idle thrust from the time the aircraft lands until the application of take-off power on departure.

Parking

- BA use Gate 51 in Terminal 2 West. If Gate 51 is unavailable for use, Gate 48 will be the alternative.

APU u/s

- Local restrictions state crossbleed not permitted until onto Twy B. Consider starting all engines on stand, using the ground cart.

DEPARTURE

Starting and Taxi

- When taxiing around Island Ramp, if in doubt about wing tip clearance with parked aircraft, stop and request marshalling assistance.
- Departures from Rwy 27 FULL LENGTH (TWY C1) require crossing the runway. Depart from TWY B1 if weights allow. CARD aircraft will automatically generate ADDITIONAL RUNWAY DATA for this purpose.
- If departing Rwy 27 from the northern Twy C, the green taxiway centre-line lights lead to Twy C2. Twy C1 is narrower and not lit although there are some occulting amber lights at the holding point before the runway. Ensure correct Twy is used especially when departing in darkness.
- Takeoff is likely to be TOPL limited.
- Crews can expect a ZZOOO RNAV SID from Rwy 27 or a BORDER SID from Rwy 09. An RNAV departure transition off Rwy 27 will be given with the DCL (KUSA) clearance.
- Aircraft must remain within US airspace at all times. Should a deviation from the SID be required especially to the S then immediately request an ATC clearance.
- Something to be aware of is that you will most likely be departing off into darkness over the ocean, with a series of 90 turns whilst climbing and accelerating. This sort of manoeuvring with a lack of visual cues can lend itself to somatogravic illusions. One mitigation strategy might be to make maximum use of the A/P, particularly as you will likely be looking out for low-level military traffic transiting between bases on Coronado Island.

WEATHER

- Stable Pacific air masses, bringing stratus, prevail throughout the year.
- The surface wind is mainly NE in winter and WNW in summer, 5 to 10 kt.
- Fog occurs mainly in winter and is often associated with a light NE land breeze.
- Lows in winter bring low cloud and rain.

OPERATIONAL INFORMATION

Handling Agent	Dnata
Handling Agent VHF	
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