



Route Information Manual

ROUTE INFORMATION MANUAL FEEDBACK

Feedback on the contents of this manual is always welcomed and appreciated. The objective is to make this manual as useful and relevant to our simulated world as possible, so whether you have any real-world tips or advice, some feedback based on a visit to an airfield in the sim, or any VATSIM-specific pointers or procedures in use at an airfield or within a region, please do get in touch.

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MOSCOW/Sheremetyevo (SVO/UUEE)
COLOMBO/KATUNAYAKE (CMB/VCBI)
SIEM REAP (REP/VDSR)
KOLKATA (CCU/VECC)
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GOLD COAST (OOL/YBCG)

CAIRNS (CNS/YBCS)

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AFRICA AREA

AUSTRALASIA INCLUDING NEW ZEALAND AND PACIFIC

SHORTHAUL OPERATIONS TO THE CIS

EAST EUROPE – SIBERIA AREA

MID/FAR EAST AREA

NORTH AMERICA AREA

POLAR AREA INCLUDING NORTH PACIFIC

SOUTH AMERICA AND CARIBBEAN AREA

COLD TEMPERATURE CORRECTIONS

'HOT AND HIGH' OPERATIONS

PORT MORESBY (POM/AYPY)

Elevation 129ft

CATEGORY A

No AV brief required.

GENERAL

- The airfield is located 8 km outside Port Moresby and is the largest and busiest airport in Papua New Guinea.
- Terrain rises sharply to the N and E with MSAs of 14,500ft within 30nm

Threat Based Briefing Topics

CFIT

- The Owen Stanley Range lies to the north, with very high peaks.
- Mt Victoria at 13,248ft 40nm NE is the highest point in the range
- The 2,000ft contour lies within 5nm, with terrain rising to over 3,000ft within 10nm and 8,000ft within 35nm
- There is also high ground within 5nm either side of the Rwy 14L extended centreline at approx. 7nm

ARRIVAL

- No STARs published. Expect radar vectors to final approach.
- A minimum radar vectoring altitudes chart is provided in Lido and should be referenced to verify terrain clearance
- No ILS Rwy 32.

GROUND

- Backtrack required for Rwy 32 departures (Worldflight likely to use Twy G)

DEPARTURE

- No published SIDs. Expect radar vectoring to enroute track after departure.

WEATHER

- Temperatures are relatively constant throughout the year
- Wet season runs Dec-May
- Dry season Jun-Nov associated with SE trade winds
- Mean daily max/min temperatures 32°C/23°C

OPERATIONAL INFORMATION

Handling Agent	Simfest Ground Services
Handling Agent VHF	
Potable Water	Uplift not permitted

IF ONLY Electrical Power is required	Use GPU
If BOTH electrical power and air conditioning is required:	Use APU (ACU equipment not available). Keep ground power connected to reduce APU fuel burn.

THULE (THU/BGTL)

Elevation 252ft

CATEGORY C

AV brief not available.

GENERAL

- Thule is the USAF's northernmost base, located 650nm north of the Arctic Circle and only 820nm from the North Pole.
- The airfield is located on a plain in northern Greenland, on the south shore of North Star Bay. The settlement of Qaanaaq is some 50nm north of the base and accessible only by air to Qaanaaq Airport (NAQ/BGQQ, LDA 900m).
- Military only airfield operated by the USAF.

Threat Based Briefing Topics

CFIT

- Terrain rises sharply S and E of the airfield, with spot heights of 934ft within 1nm NE, 820ft ~1.5nm SE and 3,100ft within 10nm S
- TRUE bearings are used due to the very high westerly variation (48°W). Take care to ensure the correct heading reference is used to ensure correct tracking.
- Altitudes published on IACs are not temperature corrected

Loss of Control

- Severe downdraughts and WINDSHEAR can be expected on final with strong southerly winds

ARRIVAL

Approach

- The only instrument approaches available are to Rwy 08T, as terrain precludes the establishment of an instrument approach to Rwy 26T.
- DME arc procedures are in use. Note minimum altitudes on the arc and consider temperature correction as appropriate.
- In strong winds, severe turbulence can be generated in the ice cap area to the north of the airfield
- Autopilot **must** be disconnected by 600ft aal on all approaches

DEPARTURE

- Initial climb to a Flight Level
- Expect WENSA 2 departure

WEATHER

- Thule/Qaanaaq experiences long, cold winters. Temperatures seldom rise above freezing Sept-May, and rarely exceed 10°C in July.
- Average mean daily high/low 7°C/2°C (Jul), -20°C/-28°C (Feb)
- Midnight Sun lasts from Apr-Aug. Days shorten rapidly after August, and there is permanent darkness Nov-Jan.

OPERATIONAL INFORMATION

Handling Agent	Simfest Ground Services
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 APU for air conditioning (keep ground power connected to reduce APU fuel burn)

OTTAWA (YOW/CYOW)

Elevation 377ft

CATEGORY A

No AV brief required.

ARRIVAL

Diversion Airports

MONTREAL	YUL/CYUL	082 nm/084°T	CAT A
TORONTO	YYZ/CYYZ	192 nm/236°T	CAT A

WEATHER

- Snowfall averages 18" per month from Nov to Mar. During snowstorms visibility may reduce to 1,500m with cloud base down to 400ft
- Early morning fog may drift across the airfield from the direction of the river when light NE'ly winds prevail

OPERATIONAL INFORMATION

Handling Agent	Swissport
Handling Agent VHF	
Potable Water	Not assessed

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

GANDER (YQX/CYQX)

Elevation 496ft

CATEGORY A

AV brief not available

GENERAL

- The airfield is located to the east of the town of Gander, in the north-east of Newfoundland
- Known as 'The Crossroads of the World' the airport was once the largest in the world and a major stopping point for transatlantic traffic
- Large Westerly variation

Threats

Runway Incursion

- Backtrack required for Rwy 03/31 departures

Runway Excursion

- Braking action surveys are not routinely taken when the runway is wet with no other contamination. Runway friction reports are averaged over the whole runway and not given per third
- Non-active runways as designated by ATC are available by flight crew request but may not be maintained or cleared of contamination.
- Poorer than anticipated braking action is cited as a contributory factor to the overrun of an AN-124 in 2007

Mid Air/Ground Collision

- Helicopter and training traffic operates and in particular there is heavy activity around the intersection of Twys A and C.

ARRIVAL

Diversion Airports

ST JOHN'S	YYT/CYYT	107 nm/137°T	CAT A
STEPHENVILLE	YJT/CYJT	160 nm/263°T	CAT B
HALIFAX	YHZ/CYHZ	440 nm/240°T	CAT A
GOOSE BAY	YYR/CYYR	343 nm/322°T	CAT A

WEATHER

- Snowfall averages 18-20 inches per month Oct-Apr but heaviest snowfall is Jan-Mar
- Fog and low cloud is common. Advection fog caused by airflow over the cold Labrador current most frequent in spring and early summer. Early morning radiation fog slow to clear in winter.
- Summer gives some thunderstorms
- Prevailing wind westerly in winter, southwesterly in summer.

OPERATIONAL INFORMATION

Handling Agent	Ogden Allied
Handling Agent VHF	129.1
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 APU (ACU equipment not available). Keep GPU connected to reduce APU fuel burn.

VANCOUVER (YVR/CYVR)

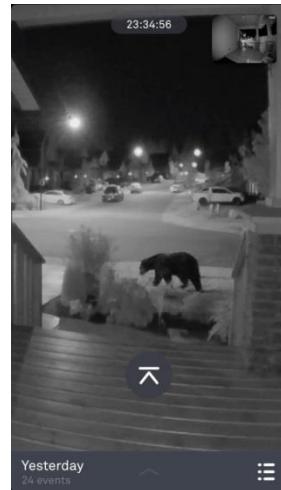
Elevation 13ft

CATEGORY A

No AV brief required.

GENERAL

- Airfield is situated 2nm to the S of the city of Vancouver at the mouth of the River Fraser
- Significant EASTERLY variation (19°E)
- Known as the Hollywood of the North, the city comes second to Los Angeles in TV production and third in feature film production behind Los Angeles and New York
- Bears may be encountered on movement areas



- All the grey squirrels in Stanley Park are descendants of eight pairs of grey squirrels received as a gift from New York City in 1909

Threat Based Briefing Topics

CFIT

- 30nm W Is Vancouver Island, peaks to ~7,000ft asl
- N is an E-W range of mountains. The 2,000ft asl contour is at a range of 9nm and ~6,000ft asl at 17nm N
- Further N are peaks to ~10,000ft asl
- Cascade Mountain Range rises steeply at 40nm E and SE with peaks to ~11,000ft asl

Runway Incursion

- Lido AOI gives details of taxiway restrictions, note advises Rwy 26L arrivals not authorised to turn on to the intersecting Rwy 31 without clearance

Loss of Control

- Birds are a hazard, especially during Spring and Autumn
- Bears may also be a concern

ARRIVAL
Diversion Airports

SEATTLE	SEA/KSEA	111 nm/162°T	CAT A
SAN FRANCISCO	SFO/KSFO	696 nm/177°T	CAT B
PORTLAND	PDX/KPDX	218 nm/174°T	CAT A
CALGARY	YYC/CYYC	371 nm/072°T	CAT A

Approach

- Expect radar vectors
- Converging ILS procedures are published
- Lido AOI has Noise Procedures pages, including details of preferred runways
- Visual Approach procedures are published

GROUND

- Call local company frequency with arrival and departure chocks times
- Part of taxiway to the S of Rwy 08R/27L used as a runway; designated Rwy 26A (~1000m)
- Refer to the Lido AOI for notes regarding Coded Taxi Routes
- Steve Williams' house is available for accommodation in the event of aircraft struck by lightning
- Excellent IPA available from the Hearthstone Brewery

Taxi

- Numerous A380 taxi restrictions. LIDO charts show A380 taxi routes in green on charts 3-90 and 3-100
- Crew reports indicate that unlit aircraft may be parked to the left of taxiway V in de-icing pans W17, W18 and W19. Wingtip clearance appeared minimal, so taxi with caution.
- Gate 64 preferred for A380 operations, Gate 65 alternative

DEPARTURE

- Performance restrictions available from CARD and the Performance Manual
- Rwy 08L/26R full length start-points are Twys M10 and M9

- For take-off data from Twys M8 and M7 select Intersections on the CARD request
- Simultaneous Parallel departures may be in use

WEATHER

- Possible poor visibility with NE wind due to smoke
- Fog from October to January – particularly November
- Rain may fall as snow from November to March

OPERATIONAL INFORMATION

Handling Agent	SIMFEST (Pax)/Swissport (Ramp)
Handling Agent VHF	130.2
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

GOOSE BAY (YYR/CYYR)

Elevation 160ft

CATEGORY B

No AV brief required.

GENERAL

- Goose Bay is a military airfield at the SW end of Lake Melville, 120 nm W from the coast.
- Large westerly variation
- Frequent magnetic storms in the area

Threat Based Briefing Topics

CFIT

- The low level ground rises gradually to the E and W. To the E are peaks of nearly 2,700ft asl at 37nm and nearly 4,000ft asl at 69nm
- To the WNW are peaks of nearly 2,600ft asl at 75 nm

Mid Air Collision

- Daily radiosonde balloons are launched 1115-1345 and 2315-0145

Special Considerations

- All runways have arrester cables. Arrester gear may be in use.
- CARD take-off data is available with reduced TORA/ASDA to account for over-run arrester cable in up position.
- TORA/LDA Rwy 08 2941m, TORA/LDA Rwy 16 2255m with arrester cables up

ARRIVAL

- Cat D aircraft not authorised to circle NE of Rwy 08/26

WEATHER

- Poor visibility in winter resulting from snow or suspended ice crystals (ice fog), the latter giving possible radio interference
- Low ceilings more frequent during spring and autumn
- Snow from Oct to May
- Summer conditions generally good

OPERATIONAL INFORMATION

Handling Agent	Woodward Aviation Services
Handling Agent VHF	122.9
Potable Water	Not assessed

IF ONLY Electrical Power is required	Use ground power at all times
If BOTH electrical power and air conditioning is required:	Use APU for air conditioning (keep ground power connected to reduce APU fuel burn)

TORONTO/Lester B Pearson Intl (YYZ/CYYZ)

Elevation 569ft

CATEGORY A

AV brief not available.

GENERAL

- Toronto is Canada's largest city. The airport is located 12 nm northwest of downtown Toronto in the city of Mississauga
- YYZ is a busy airport with a wider range of traffic from light commuter aircraft to Airbus A380s
- The preferred runways are the NE/SW pairings 15-33L/R, with a tendency to westerly operations.
- Simultaneous parallel operations are in use
- Note diversion to USA airports can result in significant passenger handling difficulties

Threats

Runway Incursion

- LAHSO frequently in force. Simfest are not permitted to participate, even passively.
- Numerous hotspots – see charts for details
- Rwy 23 Twy B leads on to and crosses the runway. Taxi routing via Twy D crosses threshold 33R.

Mid Air Collision

- Parallel approaches in use

Special Considerations

- Severe winter weather is common

ARRIVAL

Diversion Airports

MONTREAL, Dorval	YUL/CYUL	274 nm/066°T	CAT A
OTTAWA	YOW/CYOW	197 nm/059°T	CAT A
DETROIT	DTW/KDTW	186 nm/241°T	CAT A
WASHINGTON	IAD/KIAD	300 nm/161°T	CAT B
PHILADELPHIA	PHL/KPHL	302 nm/139°T	CAT A
NEWARK	EWR/KEWR	302 nm/126°T	CAT A

- Expect to fly the filed arrival, unless notified of changes
- Expect a transition to the appropriate runway
- Descend in accordance with ATC instructions

- Holding is rare but possible with a strong northerly or southerly flow
- Landing runway will usually be notified after top of descent. ATC are helpful to accommodate requests of required/expected runway.
- Expect a straight in approach with some speed control - 170 kt to approx 4.5 nm (FAF)

GROUND

- Ground power is on the jetbridge – if required before shutdown the jetty will need to be in position first (consider shutting down LH engines first)
- If parked further in than the end of the piers, ensure adequate wingtip clearance, especially on the side of T3 that faces T1 (stands C35 upwards)
- High volume RJ and turboprop traffic manoeuvring in and out of taxilanes 5 and 6

DEPARTURE

- Toronto is extremely noise sensitive. SIDs should be strictly adhered to, particularly with respect to restrictions applied to turns below 3,600 ft. Authority to turn comes from a heading given by tower or the departure controller.
- Route clearance after SID given by clearance delivery does not constitute an authority to turn below 3,600 ft.
- Expect to depart on 24R or 06L, though can be 23 if heading to the north (Muskoka YQA is a common early waypoint). 23 departures should be planned from Twy H

WEATHER

- Snowfall averages 10" per month Nov-Mar. 'Lake effect snow' may also be encountered during winter months. This phenomenon occurs when a mass of cold dry air passes over a body of warmer water such as one of the Great Lakes and picks up moisture and heat. Significant amounts of snow may fall in a short period of time.
- Possibility of early morning fog throughout the year, but least likely in spring and early summer. Poor weather conditions are often associated with easterly winds blowing from the direction of Lake Ontario.
- Prevailing wind is SW'ly in winter, and NW'ly in early spring and late summer.

OPERATIONAL INFORMATION

Handling Agent	Panauille Airport Terminal Services
Handling Agent VHF	130.65
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

YELLOWKNIFE (YZF/CYZF)

Elevation 675ft

CATEGORY B

AV brief availability

GENERAL

- The airport is located on the western side of Yellowknife, on the west side of Yellowknife Bay
- The surrounding landscape is mostly flat and rocky with numerous small lakes
- Great Slave Lake to the south is the deepest lake in North America, the second-largest lake in the Northwest Territories and the tenth largest in the world
- Large easterly variation

Threats

Runway Incursion

- Backtrack required for departure Rwy 34

Runway Excursion

- PAPIs are set for aircraft with 25ft eye-wheel height. Widebody aircraft should expect to fly 3w/1r

Loss of Control

- Arrester cables installed on Rwy 16/34

ARRIVAL

Diversion Airports

FORT MCMURRAY	YMM/CYMM	363 nm/163°T	CAT A
EDMONTON	YEG/CYEG	551 nm/177°T	CAT A
CALGARY	YYC/CYYC	682 nm/179°T	CAT A

DEPARTURE

- Departures will be radar vectored by ATC

WEATHER

- Winters are very cold whilst summers are mild to warm.
- Daily mean low/high temperatures -29°C/-21°C (Jan), 12°C/21°C (Jul)
- Conditions are generally dry due to the rain shadowing effect of mountains to the west. Most precipitation falls between June and October.
- Snowfall accumulates from Oct through to May
- Ice fog common on cold winter mornings

OPERATIONAL INFORMATION

Handling Agent	Diamond Air
Handling Agent VHF	122.9
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 APU (ACU equipment not available). Keep GPU connected to reduce APU fuel burn.

ACCRA (ACC/DGAA)

Elevation 205ft

CATEGORY A

No AV brief.

GENERAL

- A well-provisioned airfield set on the coast
- Cloud bases given in metres

Threats**CFIT**

- Terrain 8nm N to ~1,500ft asl
- Ensure speed is below 250kt within 20nm of the airfield and exercise caution to avoid triggering EGPWS generated by terrain to the N
- Power lines cross the approach 500m short of Rwy 21 threshold. There is a sharp drop in the terrain in this area which can cause downdraughts.
- This drop in the terrain will also affect radio altimeter readings in the last 150-200ft of the approach.

Runway Incursion

- The depiction of the Rwy 21 holding positions on the AGC chart suggests two separate taxiways, but in fact there is one large area, all load-bearing.
- Taxiway lighting and signage in this area is poor and well below the expected standard.

At North holding (A2):

- Green taxiway lighting permanently illuminated across the holding point and onto the active Runway.
- There is no STOP board, wig-wags or STOP bar, hence it is **very** easy to taxi onto the runway without clearance

At South holding (A1):

- Access to the runway may be completely unlit and should not be used by BAV
- The yellow taxiway line has all but disappeared and there are no yellow lines denoting a holding point.
- Only your aircraft's lighting will provide sufficient guidance to taxi onto the runway.

ARRIVAL
Diversion Airports

LAGOS	LOS/DNMM	217 nm/074°T	CAT B
ABUJA	ABV/DNAA	489 nm/065°T	CAT B
COTONOU	COO/DBBB	160 nm/073°T	CAT A
LOME	LFW/DXXX	092 nm/068°T	CAT A

Approach

- Notes re: approach, focusing on 'gotchas' not immediately obvious from chartage etc.

GROUND

- Notes re: ground movement e.g. restrictions, etc

DEPARTURE

- Departure considerations

WEATHER

- General weather and climactic synopsis, e.g. max/min temps, prevailing winds, likelihood of fog, local meteorological phenomena etc.

OPERATIONAL INFORMATION

Handling Agent	Aviance Ghana
Handling Agent VHF	118.6
Potable Water	Uplift not permitted

IF ONLY Electrical Power is required	Use ground power at all times
If BOTH electrical power and air conditioning is required:	Use APU (keep ground power connected to reduce APU fuel burn)

LAGOS (LOS/DNMM)

Elevation 135ft

CATEGORY B

No AV brief required.

GENERAL

- During the HARMATTAN season (Dec to Jan) whenever the forecast visibility is low, consider an additional one hour's holding fuel
- Number of airspace restriction/danger areas to the S of the airport

Threat Based Briefing Topics

Mid Air Collision

- It is important to maintain communication with other traffic in the area on 126.9/122.8 as long as possible

Runway Excursion

- During periods of heavy rain, Rwy 18R/36L may be subject to slow drainage, which could result in standing water. Consider use of appropriate performance data for landing
- Degraded braking action when runway wet

Loss of Control

- Extreme caution must be exercised to ensure that the correct DME (VOR or ILS) is used for any procedure relying on DME distances to let down to a decision altitude.

ARRIVAL

Diversion Airports

ACCRA	ACC/DGAA	217 nm/254°T	CAT A
ABUJA	ABV/DNAA	276 nm/058°T	CAT B
COTONOU	COO/DBBB	057 nm/256°T	CAT A
LOME	LFW/DXXX	126 nm/258°T	CAT A

- Inbound clearance must be obtained from Lagos Approach before crossing the Lagos UTA boundary. Note that difficulties are often encountered in establishing contact until within 100nm of the airfield. If not contact try for relay through other aircraft, through Lagos Info on VHF, or on HF. In the event that contact is not possible via any means prior to crossing the Lagos UTA boundary, it should be made clear, on first contact that repeated attempts have been made.
- Runway in use for wide-bodied aircraft normally 18R/36L although late clearance to use 18L/36R is possible.
- Prevailing winds usually favour southerly landings.

Approach

- Radio aids are often subject to unserviceability at short notice, at times without the knowledge of ATC. Power cuts have blacked out the entire airfield including ATC.
- Although Radar is shown as available it is normally unserviceable
- Airfield lighting is unreliable
- Confusion over landing clearance has occurred: change to Tower frequency in good time calling airfield/runway in sight as soon as practicable
- Expect a call for aircraft registration and Souls on Board just after landing
- Crew report that the Rwy 18R G/S fluctuates all approach from approx. 10 DME

GROUND

- Exercise caution during taxi due uncontrolled vehicular and pedestrian movements
- Due to previous incidents take extreme care when taxiing on 18L/36R eastern parallel taxiway. If in doubt about wingtip clearance with parked aircraft, stop and request marshalling assistance
- There is a marked upslope from Twy A (18R) via Twy F to the parking apron
- Consideration should be given to where single engine taxi is appropriate, especially if flight is planned to a high landing weight due fuel tinkering
- Usual parking stand E63
- **Parking Stand Tow on Procedure:** Due to issue with jetty position stop 50m short of arrival stand, shut down engines and await tow on to stand.

DEPARTURE

- Request for start-up clearance should be made 15 mins before ETD giving expected start time. Also be prepared to give Souls on Board info and aircraft fuel endurance at this time.
- ATC clearance normally issued on taxi out. Company frequency (Speedbird Engineering 131.8) may assist if final loadsheet figures are delayed.
- For aircraft routing between Lagos and Accra it is usual to establish radio contact with Accra prior to being released by Lagos and vice versa.

WEATHER

- Surface wind and visibility reports may be inaccurate particularly in adverse weather conditions
- It is difficult to obtain Lagos weather until in VHF contact (~150nm) however, on occasions it may be possible via HF

- Weathers for Lome, Cotonou, Accra, Niamey and Abidjan are usually available from NIAMEY. It is rarely possible to obtain Kano weather until either in VHF contact (~110nm) or on occasions on HF. Rarely does Lagos have the Kano weather available and vice versa.
- Although instability rain may occur during any month of the year the rainy season is from May to July when the ITCZ (ITF) is moving north. Rainfall is of the monsoon type during this period.
- A secondary maximum occurs in October when the ITCZ moves south.
- The worst period of LINE SQUALLS (from the east is prior to the MONSOON, i.e. during March to May, when about five squalls per month can be predicted. These squalls are more severe than at Accra.
- In Dec/Jan thick dust haze can occur when the HARMATTAN may reach the coast.
- Low cloud is frequent in the early morning with fog almost a daily occurrence in December and January, forming an hour or two before dawn but almost invariably burning off by 0900Z.

OPERATIONAL INFORMATION

Handling Agent	Nahco Aviance Handling
Handling Agent VHF	131.8
Potable Water	Uplift ban

IF ONLY Electrical Power is required	Use for 60mins ONLY – then use APU
If BOTH electrical power and air conditioning is required:	Use both ground services for 60 mins ONLY – then use APU

FRANKFURT (FRA/EDDF)

Elevation xxft

CATEGORY A

AV brief not required.

Threats

CFIT

- False localiser captures have been reported on Rwy 25C, particularly when intercepting from south of the centreline.

ARRIVAL

Diversion Airports

COLOGNE	CGN/EDDK	074 nm/312°T	CAT A
STUTTGART	STR/EDDS	085 nm/162°T	CAT B
DUSSELDORF	DUS/EDDL	102 nm/317°T	CAT A
HANOVER	HAJ/EDDV	152 nm/016°T	CAT A

Approach

- Usually 25R/07L for arrivals from the north and 25L/07R for arrivals from the south, but late changes of landing runway can be expected on approach.
- It can be difficult to programme the FMS with the revised arrival or runway after having passed beyond a transition point – consider using RTE 2 to set up alternative approaches.
- UNOKO 25N/07N transition (coded in FMS as UN25N/07N) depicted for 25R/07L only but may actually be given for other runways also. If cleared on this arrival and one of the other runways, consider either selecting the landing runway and constructing the applicable STAR, or alternatively select the cleared arrival and then anticipate the final approach/runway in RTE 2.

Note: Reselecting STAR and transition will insert many duplicated waypoints which may increase workload at a critical stage of flight.

West Arrivals

- West CTR sector clears all arrivals which are not allowed for Rwy 25R (B747, A388, MD11) on the UNOKO25S transition
- All other arrivals are cleared on UNOKO25N
- At this time ATC does not differ between 25R Y or Z but the ATIS and later arrival controller will inform if Y or Z is in use.
- From the transition clearance the pilot cannot conclude that either a Y or Z ILS approach will follow and the CTR controller cannot decide which runway the flight will be cleared on later so there is no point asking!

- ATC are aware that after a transition clearance, an approach procedure must be programmed into the FMS. However the re-programming after the approach decision Y or Z or the runway decision 25R or 25L and the re-briefing should be routine work. Normally this decision is made about 40 NM before turning onto final approach.
- Changes between the transition for 25R and the landing runway 25L happen often during the day.
- Rwy 25C and 25L are situated close together, caution is required to land on the correct runway, especially following a NPA.
- 07L/25R have 2 ILS approach procedures, Y and Z. These have different ILS frequencies along with a different glide slope angle.
- As the Y procedure has a 3.2° glide slope angle autolandings are not permitted using this ILS for some aircraft types.
- ATC track shortening is a possibility, this has led to high-energy approaches.
- False LOC capture has been reported on Rwy 07C/25C
- Landing not permitted on Rwy 18/36

GROUND

- Apron and taxiways have many roadways crossing and vehicles do not always give way with adequate clearance to aircraft – taxi with caution.
- Taxiing is VERY tight on L around stands V94-V97 for Airbus narrowbody aircraft. IN particular:
 - When on the centreline, clearance between main gear and taxiway edge lights/grass is <1m
 - There is no way to avoid infringing the runway hold short markings at T2 and U2
 - A very sharp 140° left turn on to stand is required.
 - Consider keeping both engines running
 - On departure there is insufficient clearance to turn left from Twy L to Twy U without infringing Twy T – be very careful of the inset edge lights on this corner.
- A380 – expect stand E2 and use portable PCA units for cabin cooling.

DEPARTURE

- Takeoffs not permitted from Rwy 07L/25R
- For westerly operations Rwy 25C may be requested to avoid a lengthy taxi to Rwy 18.
- For easterly operations expect Rwy 18 or 07C

WEATHER

- Frankfurt is generally warm and dry in comparison to other cities in Germany
- Winters generally mild with only a small possibility of snow, but are often dark and overcast
- Summer temperatures can be very warm with 13 days per year on average with a maximum temperature >30°C

OPERATIONAL INFORMATION

Handling Agent	Menzies (Pax) / Acciona (Ramp)
Handling Agent VHF	131.9
Potable Water	Uplift permitted

IF ONLY Electrical Power is required	Use GPU for up to 3 hours, then use APU
If BOTH electrical power and air conditioning is required:	Use APU (but keep GPU connected as above to reduce APU fuel burn)

COLOGNE-BONN (CGN/EDDK)

Elevation 302ft

CATEGORY A

No video brief available.

GENERAL

- Busy airport, with a mix of commercial (passenger and cargo operations), military (air force base), general aviation/private operators, and air ambulance base
- Monitor ATC instructions closely
- Preferred runway: 14L/32R – up to ILS Cat IIIB
- Runway 06/24 is only to be used for ACFT up to ICAO code E
- Runway 14R/32L is only to be used for ACFT up to ICAO code C (general aviation preferred)

Threats

CFIT

- No major terrain threads identified
- Approach to R32R over forest area – no factor
- Approach to R14L over Cologne city – two high rise objects (964' and 1039' near flight path) but above minimum altitude of 3000'.

Runway Incursion

- When taxiing to RWY 32L/R, ensure that a clearance to cross RWY 06/24 has been obtained

Special Considerations

- EDDK is a noise sensitive airport
- Continuous Descent Approach in use daily (2200 – 0800 LT), for **MD11/B744 at all times**
- Reverse thrust IDLE between 2200 – 0600 LT on RWY 14L/32L
- Expect:
 - FL070 @220 kts ~26NM from EDDK
 - 190kts ~12NM from EDDK
 - Extend Great @ 2000feet or later
- Taxiing on TWY A and ACFT CAT E should monitor for clearance of traffic on TWY E
- Taxiing on TWY A and ACFT CAT F, should ensure there is no traffic on TWY E

ARRIVAL

Diversion Airports

DUSSELDORF	DUS/EDDL	29 nm/328°T	CAT A
LIEGE	LGG/EBLG	66 nm/256°T	CAT B
FRANKFURT/MAIN	FRA/EDDF	74 nm/130°T	CAT A
LUXEMBOURG	LUX/ELLX	82 nm/204°T	CAT A
AMSTERDAM	AMS/EHAM	124 nm/313°T	CAT A

APPROACH

- For KOPAG/GULKO RNAV R14L arrival, you may get a shortcut from WYP VOR (FL070@220kts) to LEGDU (3000'@190kts) – to intercept ILS 14L
- For KOPAG/GULKO RNAV R32L arrival, you may get a shortcut from COL VOR (KOPAG arrival) and DK627 fix (GULKO arrival) – for both FL070 @220kts to RARIX (3000' @190 kts) – to intercept ILS 32R
- Vacate landing RWY expeditiously and ensure to be fully vacated before stopping

GROUND

- Use of Follow-Me car to any stand is required
- Taxi-out w/o Follow-Me car possible, with constant radio contact with a controller
- Bridge on TWY B is limited to ACFT up to ICAO code D and actual weight of 200T
- Apron D - For ACFT ICAO code D – taxi via M (orange) and Taxilane N Center
- Otherwise easy to navigate on ground
- Preferred Gates:
 - Pax: Terminal 2, Apron D (stands: D11, D15, D19, D23, D51, D53, D57), Apron A (A01, A10, A12, A14, A18, A20) – refer to chart 10-9B
 - Cargo: Cargo area, Apron E & F (stands: E and F) – refer to chart 10-9C

DEPARTURE

- Southbound and Eastbound departures: KUMIK (7F, 6M), PODIP (6E, 8B)
- Westbound and Northbound departures: NOERVENICH (1R, 1Q), WIPPER (5B, 5F)
- Pilots should be ready for a rapid line-up according to ATC instructions
- Cockpit checks should be completed prior to line-up and any checks requiring completion whilst on the runway should be kept to a minimum required. Commence take-off roll immediately after receiving take-off clearance. Pilots not able to comply with the above requirements shall notify ATC as soon as possible
- On departure remain with TOWER until passing 2000', then contact LANGEN radar

WEATHER

- One of the warmest and cloudiest cities in Germany, it has temperate-oceanic climate
- Cool winters and warm summers (average annual temp. 10°C)
- Fogs are present mainly during the fall season
- Summer thunderstorms are frequent / precipitation peaks in summer otherwise evenly spread
- De-icing and winter treatment services available

OPERATIONAL INFORMATION

Handling Agent	German Aviation Services
Handling Agent VHF	131.615 MHz
Potable Water	Uplift permitted

IF ONLY ELEC. PWR is required
Use ground power at all times

If BOTH ELEC. PWR and A/C is required:

Use both ground services at all times

DUSSELDORF (DUS/EDDL)

Elevation 147ft

CATEGORY A

No AV brief required.

GENERAL

- Diversions to Dusseldorf planning to arrive at 2230z or later will not normally be allowed to take off until the night curfew is over

Threat Based Briefing Topics

Mid Air Collision

- Crews should be aware that VFR aircraft may be operating in the vicinity of major German airports
- These aircraft may be operating up to the ceiling of Class E airspace adjacent to airspace used by SIMFEST crews
- Not all of these aircraft will be transponder-equipped

ARRIVAL

Diversion Airports

COLOGNE	CGN/EDDK	29 nm/150°T	CAT A
BRUSSELS	BRU/EBBR	89 nm/255°T	CAT B
AMSTERDAM	AMS/EHAM	97 nm/309°T	CAT A
FRANKFURT/MAIN	FRA/EDDF	102 nm/137°T	CAT A

Others that may be used include Hannover, Stuttgart and Hamburg

Approach

- When RNAV approach in use, ATC may use alternative RNAV transition waypoints which are associated with ILS charts (e.g. DL524 & DL555)
- Track shortening and late descents are typical of arrivals in to DUS

OPERATIONAL INFORMATION

Handling Agent	Acciona (Ramp), Menzies (Pax)
Handling Agent VHF	131.8
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

TALLINN (TLL/EETN)

Elevation 134ft

CATEGORY B

No AV brief available

GENERAL

- Tallinn Airport or Lennart Meri Tallinn Airport is the largest airport in Estonia and serves as a hub for the national airline Nordica, as well as the secondary hub for AirBaltic and LOT Polish Airlines

Threats

CFIT

- High circling minima due to high tower to the north-east.
- Runway Excursion

Runway Incursion

- Twy lighting may be illuminated beyond the runway holding point.

Runway Excursion

- Deer may be on Rwy.

ARRIVAL

- Expect descent clearance to be given when just inside FIR.

Diversion Airports

HELSINKI	HEL/EFHK	55 nm/004°T	CAT A
STOCKHOLM	ARN/ESSA	211 nm/273°T	CAT A
GOTEBORG	GOT/ESGG	406 nm/255°T	CAT A
OSLO	OSL/ENGM	417 nm/276°T	CAT A

Approach

- Circling not permitted north of the aerodrome
- Expect vectors from approx.. 50nm to the ILS at 12nm final.
- Reduced approach lighting on Rwy 08 due to the presences of lake on approach.

GROUND

- Runway 26 preferred for landing due to short taxi. Rwy choice may be granted on request.
- Refuelling with passengers onboard required the presence of the Fire services.
- Stand A15 has a jetty but is a “taxi off” stand rather than a push back stand.

WEATHER

- Precipitation on about 10 days per month throughout the year, falling as snow November to March.
- Cb activity most frequent June, July and August.
- Extremes of temperature range from July +34°C to January -29°C.

OPERATIONAL INFORMATION

Handling Agent	Atlantic Airways Handling
Handling Agent VHF	Not available
Potable Water	Not available

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

HELSINKI/Vantaa (HEL/EFHK)

Elevation 180ft

CATEGORY A

AV brief not available.

GENERAL

- The busiest airport in Finland, located 9 nm N of Helsinki city centre
- Built originally for the 1952 Summer Olympics in Helsinki
- Major hub for connecting flights as its minimum transit time of 35 minutes is amongst the shortest in Europe
- Large easterly variation (9°E)

Threats**Loss of Control**

- Missed approach stop altitudes are very low

Mid Air Collision

- Missed approach stop altitudes are very low. Consider go around handling.
- Parallel approaches may be used

ARRIVAL**Diversion Airports**

TURKU	TKU/EFTU	081 nm/280°T	CAT A
TAMPERE	TMP/EFTP	077 nm/329°T	CAT A
TALLINN	TLL/EETN	054 nm/184°T	CAT B
STOCKHOLM, Arlanda	ARN/ESSA	216 nm/262°T	CAT A

- Preferred landing runways 15, 22L, 04L, 04R, 22R, 33 in that order
- When busy parallel approaches may be used to 22-04/L-R
- ATC will inform you of the runway in use and clear you for the appropriate STAR. If no further clearance has been given by the time you reach the final fix, you must continue on the heading specified on the STAR chart. **Do NOT turn toward the FAF unless instructed.**
- ATC may vector you to the final approach or clear you direct the IAF, e.g. "BAW47C, via KENON (direct) BIFIX cleared ILS approach runway 22L" or "BAW47C, after KENON cleared direct BIFIX" followed at some later point by an approach clearance.

Approach

- ILS 04R is not recommended for coupled approaches. Aircraft crossing Rwy 04R may disturb the localiser signal. Be prepared to intervene.

GROUND

- 22L arrivals – do not vacate via ZG or earlier unless otherwise instructed
- High intensity runway operations - after vacating 22L/04R vacate on to Z to avoid blocking the exit
- After vacating 22L/04R or 15/33, contact Helsinki Ground 121.8 for further taxi – there is no need to wait for a ‘handoff’.
- Arrivals to 22R/04L remain on the Tower frequency until otherwise instructed
- “Apron spots” are shown on charts and may be used as co-ordination points for inbound and outbound traffic

DEPARTURE

- Preferred departure runways: 22R, 22L, 04R, 33, 04L, 15 in that order
- Use FCOM Noise Abatement procedure
- Ensure squawking Mode C prior to pushback request
- After departure aircraft are expected to remain on the Tower frequency at 1,500 ft and then automatically switch to Helsinki Radar. There will be no ‘handoff’. The frequency may be stated as part of the takeoff clearance, otherwise it is stated on the SID chart or if neither _APP sector is online, EFES_CTR 121.3

WEATHER

- Temperatures during winter are warmer than might be expected as a result of the influence of the Baltic Sea nad North Atlantic Current
- Average low/high temperatures -6°C/-1°C (Jan), 14°C/21°C (Jul)
- Winters are warmer and the snow season shorter than in the north of Finland but low cloud is common
- Thunderstorms are common in summer

OPERATIONAL INFORMATION

Handling Agent	Aviator
Handling Agent VHF	131.4
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

ROVANIEMI (RVN/EFRO)

Elevation 643ft

CATEGORY A

No AV brief required.

GENERAL

- Rovaniemi is located in Lapland, approximately 6 miles south of the Arctic Circle.

Threats

Runway Excursion

- Northern third of Rwy 03/21 and Twy T slopes downhill by approximately 25ft. Taxi with caution due to the combination of slope and reduced friction if Rwy or Twy is slippery.
- Use reported braking friction measurement with caution. These are based on accurate spot measurements by a vehicle, but this does not necessarily represent the full width of the Rwy/Twy and there may be spots which are more slippery than that reported.
- RVN is a military airfield with a squadron of F/A-18s. Where they operate, their engine heat can lead to a polishing effect on the surface, leaving a narrow track which is more slippery.
- Military on the northern side of the Rwy, so their operation does not usually affect Twy T, but on the runway and especially at intersections this is worth considering.

Loss of Control

- Arrester cable located 758m from Rwy 03 THR.

Mid Air Collision

- Joint civil/military airfield

ARRIVAL

Diversion Airports

KITTIILA	KIT/EFKT	72 nm/341°T	CAT B
OULU	OUL/EFOU	99 nm/186°T	CAT A
IVALO	IVL/EFIV	129 nm/016°T	CAT B
TAMPERE	TMP/EFTP	315 nm/190°T	CAT A
HELSINKI	HEL/EFHK	134 nm/007°T	CAT A
TURKU	TKU/EFTU	376 nm/183°T	CAT A
STOCKHOLM/ARLANDA	ARN/ESSA	467 nm/207°T	CAT A

Approach

- Rwy 21 has an ILS CAT 2.

GROUND

- Taxi with caution – refer to Runway Excursion section above for more information.

WEATHER

- Rovaniemi has a subarctic climate so experiences short, cool summers and long, cold and snowy winters.
- December averages just under six minutes of daily sunshine.

OPERATIONAL INFORMATION

Handling Agent	AIRPRO
Handling Agent VHF	131.675
Potable Water	

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

MANCHESTER (MAN/EGCC)

Elevation 257ft

Feedback: training@bavirtual.co.uk

CATEGORY A

No AV brief required.

ARRIVAL

Diversion Airports

BIRMINGHAM	BHX/EGBB	58 nm/160°T	CAT A
LIVERPOOL	LPL/EGGP	21 nm/266°T	CAT A
EAST MIDLANDS	EMA/EGNX	47 nm/132°T	CAT A
LONDON HEATHROW	LHR/EGLL	131 nm/149°T	CAT A

Others that may be used include Newcastle, London Stansted, London Gatwick and Prestwick.

Approach

- Approach terrain 05L: when crossing the Bollin Valley on approach to 05L the radio altimeter will fluctuate at approximately 380ft QNH (170ft servo height) and read approximately 280R.

GROUND

Parking

- Manchester has one pier served stand (12) and one remote stand (62) available for A380 parking. An A380 can also be parked on Twy Papa (Stand 80) though this is dependent on certain nearby stands also being vacant.

OPERATIONAL INFORMATION

Handling Agent	Menzies
Handling Agent VHF	131.405
Potable Water	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

LONDON / GATWICK (LGW/EGKK)

Elevation 203ft

CATEGORY A

AV brief not required.

GENERAL

- Crews operating adhoc/positioning/familiarisation and other non-scheduled flights should operate as per the published schedule due arrival slot restrictions at LGW. Any deviation from this (early or late) requires approval from Operations as large fines can be incurred without a revised arrival slot.
 - Arrival slots are a separate process from ATC clearance
 - The LGW arrival slot is an runway arrival slot, not an on blocks time

ARRIVAL

Diversion Airports

London Stansted	STN/EGSS	047 nm/019°T	CAT A
Bournemouth	BOH/EGHH	067 nm/250°T	CAT A
Birmingham	BHX/EGBB	098 nm/323°T	CAT A
London Luton	LTN/EGGW	045 nm/351°T	CAT A
Manchester	MAN/EGCC	153 nm/330°T	CAT A

Others which may be used include Cardiff, Glasgow and Prestwick.

GROUND

Taxiing

- All taxi instructions must be accurately followed
- Note that A380s do not have suitable tail clearance to pass under the Pier 6 Air Bridge which crosses Taxiway Lima. For a Westerly landing, a taxi routing to stand can be expected via 08L or Juliet, followed by Taxiway Quebec. For an Easterly landing, a follow-me vehicle will be provided.

Parking

- A380 parking can be expected on Stand 110 at the Western end of Pier 6, or as directed by ATC.

DEPARTURE

- Westerly A380 departures should expect a departure from A1 holding point 26L

OPERATIONAL INFORMATION

Handling Agent	BA
Handling Agent VHF	131.480
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

LONDON/HEATHROW (LHR/EGLL)

Elevation 83ft

CATEGORY A

No video brief available.

GENERAL

- Heathrow has very high traffic densities
- CAT3B on all runways and RNAV GNSS arrivals
- RNAV SIDs under trial and slowly replacing conventional nav SIDs
- There is a great deal of useful information in Lido AOI pages

Threats

Runway Incursion

- Departures from 09R have a history of runway incursions. Distraction, poor visual cues on the taxiway and TEAM arrivals may be contributory factors.
- Note Hot Spot 1 and 4 on the taxi chart.
- When no VATSIM ATC is available there may be confusion around which runway to expect, especially with northerly or southerly winds.

Loss of Control

- False localiser captures may be experienced when acquiring the 27L localiser at extended range. This is particularly likely when track shortening from LAM is offered.

Mid Air Collision

- Note the lower level-off height necessary after a missed approach from 27L and requirement to climb without further clearance at LON D6
- High rates of climb on departure can lead to TCAS RA if your departure track crosses the OCK or BNN arrival routes. Use of lower rates of climb is recommended if appropriate
- There have been numerous airprox reports from BAV crews arriving and departing an uncontrolled LHR on VATSIM.

Ground Collision

- Limited wingtip clearance on taxiways near the A1/A2/A3 holding area adjacent to 27R, particularly for A380.

ARRIVAL

- Expect speed control in the descent. Strict adherence to 160kt to 4DME is expected.
- Reduced separation on approach can be expected with a minimum of 2.5nm achievable between pairs of aircraft not requiring vortex separation
- On missed approach you will be sequenced in to the normal arrival stream and can expect around 40 track miles to approach
- Do not expect priority unless you declare an emergency
- Know when you can use a 'Land After' clearance.

- An uncontrolled LHR on VATSIM can be chaotic at times. Make maximum use of UNICOM, TCAS, lookout and other resources and integrate in to the traffic flow as best as possible. Note that many pilots will not broadcast their intentions.
- There is a westerly preference with tailwinds up to 5kt but in real life ATC may switch to easterly operations early based on the 2000ft wind
- Runway alternation programme for westerly operations can be found at https://www.heathrow.com/file_source/HeathrowNoise/Static/Runway_Alternation_Programme_2018.pdf - note runways change at 1500 local.
- No alternation on easterly operations (landings 09L, departures 09R).

GROUND

- Minimise runway occupancy and expect a frequency change on vacating. In guidance to stand can be provided using a taxiway centreline lighting system; whilst this is obviously not available in FS some VATSIM controllers have been known to use this phraseology.

A380 Operations

- Reduced ‘taxiway centreline to object clearance’ of 49m applies on Twy Echo between Bravo and Link 36 and on Twy Whiskey between Twy Sierra and Link 42.
- Reduced clearance of 47.5m to an airside road to the east of Twy Alpha at MORRA
- Pilots are to ensure that aircraft remain on the Twy centreline at all times
- RET N6 on Runway 27L tightens up, and care must be taken to ensure the right wing gear does not clip the grass when vacating on to Twy Alpha

DEPARTURE

- Be aware pushback from 335 in to G cul-de-sac needs to push abeam Stand 331 to ensure aircraft is straight and start-up does not cause blast safety issues on any stand
- During low visibility procedures, crews to call for start-up ONLY when FULLY ready to start. Aircraft departing via CPT/AWY L9 expect a non-standard departure instruction when using Rwy 09L/09R. Aircraft on this departure will not be issued datalink clearance when using Rwy 09L/09R. This is because the CPT SID track from Rwy 09L/09R conflicts with the arrival stream.
- Advise ATC if not ready for departure by LOKKI/LOMAN or PLUTO/TITAN,
- Conditional clearances in use
- Minimise runway occupancy commensurate with pax comfort and a safe operation

A319/A320/A321 – Intersection Planning

- FLEX should be maximised whenever possible when deciding on the planned intersection for departure
- BAV Airbus and LHR ATC have agreed a default intersection plan to use A3/N2E/N11/A13. ATC should give a minimum notice of 1 min for default intersection, 3 mins for change of intersection or 5 mins if OET, but this may not always be the case on VATSIM.

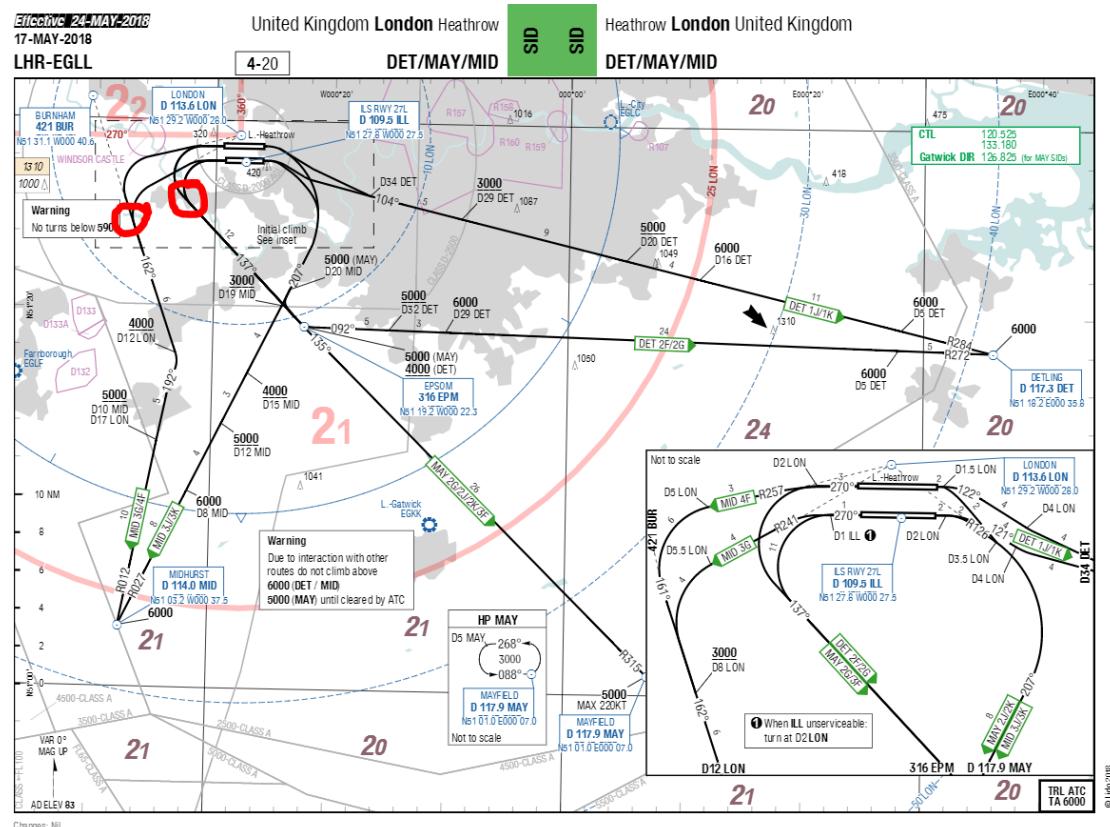
- ATC may offer a reduced notice, shorter intersection in the following cases:
 - When departing northbound
 - First wave departures
 - With a tight slot
 - T3 departures using 09R
 - In order to gain this tactical advantage, it may be prudent to plan on a shorter intersection for departure whilst still attempting to maximise FLEX.
 - To assist ATC in keeping R/T to a minimum, if requesting ACARS PDC consider adding a line in the free text section for the planned intersection e.g. 'Able NB8'. This could also be inserted in VATSIM FP remarks or mentioned on start request.

B747, B767, B777, B787, A380 – 210 kt SID restriction on DET/MAY/MID SIDs at LHR

In order to achieve accurate track keeping after the LON D2 point and stay within the Noise Preferential Routes, a 210kt speed restriction is introduced for all BAV wide-body aircraft. The B747 will continue to use the FCOM Noise Abatement procedure in addition to the 210kt speed restriction.

This restriction applies until the aircraft is established on course 138° towards EPM (DET/MAY SIDs) or course 162° (MID SID). Additionally, once on a radar vector the speed restriction no longer applies.

The image below shows the point at which it is OK to accelerate, i.e. once the initial large southerly turns on the SIDs are complete:



Fleet Specific Advice to Improve Track-keeping on Westerly MID/DET/MAY SIDs at LHR

To ensure that the FMS calculates an accurate LNAV turn, the following fleet-specific advice is offered:

- **B777 and B787** – enter a 210/6000 restriction on the VNAV Climb Page (LSK 4L). Cancel the restriction, if needed, once established on course after the initial turn. Speed intervention will not replot the FMC LNAV profile, so the aircraft will merely reduce the commanded bank angle. Do not introduce speed constraints on the LEGS page, because there is a risk that altitude constraints could be compromised.
- **B747** – Enter a 210/6000 restriction on the VNAV Climb page (LSK 4L). Cancel the restriction, if needed, once established on course after the initial turn. Speed intervention will not replot the FMC LNAV profile, so the aircraft will merely reduce the commanded bank angle and not comply with the noise preferential routing. Do not introduce speed constraints on the LEGS page, because there is a risk that altitude constraints could be compromised. Continue to use the FCOM noise abatement procedure for LHR departures. This is critical as B747 LHR noise performance relies on BOTH correct FMC LNAV plotting and utilisation of FCOM noise abatement procedures.
- **B767** – Enter a 210/6000 restriction on the FMC CLB page. This can be deleted once the aircraft has established on the course 138° towards EPM (DET/MID SIDs) or 162° (MAY SID).
- **A380** – it is recommended to fly 'S'-speed with Flaps 1+F until the initial turn on to a south-easterly track is complete. To pre-program the FMS, check the predicted value of 'S'-speed on the FMS/Perf/T.O. page and then either:
 - Use the PRESEL field on the FMS/PERF/CLB page to fly selected after passing Aa, and return to managed speed once the turn is complete, or:
 - Insert 'S'-speed as a climb speed constraint at an appropriate intercept waypoint via the F-PLAN page.

OPERATIONAL INFORMATION

Handling Agent	British Airways
Handling Agent VHF	131.805 SH 131.905 LH 131.785 HAC
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

LEEDS/BRADFORD (LBA/EGNM)

Elevation 681ft

CATEGORY B

AV brief – not required

GENERAL

- Situated in the W Yorkshire industrial complex
- Preferential landing Rwy 14 with takeoff Rwy 32 due noise

Threat Based Briefing Topics

CFIT

- Terrain rises towards the Pennine Hills reaching 1,300ft asl at 6 nm NW and 1,700ft asl at 15nm NW
- Approach to Rwy 14 is over the high ground. Ridge 6.5nm out on the approach to Rwy 14 which may give rise to radio altimeter ramping and possibly GPWS activation
- Mast to 262 ft asl at 2nm finals Rwy 14
- G/S soft warnings due to excessive mitigation to land prior to the downslope
- The PAPIs do not follow the ideal ILS G/S. The primary vertical path indication is the ILS G/S – this shall be followed in preference to the PAPIs to avoid GPWS soft warnings
- ILS GP may not give full scale fly-up outside 6° right of LOC centreline
- Possible GPWS operational nuisance activation at 2nm from touchdown
- Do not use GP data in winds above 55kt

Runway Excursion

- Rwy 32: the initial approach is over a low plain. On short final, terrain slopes up rapidly toward the landing threshold leading to a very late rad alt call. At 1000ft radio, the height above the landing threshold is approximately 600ft. Consideration should be given to achieving a fully stabilised approach by 1700ft QNH (approximately 3.3d ILF)
- Deep landing due to the downslope in the TDZ
- Short landing due to excessive mitigation to land prior to the downslope and the odd visual perspective due to the displaced THR

Loss of Control

- Ground falls away at the Rwy 32 threshold giving WINDSHEAR and downdraughts
- Bird hazard. Aircraft may be delayed until birds cleared

Mid Air Collision

- The Vale of York military flying area is 5nm NE
- Crews to exercise caution due to hang gliding and paragliding operations up to 1,500ft QNH to the S, W and NW of the airfield.

ARRIVAL

Diversion Airports

MANCHESTER	MAN/EGCC	38 nm/215°T	CAT A
NEWCASTLE	NCL/EGNT	070 nm/359°T	CAT A
BIRMINGHAM	BHX/EGBB	085 nm/182°T	CAT A

- A Radar Vectoring Area chart is available

Approach

- ILS 14 – G/P fluctuation may take place between 3.5nm and 1.5nm from the Rwy 14 threshold. Note that the ILS G/S angle is 3.5°
- Terrain on final approach Rwy 32 causes the rad alt to indicate a height change from 200ft to 100ft in a very short time
- The landing thresholds of both Rwy 14 and Rwy 32 are considerably inset
- Rwy 14 NDB approach: Note the higher platform altitude of 3,500ft if radar vectored.

Missed Approach

- Many aircrew have commented that the published missed approach procedure is difficult to follow.
- Leeds have introduced the option to go around on runway heading to 4000ft, this being an ATC clearance not a go around instruction. This is either requested by the crew early if they anticipate a go around, or issued by the Leeds Approach Controller on first contact with Leeds.

Runway Characteristics

- Pronounced downslope (>0.8%) in the expected area of touchdown on Rwy 14, requires caution. This pronounced downslope from the 14 end of the runway is not visually obvious when operating on Rwy 14/32.
- The touchdown zone on Rwy 32 has a downslope of 0.4%, with the undershoot area having an upslope of 0.7%. This along with the displaced threshold creates a strange visual perspective
- Maximum use of the ILS G/S is necessary to assure the correct vertical path is flown.

GROUND
LVPs

- Taxiway A unsuitable for aircraft larger than B739
- There is no longer a need to have a follow me around Twy E as Leeds now have full centreline lighting and stop bars
- To allow simultaneous pushbacks from stands 1 to 5 when Rwy 14 is in use for takeoff, but still allow aircraft to approach Rwy 32 for the CAT 3 ILS, ATC ask that all crews request positive instructions to vacate the runway (regardless of landing Rwy)
- The restriction on backtracking has been changed to: you may backtrack in “exceptional circumstances”, i.e. LVPs. This will allow aircraft to push back and taxi to holding point A1 while an arriving aircraft is landing on Rwy 32. In this conditions, arriving crew will be asked to perform a 180 backtrack and vacate at Twy N.

WEATHER

- Poor visibility due to industrial haze may occur in settled conditions as well as radiation fog
- Depressions and fronts bring low cloud and strong winds, the latter often giving a substantial CROSSWIND on Rwy 14/32
- Being high up and on the other side of the Pennines to Manchester, Leeds Bradford may be clear while Manchester and Liverpool are in fog.

OPERATIONAL INFORMATION

Handling Agent	Swissport UK
Handling Agent VHF	130.6
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 APU for air conditioning (ACU equipment not available)

NEWCASTLE (NCL/EGNT)

Elevation 266ft

CATEGORY A

AV brief not required.

GENERAL

Threats

Runway Excursion

- Rwy 07 early 1000ft RA call

ARRIVAL

Diversion Airports

LEEDS/BRADFORD	LBA/EGNM	070 nm/179°T	CAT B
DURHAM TEES VALLEY	MME/EGNV	033nm /164°T	CAT A
MANCHESTER	MAN/EGCC	104nm /191°T	CAT A
EDINBURGH	EDI/EGPH	080nm /313°T	CAT A

Others that may be used include Prestwick and London Heathrow

Approach

- Rwy 07 approach terrain: At 1000ft radio the height above the landing threshold is approximately 1400ft (1630ft QNH).

OPERATIONAL INFORMATION

Handling Agent	Swissport
Handling Agent VHF	122.050
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

Sumburgh (LSI/EGPB)

Elevation 21ft

CATEGORY A

No AV brief available

GENERAL

- Sumburgh Airport is the main airport serving Shetland in Scotland. It is located on the southern tip of the mainland, 17 nm south of Lerwick.

Threats

Runway Incursion

- Multiple crossing runways cause a risk of runway incursion. Care should be taken especially in poor visibility when manoeuvring on or around the runways.

Runway Excursion

- The longest runway at Sumburgh is 1500m with water surrounding most of the airfield.
- No turning bays are available from any runway.

Special Considerations

- Due to rapidly raising terrain, south east of the airfield, there are no instrument approach available for runway 33. There is a cloud-break procedure which is 30 degrees offset from the runway centreline.
- Runway 27 is the only runway with a precision approach.
- Poor taxiway labelling may cause confusion.
- Runway 24 / 06 is to be used by helicopters only.

Loss of Control

- During strong winds conditions, turbulence may be expected on approach to, or climb out from any runway.

ARRIVAL

Diversion Airports

ABERDEEN	ADN/EGPD	164 nm/192°T	CAT A
INVERNESS	INV/EGPE	165 nm/214°T	CAT A
BERGEN	BGO/ENBR	197 nm/082°T	CAT A
STORNOWAY	SYY/EGPO	200 nm/241°T	CAT A

Approach Considerations

Cloud-break procedure (007 Degrees)

- A VOR/DME procedure which is offset, runway 33, by 37 degrees. The aim of this approach is to allow the pilot to establish visual contact with the airfield and continue the final stage of the approach visually.
- There is high ground to the right of the approach and pilots should be careful when positioning the aircraft on final.
- Spurious EGPWS warnings may be triggered during this approach.

Cloud-break procedure (148 degrees)

- A VOR/DME procedure which is not designated to a specific runway.
- The aim of this approach is to allow the pilot to establish visual contact with the airfield and continue the final stage of the approach visually.

GROUND

- The taxiways are named (South Taxiway, North Taxiway, East Taxiway, Loop Taxiway etc).
- The risk of runway incursion is high.

DEPARTURE

- Departure clearance will be issued by 'Sumburgh Tower' as a relayed clearance from 'Scottish Control'.
- All departures will be airways clearance as no SIDs are currently available from Sumburgh.

WEATHER

- Strong winds during large portions of the year

OPERATIONAL INFORMATION

Handling Agent	Loganair
Handling Agent VHF	Not available
Potable Water	Not available

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

DUBLIN (DUB/EIDW)

Elevation 242ft

CATEGORY A

No video briefing material available.

GENERAL

- Dublin Airport is situated to the northern side of the mouth of the River Liffey estuary, on the East coast of Ireland
- As the capital of Ireland, and a busy transfer hub, Dublin Airport experiences exceptionally busy periods of operations, including a large number of 'lo cost' movements during the AM and PM peak. Dublin is well prepared for inclement weather, and low visibility operations.

Threats

Runway Incursion

- Dublin prioritise the use of Runway 10/28 for aircraft movements. During busy morning periods, or as traffic dictates, the crossing Runway 16/34 is also used. Crews should familiarise themselves with Runway Incursion Hotspots on Lido/Jeppesen charts, paying particular attention to the area around the threshold of Rwy 28, to guard against accidental incursion.

Loss of Control

- Dublin is exposed to Atlantic frontal systems that arrive from the West, and can be subject to high winds and low visibility. Particular attention should be paid during crosswind and gusty operations. Buildings to the North of the Rwy 28 can create a marked rotor effect, as wind passes over terminal infrastructure.

Special Considerations

- RT at Dublin is busy and at pace, and coupled with varied taxi routes can result in confusion during operations. When in doubt, seek clarification from ATC.
- Aprons are narrow, and pushback will be to nominated engine start point. Do not commence start procedures without ground crew approval.

Mid Air Collision

- Baldonnel Military Aerodrome is situated approximately 10 nm WSW of Dublin, and hosts regular military movements. Ensure a good look out is maintained for military aircraft, which may not be transponder equipped, nor be under the control of civilian ATC.

ARRIVAL

Diversion Airports

SHANNON	SNN/EINN	105 nm/247°T	CAT A
BELFAST INTL	BFS/EGAA	74 nm/001°T	CAT A
CORK	ORK/EICK	125 nm/221°T	CAT B

Approach

- Runway 28 is the preferential runway, and will be used up to 5 kts tailwind. Crews can expect an RNAV ‘Arc’ style arrival to the East, over the Irish Sea. Holding is rare, however is known to occur during busy periods. Consider committal to Dublin where weather and operational circumstances allow.
- ATC will endeavour to expedite arrivals and crews should be ready to accept short notice shortcuts, and application of speed control to maintain separation. Do not plan to fly the entire arrival – modify FMS planning as appropriate to avoid leaving the aircraft high due to unexpected track distance reduction when closing the runway centreline.
- Comply expeditiously with ATC speed instructions, to assure separation. ATC have been known to break off aircraft who do not adhere to ATC instructed speeds. Where performance requires different or non standard speeds to be flown, notify ATC in good time.
- Use caution to not misidentify the E-W M50 motorway (located to the south of the airfield) at night or during visual manoeuvres.

GROUND

- Taxi instructions can be complex, and delivered at a ‘rapid’ speed. Ensure the non handling crew member has ready access to the taxi chart to, and fully brief expected taxi routes.
- Do not enter/cross non active Runway 16/34 without explicit permission from ATC.
- Use caution when taxiing on manoeuvring areas, as ramp clearance is minimal and wingtip strikes have been known to occur.
- Simfest aircraft will be directed to use Terminal 1, and can expect stands on Pier 2 or 3.
- Before authorising pushback release, delivery controllers will ask you to ‘confirm the first waypoint in FMS’. This is to ensure correct selection of SID, of which there are many.
- Crews will be instructed to push to ‘TRP X’ where X is the designated tug release point. Ensure ground crew understand pushback instructions.
- Avoid blocking close spaced taxiways when holding on the ground – ATC may ask you to ‘budge up’ or offer non standard taxi routings.

DEPARTURE

- A large number of SIDs are published for Dublin, ensure the correct departure procedure is loaded in FMS.
- NADP 1 noise procedures are required for departure – refer to Ops Man A or FCOM as required.
- Speed restrictions apply within the Dublin TMA, include a speed restriction of 290kts max above FL100. Negotiate with ATC if required.

WEATHER

- Dublin experiences a typically wet climate, with regular frontal systems driven by Jetstream flow arriving from the West. Wind and rain, together with poor visibility is common and requires careful management. Dublin is well equipped to handle poor visibility however, and has CATIII capable ILS installations to both ends of the main runway.
- Where weather conditions in Ireland are poor, Dublin experiences comparatively better weather being on the East Coast than Shannon, Cork, or Kerry in the West. Consider diversion airport forecasts carefully – where exceptionally poor forecasts are prevalent, coordination with Operations to facilitate a mainland UK diversion may be required.

OPERATIONAL INFORMATION

Handling Agent	Swissport Ireland
Handling Agent VHF	131.450
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

COPENHAGEN (CPH/EKCH)

Elevation 17FT

CATEGORY A

AV brief not required.

GENERAL

- ATC refer to the airfield as 'Kastrup'
- Kastrup airfield is on the eastern coast of Denmark, near the Swedish border
- The airfield is 4nm S of the city of Copenhagen and 13nm W of Malmö across the Oresund bridge.

Threats

Mid Air Collision

- Due to airspace structure, uncontrolled VFR traffic may operate only 500ft below the minimum radar cleared altitude in the vicinity of the airport
- TCAS RAs may be generated – remain vigilant

Runway Incursion

- All arrivals and departures on Rwy 04 or Rwy 22 demand crossing Rwy 12/30 and a frequency change whilst holding short of 'Z'. Consider briefing the implications of this.

ARRIVAL

Approach

- ILS 22L Cat 1: the Rad Alt will ramp up approx. 40ft just prior to the DH due to the nature of the terrain
- Rwy 04 approach – review actions to deal with intercepting glideslope from above.

DEPARTURE

- Tall shipping in the vicinity may affect obstacle clearance for Rwy 04, 22L and 30
- CARD provides additional data for use if tall ships are present

WEATHER

- Humid, continental climate
- Snow common in winter
- Annual temperature variation between -2°C and 22°C

OPERATIONAL INFORMATION

Handling Agent	Menzies Aviation Denmark
Handling Agent VHF	131.785 'Menzies Copenhagen'
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

VAGAR (FAE/EKVG)

Elevation 280ft

CATEGORY B

No AV brief available

GENERAL

- Vágar Airport is the only airport in the Faroe Islands, and is located 1.2nm east of the village of Sørvágur, on the island of Vágar.
- Due to the Faroe Islands' status as a self-governing territory, the airport is not subject to the rules of the European Union.
- Vagar Airport is located within 'Class G' airspace, therefore, is uncontrolled. Only a 'Vagar Information' position exists on 124.850. The coverage extends to 30nm from the airport up to 7500ft.

Threats

CFIT

- Terrain rises rapidly to the north west of the airfield, with peaks of 2400ft asl within 5nm.
- The highest peak on the Faroe Islands reaches 2818ft asl and is located north east of the airfield at 15nm.
- Due to the modulating terrain, strict minimum altitudes are in place and must be adhered to on all instrument approaches.

Runway Incursion

- There is one runway entry/exit, care must be taken when entering or exiting the apron. Only one runway movement is allowed at one time.

Runway Excursion

- Due to a narrow runway (30m), runway excursion are likely, especially in strong winds.

Special Considerations

- The touchdown area considerably upslopes on both ends. From the mid-point of the runway, on both ends, the runway then downslopes considerably.

Loss of Control

- Severe turbulence can occur when the wind speed exceeds 30 knots from the south or 40 knots from the North.
- Vagar airport has established a turbulence warning system (TWI-system).
- Approach, landing and departure is prohibited if the TWI-system indicates RED. VAGAR AFIS will inform the pilots on the current turbulence level.

ARRIVAL
Diversion Airports

SUMBURGH	LSI/EGPB	219 nm/131°T	CAT A
STORNOWAY	SYY/EGPO	233 nm/179°T	CAT A
WICK	WIC/EGPC	250 nm/155°T	CAT A
INVERNESS	INV/EGPE	289 nm/166°T	CAT A

Approach

ILS-V Runway 30

- Approach starts from SUDUR as a direct arrival. Pilots can expect radar service to be terminated at or before SUDUR. There is no approach control so pilots should expect to contact 'Vagar Information' – 124.850.
- The glideslope is 3.5°, so aircraft configuration should be carefully planned.
- Approach minima used depends on the missed approach climb gradient that can be achieved.

ILS-Z Runway 30

- Approach starts from the VG (NDB). This is a procedural approach with a 'base turn' procedure. All altitude minima's must be strictly adhered to due to class G airspace and high terrain.

RNAV (RNP) W/V/U Runway 30

- There are different RNP approaches available depending on the accuracy capable of the aircraft flown. A GPS RAIM check should be performed before commencing an RNP approach.
- Approach minima used depends on the missed approach climb gradient that can be achieved.
- The RNP approach have direct arrivals from SUDUR, ROBUR and MAGNI.

LOC/DME Runway 12

- The localiser is offset by 14°.
- The descent angle required is 3.5° and strict adherence to the minimum altitudes is required due to high terrain.
- The approach commences from the MY only. Careful planning is required on the 'How', for leaving the published hold and commencing the 'procedure turn' onto the localiser.

RNAV (RNP) W/V Runway 12

- Both approaches are similar, however the RNAV (RNP) V approach can not be flown by CAT A aircraft.
- Direct arrivals exist from MAGNI, SUDUR and ROBUR.

- The descent angle required is 3.5° and strict adherence to the minim altitudes is required due to high terrain.

GROUND

- The apron is small and only has one entry/exit.
- Not suitable for aircraft with a wingspan of greater than 40m.
- There are only 5 main stands with a couple of adjacent private hangers.

DEPARTURE

- Departure clearance will be issued by 'Vagar Information' as a relayed clearance from 'Reykjavik Control'
- All departures except the MY1B and PEVAB1B require RNAV RNP approval from the CAA of Denmark.

WEATHER

- Severe turbulence can occur when wind speed exceeds 30 knots from the south or 40 knots from the North.
- Vagar airport has established a turbulence warning system (TWI-system).
- Approach, landing and departure is prohibited if the TWI-system indicates RED. VAGAR AFIS will inform the pilots on the current turbulence level.

OPERATIONAL INFORMATION

Handling Agent	Atlantic Airways Handling
Handling Agent VHF	Not available
Potable Water	Not available

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

OSLO/GARDERMOEN (OSL/ENGM)

Elevation 681ft

CATEGORY A

No AV brief required.

GENERAL

Threats

CFIT

- 19 nm NE of the city, Gardermoen has some terrain to the W clockwise through to the N with MSAs rising to 3900ft within 10 nm. It is clearly illustrated on the Lido charts.

ARRIVAL

Approach

VOR indication fluctuations have been reported.

OPERATIONAL INFORMATION

Handling Agent	MENZIES AVIATION
Handling Agent VHF	131.875
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

HAMMERFEST (HFT/ENHF)

Elevation 262ft

CATEGORY C

No AV brief available

GENERAL

- Hammerfest Airport is a regional airport at Prærien in Hammerfest, Norway. It is operated by the state-owned Avinor and is the third-busiest regional airport in the country.

Threats

CFIT

- Terrain raises rapidly to the north of the airfield within 1 nm up to 2000' AGL.
- Strict adherence is required on all instrument approaches to minimum descent altitudes due to high terrain.
- The highest peak is 10nm south west of the airfield at 2806' AGL.

Runway Excursion

- Due to high terrain, the instrument approaches have steep approach angles. Care should be taken with aircraft configuration and approach stability requirements.
- Landing distance available is only 850m.

Special Considerations

- Hammerfest is an AFIS position only and will offer an information service only.
- Departure clearance will be a relayed clearance from Norway Control.
- Large bird concentrations may occur during the summer.

Loss of Control

- Severe turbulence may be experienced on all runways when wind exceeds 15 knots.

ARRIVAL

Diversion Airports

ALTA	ATA/ENAT	43 nm/177°T	CAT A
BANAK	BNK/ENNA	45 nm/133°T	CAT A
TROMSO	TRO/ENTC	114 nm/229°T	CAT C
KIRKENES	KIK/ENKR	139 nm/100°T	CAT A

Approach Considerations

LOC / DME - Z (Runway 22)

- A localiser DME approach is available for runway 22.
- The decent angle required is 3.5 degrees.
- The missed approach point is 3 DME north-east of the runway, therefore, consideration of the procedures in the event of a baulked landing is vital.
- Holding is available at the FOR (LCTR). A procedural approach is available from the FOR by extending the outbound leg of the hold to 9 DME (HF).
- Circling is available to the south of the airport only.

LOC / DME - Y (Runway 22) - [COPTERS ONLY]

- N/A

RNAV (GNSS) (Runway 22)

- An RNAV (GNSS) approach is available for runway 22.
- The descent angle required is 3.9 degrees.
- The approach commences at 3000ft.
- IAF depending on approach direction (UNGEP, ADVOR, MAPUB)
- VNAV not authorised below -50°c
- Terrain and obstacles close to the approach path during the final stages of the approach.

LOC / DME - Z (Runway 04)

- A localiser DME approach is available for runway 04.
- The decent angle required is 3.4 degrees.
- Holding is available at the HMF (VOR). A procedural approach is available from the HMF.
- Circling is available to the south of the airport only.

LOC / DME - Y (Runway 04) - [COPTERS ONLY]

- N/A

RNAV (GNSS) (Runway 04)

- An RNAV (GNSS) approach is available for runway 04.
- The descent angle required is 3.9 degrees.
- The approach commences at 3500ft from INTAT.
- IAF depending on approach direction (LEDSU, INSEN, RIGMO)
- VNAV not authorised below -50°c
- Terrain and obstacles close to the missed approach path.

GROUND

- No Stop bars are available
- Limited parking spots
- Small manoeuvring area

DEPARTURE

- Departure clearance will be issued by 'Hafferfest Information' as a relayed clearance from 'Norway Control'.

WEATHER

- Very cold temperatures in the winter months, with snow and low visibility
- Mild climate in Spring, Summer with light winds.

OPERATIONAL INFORMATION

Handling Agent	Widerøe Ground Handling
Handling Agent VHF	131.425
Potable Water	Available

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

Notodden (NTB/ENNO)

Elevation 62ft

CATEGORY C

No AV brief available

GENERAL

- Notodden Airport, Tuven, is a regional airport at Heddal in Notodden. The airport is mostly used for general aviation, and has extensive sailplane activity.

Threats

CFIT

- Terrain raises rapidly to the north of the airfield within 1.5 nm up to 2212' AGL.
- Strict adherence is required on all instrument approaches to minimum descent altitudes due to high terrain.
- The highest peak is 10nm south west of the airfield at 4636' AGL.

Runway Incursion

- A public road crosses the runway. Runway 12 (1120m) is shortened to allow continues use of the road. Prior request is required if full runway length is required. (1751m)
- There are no stop-bars installed at Notodden. Extreme care must be exercised when manoeuvring around apron and runway areas.

Runway Excursion

- Due to high terrain, the instrument approaches have steep approach angles. Care should be taken with aircraft configuration and approach stability requirements.

Special Considerations

- Runway 12, Full length (1751m) is only available during AFIS operating hours and requires prior approval.
- No approach control available. Terrain and traffic separation is at the discretion of the pilot.
- There are no instrument approaches available for runway 30.
- Notodden is an AFIS position only and will offer an information service only.

Loss of Control

- During strong winds conditions, turbulence may be expected on approach to, or climb out from any runway.

ARRIVAL

Diversion Airports

OSLO	OSL/ENGM	68 nm/053°T	CAT A
KRISTIANSAND	KRS/ENCN	89 nm/202°T	CAT A
BERGEN	BGO/ENBR	128 nm/290°T	CAT A
GOTEBORG	GOT/ESGG	150 nm/137°T	CAT A

Approach Considerations

LOC / DME (Runway 12)

- A localiser DME approach is available for runway 12.
- The decent angle required is 4.2 degrees.
- The localiser is offset from the runway by 14 degrees
- The final part of the approach is conducted visually.
- Holding is available at the HE (LCTR). A procedural approach is available from the HE by extending the outbound leg of the hold to 14 DME (NT).
- Minimum holding altitude and platform altitude are both 6000ft due high terrain.

RNAV (GNSS) (Runway 12)

- An RNAV (GNSS) approach is available for runway 12.
- The descent angle required is 4.5 degrees.
- The approach commences at 6000ft from UVTEM.
- IAF depending on approach direction (NO404, NO405, NO406)
- Strict adherence to minimum altitudes are required due to high terrain close to the final approach path.

Circle-to-land (Runway 30)

- Circling is only available to the south west of the aerodrome.
- When approaching runway 12, break right to circle left-downwind, runway 30.

River Visual (Runway 30)

- A prescribed visual approach is available for runway 30.
- Expect vectors to the River at 5000ft
- Report when visual with the river
- When established on the visual approach, expect to be transferred to 'Notodden Information' – 118.800
- There is no published missed approach procedure.
- See below for a pictorial representation: -

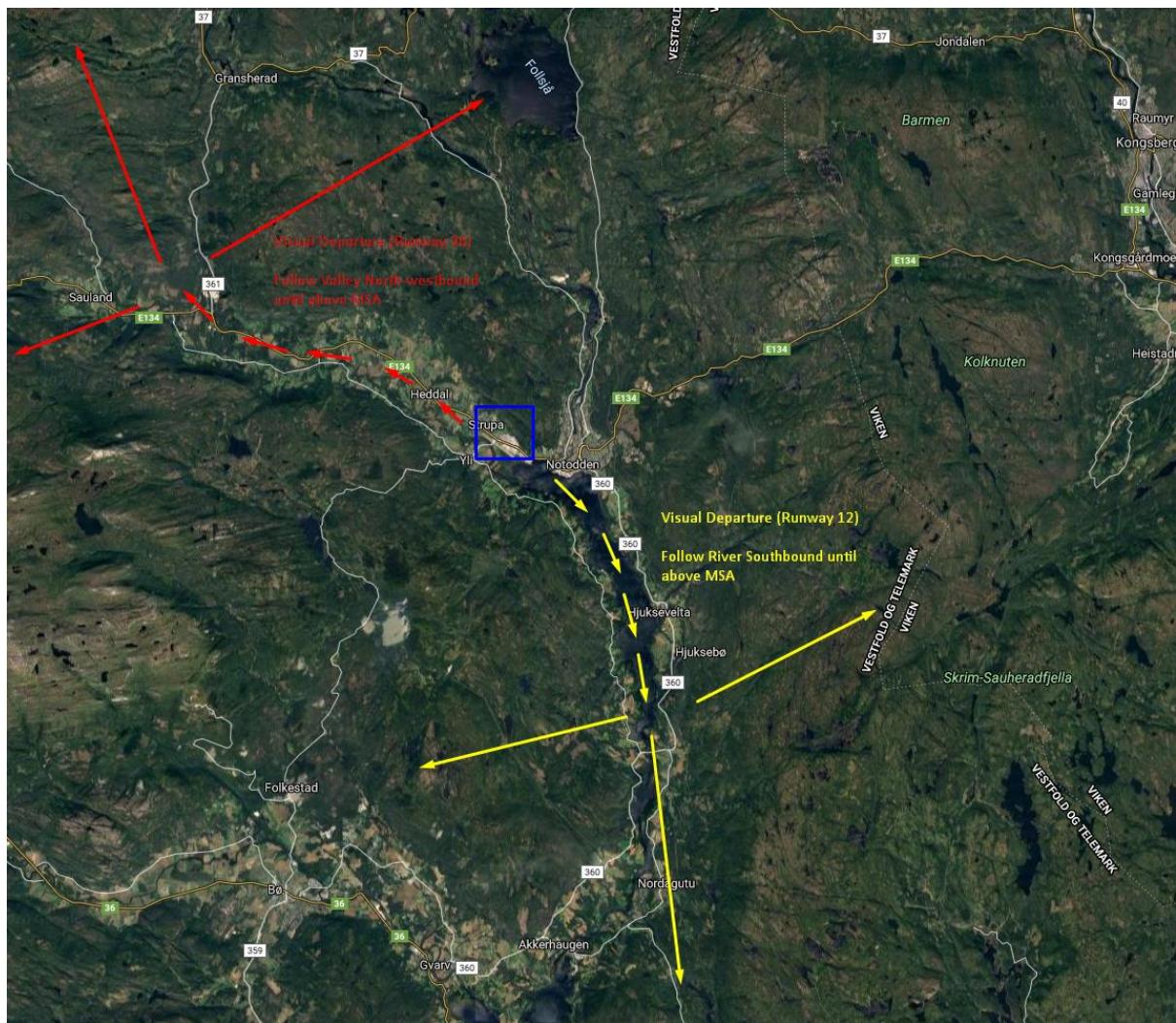


GROUND

- No Stop bars are available
- Limited parking spots
- Small manoeuvring area

DEPARTURE

- Departure clearance will be issued by 'Notodden Information' as a relayed clearance from 'Norway Control'.
- All departures are required to be conducted visually, until above MSA. (See image below)
- No instrument departures are available.



WEATHER

- Very cold temperatures in the winter months, with snow.
- Mild climate in Spring, Summer with light winds.

OPERATIONAL INFORMATION

Handling Agent	Not available
Handling Agent VHF	Not available
Potable Water	Not available

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

SVALBARD (LYR/ENSB)

Elevation 94ft

CATEGORY B

No AV brief available.

GENERAL

- The airport is located 1.6nm north-west of the town of Longyearbyen, on the south side of a large bay, Adventfjorden
- LYR is the northernmost airport in the world with scheduled public flights
- LYR Air Traffic Services consists of a Flight Information Service only. There is no ATC service, and no Radar.

Threat Based Briefing Topics

CFIT

- The airfield is surrounded by high ground on all sides, and in particular to the S and E.
- Terrain rises sharply to the S of the airfield, with the 1,000ft asl contour lying less than 1nm S and spot heights up to 3,458ft asl just 4nm S
- To the NE there are peaks of 3,114ft asl ~4nm NE, 3,150ft asl ~8nm NE and 3,540ft ~9nm NE
- A ridge rises up to 3,750ft asl directly under the final approach to Rwy 28 at ~13nm
- Rwy 28 ILS and RNAV approaches considerably offset to fly down a steep, narrow valley
- LOC and RNAV Rwy 28 have 3.6° vertical profiles and reversal procedures take place over very high ground
- Note Rwy 10 missed approach speed restrictions to ensure terrain clearance

Runway Excursion

- Short landing Rwy 28 due to disparity between PAPIs (3.4°) and RNAV/LOC vertical profile (3.6°)
- Long landing Rwy 28 due to excessive mitigation/flare following steep approach profile

Mid Air Collision

- No Radar available
- Longyear provides a Flight Information Service only. The FISO's instructions are mandatory on the ground, but in the air may be considered advisory only. No ATC separation can be guaranteed and a good lookout is essential
- SID initial climb clearance is to an altitude, but above the TA of 5,000ft. Careful attention to altimeter setting procedures is required

Loss of Control

- Risk of 'black hole illusion' during night approaches
- Risk of turbulence and WINDSHEAR on short final to both runways, as well as severe turbulence below FL100 with wind 160° to 270° above 20kt

ARRIVAL

Approach

- No Radar. Expect a procedural approach.

- Severe turbulence can be expected below FL100 with S/SW'ly winds above 20kt
- If landing 28, the LOC approach provides the lowest minima. However, if the weather allows it may be preferable to fly the RNAV approach which will provide a vertical path
- Both LOC and RNAV Rwy 28 approaches have 3.6° vertical profiles due to terrain. It is recommended that the aircraft is fully configured before reaching the final descent point to prevent an excessive airspeed increase and possible rushed approach.
- Rwy 28: Do not deviate from the final approach track until visual contact has been established and can be maintained
- The Rwy 28 PAPIs are set at 3.4° and therefore will indicate HIGH when the aircraft is on the correct 3.6° LOC/RNAV profile. This will be exacerbated in the B744 due to the high eye-wheel height. **Do not be tempted to dive for the PAPIs once visual.**
- Rwy 10 has a significant (for the LDA) inset threshold
- Both runways suffer from severe turbulence and WINDSHEAR on short final with strong S/SW'ly winds

Missed Approach

- Rwy 10: note speed restrictions on the missed approach in order to maintain terrain clearance

GROUND

- Twy A unsuitable for B744 aircraft
- Very limited parking and ground services available

DEPARTURE

- IRS High Latitude Alignment procedure required. FCOM SP.11.8 refers. Note that the alignment will take a minimum of 17 minutes, so it is recommended that the alignment process is started at the earliest opportunity after the aircraft is shut down to avoid delaying the next departure.
- ATC clearance will be relayed by the Longyear FISO
- TA is 5,000 ft but initial climb on SIDs is to either 5,100 or 5,500ft altitude. Pay careful attention to altimeter settings and climb clearances
- Vessels in the bay crossing the departure area may penetrate the 3.3% SID climb gradient

WEATHER

- Temperatures are generally extremely mild for the latitude as a result of the influence of the warm North Atlantic Current

- However, the archipelago is the meeting place for cold polar air from the north and mild, wet sea air from the south. This can lead to low pressure and rapidly changeable conditions with high wind speeds, especially in winter
- Fog common during summer
- Precipitation frequent but generally falls in small quantities
- Average max/min temperatures -20°C/-9°C (Jan) and 3°C/7°C (Jul)

OPERATIONAL INFORMATION

Handling Agent	Simfest Ground Services
Handling Agent VHF	
Potable Water	Uplift permitted

IF ONLY Electrical Power is required	Use APU (no GPU available)
If BOTH electrical power and air conditioning is required:	Use APU for air conditioning (ACU equipment not available)

TROMSØ/LANGNES (TOS/ENTC)

Elevation 31ft

CATEGORY C

No AV brief available.

GENERAL

- The airport is situated on a small island within a fjord system in the high latitudes of Norway
- Tromsø is the largest town in northern Norway and the third largest north of the Arctic Circle anywhere in the world

Threat Based Briefing Topics

CFIT

- There is high ground in all quadrants, with particularly notable spot heights of 2,600ft asl 4nm NW, 3,450ft asl 7nm NW, 3,250ft asl 12nm NE and 3,800ft asl 12nm E
- Other significant peaks at 4,100ft asl 6nm SE, 4,550ft asl 16nm SE, and 4,350ft asl 15nm SSE
- Further high ground at 3,150ft 10nm SW and 3,450ft 14nm SW
- On the island itself is a N/S ridge, E of and parallel with the runway which reaches nearly 500ft asl within 1nm
- To the W of the runway are masts to nearly 450ft asl within 0.25nm

Runway Excursion

- During spring surface winds often W to NW'ly in excess of 15kt, giving crosswind difficulties

Loss of Control

- Both ILSs have a 4° G/P due to terrain, requiring careful handling to avoid GPWS activation
- Windshear may occur on short final Rwy 01 and Rwy 19 with surface wind from 200° to 270° above 20kt

ARRIVAL
Approach

- Some published non-RNAV STARs require DME arcs to be flown. A STAR clearance also includes a clearance to make an instrument approach.
- Because of the terrain both ILS Rwy 36 and ILS Rwy 18 have 4° G/Ps. Careful handling is required to avoid GPWS activation, and it is recommended to fully configure the aircraft prior to G/P interception in order to prevent excessive airspeed increase during the approach.
- During approach to Rwy 18 a northerly wind may occur N of OM with WINDSHEAR common at OM and a southerly wind from OM to touchdown
- WINDSHEAR may occur on short final to both runways with surface wind from 200° to 270° above 20kt
- Use of PAPIs is limited to a maximum of 10nm from threshold Rwy 36 and no more than 3.8nm from threshold Rwy 18 due to the terrain. Maximum use should be made of the ILS G/P to ensure the correct vertical path is flown.
- Circling is published as east of the aerodrome only. However, LH circling guidance lights provided for both 36 and 18. Thus those for Rwy 36 provide guidance to an aeroplane turning base leg from west of the aerodrome, over water.
- A base leg from the east (RH) for Rwy 36 brings the aeroplane over the N/S parallel ridge described above

DEPARTURE

- Use full take-off and full climb power for all departures

WEATHER

- Surface wind from the SW on 75% of occasions, however during spring surface winds are mainly W to NW'ly and frequently exceed 15kt, giving rise to crosswind difficulties
- Turbulence may be expected during approach, particularly around 5,000ft altitude
- Sudden severe icing conditions possible during the greater part of the year

- Rapid weather changes predominate
- Fog is rare, but showers with low cloudbase are common
- Temperatures are very mild for the latitude due to the warming influence of the Gulf Stream
- Average min/max temperatures -5.5°C/-0.5°C (Jan) 10°C/15°C (Jun)

OPERATIONAL INFORMATION

Handling Agent	Simfest Ground Services
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 APU for air conditioning (ACU equipment not available)

TRONDHEIM (TRD/ENVA)

Elevation 56ft

CATEGORY B

AV brief not required.

GENERAL

- The aerodrome is situated at the end of a Fjord, in the village of Værnes, 10nm east of Trondheim city proper
- Joint civil/military airfield

Threat Based Briefing Topics

CFIT

- The aerodrome is situated at the end of a Fjord with close high ground to the north, west and south
- Spot heights of 1110ft, 885ft, 814ft, 811ft and 670ft within 3nm of the aerodrome
- 4nm to the north spot heights reach 2,008ft

Loss of Control

- Severe turbulence and WINDSHEAR may be experienced on short final to all runways with S/SE'ly winds above 25 kt

Special Considerations

- Rwy 27 stable approach criteria: the final approach passes over undulating ground which will lead to an early 1000R call at approx D4.8 as the aircraft passes over a ridge.

ARRIVAL

Approach

- Aircraft on the STAR may be cleared direct to the merge point from any position.
- ILS Rwy 27 3.4° glidepath
- Circling prohibited north of the airfield
- Circling guidance lights provided for runway 27
- ILS 27 GS not to be used outside 5° either side of localiser course

GROUND

- B744 aircraft idle power only on outboard engines to avoid FOD ingestion
- Twy Y not suitable for B744 operations between A4 and A5

DEPARTURE

- Where there are multiple SIDs to the same end point, jet aircraft can expect to be assigned the SID with the longest track mileage
- Direct routing usually available once above 2,500ft amsl
- Strong winds from NE through N to S may cause local moderate turbulence at lower altitudes

WEATHER

- Moderate snowfall Nov-Mar
- Spring often sees plenty of sunshine but with chilly nights
- Average min/max temperatures 11°C/19°C (July), -4°C/2°C (December)
- Prevailing wind in November is easterly
- Turbulence and WINDSHEAR may occur on short final to all runways with wind SE to S above 25kt.

OPERATIONAL INFORMATION

Handling Agent	Simfest Ground Services
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 APU for air conditioning (ACU equipment not available)

KIRUNA (KRN/ESNQ)

Elevation 1,509ft

CATEGORY A

AV brief not available

GENERAL

- Airfield located 3NM SE of Kiruna, the most northerly town in Sweden and 90 miles south of the Arctic Circle
- KRN is the most northerly airport in Sweden
- The town centre is currently being moved some miles to the east as the current location suffers from subsidence as a result of the iron ore mine beneath it. The process is expected to last until at least the year 2100
- Kiruna is also home to the Jukkasjärvi Icehotel, constructed each year from snow and ice

Threats

CFIT

- Terrain rises sharply to the W with spot heights of 3,172ft asl 15NM SW and 4,271ft asl 31NM WNW
- Kebnekaise rises to 6,882ft asl 40NM west of the airfield and is the highest point in Sweden

Runway Incursion

- Backtrack required for arrival and departure both Rwy's

Runway Excursion

- Use braking action reports with caution as measurements, while accurate, may not reflect the full width of the runway/taxiway
- Taxi with caution, especially when using the turning pads at the end of Rwy 03/21 as the surface is liable to be slippery

Mid Air Collision

- There is no RADAR – procedural control only

ARRIVAL

Diversion Airports

ROVANIEMI	RVN/EFRO	172 nm/118°T	CAT A
KITTIILA	KTT/EFKT	119 nm/092°T	CAT B
OULU	OUL/EFOU	244 nm/143°T	CAT A
IVALO	IVL/EFIV	190 nm/070°T	CAT B
HELSINKI	HEL/EFHK	538 nm/163°T	CAT A
STOCKHOLM/ARLANDA	ARN/ESSA	571 nm/189°T	CAT A

Approach

- Rwy 21 Cat 1 only.
- Rwy 03 has an RNAV approach which is approved for Simfest use.
- Note temperature limits for use of VNAV on the Rwy 03 RNAV
- Only one aircraft at a time is permitted on the movement area in LVPs. This may result in long delays when visibility is poor.

ILS Rwy 21

- Glideslope fluctuations have been reported during winter as a result of snow
- Note that use of the FD is required for normal Cat 1 minima of 550m RVR. Minimum RVR for FD OFF 750m
- There is no approach control radar and so one can expect to fly the full procedure

GROUND

- Only one aircraft is permitted on the movement area at a time during LVPs – this may result in long delays in poor visibility conditions
- Very limited apron space
- Backtrack will be required for both departure and arrival

WEATHER

- Kiruna has a subarctic climate with short, cool summers and long, cold winters
- Snow cover generally late September to the middle of May, though snowfall can occur year round
- The sun does not set between 28 May and 16 July. Between 11 December and 1 January, the sun does not rise.
- Average daily min/max temperatures -18°C/-9°C (Jan), +9°C/+19°C (Jul)

OPERATIONAL INFORMATION

Handling Agent	SAS Ground Handling Sweden
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 APU (no ACU available). Keep ground power connected to reduce APU fuel burn.

STOCKHOLM/ARLANDA (ARN/ESSA)

Elevation 137ft

CATEGORY A

No AV brief available.

ARRIVAL

Diversion Airports

HELSINKI	HEL/EFHK	216 nm/079°T	CAT A
OSLO	OSL/ENGM	209 nm/279°T	CAT A
COPENHAGEN	CPH/EKCH	296 nm/214°T	CAT A
GOTEBORG	GOT/ESGG	213 nm/235°T	CAT A

Others which may be used include Stockholm/Skavsta, Jonkoping and Hamburg.

GROUND

A380

- Runway 01L/19R is approved for A380 arrivals and departures.
- Taxiway Y1, Y2, Y3, Y9 and Y10 are approved to exit/enter runway 01L/19R.
- Rwy 26 can be used for landing only and only exit X2 is approved.
- Taxiway Y, PA and X between Y-ZQ will be used for taxiing and all taxiing will be marshaled.
- Judgemental oversteer shall be used at Y1, Y10, Y-PA-X and X2.
- Idle thrust should be used on outer engines when taxiing.
- A380 parking will be at stand F36 on Pier F.

OPERATIONAL INFORMATION

Handling Agent	Menzies
Handling Agent VHF	131.45
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

Umeå (UME/ESNU)

Elevation 25ft

CATEGORY A

No AV brief available

GENERAL

- Umeå Airport is located on the southern outskirts of the city of Umeå, Sweden. As of 2019, it is the 7th largest airport in Sweden

ARRIVAL

Diversion Airports

SKELLEFTEA	SKA/ESNS	54 nm/014°T	CAT A
VAASA	VAS/EFVA	60 nm/130°T	CAT A
OSTERSUND	OSS/ESNZ	160 nm/252°T	CAT A
STOCKHOLM	ARN/ESSA	258 nm/188°T	CAT A

GROUND

- Apron and Terminal areas are uncontrolled
- IFR departure clearance should not be requested greater than 30 minutes prior to departure

WEATHER

- Very cold temperatures in the winter months, with snow.
- Mild climate in Spring, Summer with light winds.

OPERATIONAL INFORMATION

Handling Agent	Swedavia Handling
Handling Agent VHF	Not available
Potable Water	Available

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

CAPE TOWN (CPT/FACT)

Elevation 151ft

CATEGORY A

AV brief not required.

GENERAL

- Situated approx. 10nm SE of the city.

Threat Based Briefing Topics

CFIT

- Terrain 8nm to the W and SW to a peak of 3600ft ask is Table Mountain
- Terrain 9nm to the N to 1700ft is the Tygerberg Nature Reserve
- Terrain 16nm to the E to 5200ft asl in the Stellenbosch region
- Rwy 19 – high ground and obstructions exist along the eastern boundary of the final approach
- Rwy 19 approach: caution when intercepting the glideslope from above with a high rate of descent due to terrain immediately to the East of the approach.

ARRIVAL

Diversion Airports

JOHANNESBURG	JNB/FAOR	687 nm/049°T	CAT B
DURBAN King Shaka Intl	DUR/FALE	673 nm/072°T	CAT A
GABARONNE	GBE/FBSK	683 nm/036°T	CAT A
BLOEMFONTEIN	BFN/FABL	491 nm/055°T	CAT A

For consideration in critical circumstances, GEORGE GJR/FAGG is located 188nm/090°T from FACT (LDA 2000m, PCN 49/F/B/Y/U, RFF 7).

Approach

- Circling is not permitted between 010°M to 160°M
- Rwy 19 PAPI must not be used beyond 5nm from the threshold

GROUND

- Taxiway C has a width of 21m and is therefore unsuitable for B747-400 aircraft
- Crews are advised to vacate at the end if possible when using Rwy 19.

DEPARTURE

- Aircraft are not to request pushback until tug is connected.

- Taxiways D3 and D4 are restricted to light/medium aircraft only
- Rwy 16/34 can be used as a taxiway
- Exercise caution whilst on Twy A1 due to fence at Air Chefs
- Do not confuse threshold Rwy 16 for threshold Rwy 19 when taxiing on A1 for takeoff on Rwy 19.
- Do not fly N of VOR CTV 140R below FL85
- Rwy 01/19 Emergency Turn, All Engines procedures and Noise Abatement procedures in CARD
- Rwy 01 departures should avoid overflying Tygerburg Hospital (3nm N of FACT).

WEATHER

In Summer (Oct to Mar)

- Generally fair with fresh S'ly winds
- A thundery spell occurs in late summer
- Occasional early morning fog a possibility

In Winter (May to Aug)

- Winds mainly NW'ly
- Low cloud and rain with passing fronts
- Fog forming during the night may persist until as late as midday.

OPERATIONAL INFORMATION

Handling Agent	Menzies
Handling Agent VHF	129.975
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 APU (ACU not available). Keep ground power connected when available to reduce APU fuel burn.

DURBAN (DUR/FALE)

Elevation 304ft

CATEGORY A

No AV brief required.

GENERAL

- Durban is the primary alternate for JNB. Opened in 2010 DUR is a very well equipped, Code F capable airfield.

ARRIVAL

Diversion Airports

JOHANNESBURG	JNB/FAOR	260 nm/323°T	CAT B
HARARE	HRE/FVHA	703 nm/359°T	CAT A

GROUND

- Note that the taxiways have very large fillets in the turns and the yellow taxiway centreline is already offset toward the outside of the turn. For this reason the nosewheel will not have to be placed as far beyond the taxiway centreline as at LHR, for example

Parking

- Expect to park on stand C5 or C2 in the Charlie Apron
- The Delta Apron may also be available for taxi-in, taxi-out parking however it is occasionally occupied by cargo aircraft

OPERATIONAL INFORMATION

Handling Agent	Menzies
Handling Agent VHF	131.0
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 APU (ACU not available). Keep ground power connected when available to reduce APU fuel burn.

JOHANNESBURG (JNB/FAOR)

Elevation 5,558ft

CATEGORY B

No AV brief required.

GENERAL

Threat Based Briefing Topics

- See section on ['Hot and High' Operations](#) for information on operations to High Density Altitude airfields.

Special Considerations

- During periods of Cb activity, most likely to occur in the South African summer afternoons and evenings (Nov-Mar), it is possible to get the wind blowing in opposite directions and either end of the runway. The predominant drift of Cb activity is from SW to NE, and as the Cbs approach the airfield and move across the runway the wind at surface level will change direction. The prevailing surface wind in the summer evenings is from the NE, but can change rapidly and in a localised manner to the SW. ATC also have instantaneous read-outs of W/V for the thresholds of 03R, 21L and 21R, together with Rwy centre position winds and gust factors. However, this information would appear not to be volunteered to crews, it needs to be specifically requested.
- As mentioned in the previous paragraph, the prevailing surface wind direction in South African summer afternoons and evenings is from the NE. However, the wind direction commonly undergoes a 180° reversal between 1000ft and 2000ft aal. This is particularly marked during periods of Cb activity, but also commonly occurs at other times. This will result in an aircraft taking off in a headwind, encountering a tailwind just after takeoff. The 1500ft wind may be requested from the Met Office/Activesky or ATC (though VATSIM ATC are unlikely to have this info).
- In the early morning during the South African winter months, there is a marked temperature inversion. This affects all South African airports, but is particularly noticeable at Johannesburg. Prevailing wind NW'ly. Extremes of temperature range from Nov 34°C to Jun -7°C.

ARRIVAL

Diversion Airports

DURBAN (King Shaka Intl)	DUR/FALE	272 nm/148°T	CAT A
CAPE TOWN	CPT/FACT	688 nm/227°T	CAT A
GABARONNE	GBE/FBSK	158 nm/307°T	CAT A
BLOEMFONTEIN	BFN/FABL	206 nm/210°T	CAT A

Approach

- ILS Cat 2 Rwy 03R and 21L: caution radio altimeter on Rwy 03R and Rwy 21L will ramp down approximately 50ft just prior to Cat 2 DH, reducing the time between 50 above call and DH
- Crew report experiencing scalloping of Rwy 03L GP

- In order to maintain the glideslope on short finals, the rate of descent may be slightly higher than normal due to a high TAS. This may need to be allowed for in your landing technique
- Rwy 03R will be usual landing runway
- Ensure ATC are informed whether you are vacating 03R at RS or full length

GROUND

- Caution is advised when following EOT procedures on taxi-in. If necessary, restart engines to avoid high power settings and blast damage.

CAUTION: *Gate numbers inside the terminal do not relate to the stand numbers used by ATC as per Jepp 10-9*

- Parking normally on Apron E. BAW47C parks on Taxiway Mike, just south of intersection with Taxiway Bravo.
- This is uphill from Taxiway A on to D with a significant gradient and due to jet blast in a tight apron **it is not appropriate to shut down engines during taxi-in**
- Take care during the final turn on to stand (uphill then downhill) and caution applying excessive thrust as this can cause blast damage to the remotely parked aircraft, equipment and personnel behind

DEPARTURE

- The intersection of Taxiway Delta with Taxiway Alpha can be poorly lit at night with reports that only the taxiway centreline lights may be illuminated
- On taxi out there is a downhill gradient and care must be taken when negotiating the turn on to Taxiway Alpha
- A risk of taxiway excursion exists
- As noted on the Jepp 10-9, there are numerous hotspots including the junction of Taxiway Bravo with Taxiway Mike, which can be poorly lit. Taxiway Bravo bends to the east whilst Taxiway Mike continues straight ahead.
- The first cleared level is a Flight Level and usually FL090 which is only 3500ft above the airfield, so a prompt setting of STD is required once past Aa.
- A lot happens at this point of the departure including an automatic frequency change, altimeter setting change, flap movement and level off.
- The handoff to Johannesburg Radar is normally ‘silent’ and occurs passing 6500ft – i.e. there will be no frequency change instruction from Tower, crews are expected to change frequency and call Johannesburg Radar automatically when passing 6500ft.

WEATHER

- Shoulder seasons can include morning fog in JNB. The airfield is CAT II and can operate to CAT II minima even though the runways are E only.
- Predominant wind direction in November overwhelmingly northwesterly.

OPERATIONAL INFORMATION

Handling Agent	Menzies
Handling Agent VHF	129.975
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 APU (ACU not available). Keep ground power connected when available to reduce APU fuel burn.

MAURITIUS (MRU/FIMP)

Elevation 183ft

CATEGORY B

No AV brief required.

GENERAL

- Mauritius is a mountainous island with the airport located on a small plain in the SE corner.
- No radar available

Threat Based Briefing Topics

CFIT

- High ground mainly to the N and NW with the highest peak 2,717ft asl 12 nm W of the airfield.
- NW the terrain rises in a continuous 1:30 slope towards the high ground
- High ground immediately to the N which reaches 1,200ft asl within 2.5 nm

Runway Excursion – Stable Approach

- Rwy 14 stable criteria – early 1000 auto callout due rising terrain. Callout occurs at 1800ft QNH (4.7d IPL). Refer to the approach guidance below.

Runway Excursion - 180° Turns

- To assist 180° turns on rwy at Turning Pad 1 and 2, a guidance system is provided – see Jepps
- Use published SOPs for turns on turning pad 2

ARRIVAL

Diversion Airports

LA REUNION	RUN/FMEE	125 nm/257°T	CAT B
SEYCHELLES	SEZ/FSIA	957 nm/352°T	CAT B
DAR ES SALAAM	DAR/HTDA	1351 nm/307°T	CAT A

Others that can be used include Nairobi and Mombasa

- Landing and takeoff normally Rwy 14 due prevailing easterly trade wind
- Large westerly variation

Approach

- Expect clearance “direct to FF descend to 4000ft” rather than the GBY arrival
- Rwy 14 Approaches: although the RNAV(GNSS) approach provides a constant 3.5° vertical path for reduced workload, the ILS approach provides a lower decision altitude for use in the event of low cloud or restricted visibility which is not uncommon.

- The ILS approach to Rwy 14 has an unusual vertical profile and steep G/S of 3.5°; review the guidance below when briefing for the ILS approach:

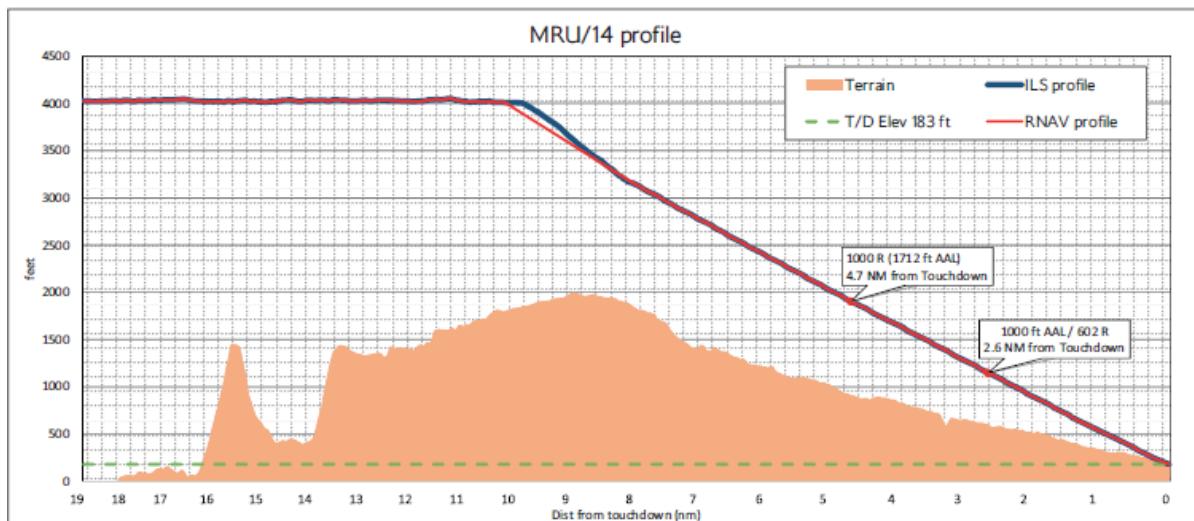
- It is strongly recommended that the aircraft is fully established in the landing configuration prior to the 10d IPL descent point for energy management during the steep approach and to reduce the CFIT risk
- Descent below 4000ft is not permitted before 10d IPL in order to ensure separation from the high terrain underlying the approach path just before 10d IPL
- Between 10d IPL and 8d IPL is the intermediate approach and has a 3.8° profile

CAUTION: Do not use ILS G/S until 8d IPL to ensure terrain clearance

- At the 10d IPL descent point commence descent with an appropriate rate of descent such that the 3.5° ILS G/S can be intercepted and captured from above not before 8d IPL

CAUTION: Do NOT descend below 3200ft before 8d IPL

- Depicted below are the Rwy 14 RNAV and ILS vertical profiles, as well as the underlying terrain which generates the unexpected rad alt values and the position of the 1000ft auto callout when on profile. Ensure the vertical profile is accurately followed.



- Circling approaches to Rwy 14 are flown RH inside the high ground.

GROUND

- Refer to the Runway Excursion section for details regarding 180° turns on turning pads

DEPARTURE

- Emergency Turn Procedures in CARD
- Do not enter Rwy 14 for backtrack until the Final Loadsheet has been received.

WEATHER

- A tropical depression within 150 nm of both Mauritius and St Denis Gillot could give bad weather conditions at both airfields simultaneously
- Prevailing wind easterly
- Apr to Aug – referred to locally as winter with strong E-SE winds. Cb develop inland by day.
- Visibility reduced by smoke from fires during sugar cane cutting
- Sep to Nov – occasional showers. Weak fronts giving low cloud and drizzle.
- Dec to Apr – Monsoon rains. Heavy showers and thunderstorms.
- Cyclones very occasionally from Jan to Feb.

OPERATIONAL INFORMATION

Handling Agent	Ground 2 Air
Handling Agent VHF	131.7
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

DIEGO GARCIA (FJDG)

Elevation 14ft

CATEGORY B

No AV brief required.

GENERAL

- The airfield is located on the western arm of a coral atoll in the mid-Indian Ocean.
- Diego Garcia is the largest landmass in the Chagos Archipelago and the largest continuous dryland rim of all atolls in the world

ARRIVAL

Threat Based Briefing Topics

CFIT

- Terrain is not a consideration however there are obstacles up to 254ft in the immediate vicinity of the Rwy 13 final approach path

Runway Excursion

- Slightly steeper (3.4°) RNAV approach to Rwy 13
- 61m wide runway with risk of visual illusions

Mid Air Collision

- Rwy 13 approaches established outside of controlled airspace

Approach

- No STARs published. The ILS for Rwy 31 requires bearing information from the NKW TACAN which is not available to civilian aircraft. As such expect RNAV approaches.
- NKW TACAN will provide DME information only
- ATC at Diego Garcia is provided by the US military. Expect FAA phraseology and procedures. US TERPS minima in use, weather minima given in feet/statute miles rather than metres

WEATHER

- Temperatures are generally uniform throughout the year at around 30°C.
- An almost constant breeze keeps conditions comfortable. Winds Oct-Nov are generally light and variable, veering to a westerly direction with the onset of summer in Dec
- Thunderstorm activity generally noticed during the afternoon and evening during summer months and when the ITCZ is in the vicinity of the island.

OPERATIONAL INFORMATION

Handling Agent	Simfest Ground Services
Handling Agent VHF	
Potable Water	Not available

IF ONLY Electrical Power is required	Use APU
If BOTH electrical power and air conditioning is required:	Use APU

DZAOUUDZI (DZA/FMCZ)

Elevation 23ft

CATEGORY B

No AV brief required.

GENERAL

- DZA is located on the southern tip of the island of Petite-Terre. The main island of Mayotte, Grande-Terre, is across the water to the west.
- Although seemingly very small, the airport has regular B777 services and it is the only airport in Mayotte with scheduled services

ARRIVAL

Threat Based Briefing Topics

CFIT

- Hill elevation ~430ft asl 300m E of Rwy 16 extended centreline, 0.8nm from threshold not shown on Jeppesen charts
- Other significant high points include 673ft asl 1nm E of the airfield
- High ground to the W on the main island with spot heights up to 2,165ft asl

Runway Excursion

- Rwy 16 displaced threshold – LDA 1680m. Check performance-limited MLW before dispatch and with actual expected landing weight in-flight
- Either runway may be very limiting when not dry

Approach

- VOR approaches not available to Cat D aircraft
- Expect vectoring to RNAV approach
- Rwy 14 approaches: do not fly east of extended centreline due to CFIT risk.
- Rwy 32 missed approach: avoid flying east of published track due to CFIT risk

GROUND

- Parking on A or B ramps
- Expect taxiway G for departure during WF

WEATHER

- Risk of heavy rain, Cb build-ups and occasional cyclones during NE monsoon (Nov-May)
- Prevailing north-easterly wind in November but southerly winds still possible early on

OPERATIONAL INFORMATION

Handling Agent	Simfest Ground Services
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 APU (ACU not available). Keep ground power connected when available to reduce APU fuel burn.

LUANDA (LAD/FNLU)

Elevation 238ft

CATEGORY B

AV brief not required.

GENERAL

- Rwy 07/25 is NOT APPROVED for Simfest take-off or landing due to ground manoeuvring restrictions and absence of instrument procedures
- Airport on the southern outskirts of the city
- Luanda is a busy airport with many military and cargo movements
- Locals sometimes wander across the runways
- No Radar available

Threats

CFIT

- No significant terrain. A mast to 635ft amsl is 1 nm NW of the approach path to Rwy 23 approximately 3 nm from touchdown.

Runway Excursion

- A number of runway edge lights are reported to be u/s or covered by vegetation
- Rubber deposits exist throughout the runway and particularly around the TDZ. This has the effect of reducing braking action when the surface is wet and making the TDZ markings difficult to see. Consider how the latest point of touchdown will be assessed.
- The PAPIs are unreliable and RNAV and VOR approach glidepaths are set at varying angles. In warmer than ISA temperatures RNAV/VOR FMS-generated glidepaths will look steeper than usual with the risk of a deep landing.

Runway Incursion

- Caution required crossing Rwy 07/25. Ensure ATC clearance has been received. There are no taxiway boards or signs and hold lines may be faint and easy to miss.

Ground Collision

- Very busy and short taxi departing 23
- Minimal wingtip clearance
- ATC issue airway and lineup clearances whilst controlling other aircraft on final

Mid Air Collision

- Russian-built aircraft may be operating without transponders. Maintain a good lookout and careful monitoring of R/T.
- Departures from Rwy 05 may be authorised with aircraft on approach to Rwy 23
- No radar

ARRIVAL
Diversion Airports

WINDHOEK	WDH/FYWH	853 nm/163°T	CAT B
LIBREVILLE	LBV/FOOL	603 nm/337°T	CAT A
LAGOS	LOS/DNMM	1100 nm/327°T	CAT B
ABUJA	ABV/DNAA	1130 nm/341°T	CAT B
ACCRA	ACC/DGAA	1180 nm/317°T	CAT A
JOHANNESBURG	JNB/FAOR	1380 nm/140°T	CAT A

Approach

- Preferred runway is 23 with an ILS approach. Operators have reported frequent failures of navaids.
- Simultaneous approaches to Rwy 23 and 25 are used
- ATC may require a specific approach procedure to be flown which may be different to the one briefed – be aware of possible last minute changes
- A significant number of approach and threshold lights are reported to be u/s.

GROUND

- Runway markings at the threshold end of Rwy 23 are faded to the point of being almost invisible
- Rwy 07/25 is usable as a taxiway between Twy E and B, as well as when crossing at Twy B
- Approved taxiways are:
 - Twy B between the Apron and Rwy 23 threshold
 - Twy E between Rwy 07/25 and Rwy 05/23
- Twy A, C and E NOT approved for Simfest use
- Two turning loops are provided on Rwy 23, the first halfway down and the second at the far end.
- The turning loop halfway down Rwy 23 is large enough for a B777 to vacate and be clear of the runway
- Keep a sharp lookout before entering or crossing Rwy 07/25. Ensure ATC clearance to cross Rwy 07/25 has been received.
- Entry and exit of the apron MUST be via Twy B
- The apron area is very tight for widebody aircraft. Do not taxi behind a parked B777-300ER or A340-600 due insufficient wingtip clearance.
- Local procedures are in place to allocate parking in sequence of arrival to avoid these circumstances:
 - Entry/exit to the International apron must be made via Twy B only. Use of Twy A, Twy C or Twy D is NOT approved.

- Follow the taxiway centreline exactly
- Monitor the company frequency during taxi. Contact ground staff if required to confirm wingtip clearance.
- Aircraft must stop on the taxiway abeam of the allocated stand and await marshaller to take up position before proceeding.
- Once stopped on stand and before shutdown, flight crew MUST contact Simfest ground staff to confirm that the aircraft is parked correctly.
- If the aircraft has overshot the correct parking position then the aircraft WILL be required to taxi around and park again as pushback is not available.
- On departure exercise caution to ensure wingtip clearance from aircraft on adjacent stands and in front of hangars. Aircraft must remain on taxiway centreline. Parked aircraft may infringe taxiway limit line. If in doubt contact Simfest staff to confirm wingtip clearance.
- Taxi from apron to Rwy 05/23 must be via Twy B.
- These procedures have been developed in close liaison with the airfield authorities and local station staff to mitigate the threats associated with inadequate marshalling (despite additional training) and reduced wingtip clearances.
- There may be oil patches on the apron which may also be liable to ponding during heavy rain.

DEPARTURE

- Increased power settings may be required to move aircraft from the parked position due to depressions in the apron surface – caution jet blast
- Exercise caution when taxiing for departure
- The departure clearance can be quite complicated. From Rwy 23 expect an intercept of radial 225 to 8DME then a right turn back to intercept the 349 radial to AVUTA.

WEATHER

- Early morning fog is a possibility from Jun to Aug and again during Nov/Dec
- Surface wind mainly southwesterly
- Occasional rising sand throughout the year.

OPERATIONAL INFORMATION

Handling Agent	Astra Aviation Services Ltd
Handling Agent VHF	131.375
Potable Water	Uplift not 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

LUBANGO (SDD/FNUB)

Elevation 5772ft

CATEGORY C

AV Brief not required

GENERAL

- The airfield is located on the eastern outskirts of the city
- Very limited information published in Jepps

Threat Based Briefing Topics

Refer to the ['Hot and High' Operations](#) section for information on operations to High Density Altitude Airfields

CFIT

- Lubango is one of the highest places in Angola and terrain rises sharply to the W, N and S of the airfield
- Significant peaks include ~7,710ft asl 10nm W and a ~7,300ft asl peak almost exactly under the Rwy 10 final approach path at 8 nm
- A ridge and plateau rises to ~6,900ft asl 4nm SW of the airfield
- A ridge ~6,300ft asl rises 12 nm SE of the airfield
- Rwy 28 night approaches carry risk of 'black hole' illusion due to featureless terrain under the approach and the lights of the city, which lies on upsloping terrain on the far side of the airfield.
- Rwy 28 RNAV approach terminates at missed approach point 0.8nm prior to the runway threshold

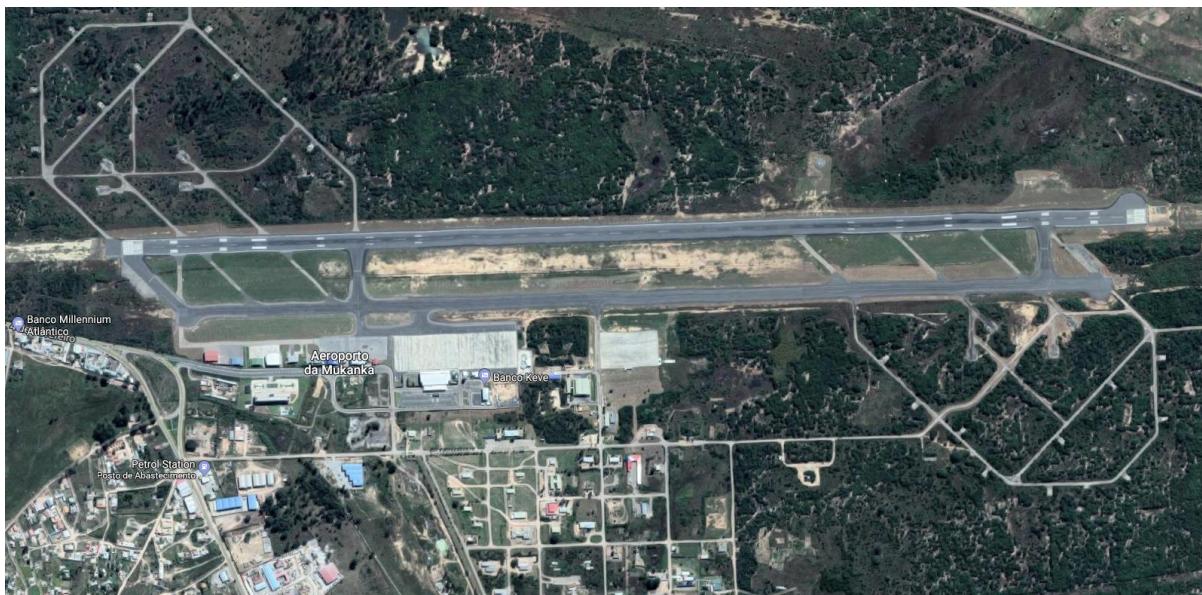
APPROACH

- RNAV 28 is the only published instrument approach
- Circling prohibited south of airport
- RNAV Approach Rwy 28: slightly shallower than normal glidepath of 2.87°, though due to the high density altitude this will tend to result in roughly similar rates of descent to a 3° GP at sea level. Note that the approach as coded in the FMS does not terminate at the Rwy 28 threshold, but at the missed approach point, MR28, which is located 0.8nm prior to the threshold.
- The RNAV approach has an unusually high minimum temperature of +15°C associated with it. If reported temperature on the airfield is below +15°C, which is possible at night, use of VNAV is prohibited and the approach must be flown using V/S and LNAV.
- Consider options for flying the missed approach in the event of a navigation accuracy downgrade. Navaids available include the VUB VOR/DME, frequency 112.3 situated 080°/1.0nm from the airfield, as well as the UB NDB, frequency 335 situated 088°/1.3nm from the airfield

- Officially the airfield is closed during hours of darkness, though World Flight have obtained a special exemption. However, runway lighting is poor with runway edge lighting only and no centreline lighting.
- A risk of ‘black hole illusion’ exists on night approaches to Rwy 28 due to the dark, featureless terrain under the approach, poor quality airfield lighting and the location of the city on upsloping terrain immediately beyond the airfield.
 - Make maximum use of all available glidepath aids, including the RNAV vertical path and PAPI lights.
 - Although the RNAV approach does **not** terminate in a “RWXX” threshold waypoint, entering “FNUB28” in the FIX page will provide distance to threshold and this should be monitored and used for height vs distance checks on the approach, provided FMS navigation accuracy has been confirmed to be acceptable.
- Night circling approaches to Rwy 10 are prohibited

GROUND

- Very limited info on Jepp 10-9, but the exits and terminal area are located to the south of Rwy 10/28



- Rwy 28 full length only available via backtrack, but may not be necessary at typical Worldflight weights

WEATHER

- Generally hot and humid during the day, but cool to cold at night
- Temperature extremes range from 34°C in October to -1°C in June with Sept and Oct the warmest months
- Rain very rare Jun-Aug but very wet Dec-Mar

OPERATIONAL INFORMATION

Handling Agent	Best Fly Flight Support
Handling Agent VHF	130.3
Potable Water	Not permitted

IF ONLY Electrical Power is required	Use APU – do NOT use any ground service
If BOTH electrical power and air conditioning is required:	Use APU - do NOT use any ground service

LIBREVILLE (LBV/FOOL)

Elevation 38ft

CATEGORY A

AV Brief not required.

GENERAL

- Libreville Leon M'ba International Airport is situated on the coast of Gabon
- Joint civil/military airfield, with military aprons either side of the civil apron
- No significant terrain in the vicinity

GROUND

- Turns to be completed at the runway ends only
- Use only Twys 1, 2 or 3

WEATHER

- There is little seasonal variation in temperature, with averages between 23°C and 31°C and high humidity
- There is a dry season from May to September, with thunderstorms common at other times of the year
- The long rains are from February to April, the short rains from October to November

OPERATIONAL INFORMATION

Handling Agent	Simfest Ground Services
Handling Agent VHF	
Potable Water	Not assessed

IF ONLY Electrical Power is required	Use APU – do NOT use any ground service
If BOTH electrical power and air conditioning is required:	Use APU - do NOT use any ground service

AGADIR (AGA/GMAD)

Elevation 253ft

CATEGORY A

AV brief not required.

GENERAL

- AGA is located at the mouth of a wide valley, surrounded by the Atlas mountains to the north, east and south.
- The airfield is located 11 nm southeast of the city itself, just south of the Sous river.

Threat Based Briefing Topics

CFIT

- The Atlas mountains rise N, S and E of the airfield with MSAs of 14,500ft within 45nm

ARRIVAL

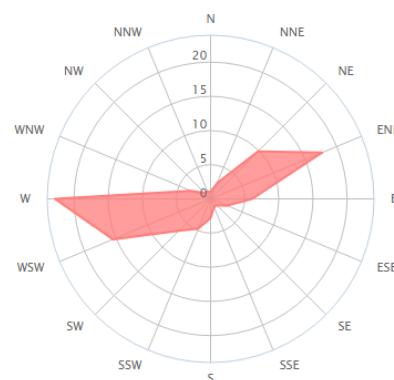
- Arrivals from the south can expect an ARSOL STAR, with radar vectoring to final approach
- The daytime sea breeze will usually favour a Rwy 27 arrival

GROUND

- Parking on the main apron is nose-out. Note the stand entry instructions published on the Jepp 10-9

WEATHER

- Summers are warm and winters mild, with daytime temperatures rarely dropping below 20°C
- Rainfall is typically confined to the winter months and is heavily influenced by the North Atlantic Oscillation, with negative NAO indices producing wet winters and positive indices correlating with drought.
- CHERGUI winds from the Sahara may exceptionally bring temperatures in excess of 40°C



OPERATIONAL INFORMATION

Handling Agent	Simfest Ground Services
Handling Agent VHF	
Potable Water	Not permitted

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

DAKAR (DSS/GOBD)

Elevation 290ft

CATEGORY A

No AV brief required.

GENERAL

- The airfield is located 23 nm east of the city
- DSS is a modern, A380-capable airport opened in late 2017.

ARRIVAL

- Prevailing wind usually favours northerly landings
- Rwy 19 non-precision approaches only

GROUND

- Ample parking available on Apron N and Apron G

DEPARTURE

- No CARD performance data available; use VDC and paper tables provided overleaf

* GOBD 01 * FLAPS 20 * D-TO * BLAISE DIAGNE INTL *

: ELEVATION = 272 (FT) : B747-400/RB211-524H :
: SLOPE = -0.20 (%) : DATED 21 AUG 2018 16:20 UTC : ALL WEIGHTS IN :
: T.O.R.A. = 3500 (M) : : KILOGRAMS (KG) :
: T.O.D.A. = 3500 (M) : AIR COND ON :
: A.S.D.A. = 3500 (M) : ANTI ICE ON OR OFF : NOT FOR :
: LENGTH = 3500 (M) : RUNWAY COND 13MM WATER : OPERATIONAL USE :
: WIDTH = 60 (M) : QNH 1013.25 HPA :
:-----:
: TEMP : WIND COMP :
: °C : -15 KTS : +0 KTS : +10 KTS : +20 KTS : +30 KTS :
:-----:
: -10 : NOT AUTH : 385670 FIELD : 424237 FIELD : 430000 BRAKES: 430000 BRAKES:
: : : 130 166 179 : 136 169 180 : 138 169 180 : 138 169 180 :
:-----:
: +0 : NOT AUTH : 362327 FIELD : 369848 FIELD : 377368 FIELD : 377368 FIELD :
: : : 125 159 174 : 128 161 175 : 132 164 177 : 132 164 177 :
:-----:
: +10 : NOT AUTH : 362700 FIELD : 371261 FIELD : 379822 FIELD : 379822 FIELD :
: : : 125 159 174 : 129 162 176 : 133 164 177 : 133 164 177 :
:-----:
: +20 : NOT AUTH : 359055 FIELD : 368657 FIELD : 378259 FIELD : 378259 FIELD :
: : : 125 158 173 : 128 161 175 : 132 164 177 : 132 164 177 :
:-----:
: +30 : NOT AUTH : 355246 FIELD : 365589 FIELD : 375915 FIELD : 375915 FIELD :
: : : 125 157 172 : 128 160 175 : 133 163 177 : 133 163 177 :
:-----:
: +40 : NOT AUTH : 327319 FIELD : 335181 FIELD : 342722 FIELD : 342722 FIELD :
: : : 121 150 165 : 122 153 167 : 126 155 169 : 126 155 169 :
:-----:
: +50 : NOT AUTH : 303706 FIELD : 310005 FIELD : 316303 FIELD : 316303 FIELD :
: : : 115 146 159 : 117 148 161 : 121 150 162 : 121 150 162 :
:-----:
: +60* : NOT AUTH :
: : : : : : :
:-----:
: +70* : NOT AUTH :
: : : : : : :
:-----:
: +72* : NOT AUTH :
: : : : : : :
:-----:
: +74* : NOT AUTH :
: : : : : : :
:-----:
: * = EXCEEDS RWY ENV TEMP LIMIT : RWY ENV TEMP LIMIT = +53°C :
: : : RWY ASS TEMP LIMIT = +74°C :
:-----:
--PRESSURE CORRECTION--:
:+1 HPA : NOT AUTH : +169 KG : +113 KG : +57 KG : +57 KG :
:-1 HPA : NOT AUTH : -486 KG : -530 KG : -579 KG : -579 KG :
:-----:
: MAX BRAKE RELEASE WEIGHT MUST NOT EXCEED MAX CERT TAKEOFF WEIGHT OF 396893 KG :

 * GOBD 19 * FLAPS 20 * D-TO * BLAISE DIAGNE INTL *

: ELEVATION = 251 (FT) : B747-400/RB211-524H : :
 : SLOPE = +0.20 (%) : DATED 21 AUG 2018 16:19 UTC : ALL WEIGHTS IN :
 : T.O.R.A. = 3500 (M) : : KILOGRAMS (KG) :
 : T.O.D.A. = 3500 (M) : AIR COND ON : :
 : A.S.D.A. = 3500 (M) : ANTI ICE ON OR OFF : NOT FOR :
 : LENGTH = 3500 (M) : RUNWAY COND 13MM WATER : OPERATIONAL USE :
 : WIDTH = 60 (M) : QNH 1013.25 HPA : :
 |-----:
 : TEMP : WIND COMP :
 : °C : -15 KTS : +0 KTS : +10 KTS : +20 KTS : +30 KTS :
 |-----:
 : -10 : NOT AUTH : 392330 FIELD : 430000 BRAKES: 430000 BRAKES: 430000 BRAKES:
 : : : 135 167 180 : 139 169 180 : 141 169 180 : 141 169 180 :
 |-----:
 : +0 : NOT AUTH : 359161 FIELD : 366626 FIELD : 374091 FIELD : 374091 FIELD :
 : : : 126 158 173 : 130 160 175 : 135 163 176 : 135 163 176 :
 |-----:
 : +10 : NOT AUTH : 359751 FIELD : 368249 FIELD : 376747 FIELD : 376747 FIELD :
 : : : 126 158 173 : 131 161 175 : 135 164 177 : 135 164 177 :
 |-----:
 : +20 : NOT AUTH : 355628 FIELD : 365159 FIELD : 374690 FIELD : 374690 FIELD :
 : : : 125 157 172 : 130 160 175 : 135 163 176 : 135 163 176 :
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 : +30 : NOT AUTH : 351605 FIELD : 361872 FIELD : 372139 FIELD : 372139 FIELD :
 : : : 125 156 171 : 130 159 174 : 135 162 176 : 135 162 176 :
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 : +40 : NOT AUTH : 324764 FIELD : 332568 FIELD : 340373 FIELD : 340373 FIELD :
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 : +50 : NOT AUTH : 301524 FIELD : 307776 FIELD : 314028 FIELD : 314028 FIELD :
 : : : 115 145 158 : 119 147 160 : 123 149 161 : 123 149 161 :
 |-----:
 : +60* : NOT AUTH :
 : : : : : : :
 |-----:
 : +70* : NOT AUTH :
 : : : : : : :
 |-----:
 : +72* : NOT AUTH :
 : : : : : : :
 |-----:
 : +74* : NOT AUTH :
 : : : : : : :
 |-----:
 : * = EXCEEDS RWY ENV TEMP LIMIT : RWY ENV TEMP LIMIT = +53°C :
 : : RWY ASS TEMP LIMIT = +74°C :
 |-----:
 : --PRESSURE CORRECTION--:
 : +1 HPA : NOT AUTH : +192 KG : +137 KG : +82 KG : +82 KG :
 : -1 HPA : NOT AUTH : -468 KG : -511 KG : -554 KG : -554 KG :
 |-----:
 : MAX BRAKE RELEASE WEIGHT MUST NOT EXCEED MAX CERT TAKEOFF WEIGHT OF 396893 KG :

WEATHER

- Generally warm with a short rainy season (Jul-Sep) and a lengthy dry season (Oct-Jun)
- November sees the highest temperatures, with average daily highs of 31°C and nightly lows around 23°C. However, sea breezes tend to keep temperatures cooler than other inland African cities
- Prevailing wind almost exclusively northerly.

OPERATIONAL INFORMATION

Handling Agent	Simfest Ground Services
Handling Agent VHF	
Potable Water	Uplift permitted

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

CAIRO (CAI/HECA)

Elevation 467ft

CATEGORY B

AV brief not required.

GENERAL

- The airfield is 13 NM NE of Cairo city.
- The River Nile runs S to N 9 NM to the west of the airfield
- The airfield site slopes up toward the south, with a marked difference between threshold elevations.

Threats
CFIT

- The airfield and terrain to the south slope up toward an escarpment at 6 NM S. The terrain rises to over 1,100ft at 7 NM south.
- A well-lit dual carriageway and boundary fence lighting may make night identification of Rwy 05L and 05C difficult

Loss of Control

- Numerous reports of laser beams pointed toward aircraft approx. 5-10 NM prior to landing 05L

ARRIVAL
Diversion Airports

ALEXANDRIA	HBE/HEBA	102 nm/298°T	CAT A
LARNACA	LCA/LCLK	307 nm/021°T	CAT B
ATHENS	ATH/LGAV	660 nm/322°T	CAT A
RHODES	RHO/LGRP	414 nm/336°T	CAT B

Approach

- Wide VHF coverage but reception quality can be very poor. Confusion and misunderstanding can occur although area radar improves the ATC environment considerably.
- Expect radar vectors to final approach. For Rwy 23C vector to avoid prohibited areas bring the aircraft close in to about 5 NM abeam the airfield.
- Vectors can be inconsistent in path and distance
- Rwy 05L for take-offs only
- 05R/C are used for approximately 80% of arrivals.

GROUND

- Parking at T2
- Taxiway lighting is poor
- High power settings may be required when taxiing uphill. Beware sand and stones lying on and around taxiways and avoid following too closely behind other aircraft.
- Taxiing downhill requires constant braking – monitor brake temperatures.

DEPARTURE

- Cairo Clearance will provide an ATC clearance to the highest FL within the Cairo FIR, airway routing and transponder code. The FIR cleared level is typically FL240.
- Local departure instructions may be issued as the aircraft is lining up, frequently with takeoff clearance. These consist of a heading and altitude assignment (usually 3,500ft).

WEATHER

- Summer – risk of early morning fog forming just after sunrise but usually clearing within about 2 hours
- Low stratus may form overnight but usually clears by 1000 local
- Prevailing westerly wind
- In winter, depressions from the west bring gusty conditions with rising dust and sandstorms.
- In advance of depressions, strong S/SW winds ("Khamsin") cause sandstorms Dec-May. The visibility is worst 2-4hrs prior to passage of a cold front, and may reduce to <200m for periods

of up to 4 hours. This is usually followed by squally rain showers which quickly improve visibility.

- Light SW winds may bring smoke from the city toward the airfield. Fog more frequent than during summer and more persistent. Prevailing wind S/SW.

OPERATIONAL INFORMATION

Handling Agent	Egyptian Aviation Services
Handling Agent VHF	131.875
Potable Water	Uplift permitted

IF ONLY Electrical Power is required	Use ground power for 60 mins ONLY - then use APU
If BOTH electrical power and air conditioning is required:	Use APU for air conditioning (keep GPU connected in accordance with above guidance)

NAIROBI (NBO/HKJK)

Elevation 5330ft

CATEGORY B

AV brief not available or required.

GENERAL

- City situated 7nm NW

Threats

CFIT

- Significant high ground which is depicted well on Lido (Aerosoft) and Jeppesen (Navigraph) MRC charts.
- N the Aberdare Mountains run N-S with peaks to 13,000ft asl within 40 nm
- W at 17nm are the N'Gong Hills with peaks to nearly 8,100ft asl. The GG NDB and GV VOR are sited on these hills.
- 23nm SE are the Mua Hills to ~7,000ft asl
- Mount Kenya ~17,000ft asl 70 nm NNE
- Mount Kilimanjaro ~19,400ft asl 110nm S.

Runway Excursion

- Runway edge lights are positioned 15 ft beyond the runway edge
- Rwy drains well but braking action degraded in wet conditions, particularly on the heavy rubber deposits in the Rwy 06 touchdown area.
- Turns on runway ends only

Loss of Control

- Bird hazard exists during the wet seasons

Mid Air Collision

- Light aircraft activity at Wilson 7 nm W
- Military activity at Eastleigh 4.5 nm NW

Crew Reports

- *The rwy centreline has been reported as partially obscured by runway wear and rubber deposits. Care should be exercised when taking off or landing in reduced visibility to ensure that the painted runway edge marking (solid line) is not mistaken for the painted centreline marking (broken line).*

ARRIVAL

Diversion Airports

KILIMANJARO	JRO/HTKJ	127 nm/176°T	CAT B
MOMBASSA	MBA/HKMO	228 nm/135°T	CAT A
ENTEBBE	EBB/HUEN	282 nm/287°T	CAT A
DAR ES SALAAM	DAR/HTDA	361 nm/158°T	CAT A

Approach

- The approach via GV or GG is no longer approved for use by SIMFEST aircraft.
- ATC may clear to you a FL, then the next message is 'cleared for the approach'. Do not forget to set QNH!
- During an ILS approach the altimeter may read approximated 100ft low at the OM due to high temperature error, but threshold elevation should read correctly
- Rwy 06 ILS – pilots should be aware of the possibility of false localiser capture abeam VOR 'GV'.

GROUND

- Sections of taxiway lighting often unserviceable
- Paved areas outside continuous yellow lines are not load-bearing
- Parking normally on Stand 11 although local staff request you clarify with then inbound
- Engine Out Taxi not approved – leave all engines running to avoid jet blast

DEPARTURE

- Due to regular costly payload offloads, crews are to ensure all TOPL enhancing (e.g. use of Packs OFF) steps are taken to minimise this risk
- Call for ATC clearance before start up
- Some SIDs are SIMFEST prohibited, see below.

EMERGENCY TURN PROCEDURES

Rwy 06

KAMAS 1Z SID ENG FAILURE BEFORE NV013 - CONTINUE AHEAD TO NV013 AND THEN TURN RIGHT TO STONY FOR HOLD. ENG FAILURE AFTER NV013 BUT BEFORE NV025 - TURN RIGHT TO STONY FOR HOLD. ENG FAILURE AFTER NV025 - CONTINUE ON SID PROVIDED HT RESTRICTIONS AND SSA ACHIEVED. IF 15000FT NOT ACHIEVED BY NV45 TURN RIGHT TO STONY FOR HOLD.

NAK2Z SID ENG FAILURE BEFORE NAK82 - TURN ON SHORTEST ROUTE TO STONY FOR HOLD. ENG FAILURE AFTER NAK82 - CONTINUE ON SID PROVIDED HT RESTRICTIONS AND SSA ACHIEVED.

KAMAS 1W SID ENG FAILURE BEFORE 8000FT - CONTINUE ON SID TO NV 11D THEN TURN RIGHT TO STONY FOR HOLD. ENG FAILURE AFTER 8000FT BUT BEFORE START OF TURN ONTO 324M - TURN RIGHT TO STONY FOR HOLD. ENG FAILURE AFTER START OF TURN ONTO 324M - CONTINUE ON SID PROVIDED HT RESTRICTIONS AND SSA ACHIEVED. IF 15000FT NOT ACHIEVED BY NV45D TURN RIGHT TO STONY FOR HOLD.

NAKAT 1Z SID ENG FAILURE BEFORE 8000FT - CONTINUE ON SID TO NV 11D THEN TURN RIGHT TO STONY FOR HOLD. ENG FAILURE AFTER 8000FT - CONTINUE ON SID PROVIDED HT RESTRICTIONS AND SSA ACHIEVED.

NAK 1Y SID ALL ENGS - AFTER INITIAL LEFT TURN AT 10000FT INTERCEPT NV323R AT NV 40D OR LESS TO AVOID HIGH TERRAIN TO THE NORTH. ENG FAILURE BEFORE 8000FT – CONTINUE ON SID TO NV 11D THEN TURN RIGHT TO STONY FOR HOLD. ENG FAILURE AFTER 8000FT - CONTINUE ON SID PROVIDED HT RESTRICTIONS AND SSA ACHIEVED.

EVATO 1Y / GABSO 1Z/1Y SIDS - SIDS RESTRICTED TO 360000KG. NO RESTRICTIONS PROVIDED HT RESTRICTIONS AND SSA ACHIEVED.

EVATO 1X SID SID RESTRICTED TO 355000KG. NO RESTRICTIONS PROVIDED HT RESTRICTIONS AND SSA ACHIEVED.

ANTUK 1D to NATAK SID - NO RESTRICTIONS PROVIDED SID FOLLOWED AND SSA ACHIEVED.

ALL OTHER SIDS PROHIBITED.

Rwy 24

KAMAS 1V SID ENG FAILURE BEFORE NV - CONTINUE ON SID AND HOLD AT NV. ENG FAILURE AFTER NV BUT BEFORE START OF TURN ONTO 324M - TURN RIGHT TO STONY FOR HOLD. ENG FAILURE AFTER START OF TURN ONTO 324M - CONTINUE ON SID PROVIDED HT RESTRICTIONS AND SSA ACHIEVED. IF 15000FT NOT ACHIEVED BY NV45D TURN RIGHT TO STONY FOR HOLD.

GABSO 1U/EVATO 1U/NAKAT 1U SIDS NO RESTRICTIONS PROVIDED HT RESTRICTIONS AND SSA ACHIEVED.

ALL OTHER SIDS PROHIBITED.

WEATHER

- MAR – MAY – The “Long Rains” with the ITCZ moving N. Weather often severe, particularly during the initial surge of the ITCZ. Cu/Cb occur during the day, thunderstorms possible in late afternoon. Rain may continue well in to the night.
- JUN – SEP – Dry season with the ITCZ well N. Surface wind generally SSE 10 kt. Much cloud, mainly Sc, base ~3,000ft and tops ~5,000 to 6,000ft
- OCT – DEC – The “Short Rains” with the ITCZ moving S. Surface wind generally NE 10-15kt, strong N’ly crosswinds a possibility. Hottest and least cloudy period.
- There are long spells of clear mornings but early morning St or fog can form suddenly and unexpectedly.
- Crew have reported that early morning fog can be experienced at any time of the year and may lead to a sudden deterioration in reported visibility with little or no warning from ATC.

Percentage frequency of occasions with VIS <2000m and/or ceiling <600ft

UTC	0000	0600	1200	1800
Jan	6.5	5.5	0	0
Feb	5.2	4.7	2.0	0.9
Mar	8.0	9.3	0	0
Apr	24.6	8.7	1.5	1.7
May	7.9	4.9	1.7	0.9
Jun	8.0	5.1	0	0.8
Jul	4.2	4.7	1.6	0
Aug	8.9	5.8	0.8	0
Sep	9.9	5.4	0	1.6
Oct	7.6	3.9	0.9	0.8
Nov	20.8	14.0	0.9	2.1
Dec	32.1	12.6	0.8	3.2

Percentage frequency of occasions with heavy Cb activity

UTC	0000	0600	1200	1800
Jan	0	0	1.0	4.9
Feb	2.1	1.0	3.0	3.7
Mar	4.5	0	1.0	15.0
Apr	4.0	0.8	4.6	24.2
May	1.8	0.9	3.4	5.4
Jun	0	0.9	1.7	1.6
Jul	0	0	0	2.5
Aug	0	0	0.8	0.8
Sep	0	0	1.7	0.8
Oct	0	0	0.9	3.2
Nov	1.0	0.9	2.6	7.2
Dec	0	0	0	4.3

OPERATIONAL INFORMATION

Handling Agent	Swissport
Handling Agent VHF	131.8
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 APU for air conditioning (keep ground power connected to reduce APU fuel burn)

DENVER (DEN/KDEN)

Elevation 5431ft

CATEGORY B

No AV Brief available

GENERAL

Threats

CFIT

- Rocky Mountains to the west – but reasonably flat in the vicinity of the airport

Runway Excursion

- SESMA has highlighted Denver as prone to high-energy/rushed approaches and TCAS RAs. Crews should maintain a high level of situational awareness and be mindful of aircraft energy when accepting ATC short cuts to final approach.
- Summer temperatures are high and the airfield elevation is over 5,400ft amsl – refer to OM C North Atlantic and North America brief for guidance on operating into hot and high airfields. Data analysis shows that on many occasions while on the approach the selected MCP altitude is set to be below airfield elevation. Crews must ensure strict adherence to SOP of setting a minimum of 1,000' agl (6,500' QNH in the altitude window).
- ATC are aware of the operational difficulties and should grant requests for the aircraft to be slowed/configured early on the approach

Mid Air Collision

- TCAS RAs are prevalent with many local operators switching their TCAS to TA only particularly when using runways 16L and 16R. The distance between these two runways is only 2600ft and has caused several TCAS RAs whilst in the landing configuration.
- ATC may offer runway 17R for landing during busy periods to mitigate against a TCAS RA on final approach. Crew should be mindful of this and brief for a landing on either runway 16L/ 16R or runway 17R. ATC may switch the landing runway to 17R during intermediate vectoring.

Special Considerations

- The real airport is quite undulating in elevation but the P3D airfield is flat. This can lead to discrepancies when setting approach minima. Setting the charted Cat 1 minima for Rwy 26 will lead to the 'Decide' call at approximately 70ft aal.
- There have been reports from PMDG 747 v3 crews that setting the charted minima not only led to a very late 'Decide' auto callout, but also blanked the remaining radalt calls leading to a hard touchdown.

ARRIVAL

Diversion Airports

PHOENIX	PHX/KPHX	591 nm/223°T	CAT B
DALLAS	DFW/KDFW	620 nm/139°T	CAT A
LOS ANGELES	LAX/KLAX	786 nm/242°T	CAT B
LAS VEGAS	LAS/KLAS	546 nm/245°T	CAT B
TUCSON	TUS/KTUS	600 nm/213°T	CAT B

Route Information
Manual
DENVER (DEN/KDEN)

SALT LAKE CITY	SLC/KSLC	401 nm/280°T	CAT B
Colorado Springs (F)	COS/KCOS	117 nm/181°T	CAT A
Colorado Springs suitable as a fuel alternate only. No customs provision at KCOS so passengers and crew will not be able to disembark the aircraft. Limited ground support available at KCOS.			

- From an ATC perspective, DEN typically use two separate controllers to feed into the two parallel approaches, and crews with high SA will be alert to apparent lack of vectoring coordination.
- This used to lead to many TCAS RAs being generated by two aircraft approaching the parallel ILS cones from opposing sides. This, coupled with habit of local carriers operating in contravention of ICAO/IATA TCAS policy by selecting TA-only, makes a review of the Traffic Avoidance recall items worthwhile.
- Local controlled airspace is split into an octagonal shape (N, NW, W, etc) centred around KDEN out to 120/150 nm. Holding fixes are located on arcs approximately 50 nm and 100 nm from KDEN and during delays traffic are held at the outer fixes if the inner ones are full.
- We generally arrive through the NE sector. If closed expect to join one of the outer holding fixes such as SNY then route to MBW in the NW sector over 100 nm away to make an approach through the West sectors.
- Traffic to the East of the airfield is far greater than that to the West. Traffic from the West therefore receive extra mileage in order to accommodate and not unduly delay traffic from the East.
- Weather related delays are dependent on whether they are due to orographic thunderstorms or snow. During the peak summer and winter months it is recommended that weather is reviewed as early as possible in order to make necessary plans to take into account how traffic is handled at KDEN.

Approach

- Expect 17R/35. Occasionally we land on 26.
- We rarely use 07/25, and 16R/L or 34R/L should only be used if no one else is on the parallel due to the high number TCAS RA events.
- A 17 approach combined with simultaneous 16 is not a problem, nor is a 17R/17L combo (same for northerlies).
- ATC are prone to offering tight vectoring for both base and final turns – tell them early what you want and they will do their best to accommodate it (particularly if you ask not to be paired).

BAV Crew Reports

- Setting charted minima for 26 resulted in 'Decide' auto-callout at approx 70ft RA and blanking of remaining radalt callouts in PMDG 747-400 v3
- All KDEN runways in P3D have an elevation of 5440ft. Use 5640ft for Cat 1 barometric minima.**

Useful Review Items

- Monitor TAS as at any high-altitude airport (generally – keep one configuration step ahead of where you'd be for the progress of the approach: F1 when you'd normally be min clean; F5 when you'd normally be F1 etc.)
- Verbalise height above touchdown when monitoring approach energy.
- Set a sensible BARO gate for gear down. Using a trigger of 2000RA on the southerly runways can lead to embarrassment.
- Even if cleared visual approach, stick with the ILS profile – preferably automatic and coupled.
- If intercepting the GS from above (it happens here) be prepared to use maximum drag and don't set any lower than 6600ft in the MCP window (elevation +1000ft). If you capture that before the GS then the approach is most likely nonviable.

Missed Approach

- You are unlikely to fly the published missed approach, so be ready for ATC intervention during the missed approach.

Orographic TS

- These build up to the West of the airfield over the Rockies and move eastwards closing the NW, W and SW sectors. As the thunderstorms move East and grow in size you can expect the NE, E and SE sectors to close approximately 45 minutes to 1.5 hrs later and remain closed for some time. The NW, W and SW sectors then clear up and re-open so all traffic to the East of the airfield is routed to the West with considerable extra track mileage that can be in the region of a couple of hundred nms if the delay is substantial.

Snow

- Snow has a more limited impact on delays. Delays are generally due to snow clearance rather than airspace closure unless there are orographic snow thunderstorms. These are extremely rare. During snow clearance you can expect delays of approximately 20 to 30 mins and it is very rare to change the arrival sector as described above.

Whenever arrival delays exist ATC assume you have 45 minutes holding fuel when declaring a Minimum Fuel Advisory. Therefore if you have less than this then advise ATC how long you can hold for prior to diverting. Should a flight be committed to land at KDEN, an approach is not imminent and bearing in mind the guidance above, then as early as possible, crews must advise ATC how long it will be before a MAYDAY is declared. In addition, advise ATC that on declaring a MAYDAY an immediate straight in approach will be required. This will greatly assist ATC in their planning, how expeditiously the flight can be handled and greatly reduce exposure to a low fuel scenario.

GROUND

- Company gate is on Concourse A, Gate A37. Wide-bodied aircraft should use dotted line for A37W.
- The airport is quite hilly and it would be prudent to keep all engines running on the taxi in until you are familiar with the local topography.

- Stand marshaller (via signals to a board) will bring you uncomfortably close to the terminal building.
- Be aware that guidance is set up for the left hand seat.

DEPARTURE

- During push back they do not push you onto the taxi line (Alpha November), but on to a line (the “purple line”) that looks like a taxi line. You will need to taxi away from terminal building to get on to the taxi line (caution jetblast), as the purple line is only for short wingspan aircraft and is marked with red in LIDO.
- Turning out of the apron for runway 08/17R/17L you could well require unusually high EPRs just to keep moving.
- The usual departure runway is 08, but use of 34R is not uncommon.
- There are rarely any departure delays, so get cabin going once doors are closed as they will clear you to line up as you reach the holding point.
- The standard 250kt speed limit applies to 10000' i.e. 5000' above ground.

WEATHER

- Mild dry climate with an average of about 300 sunny days per year.
- Summer – warm with low humidity. Orographic TS can very rapidly develop with westerly winds as very moist Pacific air is pushed upwards by the Rockies and by convective activity. Particularly in peak summer months in the late afternoon.
- Winter – sunny and crisp with some snow Oct to May. Early morning fog possible throughout the year. During the winter fog may form in the afternoon or early evening.
- With strong westerly winds you can expect some turbulence below FL250' near the mountains.
- In the spring and summer, spectacular supercells (and tornadoes) are not uncommon, and can be unforecast
- In extreme weather, ATC have been known to vector crews all over the state of Colorado (sometimes even Wyoming), often with little idea of when you will land; you may also hold indefinitely ‘because the airfield is closed’.
- Exercise caution if the TAF contains VCTS. Initial holding EFC times are usually wildly pessimistic, as they issue landing slots at 5 min intervals.
- If the weather clears and approaches recommence they can dramatically improve your ETL.

OPERATIONAL INFORMATION

Handling Agent	Hallmark (above wing), Swissport (below wing)
Handling Agent VHF	130.375
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 (if fixed airport equipment not available, use APU)

NEWARK LIBERTY INTL (EWR/KEWR)

Elevation 17ft

CATEGORY A

No video brief available.

GENERAL

- Major international HUB for United Airlines and FEDEX
- KEWR is heavily congested airport and delays are the norm
 - Delays on arrival: average 22 min / 26% of all arrivals were delayed by more than 15 min
 - Delays on departure: average: 26 min / 29% of all departures were delayed by more than 15 min
- Traffic composes mainly of commercial activities - passenger and cargo operations
- KEWR is surrounded by major highways (I-95, I-78) and routes (U.S. Routes 1/9), urban and commercial development (South, West, North of KEWR), and Port of Newark (East of KEWR)
- Preferred Arrival RWYs: 04R/22L – 04R - up to ILS Cat IIIB, 22L – up to ILS Cat IIIC
- Preferred Departing RWYs: 04L/22R
- Other RWYs: 11/29 – mainly used during crosswind (RWYs 04/22) – for up to ACFT CAT D
- Visual separation is a favourite ATC spacing method

Threats

CFIT

- No major terrain obstacles
- Obstacles on approach to RWYs 22 (291' and 597') – if on track, ACFT will be well above these
- Obstacles on departure – RWYs 04/22 and 11/29 – nothing above 400' (buildings, trees, antennas) – caution is required

Runway Incursion

1. RWYs and TWYs are clearly marked
2. There is a taxiway (TWY P) between parallel RWYs – pay attention on approach
3. Potential conflict zones:
 - As departing ACFT can arrive from TWYs A and B, proper sequencing is more involved and good coordination between ATCs and crews is required
 - Make sure ATC clears you to cross RWY 11/29 from following TWYs:
 - W1
 - U
 - S
 - Q
 - R
 - P
 - EE
 - Make sure ATC clears you to cross RWY 04L/22R, when arriving from RWY 04R/22L, from following TWYs:
 - L
 - K
 - J
 - G
 - E
 - C
 - N
 - V

4. Land And Hold Short Operations (LAHSO) operations can occur when:
- There exists at least 3 miles visibility and 1000' ceiling, and no wind shear has been reported
 - RWY 04L – Available landing distance (ALD): 7,750 feet – for landing RWY 11
 - RWY 04L – ALD: 7,750 feet – for departing RWY 29
 - RWY 04R – ALD: 8,100 feet – for landing RWY 11
 - RWY 04R – ALD: 8,100 feet – for departing RWY 29

Loss of Control

1. Birds may be on and in vicinity of airport

Special Considerations

1. KEWR is located in heavily congested NY area – other major airports in the area:
 - KJFK – 18 nm East of KEWR
 - KTEB – 10 nm North of KEWR
 - KLGA – 14 nm North-East of KEWR
2. NYC airspace is very busy, from commercials flights to private operators
 - Monitor for traffic – high chance of traffic incursion
 - High volume of helicopter traffic from 65NJ heliport
 - Parasailing and banner towing operations 1000' and below in upper and lower NY Bays
3. KEWR is a noise sensitive airport
 - Expect late descend instructions
 - Expect higher assigned altitudes on departures
 - Between 2300 – 0700 LT expect:
 - Limitations on PENNS 2 STAR
 - Adjustments to SIDs
4. Monitor ATC instructions closely
 - ATC instructions at times are very fast and full attention is required
 - ATC expects prompt responses (ATC might get little irritated if crew fails to follow instructions / similar to KJFK)

ARRIVAL

Diversion Airports

NEW YORK/KENNEDY INTL	JFK/KJFK	18 nm/113°T	CAT B
NEW YORK/STEWART INTL	SWF/KSWF	48 nm/016°T	CAT A
PHILADELPHIA	PHL/KPHL	70 nm/238°T	CAT A
BALTIMORE	BWI/KBWI	147 nm/245°T	CAT B
WASHINGTON DULLES INTL	IAD/KIAD	185 nm/249°T	CAT A

APPROACH

- ACFT is usually cleared to descend via STAR
 - Plan accordingly and in advance
 - Plan to meet all restrictions (speed and altitude)
- ATC vectors are to be expected at the end of the STAR to final approach
- Expected speed limit instructions from the ATC
- RWY 22L:
 - RWY 22L and runway 11 can be used simultaneously
- RWY 04R:

- Primary RWY 04R (always used by ACFT CAT C, D, and E)
- RWY 04R and RWY 11 can be used simultaneously as long as RWY 04R arrivals land and hold short of RWY11
- During busy periods, arrivals on RWY 04R and 04L can land simultaneously, however RWY separation is 950'; ATC ensures separation until visual separation can be established (no parallel landings!)
- RWY 29:
 - Visual approach for RWY 29 is used:
 - BRIDGE VISUAL when RWY 04R is used
 - STADIUM VISUAL when RWY 22L is used
- Vacate landing RWY expeditiously and ensure to be fully vacated before stopping

GROUND

- TWY A is primary route for INBOUND ACFT
- TWY B is primary route for OUTBOUND ACFT
- TWYs A, B, S, and Z are bidirectional

Suggested Arrival Taxi Routes

To	C	E	G	J	K	M	N	V	W	Y	Z
RA	RC, A	A	A	S, A	S, A	S, A	N, A	RB, A	S, A	S, A	S, A
RB	RC, A	A	A	S, A	S, A	S, A	N, A	RB	S, A	S, A	S, A
RC, DK, RD, DL, RE, DM, RF	RC, A	A	A	S, A	S, A	S, A	N, PA, A	PA, A	S, A	S, A	S, A
RG	N, PA, A	A	A	J	M, A	M, A	N, PA, A	PA, A	S, A	S, A	S, A
RH, RJ, RK, RL	N, PA, A	A	A	A	A	S, A	N, PA, A	V, A	S, A	S, A	S, A
UP	RC, A	A	A	S, A	S, A	S, A	N, PA, A	RB, A	S, A	S, A	S, A
FE	RC, A, PA, RB	A, PA, RB	A, PA, RB	S, A, PA, RB	S, A, PA, RB	S, A, PA, RB	PA, RB	RB	S, A, PA, RB	S, A, PA, RB	S, A, PA, RB
CC, AA	D, PA	A, PA	A, PA	S, A, PA	S, A, PA	S, A, PA	PA	PA	S, A, PA	S, A, PA	S, A, PA
West Park	RC, A, S	A, S	A, S	S	S	S	PA, A, S	PA, A, S	S	S	Z

Suggested Departure Taxi Routes

From	4L	11	22R	22R at W	29 (4/22 open)	29 (4/22 closed)
RA	A, RB, D, AA	N, B, U, W	N, B, R, Z	N, B, R, W	N, B, R, Z	N, B, R, K, EE
RB	RB, D, AA	B, U, W	B, R, Z	B, R, W	B, R, Z	B, R, K, EE
RC, DK, RD, DL, RE, DM, RF	B, D, AA	B, U, W	B, R, Z	B, R, W	B, R, Z	B, R, K, EE
RG, RH, RJ, RK, RL	B, D, AA	B, U, W	B, K, R, Z	B, K, R, W	B, R, Z	B, R, K, EE
UP	B, RB, D, AA	B, U, W	B, R, Z	B, R, W	B, R, Z	B, R, K, EE
FE	RB, D, AA	RB, B, U, W	RB, B, R, Z	RB, B, R, W	RB, B, R, Z	RB, B, R, K, EE
CC, AA	D, AA	D, B, U, W	D, B, R, Z	D, B, R, W	D, B, R, Z	D, B, R, K, EE
West Park	Z, R, B, D, AA	Z	Z	Z, R, W	Z	Z

- Source: https://nyartcc.org/znywiki/index.php/EWR_SOP#Ground
- Preferred Gates:
 - Pax: Terminal B – Concourse B3 (gates: 60 – 68)
 - Ramp Freq.:
 - Arrival: 122.850 MHz for gates 60 – 68
 - Push: 122.850 MHz for gates 60 – 62
129.575 MHz for gates 63 – 68
 - Cargo: AIR CARGO – entry points: TWYs Z2, Z3, Z4

DEPARTURE

- RWY 04L:
 - Full length departure is used, when 04R is used for landing

- RWY 04R may be also used for departures
- Initial heading: 039° to 500', then RIGHT 060°
- Initial altitude: 3000' OR 2000' - if KLGA RWY13 in use
- RWY 22R:
 - Intersection departure from TWY W is used for all departures, when RWY 22L is used for landing. Available distance: 10150'
 - Intersection departure from TWY Y is used for all departures, when RWY 29 is used for landing. Available distance: 9850'
 - Full length can be used only if requested for performance or operational necessity
 - Initial heading: 190°
 - Initial altitude: 2500'
- RWY 11:
 - Initial heading: 060° to D4.0 IEZA, then 290°
 - Initial altitude: 3000' OR 2000' - if KLGA RWY13 in use
- RWY 29:
 - Initial heading: 288°
 - Initial altitude: 5000'
- EWR SID is standard and preferred departure procedure
- PORTT SID is offered, if requested by the crew
- LIBERTY SID should be avoided
- Pilots should be ready for a rapid line-up according to ATC instructions
- Cockpit checks should be completed prior to line-up and any checks requiring completion whilst on the runway should be kept to a minimum required. Commence take-off roll immediately after receiving take-off clearance. Pilots not able to comply with the above requirements shall notify ATC as soon as possible

WEATHER

- KEWR lies between humid subtropical and humid continental climate
- Cold winters, and hot and humid summers (average annual temp. 12.7°C)
- Snowfall annual average 75 cm, but it regularly experiences major snow storms/blizzards (where it can experience heavy snowfall in 24 hours; record: 66 cm in 24 hours)
- Summer thunderstorms are frequent – can be severe
- Precipitation is in range of 74 – 122 mm per month; it usually rains 8 to 12 days per month
- De-Icing and winter treatment services are available
- Primary De-Icing Pad is located in the “Ballpark” – surrounding TWYs speed limit 17kts
- In winter months take special care for threats of blizzards and other weather related delays

OPERATIONAL INFORMATION

Handling Agent	Worldwide Flight Services
Handling Agent VHF	-
Potable Water	Uplift permitted

IF ONLY ELEC. PWR is required	Use ground power at all times
If BOTH ELEC. PWR and A/C is required:	Use both ground services at all times

JACKSON HOLE (JAC/KJAC)

Elevation 6,451ft

CATEGORY C

No AV brief available.

GENERAL

- JAC is located 7nm north of Jackson town in the Jackson Hole valley, within the Grand Teton National Park
- It is the busiest airport in Wyoming by passenger traffic and the only commercial airport in the United States inside a National Park
- The airport is a mating ground for the rare sage grouse, and the town itself gained significant fame in 2016 when a live stream of the town square went viral on YouTube
- The airport is surrounded on all sides by high terrain with MSAs in excess of 14,000ft within 10nm
- Significant EASTERLY variation (13°E)

Threat Based Briefing Topics

See section on '[Hot and High' operations](#) for detailed information on operations to high density altitude airfields.

CFIT

- The airport lies in a basin between the Teton and Gros Ventre mountain ranges, with steeply rising terrain on all sides.
- In addition to a peak of 13,748ft asl 8nm NW, Blacktail Butte, 7,688ft asl 2.6nm NE is just E of the Rwy 19 final approach course and the Rwy 01 missed approach
- Other notable spot heights 8,344ft asl 16nm SSE, 7,439ft asl 5nm S, 11,241ft asl ~6nm E.
- The terrain is well-depicted on Lido and Jeppesen final approach charts
- No STARs are published: pay close attention to MSAs during transition from enroute to approach phase
- Potential for black hole illusion during night approaches. During winter the area surrounding the airfield is often blanketed with snow, making it difficult to judge height and glidepath.

Runway Excursion

- Short landing due to excessive mitigation to land well inside the TDZ
- If the aircraft has not touched down within the marked touchdown zone a go-around must be flown
- Stable approach during rushed visual approaches
- Tailwind during approaches to Rwy 01 with light S'ly wind

ARRIVAL

- Rwy 01 preferred for arrivals. ATC may offer a visual approach if weather permits. Expect a right hand downwind for Rwy 01.

- Prevailing wind in November favours Rwy 19. Be wary of any tailwind component if Rwy 01 is in use.
- Pay close attention to step-down altitudes along the procedure and be vigilant about ATC assigned altitudes if under radar vectors
- A risk of black hole illusion exists for night approaches. Similar difficulties in judging height and glidepath may be experienced during daytime in winter due to the blanket of snow which often covers the surrounding area. Maximum use should be made of approach aids including the ILS G/P, PAPIs and RNAV V/DEV indications, as well as height/distance checks to mitigate against this.
- RNP AR procedures only available for temperatures above -27°C. At temperatures below -26°C (unusual but possible), altitudes for the RNAV (GPS) X approach will need to be temperature corrected and flown in LNAV + V/S.
- Note cold temperature corrections may be required to ATC cleared altitudes

GROUND

- De-icing available if required at the de-icing pads at the north end of Twy A
- Note limited Twy lighting available in the region of the de-icing pad

WEATHER

- Jackson experiences a unique microclimate which gets considerably more precipitation – mostly snow – than the rest of Wyoming
- The high elevation results in extreme differences between day and night temperatures. Average daily high/low 28°C/5°C (July) to -2°C/-15°C (January)
- Snowfall averages 1.81m per year, almost all falling between November and March

OPERATIONAL INFORMATION

Handling Agent	Simfest Ground Services
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 APU (ACU equipment not available). Keep ground power connected to reduce APU fuel burn.

JACKSONVILLE (JAX/KJAX)

Elevation 29ft

CATEGORY A

AV brief not required

GENERAL

- Joint civil-military airfield 13 NM north of downtown Jacksonville

Threats**Loss of Control**

- Arrester cables at Rwy 08/26 TDZ

ARRIVAL**Diversion Airports**

ORLANDO	MCO/KMCO	125 nm/171°T	CAT A
CHARLESTON	CHS/KCHS	167 nm/030°T	CAT A
ATLANTA	ATL/KATL	234 nm/326°T	CAT A
MIAMI	MIA/KMIA	291 nm/165°T	CAT A

WEATHER

- Summers are hot and humid with warm to mild and dry winters
- Rainfall is mainly encountered May-Sept with brief but intense downpours and thunderstorms
- Nov-Apr are the driest months
- Direct hits from hurricanes are rare but many have passed nearby during the Atlantic hurricane season Jun-Nov

OPERATIONAL INFORMATION

Handling Agent	GSI
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

NEW YORK (JFK/KJFK)

Elevation 14ft

CATEGORY B

No video brief currently available.

GENERAL

- Kennedy International is located on Long Island 10nm SE of the city.
- Apart from Jamaica Bay to the S, the airfield is surrounded by densely-populated, noise sensitive communities on all sides.

Threats

CFIT

- Refer to [ARRIVAL](#) section for details on approach platform altitudes, lack of approach lighting and PAPIs/VASIs

Mid Air Collision

- Very busy air traffic environment with airports La Guardia 9nm N and Newark 16nm W.
- Numerous light aircraft along the Long Island shoreline and parachute jumping aircraft operate in the vicinity of Calverton (CCC VOR) up to 13,500ft
- Due to the volume and complexity of air traffic it is common for arrival aircraft to be vectored in to New York Class B airspace and then back out again. Areas include:
 - Rwy 4L/R, South of the airport and East of Colt's Neck VOR (COL) at 3,000ft and 4,000ft
 - Rwy 13L/R, South of the airport and East of COL at 3,000ft and 4,000ft
 - Rwy 22L/R, NE of the airport and SE of Deer Park VOR, below Class B at 3,000ft through the Farmingdale cut-out and NE of the airport below Class B at 2,000ft
 - Rwy 31L/R, SE of the airport at 3,000ft and 4,000ft

Loss of Control - Inflight

- Bird hazard exists

Runway Incursion

- Risk exists during both arrival and departure due to the complex taxiway network and busy traffic environment

Special Considerations

- If fuel reserves are low advise ATC in good time. Diversions take about 15 mins to arrange.

ARRIVAL
Diversion Airports

NEWARK	EWR/KEWR	018 nm/280°T	CAT A
PHILADELPHIA	PHL/KPHL	081 nm/235°T	CAT A
BALTIMORE	BWI/KBWI	160 nm/236°T	CAT B
BOSTON	BOS/KBOS	162 nm/050°T	CAT B

- Others which may be used include: Washington DC, Montreal, Toronto, Detroit, Charlotte, Windsor Locks and Newburgh Stewart.

Initial Approach

- The STAR is usually followed by radar vectors to final approach
- ATC often impose speed control during arrival which should be strictly followed
- Crew should be mindful that combinations of Rwy direction configurations may be in use at any one time
- Last minute runway changes and side step requests are frequent.

Approach

NW Configuration (31L/R)

- False localiser and glideslope capture have been experienced on ILS 31R
- Most frequently used throughout the winter months with the northerly and northwesterly winds
- Arriving Rwy 31R and departing Rwy 31L
- 1430L to 1730L arrivals may also use 31L due to demand. A **side-step manoeuvre** from Rwy 31R to 31L is sometimes requested by ATC on short finals. Careful consideration should be given to manoeuvring requirements and the Stable Approach Criteria before acceptance.
- Rwy 31L has no approach lighting

SW Configuration (22L/R)

- Arriving 22L while departing 22R
- Configuration used when required by wind and weather conditions and during the day to comply with Rwy rotation commitments and allow for maintenance on the 13s/31s.
- When making an approach to Rwy 22L it is normal practice to fly the VOR approach. The offset avoids conflict with departing La Guardia traffic, once visual and inside 4 miles it is acceptable to adjust to the centreline.
- Recently resurfaced Rwy 22L is significantly darker in appearance than Rwy 22R. This has caused crews to misidentify the correct runway during VOR approaches. Crews should anticipate and brief the correct visual picture and mitigate the risk of lining up on the incorrect runway centreline

- Occasionally, by either ATC or pilot request, a switch to Rwy 22R may be requested.

Ensure the following points are fully briefed before beginning an approach to Rwy 22R:

- Rwy 22R ILS approach – LOC offset which may give an unusual picture on becoming visual with the runway
- LOC may give unhelpful indications on the flight deck but GP should still be used for vertical guidance
- No approach lighting
- Only runway lighting is edge and centreline lighting. Landing threshold is marked by change in edge light colour from red to green. There is no cross bar denoting the landing threshold.

Note: The lack of vertical guidance and lighting can lead to crews becoming high on the descent profile. This has led to glidepath deviations and GPWS cautions on a number of occasions.

NE Configuration (04L/R)

- Arriving Rwy 04R while departing 04L
- Configuration is typically required during poor weather, when the airport encounters northeasterly winds, sometimes accompanied by significant rain, snow or fog.
- Used during the day to comply with Rwy rotation commitments and to allow for maintenance on the 13s/31s
- Used with strong E and NE winds. Avoids using ILS 13L as long as feasible because of the resulting negative impact to TEB (Teterboro) and LGA airports
- Rwy 04R arrival aircraft are requested to IMMEDIATELY advise ATC in the event of a missed approach as this is critical to separation from 04L departure aircraft
- Rwy 04L has no approach lighting.

SE Configuration (13L/R)

- Departures from 1800L are normally 13R and 13L due to demand (most efficient in terms of airport capacity and therefore most frequently used in summer months with the southerly sea breeze)
- No ILS on 13R
- ILS 13L is not an ATC preferred approach option in this configuration, generally used when weather conditions demand – primarily for noise reasons
- When Rwy 13L is used, crews should expect ATC to clear the aircraft for the VOR 13L.
- In strong crosswind conditions it is recommended to disconnect the autopilot earlier than the minimum disconnect height to get a feel for the conditions and minimise corrections closer to the ground. Crews should brief the expected point where the autopilot will be disconnected.
- Ensure Stable Approach Criteria (SAC) is achieved prior to 1000ft aal.
- On the CRI approach a crew may be stabilised laterally only at approximately 500ft aal. It is therefore close to the SOP stabilised lateral parameters and careful monitoring of the bank angle by the PNF turning onto the extended centreline is required. A good appreciation of the

wind direction and its consequence for the final turn is also important in order to achieve less than a 15° bank angle below 500 feet aal.

- ATC will often ask crews to maintain 180kt to CRI (5.2 or 6.2NM to the thresholds), which makes a stabilised approach significantly harder. It is recommended that crews make the request to the approach controller as early as possible (i.e. before turning for ASALT) for a suitable speed at this point, possibly 160kt.
- If weather conditions are good, cross CRI at 1500ft and hold level until intercepting the 3 degree descent path for 13L or R. If the weather is marginal it is important to get down to 850ft by the missed approach point (DMYHL) in order to have a chance of picking up the lead in lights. Having achieved this altitude, hold level flight for the initial stages of the visual segment for 13L although with cloud base at minimum a gradual descent may be required to remain in VMC.
- A continuing descent from DMYHL is required for landing on 13R.
- At DMYHL there is 3.6nm to run for 13L and 2.6nm for 13R. This means that when crossing DMYHL at 850ft, a crew is approximately 230ft low on profile for a 3 degree glide to 13L. Therefore if you keep descending this slope deficit increases and by getting even lower on profile it becomes harder to see the runway environment, PAPIs, etc. For this reason it is easier to hold level from DMYHL for 13L when weather conditions allow, until reaching the 3 degree visual indication, then set up the required rate of descent to keep on the profile.
- From DMYHL follow the curved lead-in lights to the runway. Often this approach will be flown with a south-westerly wind meaning crews must anticipate the turn onto the runway centreline. Data shows that in such conditions the start of the turn is often started too late with a consequent requirement for excessive bank angles to line up with the extended centreline.

Additional Briefing Considerations

- Approaches can often be shortened by ATC increasing the risk of rushed/unstable approaches
- Initial descent is often required well before the FMS calculated descent point. Early and comprehensive briefing is recommended.
- Taxiing and Ground Operations at JFK needs to be thoroughly briefed

GROUND

Taxiing

- If APU is INOP, ground power will be connected via the Jet Bridge. In order to do this, the jet bridge must be connected to the aircraft prior to connecting the cables. For departures, the jet bridge will have to remain attached to the aircraft after doors are closed whilst an engine is started using power from the jet bridge. Once this is completed, the jet bridge will be removed.
- ATC expect aircraft to vacate runways expeditiously without blocked exit taxiway
- Tower will normally give initial taxi instructions before transfer to ground. If they don't, or difficulty is encountered contacting ground then vacate and turn on to the first taxiway - do NOT block the exit. Even if you turn the wrong way, ATC are quite happy that you have kept exits unblocked.

- Landing 31R it is tempting to vacate at Twy V which offers easy access to the Terminal 7 ramp – however, be aware that there could be two frequencies (Ground and Ramp) to talk to before proceeding and any difficulty here could lead to the runway exit being blocked.
- The basic sense of the taxiways is that A (the inner) is used clockwise and B (the outer) is anti-clockwise, but care is required especially at night or in the snow. The apron roadways are frequently better marked than the taxiway centrelines and so crews should use caution about their proximity to other aircraft and lamp standards.
- If landing on rwy 31L crews should exit at either PD or PE onto taxiway P. Also note that twy ZA between C and rwy 22R is much narrower than it appears to be on the chart – use great caution. Taxiway B bridges can be used by the B747-436 without weight restriction although crews should avoid stopping on the bridges due to a lack of escape slide clearance.
- BAV aircraft will normally use Terminal 7, entering by V, VV, VA or W. Parking is likely to be on Stands 2 to 6. A380s park at Terminal 4.
- Note there are taxi route restrictions for the B777-300ER and A380.

Parking

- It is essential you enter the ramp by the correct entry for your gate – it is not possible to taxi from one entry point to another.
- All manoeuvring areas at JFK are restrictive and reduced engine taxi is not recommended

DEPARTURE

- KENNEDY, MERIT, BETTE & HAPIE departures are normally assigned to aircraft returning to Europe via the NAT OTS.
- CARD notes on Noise Abatement procedures
- Certain BAV flights are scheduled to arrive at LHR shortly after 0600L; although JFK taxi times are unpredictable crews should still make every effort to ensure that ETA at LHR is not before that time.
- Long delays on taxi out are common; the flight plan should include extra fuel for this contingency.
- Pushback will usually be “at your discretion” as ramps are not controlled by ATC. However, if pushback is required on to Twy A then clearance MUST be obtained from JFK Ground before pushback is commenced.

A318 Departures

- Crew must advise ATC that 2 minutes wake turbulence separation behind a heavy is required when requesting taxi on the ground control frequency. This will assist ATC as otherwise 5 miles radar separation behind a heavy would routinely be applied.
- Rwy 04L departure aircraft can expect to fly Rwy heading to 1.5 DME, then turn right to 100°. This is to provide separation from possible missed approaches to 04R, who are also required to turn right to 100° so as to avoid LGA airspace
- Controllers may instruct departing aircraft to turn right to 100° prior to 1.5 DME at pilot's discretion when arriving aircraft are not a factor.

WEATHER

- Summers warm with occasional heatwaves. Thunderstorms most prevalent May-Sep. Risk of sea fog in Apr and May.
- Winters cold with snow, sleet or rain. Heavy snow falls are a possibility. Slow moving warm fronts just off the coast bring low cloud and poor visibility which can be persistent.
- Washington is often the most reliable alternate during widespread poor weather.

OPERATIONAL INFORMATION

Handling Agent	British Airways
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

LOS ANGELES INTL (LAX/KLAX)

Elevation 128ft

CATEGORY A

No AV brief available.

GENERAL

- KLAX is major international airport and key gate to the Los Angeles
- It is a hub for – expect heavy traffic flows, look out for ATC instructions:
 - Passenger: United Airlines, American Airlines, Delta Air Lines, United Airlines
 - Cargo: Atlas Air
- It has four main RWYs, oriented from West to East (06LR/24LR and 07LR/25LR).
 - Operations are affected by winds and also noise abatement procedures
- KLAX is surrounded by residential and commercial real estate to the North, East, and South
- Pacific Ocean lies to the West of the field
- Major highways surrounding KLAX are I-405 (East of the field), I-105 (South of the field)

Threats

CFIT

- KLAX is surrounded by mountains to the North (25 nm) and East (25 nm – 40 nm) of the airport
 - If all altitude restrictions are met, they poses no factor
- Departures to the East are over the city, with multiple-story buildings – should be no factor

Runway Incursion

- RWYs and TWYs are clearly marked
- Between RWY 07L/25R and RWY 07R/25L there is TWY H – take caution on approach
- Refer to chart 10-9 for following Hot-Spots:
 - ACFT sometimes fail to hold short of RWY24L at TWY AA
 - ACFT sometimes fail to hold short of RWY24L at TWY Z
 - ACFT sometimes cross RWY25L at TWY F without ATC clearance
 - ACFT sometimes cross RWY25R at TWY F without ATC clearance
 - ACFT sometimes fail to hold short TWY H5 at Intermediate Holding Position Marking when taxiing westbound on TWY H
 - ACFT existing RWY25L onto TWY H6, sometimes mistakenly transition to TWY H5

Loss of Control

- Birds in vicinity of airport
- KLAX experiences heavy traffic flows (incl. helicopter and small private planes)
- Fog and coastal marine layer do occur, be prepared for low visibility operations

Special Considerations

- A380 and B748 operations are limited. Refer to chart 10-9-1
 - A380, B748 are prohibited from landing on RWY 07L/25R
 - A380 is prohibited from departing RWY 07L/25R
 - B748 may depart RWY 07L/25R only if:
 - Over-Oceanic procedures are in force and RWY 07R/25L is closed
 - When no ACFT on TWY B, and ACFT smaller than CAT D is on TWY H
 - For RWY25R: available only from TWY F intersection (no full length)

ARRIVAL
Diversion Airports

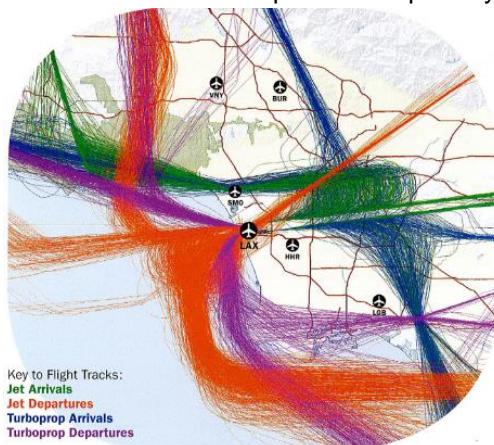
LONG BEACH/DAUGHERTY	LGB/KLGB	15 nm/108°T	CAT A
ONTARIO INTL	ONT/KONT	41 nm/068°T	CAT A
SAN BERNARDINO INTL	SBD/KSBD	59 nm/069°T	CAT A
FRESNO YOSEMITE INTL	FAT/KFAT	182 nm/328°T	CAT A
MC CARRAN INTL	LAS/KLAS	205 nm/039°T	CAT A
SAN FRANCISCO INTL	LAS/KLAS	293 nm/308°T	CAT B

Approach

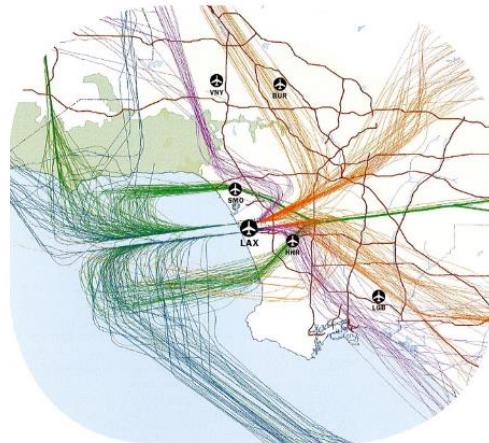
- There are several STARs from various directions, all have speed and altitude restrictions
- ACFT is usually cleared to descend via STAR
 - Plan accordingly and in advance – ATC and traffic volume can get busy at times
 - Plan to meet all restrictions (speed and altitude)
- ATC vectors are to be expected at the end of the STAR to final approach
- Be ready to be offered short cuts if traffic is light – make sure that you can meet criteria prior to acceptance
- Expect speed limit instructions from the ATC
- Vacate landing RWY expeditiously and ensure to be fully vacated before stopping

GROUND

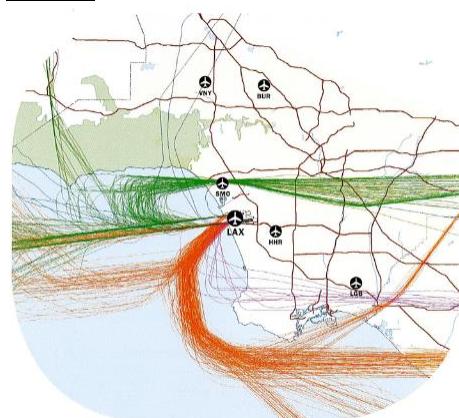
- RWYs:
 - RWY 06L/24R
 - RWY 06R/24L
 - RWY 07L/25R
 - RWY 07R/25L
- Operations:
 - West - *Preferred operations:*
 - Departures: RWYs 24L/25R
 - Arrivals: RWYs 24R/25L. **NOTE:** RWY 25L may be used for aircraft parked south of RWY 25L – expect this especially during heavy arrival periods



- East - *Use when the tailwind component on a West configuration exceeds 10 kts:*
 - Departures: RWYs 06R/07L
 - Arrivals: RWYs 06L/07R. **NOTE:** RWY 07R may be used for aircraft parked south of RWY 07R – expect this especially during heavy arrival periods



- Over-Ocean - *Noise abatement configuration (in use 0000L – 0630L):*
 - Departures: RWY 25R
 - Arrivals: RWY 06R



- For standard taxi routes, kindly refer to chart 10-6
- Low visibility taxi routes (RVR 1200' to 500') are pre-specified and can be referred in charts 10-9E and 10-9F
- There is a construction area between TWYs D, R, C, L; refer to latest NOTAM
- Preferred Gates:
 - Pax: Bradley Intl Terminal
 - Northern Concourse (gates: 131 – 131)
 - Arrival & Push: 131.850 MHz (operational hours: 24/7)
 - Southern Concourse (gates: 148 – 159)
 - Arrival & Push: 129.325 MHz (op. hours: 0530L – 2315L)
 - Cargo: Imperial Cargo Complex – entry point: TWY A1 (south of RWY 25L)

DEPARTURE

- Several SIDs to various locations – kindly make sure that you have briefed in detail for all restrictions (speed and altitude) and expected routing
- Pilots should be ready for a rapid line-up according to ATC instructions
- Cockpit checks should be completed prior to line-up and any checks requiring completion whilst on the runway should be kept to a minimum required. Commence take-off roll

immediately after receiving take-off clearance. Pilots not able to comply with the above requirements shall notify ATC as soon as possible

WEATHER

- KLAX has Mediterranean climate
- Average annual temperature is 18.6°C
- Extreme variations in temperature in close physical proximity
- Early morning fog is mainly present in late spring/early summer
- Relatively low amount of precipitation
- On average it rains 35 days in the year – 379 mm of precipitation annual (season: November – March)
- Smog is a problem and can reduce visibility

OPERATIONAL INFORMATION

Handling Agent	Cathay Pacific Cargo / Signature
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

BILL AND HILARY CLINTON INTERNATIONAL AIRPORT (LIT/KLIT)

Elevation 266ft

CATEGORY A

Crew must be aware of how to handle the KLIT before arriving.

GENERAL

- It's called KLIT

Threats**CFIT**

- Avoid ending up balls deep in the KLIT

Runway Incursion

- When moist avoid slipping into the KLIT

Runway Excursion

- When moist avoid slipping off the KLIT

Loss of Control

- Depends if you are that way inclined.... Watch out when moist

Special Considerations

- Best ask someone that understands the KLIT

ARRIVAL**Diversion Airports**

There are no diversions, its balls deep in KLIT or nothing.

Approach

- Ensure KLIT has been well groomed before attempting to enter.

GROUND

- During winter months KLIT may require its grass trimming.

DEPARTURE

- Pull out of KLIT when you feel it is required.

WEATHER

- Weather is generally mildly moist or dry as a nuns chuff.

OPERATIONAL INFORMATION

Handling Agent	KLIT Handling
Handling Agent VHF	133.00
Potable Water	Yes

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

ORLANDO (MCO/KMCO)

Elevation 96ft

CATEGORY A

No video briefing material available.

GENERAL

- Orlando International Airport is located in the centre of the State of Florida, in the contiguous United States of America.
- Orlando is a large city, hosting large volumes of tourist traffic to the various amusement parks situated in the area. Terrain is flat, and it is well equipped for intensive operations, with lengthy multiple North/South runways.

Threats

Runway Incursion

- Runways are well spaced and are protected by red stop bars, however remain vigilant and do not cross runways without explicit clearance from ATC.

Special Considerations

- During summer months, afternoon CB activity within the Orlando TMA can be widespread. ATC have extensive experience dealing with weather issues, however frequencies can become busy and early calls for headings or route changes are advised.
- Multiple parallel approaches are in operation. Ensure the correct landing runway is identified – do not accept ATC offers of visual approaches until both crew members are satisfied with aircraft position.

Spaceflight Operations

- Cape Canaveral is situated on the East Coast of Florida and hosts regular SpaceX and NASA launches. SpaceX in particular have been known to launch whatever they can find into space, in an effort to take advantage of the US taxpayer. Particular attention should be taken to avoid flying Teslas, Twitterati, and other miscellaneous debris.

ARRIVAL

Diversion Airports

TAMPA	TPA/KTPA	70 nm/248°T	CAT A
SANFORD	SFB/KSFB	21 nm/011°T	CAT A
MIAMI	MIA/KMIA	167 nm/161°T	CAT A

Approach

- Aircraft should plan to 'land on the left' of the terminal when viewed on the AFC chart, i.e. expect Rwy 36R or 17R for landing. Expect early descent, and ATC imposed speed restrictions early on in the arrival sequence.
- ATC will instruct 'cleared for the XXX arrival' and will expect aircraft to descend with the arrival procedure restrictions as depicted on the arrival chart. Where doubt exists, clarify clearance with ATC.

- Large volumes of VFR traffic operate within the TMA, maintain a good watch for light aircraft and helicopters.

GROUND

- Orlando is a large airfield and taxi times can be lengthy. Plan and brief to use SETI/RET as appropriate once clear of all active runways.
- In common with most US airports, ATC do not control ramp areas. Contact Ramp Control before landing to ascertain ramp entry point which will need to be communicated to MCO Ground.
- Simfest aircraft can expect parking at Airside 4.

DEPARTURE

- Aircraft should plan to depart from the right hand runway, when viewed on the Lido/Jeppesen chart.
- Climb gradients are for ATC separation purposes with surrounding airports. If unable to comply, contact ATC.
- ATC will instruct 'high speed approved', 'speed at your discretion' or words to that effect to lift departure speed restrictions below 10,000ft.

WEATHER

- Weather conditions are usually good, and high winds or fog are rare.
- From June-October, afternoon CBs build and extend Eastwards across the State of Florida. Diligent checking of TAFs is required for suitability of alternate aerodromes.
- Atlantic Hurricane activity occurs during summer and peaks in August and September. Dangerous weather systems are normally notified well in advance and Operations will coordinate alternative routings and flight diversion.

OPERATIONAL INFORMATION

Handling Agent	Goofy Handling
Handling Agent VHF	131.625
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

MINNEAPOLIS/ST PAUL (MSP/KMSP)

Elevation 842ft

CATEGORY A

No AV brief required.

GENERAL

- MSP is located in a heavily built-up area at the confluence of the Mississippi and Minnesota Rivers, less than 10 nm from the centres of both Minneapolis and St Paul.
- It is the largest and busiest airport in the US upper Midwest, and 49th busiest in the world

Threat Based Briefing Topics

CFIT

- The terrain around MSP is generally flat, but there are various man-made obstacles and high-rise buildings up to 1,748ft asl in Minneapolis and 1,753ft asl in St Paul
- Terrain slopes gently down toward the river in the final approach segments to Rwy 12L/R and 30L/R which may lead to a slightly unusual aspect

Runway Incursion

- LAHSO is common on Rwy 30L and Rwy 22 with landing aircraft instructed to hold short of Twy A9/W9 (Rwy 30) or Twy K (Rwy 22) to enable ground traffic to cross the runway. Take care to ensure not to accept either an active or passive LAHSO clearance.
- The taxiway layout is complex in places, particularly at the intersections of Rwy 22 and Rwy 30L/30R and Rwy 04/22 and Rwy 17/35. These areas are highlighted on the Jepp 10-9 and vigilance is required to ensure the correct routing is followed

Mid Air Collision

- There are a number of GA airfields located in the Minneapolis-St Paul area and VFR aircraft may be operating outside controlled airspace without reference to ATC in close proximity to the approach and departure flight paths
- Opposite direction operations (take off 12s/land 30s) may be in use at quiet times

ARRIVAL

- Preferred runways for arriving traffic are, in order of preference: Rwy 30L/30R; Rwy 35; either Rwy 22 or Rwy 04; Rwy 12L/12R. Aircraft larger than B763 size can expect Rwy 30L or Rwy 12R.
- Rwy 17 never used for arrivals except in an emergency
- Most STARs terminate in a downwind heading from a fix. In the absence of other instructions, ATC expect you to leave the fix on the published heading and await further vectors. Some fixes may have different headings published dependent on the arrival runway: pay close attention to the STAR chart during the approach briefing and ensure the correct heading is flown.

GROUND

- During World Flight, it is possible that 'Ground Metering' (MSP_H_GND 133.575) may be online to regulate the flow of departures
- If this is the case, obtain IFR clearance from MSP_DEL who will then instruct a frequency change to Ground Metering. On first contact with ground metering give stand number and ATIS information letter.
- Ground Metering will update the clearance as required and instruct you to monitor Ground at the appropriate moment. Take careful note of the ground frequency as there may be several positions open.

DEPARTURE

- Preferential departure runways, in order of preference, are: Rwy 12L/12R; Rwy 17; Either Rwy 22 or Rwy 04; Rwy 30L/30R.
- Departures from Rwy 22/ Rwy 04 available on request if required for performance reasons but will incur a delays
- Rwy 35 is not used for departures

WEATHER

- As a result of its northerly latitude and inland location, the Minneapolis-St Paul area experiences the coldest climate of any metropolitan area in the US
- Daily average temperatures range from -5°C in January to 28°C in July
- Prevailing wind in November NW'ly
- The Minneapolis-St Paul area experiences many types of extreme weather with frequent high winds and blizzards. Tornadoes and flash floods have also occurred.

OPERATIONAL INFORMATION

Handling Agent	Simfest Ground Services
Handling Agent VHF	
Potable Water	Not assessed

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

CHICAGO (O'Hare) (ORD/KORD)

Elevation 672ft

CATEGORY A

AV brief not required

GENERAL

- ORD is located in the north western portion of the Chicago metropolitan area, approximately 12NM east of the shoreline of Lake Michigan
- One of the largest and busiest international airports in the world, covering an area of 7,627 acres and flights to over 228 destinations

Threats**Runway Incursion**

- At night a series of white lights may be lit toward the remaining 400m of Rwy 22R denoting the start of the LAHSO.

ARRIVAL**Diversion Airports**

CHICAGO (Rockford)	RFD/KRFD	055 nm/283°T	CAT A
DETROIT	DTW/KDTW	286 nm/086°T	CAT A
TORONTO	YYZ/CYYZ	399 nm/074°T	CAT A
WASHINGTON	IAD/KIAD	567 nm/111°T	CAT B
PHILADELPHIA	PHL/KPHL	628 nm/103°T	CAT A
NEW YORK (JFK)	JFK/KJFK	680 nm/097°T	CAT B

Possible others: Milwaukee, Minneapolis, Baltimore, Montreal

Approach

- In normal circumstances Chicago plan the landing runway for inbound aircraft well in advance. A request for the plan to the current ATC unit approx. 40 minutes prior to landing (approaching TVC from the N/STL from the S) may assist with Descent planning and briefing. However, late changes to the plan are still possible. Specific landing runways may be available if requested early.
- Standard ATC speeds are 250kt to 15 NM and 170kt to the marker. An early request should be made if lower speeds are required.

GROUND

- Progressive taxi instructions available on request
- Usual parking stands M10 or M11 at International Terminal

DEPARTURE

- Confirmation of departure runway available at STD -10mins on Metering 121.67
- On departure maintain 250kt until advised by ATC, even when above 10,000ft. If unable to comply, contact ATC for an amended clearance.
- When departing Rwy 33 ensure that SID altitude restrictions at 5d and 8d can be met. If unable inform ATC at the earliest opportunity, preferably before departure, to avoid conflict with traffic from other Chicago airfields.

WEATHER

- Snowfall Nov-Apr
- "Lake effect snow" may be encountered during winter months with significant amounts of snow falling in a short period of time
- Fog and low cloud may form with easterly winds off the lake in spring and early summer
- Early morning fog possible throughout the year
- Prevailing winds southwesterly

OPERATIONAL INFORMATION

Handling Agent	BA (Pax) / GSI (Ramp)
Handling Agent VHF	131.1
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

SEATTLE/Tacoma (SEA/KSEA)

Elevation 433ft

CATEGORY A

AV brief availability

GENERAL

- Large easterly variation

Threats
Loss of Control

- Flocks of birds in AD vicinity

Mid Air Collision

- Risk of TCAS RA events (often 'Descend, Descend') when on approach to inboard Rwy 16L/34R during close-in parallel approaches in visual conditions. Refer to APPROACH section for further guidance.
- Risk of TCAS RA events in the vicinity of Boeing Field (BFI/KBFI) when on approach to Rwy 16L/C/R

ARRIVAL
Diversion Airports

PORLAND	PDX/KPDX	112 nm/186°T	CAT A
VANCOUVER	YVR/CYVR	111 nm/342°T	CAT B
CALGARY	YYC/CYYC	397 nm/057°T	CAT A
SAN FRANCISCO	SFO/KSFO	591 nm/180°T	CAT B

Others that may be used include Spokane and Edmonton

Approach

- TCAS RA events frequently occur on approach to the inboard runway 16L/34R during close in parallel approaches in visual conditions. ATC do not maintain 1.5 nm spacing, often leading to TCAS 'Descend, Descend' RAs due to following traffic at higher airspeed.
- Local US carriers can operate with TCAS in TA ONLY during close-in parallel approaches and therefore will not receive or comply with RAs
- ATC should assign Simfest arrivals to the outboard runway 16R/34L whenever possible and exclude from close-in parallel approach operations. Unless absolutely necessary crew should avoid requesting Rwy 16L/34R
- Rwy 16L/C/R and Rwy 34L: Approach terrain rises rapidly to the threshold causing the radio altimeter to ramp up quickly. For Rwy 16L the RA reads 120R when 100 ft above the airfield.
- Rwy 16C: Caution advised when transferring from instrument approach to visual. Ensure alignment with Rwy 16C as Twy T has been mistaken for Rwy 16C in certain lighting conditions.

DEPARTURE

- Emergency turn procedures – refer to CARD/Performance Manuals etc for further details.

WEATHER

- Dec – Feb: Pacific cyclones produce rain with occasional low St, drizzle and fog
- Mar – May: Showery weather with good visibility. Early morning radiation fog usually clearing by 0900 (1700Z)
- Jun – Aug: St moving in from the Pacific up Puget Sound. The incidence of low St increases through the summer with ceilings down to 300 ft.
- Sep – Nov: Radiation fog early morning and gradually increasing rainfall.

OPERATIONAL INFORMATION

Handling Agent	Menzies
Handling Agent VHF	130.05
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

SAN FRANCISCO (SFO/KSFO)

Elevation 13ft

CATEGORY B**PRM & PRM LDA Approaches are available for RWY 28L & 28R.**

These approaches are available if both pilots are current (Performed such approach within the last 12 month).

If pilots are NOT current, pilots are required to review the latest PRM Video from FAA. Follow link below:

https://www.faa.gov/training_testing/training/prm/media/PRM_training.pptx

Pilots must not accept a PRM approach if the above cannot be achieved.

GENERAL

- San Francisco airport is located 11nm south of downtown San Francisco.
- SFO is the main airport in the San Francisco Bay Area.
- Large Easterly variation

Threats**CFIT**

- There are more than 50 hills within city limits. San Bruno mountain 1,500ft asl is 4 NM NW and there is terrain up to 2,000ft asl within 3 nm W of the airfield. These hills have a significant influence on departure, arrival and missed approach procedures.
- The terrain gives a high descent MSA though SSAs are considerably lower
- Review GPWS caution and warning actions (OM A 4.3.9)
- Be aware of rate of descent limits within 3,000ft of relevant MSA/SSA (see OM A 4.3.15.5)
- Consider use of terrain display and full use of AFDS to facilitate look-out and situation awareness
- Departures have non-standard acceleration and thrust reduction heights and emergency turn procedures.
- RWY 10L – Tower, 1300ft Right of centre, 88ft high, 3280ft from end, 35:1 clearance slope.
- RWY 10R – Tower, 950ft Right of centre, 87ft high, 3875ft from end, 42:1 clearance slope.

Runway Incursion

- Vacating RW28R requires an aircraft to cross RW28L, usually at TWY T.

Runway Excursion

- SFO has a history of high energy and rushed approaches

Loss of Control

- See DEPARTURES section for risk of low climb out speed events on Rwy 28L/R due to change in strength of WNW winds above ground level
- Simultaneous operations in affect all RWYs.
- Flocks of birds feeding along shoreline adjacent to airport; on occasions fly across various parts of the airport.
- During summer months positive WINDSHEAR is common below 200ft, caused by sea breezes in the Bay. Coupled with ground effect this can destabilize the aircraft on short final.

Mid Air Collision

- Close simultaneous parallel (PRM) approaches to Rwy 28L, and LDA/LDA PRM approaches to Rwy 28R **are** authorised for use by BAV aircraft
- TCAS events are common in the vicinity of SFO, particularly during parallel approach

operations. Brief TCAS procedures as well as PRM and SOIA approaches.

- Threats include Oakland traffic and departing SFO aircraft

Special Considerations

- Ensure compliance with the 'AT OR ABOVE' level constraints on SIDs due to the close proximity of Oakland and GA airfields.

ARRIVAL

Diversion Airports

OAKLAND	OAK/KOAK	010 nm/037°T	CAT B
SAN JOSE	SJC/KSJC	026 nm/112°T	CAT B
SACRAMENTO	SMF/KSMF	074 nm/016°T	CAT C
RENO	RNO/KRNO	167 nm/033°T	CAT C
LOS ANGELES	LAX/KLAX	293 nm/124°T	CAT B
ONTARIO	ONT/KONT	316 nm/118°T	CAT B

A380

- Only two runways are currently available for the A380 to land and depart at SFO – 10L/28R and 19L/01R
- 10L does not have an ILS. CAT II/III operations are approved on Rwy 28R.
- Rwy 01R does not have an ILS and 19L is not equipped for CAT II/III operations.
- When landing 19L pilots should if at all possible avoid rolling past Taxiway M. Doing so would require the A380 to make a 180° turn on the runway as taxiways south of M are restricted. BTV (Brake to Vacate) systems should be set to exit at Twy G, H and no later than M, if practical.

ALL

- Rwy 01L/01R are **not approved** for landing for any BAV aircraft types. This is due to the lack of published approaches, no approach lists or vertical guidance and rising terrain close to the threshold of the runways. In the event of strong northerly winds, consider 28L/R if crosswind is within limits or holding/diversion as appropriate.
- Routings are usually via Red Bluff (RBL) or Mustang (FMG) and then Golden Gate or Modesto STARs. Shortcuts are often given with a direct routing to Point Reyes (PYE), LOZIT or CEDES. Expect 11,000ft at these waypoints. The exact arrival routing should be requested from ATC on first contact.
- Clearance to cross SFO maintaining 11,000ft is typical.
- Include relevant configuration and speed targets in the descent brief to ensure energy is managed effectively – often there is a short distance to run and lots of height to lose.

- The heading off the SFO will indicate whether a left or right pattern will be flown – left hand patterns tend to involve greater track mileage and fewer energy management issues though it is still wise to consider early.
- It is prudent to lose height downwind whilst maintaining speed and then reduce speed on base leg (B747 – consider F10 on the base turn).
- Beware asking for a 10 NM final as this may be misinterpreted as a request for a shortcut. ATC will generally aim to vector for a turn on to the ILS at 12-14 NM – if in doubt prompt downwind for more track miles. Requests for “at least a 10 NM final” will generally be accepted but traffic for OAK Rwy 29 may impact this if you are RH downwind for Rwy 28R.
- Long delays are possible when Rwy 10/19 are in use due poor weather
- Arriving via BDEGA3 it is highly likely that the assigned runway transition and landing runway will differ – you may hear the following from NorCal Approach:

“Speedbird 287, Descend via BDEGA Three arrival, Runway 28 Left transition, expect ILS/Visual approach Runway 28 Right.”

Approach

- Wind is predominantly westerly
- The ILS can usually be expected but there are multiple final approach options, including the ILS PRM for Rwy 28R, LDA/LDA PRM for 28L, Quiet Bridge Visual for 28L/R or Tipp Toe Visual for 27L.
- If arriving between 2300-0600 local time, request a Quiet Bridge Visual approach and avoid overflying residential areas on the coastline if at all possible.
- Expect ATC requests of 180kt to 6 NM, 170kt to 5 NM or the more familiar 160 kt to 4 NM.
- Note go-arounds from published visual approaches are different to standard US and there is a requirement to maintain a specific heading.
- Late visual switches are infrequent for ‘Heavy’ aircraft but worth reviewing procedure for this along with the PRM breakout manoeuvre.
- Expect a heading of 265-280 climbing to 3000 or 4000ft if you go around, climbing to 5000ft over the ocean on handover to Norcal for a left hand downwind.
- Note that the DME reads 2 NM at the threshold of 28L/R, adding to the chances of a rushed approach.
- Landing 28L/R, expect traffic to depart on Rwy 01L/R at a late stage of the approach/
- If simultaneous visual approaches Rwy 28L/R are in use, advise Bay Approach Control on first contact that a single file approach (i.e. not side by side with 750ft separation in VMC) is required – a minor delay of about 5 mins may result.
- ATC frequently “cut in” small jets and light aircraft ahead of large aircraft on long finals.
- RNAV and Conventional STARs are published for all runways. Expect radar vectors for final approach. Some procedures start before descending through FL200.

- Arrival RWY 28L: Arrival can be changed to the BDEGA 3 to land RWY 28L from an ILS.
- Arrival RWY 28R: when exiting RWY 28R using RET T – holding short RWY 28L – marked as a hotspot: caution wing tip clearance with small aircraft on taxiway D and once clear of RWY 28L turning left onto taxiway B. Caution when crossing RWY 28L, confirm crossing clearance with tower. Be aware RWY 28L is normally used for faster smaller traffic.
- RWY 19L/R: Runway 19L is published with an ILS CAT I approach and runway 19R is published with an RNAV GPS approach. On approach for runway 19L a sidestep to parallel runway may be assigned by ATC. Expect wind shear and turbulence on short final to both runways.
- RWY 10L/R: For runway 10L there is an RNAV GPS approach and for 10R there is an RNP approach available. Both runways have a displaced threshold.
- RWY 28L/R: Runway 28R has an ILS CAT III approach available and 28L has an ILS CAT II approach available. Both runways have a displaced threshold. There is an obstacle departure procedure for these runways requiring a minimum climb gradient of 351ft/nm up to 1300ft.
- Twy Z is often used to cross aircraft and this may appear to be a runway incursion – if in doubt clarify with ATC
- Ensure missed approach tracks are flown accurately due to terrain

Quiet Bridge/Tipp Toe Visual

- The usual instruction is “Cleared visual 28L/R via the Quiet Bridge approach”.
- It is imperative that the instrument portion of the approach is flown.
- You are expected to maintain the SFO 095 radial until passing the San Mateo Bridge at the specified height before the turn toward the runway is made. This results in a significant offset, particularly for 28L.
- Similar restrictions for the Tipp Toe Visual must also be complied with.
- Note that you will be expected to maintain separation from any other traffic you have confirmed to ATC as being in sight.
- Whilst both the Quiet Bridge and Tipp Toe are visual approaches, they have promulgated missed approach procedures.
- The Quiet Bridge is primarily used for 28R arrivals, and the Tipp Toe for 28L.

Suggested review items to consider for the approach brief include:

- Terrain – RoD within 3000ft of MSA, review GPWS pull up recall actions
- Energy management – establish bottom lines and gates, what to do if it goes wrong (early gear selection can be very effective!)
- FMS programming – consider use of RTE2 for different arrivals/runways
- Traffic – review TCAS RA manoeuvre.
- ILS PRM approach – review breakout manoeuvres & late runway changes

GROUND

- Need to contact Ramp Control during taxi and then again on approaching “spot 2”. Final taxi on to gate initially via Marshaller, then via gate guidance.
- Approaching the ramp, expect to enter via spot 1 or 2. May have to hold at spot 3 or 4 if gate occupied. If delayed to gate, ramp will usually keep you updated.
- Do not enter TWY M1/M2 without a specific taxi clearance from Ramp Tower A.
- If landing 28R do not cross 28L until cleared to do so.
- Only contact Ground when instructed to do so
- Remain on the taxiway used to vacate the runway until clearance to continue is received.
- Consider use of wingtip lights as it is not uncommon for large aircraft to pass on Twys M and H.
- See Navigraph/Lido charts for widebody/A380 taxiway restrictions.
- Parking stands are generally A2-A10 at the International Terminal.

DEPARTURE

- Departure clearance can be obtained with 20 mins to go – SFO operates the Abbreviated Departure Clearance Readback Procedure (see OM C – North America/North Atlantic)
- The following SIDs are **NOT APPROVED** for BAV Operations:
 - Rwy 01L/01R: GAP and SSTIK SIDs
 - Rwy 10L/10R: GAP and MOLEN SIDs
 - Rwy 19L/19R: LUVVE, GAP and MOLEN SIDs
 - Rwy 28L/28R: GAP, SHORELINE, RNAV GNNRR, NIITE, RNAV TRUKN and RNAV WESLA.
- SFO/TRUKN SIDs Rwy 01L/01R to achieve 3000ft height requirement at SFO 6D or TYDYE:
 - EO ACCEL HT – 1000ft
 - ACCEL HT – 3000ft
 - THR RED – 3000ft
- Departures Rwy 19L/R:
 - B777:
 - EO ACCEL HT - 1400ft
 - ACCEL HT - 1400ft
 - THR RED - 1400ft

- B787:
 - EO ACCEL HT – 1500ft
 - ACCEL HT – 1500ft
 - THR RED – 1500ft.
- Departures Rwy 28L/R:
 - EO ACCEL HT – 1500ft
 - ACCEL HT – 1500ft
 - THR RED – 1500ft.
- “Parallel take-offs” have been understood to occur – as with all take-offs in the US, immediate compliance with a take-off clearance is assumed. If you wait for separation from the other traffic, it is likely your clearance will be cancelled.
- Possible late change of departure RWY. Consider take off calculation for both RWYs.
- GAP departures (GAP “X”/SFO “X”) minimum altitudes apply – refer to LIDO “Fly Quiet Program” chart and follow guidance below.
 - Set acceleration altitude at 3500ft unless lower level off provided by ATC.
 - Boeing 777: 340-345 tons – Use Assume Temperature 30 deg in FMC and speeds from CARD assumed temperature uncalculated.
 - Boeing 777: 345+ tons – Use APU-to-PACK (or PACKS OFF takeoff if not available).
- Takeoff from RWY 01R is possible and has a shorter taxi time. This can be requested with delivery around 30 minutes before STD. If approved, expect SID TRUKN2. Caution: close separation with departures on RWY 01L, although initial routing will separate traffic.
- The gap in the mountains at the end of Rwy 28L/R produces a near year-round W/NW wind which increases in strength during the summer. There are a number of low climb-out speed events seen during these months which is caused by the ground level headwind rapidly disappearing at around 400R. Ensure speed is monitored closely during climb-out, especially at around 400ft when distractions such as ATC frequency changes may occur.
- Aircraft have been cleared to take off from Rwy 28R with an aircraft positioned on Twy D between 28R and 28L – although aircraft positioned between the runways may appear close sufficient clearance does exist and this is allowable under current airfield procedures. If in doubt ask ATC.
- For the departure brief, review:
 - Terrain – Emergency Turn, GPWS pull up actions
 - Performance Restrictions – most suitable departure runway, non-standard thrust red/accel heights
 - (A380) Continuation policy in the event of an in-flight shutdown.

- CARD/OPT may produce a variety of flap settings for take-off depending on the departure runway – be prepared to change the take-off flap setting in the event of a runway change.

WEATHER

- Since San Francisco is surrounded on three sides by water, the weather is strongly influenced by the cool currents of the Pacific Ocean, which moderate temperature swings and produce a remarkably mild year-round climate with little seasonal temperature variation.
- San Francisco exhibits a multitude of distinct microclimates. The high hills in the geographic centre of the city are responsible for a 20% variance in annual rainfall between different parts of the city.
- The hills also protect neighbourhoods directly to their east ("banana belts" such as Noe Valley) from the foggy and sometimes very cold and windy conditions.
- Volmet is available on Honolulu Radio 2863, 6679, 8828, 13282 kHz.

Turbulence & Windshear

- Wake turbulence potential exists due to heavy jet traffic. The airport is equipped with low level windshear alerting system.

OPERATIONAL INFORMATION

Handling Agent	BA (Pax) Servisair (Ramp)
Handling Agent VHF	129.7
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

BARCELONA (BCN/LEBL)

Elevation 14ft

CATEGORY B

AV brief not required.

GENERAL

- The aerodrome is located on a small coastal plain 5.5nm SW of Barcelona city.

Threat Based Briefing Topics

CFIT

- Within 10nm from W through N to NE high ground reaching ~2,200ft asl
- 1,000ft asl contour at 5nm range
- Slopes of the Pyrenees start at 18nm. By 22nm peaks rise to 3,500ft asl and further N to over 11,000ft asl
- High ground between 12nm and 4nm on the approach to Rwy 07 just left of centreline
- Ensure descent clearances accepted comply with MSAs

Loss of Control

- BCN is subject to a marked diurnal wind variation which can change very rapidly. The airfield position on a coastal plain surrounded on three sides by the sea can exaggerate this effect. This can cause low level wind shear with the land sea breeze effect.

ARRIVAL

Diversion Airports

GERONA	GRN/LEGE	047 nm/040°T	CAT B
VALENCIA	VLC/LEV	156 nm/227°T	CAT B
MADRID	MAD/LEMD	261 nm/259°T	CAT A

Others that may be used include Bilbao, Perpignan and Marseille

Approach

- See Jepp 10-1 pages for details of preferential runways and minimum runway occupancy procedures
- A rapid change to the wind direction vertically on the approach can result in multiple runway changes
- Note that when landing on Rwy 02, ATC expect aircraft to vacate by taxiway UB. Exit via M or N is not permitted.
- See noise abatement page for arrival speed control
- Arrivals from the N may have difficulty contacting Barcelona Control at the boundary

- Possible visual descent clearance if VMC
- Expect radar vectors but procedural approaches are not uncommon
- Circling prohibited in sector 255° clockwise to 010°
- Specific ‘Comm failure missed approaches’ published in Jepps
- Rwy 20 not available for landing
- Crew reports of occasional G/S fluctuation. Please report any occurrences directly to ATC.

GROUND

- Parking at Terminal 1
- There are restrictions on some taxiways and standard taxi routes – see Jepp 10-1 pages
- PC is routinely connected on arrival – check PCA status prior to using APU bleed air
- B747 keep outboard engines at idle to avoid ingestion of gravel and dust during taxi
- If fuel is not required for the return sector advise station staff immediately upon arrival

DEPARTURE

- Some areas are not visible to ATC and therefore crew look-out is essential
- Expect intersection departures Rwy 25R/07L, full length available on request
- Emergency Turn procedures in CARD. Attention to high ground is also necessary while executing the SIDs
- Take note of preferential runways as advised in Jepp 10-1 and justification required for some runway departures
- Crew should note BCN conditional line-up procedure as detailed in Jepp 10-1 for Minimum Runway Occupancy Time (MROT)

WEATHER

- Summer – severe thunderstorms possible over the Pyreness day and night. Fog may occur at the airfield after midnight.
- Winter and spring – early morning fog. Occasionally fog patches drift over the airfield but clear before fog becomes established.
- S winds produce low stratus. N winds give severe turbulence and downdraughts.

OPERATIONAL INFORMATION

Handling Agent	IBAS – Iberia Airport Services
Handling Agent VHF	131.55
Potable Water	Uplift permitted

IF ONLY Electrical Power is required	Airport authority usage restrictions for APU are strictly enforced. Follow guidance in Jepp 10-1 pages.
If BOTH electrical power and air conditioning is required:	Airport authority usage restrictions for APU are strictly enforced. Follow guidance in Jepp 10-1 pages.

NICE (NCE/LFMN)

Elevation 12ft

CATEGORY B

BAV A/V Brief required for initial qualification:

<https://drive.google.com/file/d/1MdGI7V4zgVVddWb7tCbyDt2SXbrcYAAa/view?usp=sharing>

GENERAL

- Airfield situated on the coast 2nm SW of the city of Nice

Threats

CFIT

- The Navigraph/LIDO Radar Minimum Altitudes chart provides a useful overview of the terrain Situation
- High ground is present along the coast and inland of the airfield rising rapidly within 5NM
- NE of the RWY 22L and R thresholds there is terrain and obstacles c850ft AMSL at 3.5NM and greater than 2,000ft AMSL within 6NM.
- To the NW the ground rises to peaks to c4,200ft AMSL 10NM to the NW of the airfield and c4,600ft AMSL 11NM NE.
- To the SW the terrain is flatter, but obstacles rise to c1,100ft AMSL at 9NM.
- Due to the high ground to the N and NE it is important to plan for missed approaches to be carried out during each stage of the approach. A guiding principle should be a turn away from the high ground and over the sea.

Runway Excursion

- Preferential runways are 04L for landing and 04R for departure with up to 6kts tailwind.
- Delayed descent clearances and/or shortened inbound routeings can lead to fast, high approaches.
- When limits for the RWY 04L/R RNP or VOR 'A' are marginal ATC can give late notice vectors for the ILS leaving aircraft high and fast.
- The parallel taxiway north of 04L can easily be mistaken for a runway. Use of the ILS is recommended even in good visual conditions to aid correct identification.
- If landing runway is 04R it is easy to become high from the visual approach due to the shorter distance from the MAP to the final approach and the staggered threshold.

Runway Incursion

- Incursions of RWY 04L/22R have occurred when arriving on RWY 04R/22L, ensure crossing clearance has been received.
- On departure caution crossing RWY04L for RWY04R to ensure that 04R is not infringed, the taxiway layout between the two can be confusing particularly at night, especially at C1.
- Taxiways can be confusing. Strict adherence to ATC instructions and taxi charts is required.

Loss of Control

- Turbulence and windshear occur due to local topography.
- With strong N winds turbulence maybe encountered at circuit height.
- Strong W winds give a marked downdraught at the thresholds of RWY 22L/R.
- Sea breeze effects produce significant changes of wind direction at low level. It is possible to have tailwind conditions reported on all runways.

Special Considerations

- Noise Sensitive Airport, especially the Cap D'Antibes area, heavy fines are imposed for violations.

- The following items should be briefed on the RNP and VOR 'A', 'B', 'C' and 'D' approaches; What vertical profile will be flown and how will this be achieved and monitored? When will handover of control take place and will the aircraft be fully configured at this point? Will the AP/FD be used? How can the correct runway be identified and distractions be managed? What are the go-around procedures for the instrument and visual portions of the approach?

ARRIVAL

Diversion Airports

MARSEILLE	MRS/LFML	088 nm/261°T	CAT B
LYON	LYS/LFLL	154 nm/323°T	CAT A
BARCELONA	BCN/LEBL	268 nm/238°T	CAT B
MILAN (Malpensa)	MXP/LIMC	134 nm/029°T	CAT B
GENOA	GOA/LIMJ	083 nm/057°T	CAT B

Approach

- Expect RNAV STAR NISAR 6R.
- Radar vectoring is mainly to seaward due to terrain.
- Communications to the N are restricted for the same reason. Marseille will normally give landing runway but type of approach will only be available from Nice ATC.
- The ATIS shares a frequency with Agen and the latter predominates until into the descent.
- Holding, if required, will normally take place at AMFOU.
- ATC are not allowed to offer visual approaches at night, crews may request them if desired.
- Landings are normally carried out on 04L or 22R with take-offs on 04R and 22L due noise. However late at night 04R and 22L will be used for both.
- When the wind does not allow use of RWY 04L/R (more than about 6 kt tail), and the conditions are below prescribed minima, the aerodrome will be closed to traffic. All circling and visual approaches (including indirect approaches) must be carried out over the sea once below 5000ft. Noncompliance has resulted in heavy noise fines.

04L/R

- RNP Z LPV minima are not currently approved. The LNAV/VNAV minima can be used if the Missed Approach Climb Gradient can be achieved, there are considerable improvements in minima available if the aircraft can achieve a single-engine MACG greater than standard.
- RNP Y and Z approaches are straight in and are unlikely to be offered unless weather is limiting and ILS unavailable, due to noise considerations.
- RNP Y minima are dependent on the aircraft's Missed Approach Climb Gradient, check the correct minima have been selected
- RNP A and VOR A noise abatement offset procedures are used when cloudbase permits (see below).
- Wind strength and direction on the ground may be considerably different to that on approach.
- Rwy 04R ILS Localiser is offset by 2°.

- Considerably offset VOR 'A' (formerly "Riviera") or RNP 'A' Break-cloud Procedures are published and may be referred to by ATC as Noise Abatement Procedures – crews should be prepared to use these in good weather when visibility at least 10 km with 3,000ft cloud base. ATC may use this procedure even when the conditions are marginal.
- If this procedure is in use crew should not request ILS approach as, although ATC may permit, a large fine may subsequently be issued.

The procedure positions the aircraft at BISBO at 3,000ft for a visual approach towards the horse racetrack. The VOR 'A' approach chart gives check altitudes against DME from CGS. The ILS for the landing runway will normally be radiating. Runway lights are omni-directional and there are 2 flashing white identification lights at the threshold of the landing runway.

At night the runways are difficult to discern against the background lighting. Ensure that Antibes and Cap Gros are not overflowed. All missed approaches are out to sea and vary depending on whether the starting position is the instrument or visual segment.

CAUTION: RWY04L/R PAPI calibrated for CAT D aircraft only. PAPI indications approaching 300ft for CAT C aircraft will suggest the aircraft is low when on correct profile. This has led to crews deviating above the glideslope in the latter stages of the approach.

Approach Guidance – VOR 'A' Approach and RNP 'A' Approach RWY 04L/R:

A380 B767 B777 B787

Not Applicable

B747

Use LNAV/VNAV to minimise workload during the intermediate approach.

Entering CGS/174 in the FIX page will provide a useful guide for tracking after D5 CGS and the turn to final if the centreline is appropriately extended.

Approaching D5 CGS select ALT HLD and HDG SEL.

At MDA: If P1 calls "Go Around" then select LNAV to fly the missed approach with AP engaged.

At MDA: If P1 calls "Visual, Continue" then PF continues desired flight path toward final using AP in HDG SEL and V/S.

Advisory altitudes at CGS D5, D4 and D3 are published on "VPT A 04L/R Visual Manoeuvring with Prescribed Tracks" chart. This chart also describes the different go-around from below MDA which is to ensure separation from helicopter traffic.

AP is approved down to 360ft aal per FCOM L.10.5.

A32N

Use FINAL APP to minimise workload during the intermediate approach. To retain AP F/D below MDA and avoid inappropriate guidance:

1. Use FINAL APP down to MDA.
2. When using FINAL APP do not select GA ALT until below the final descent point (2000ft) to avoid unwanted ALT* when basic modes are selected (PRO-NOR-EXP-APPROACH APPROACH USING FINAL APP GUIDANCE).
3. Select the bird and PULL TRK approaching D5 CGS to engage basic modes and retain AP: If in FINAL APP the AP disconnects at MAP not MDA (PRO-NOR-EXP-APPROACH APPROACH USING FINAL APP GUIDANCE). Adjust FPA to 3° if required
4. At MDA: If P1 calls "Go-Around" then PUSH to level off at 2000ft and PUSH NAV after MAP to fly the missed approach with AP engaged Consider using the "Discontinued Approach" procedure (PRO-NOR-EXP-APPROACH-DISCONTINUED APPROACH) to adjust to the Missed Approach Altitude

5. At MDA: If P1 calls "Visual, Continue" then PF continues desired flight path towards final using AP in TRK and FPA.
6. Advisory altitudes at CGS 4D and 3D are published on 'VPT A 04L/R Visual Manoeuvring with prescribed tracks' chart. This chart also describes the different go-around from below MDA which is to ensure separation from helicopter traffic.
7. AP is approved down to 500ft (A318, A319, A320)/900ft (A321) as per FCOM LIM-AUTOFLIGHT SYSTEM "In all other phases".

[ALL](#)

22L/R

One RNP and two VOR circling procedures are published, RNP 'D', VOR 'B' and 'C' (formerly "Saleya"), all require significant visual manoeuvring from the MAP.

- At the MAP visual identification of the coast and aeronautical lights on the 856ft AMSL antennae and the 654ft AMSL hill should be made if scenery permits. There is a white lighthouse on Cap Ferrat which may be floodlit, but this scenery dependent and in any case may not be visible from the left seat at the MAP.
- When Rwy 22 is the landing runway, under adverse weather conditions (visibility BLW 8 km, ceiling BLW 1500ft), RNP D Rwy 22L/R procedure will be in use. Without required RNAV capability, holding or diversion is to be expected.
- There are 2 flashing white identification lights at the threshold of the landing runway. Beware of getting too close to the high ground to the NE, especially with a strong S to SW wind. Note that the extended centre line of Rwy 22R passes approximately 1000 m to the NW of Nice harbour.
- Avoid overflying the land at all times during visual manoeuvring
- From the MAP of either approach type the approach must be completed visually. A potential trap is to continue descent from the MAP and become low on the base leg. Although the PAPIs are offset, they are not easily discernible until the turn onto finals. Follow the guidance below to guard against becoming low and ensure the stable approach criteria passing 1,000ft can be easily assessed.

[ALL](#)

VOR Rwy 22L/R

- The distance to touchdown from MAP is approximately 6.5 nm. The minimum altitude after the MAP is 1000ft until the 3.5° final approach can be commenced.
- An effective technique to avoid becoming low is to maintain 1,500ft from the MAP throughout the right turn onto base, and do not descend below 1,500ft until a continuous 3.5° final approach profile can be commenced (Note: For RWY 22R the DME reads 0.5 (AZR)/3.9 (CGS) at the THR). As a guide, an approximate location for commencing a 3.5° final approach from 1,500ft (for runway 22R) is when the AZR 070 radial is passed on base leg (CGS 072 radial if AZR u/s).

Approach Guidance – VOR 'B' or 'C' Approach Rwy 22L/R:

[A380](#) [B767](#) [B777](#) [B787](#)

Not Applicable

[B747](#)

Use LNAV and VNAV to MDA to minimise workload during the intermediate approach.

Approaching D5.5 AZR select ALT HLD and HDG SEL.

At MDA: If P1 calls "Go Around" then select LNAV and execute standard missed approach.

At MDA: If P1 calls "Visual, Continue" then PF continues desired flight path toward final using AP in HDG SEL and V/S.

AP is approved down to 360ft aal as per FCOM L.10.5

A32N

Use FINAL APP to minimise workload during the intermediate approach. To retain AP/ FD below MDA and avoid inappropriate guidance:

1. Use FINAL APP down to MDA.
2. When using FINAL APP do not select GA ALT until below the final descent point (1500ft) to avoid unwanted ALT* when basic modes are selected (PRO-NOR-EXP-APPROACH APPROACH USING FINAL APP GUIDANCE).
3. Select the Bird, PULL TRK and PUSH FPA (to level off) approaching MDA to engage basic modes. If in FINAL APP the AP disconnects at MAP not MDA (PRO-NOR-EXP-APPROACH APPROACH USING FINAL APP GUIDANCE).
4. At MDA: If P1 calls 'Go-Around' then execute standard missed approach.
5. At MDA: If P1 calls 'Visual, Continue' then PF continues desired flight path towards final using AP in TRK and FPA.
6. AP is approved down to 500ft (A318, A319, A320)/900ft (A321) as per FCOM LIM-AUTO FLIGHT SYSTEM "In all other phases".

ALL

RNP 'D' RWY 22L/R

The minimum altitude after the MAP is 1000ft until the 3.5° final approach can be commenced.

It is recommended to maintain 1260ft (Circling minima) from MAP22 until a continuous 3.5° final approach profile can be commenced (Note: For Rwy 22R the DME reads 0.5 (AZR)/3.9 (CGS) at the THR). As a guide, an approximate location for commencing a 3.5° final approach from 1270ft (for runway 22R) is when the AZR 065 radial is passed on base leg (CGS 67 radial if AZR u/s).

A380 B767 B777 B787

Not Applicable

B747

Use LNAV and VNAV to MDA to minimise workload during the intermediate approach.

Approaching MN22D select ALT HLD and HDG SEL.

At MDA: If P1 calls "Go Around" then select LNAV and execute standard missed approach. Refer to VPT D Rwy 22L/R for details of visual baulked landing.

At MDA: If P1 calls "Visual, Continue" then PF continues desired flight path toward final using AP in HDG SEL and V/S.

It is recommended to fly level at the Circling Minima until intercepting the 3.5° final approach path

AP is approved down to 360ft aal as per FCOM L.10.5

A32N

Airbus Guidance – RNP 'D' Approach RWY 22L/R:

Use FINAL APP to minimise workload during the intermediate approach. To retain AP/ FD below MDA and avoid inappropriate guidance:

1. Use FINAL APP down to MDA.
2. When using FINAL APP do not select GA ALT until below the final descent point (1260ft) to avoid unwanted ALT* when basic modes are selected (PRO-NOR-EXP-APPROACH APPROACH USING FINAL APP GUIDANCE).

3. Select the Bird, PULL TRK and PUSH FPA (to level off) approaching MDA to engage basic modes. If in FINAL APP the AP disconnects at MAP not MDA (PRO-NOR-EXP-APPROACH APPROACH USING FINAL APP GUIDANCE).
4. At MDA: if P1 calls 'Go-Around' then execute standard missed approach.
5. At MDA: if P1 calls 'Visual, Continue' then PF continues desired flight path towards final using AP in TRK and FPA.
6. It is recommended to fly level at the Circling Minima until intercepting the 3.5° final approach path.
7. AP is approved down to 500ft (A318, A319, A320)/900ft (A321) as per FCOM LIM-AUTOFLIGHT SYSTEM "In all other phases".

GROUND

- When parking at Stand 14A, crew are advised to keep all engines running during taxi, due to uphill slope.
- Stand 16B: This stand faces out towards the taxiway. As you turn onto stand, it is possible to be misled by what appears to be a stop line on the left-hand side. Additionally, there are no clear ground markings to indicate that a right turn is required, to face towards Twy S.

DEPARTURE

- Departures routed over the sea until above 6,000ft.
- Expect an RNAV SID, BADOD 6E from 04R or 6W from 22L.
- Normally either runway 04R or 22L.
- ATC may cancel speed control and give direct routings but will not consider your rate of climb relative to terrain.
- CARD has details of emergency turn procedures.

WEATHER

- General weather and climactic synopsis, e.g. max/min temps, prevailing winds, likelihood of fog, local meteorological phenomena etc.

OPERATIONAL INFORMATION

Handling Agent	AVIAPARTNER
Handling Agent VHF	131.625
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 APU for air conditioning (keep GPU connected to reduce APU fuel burn)

ATHENS (ATH/LGAV)

Elevation 308ft

CATEGORY A

AV brief not required

GENERAL

- Airfield located 10 nm SE of the city of Athens

Threats

CFIT

- Terrain surrounds the airfield on all sides with peaks rising 4.5nm W to ~3,400ft amsl, 6nm N and NW to ~1,700ft amsl, 8nm S to ~2,100ft amsl and 10nm N to ~3,700ft amsl
- A low mountain range sits between the airfield and the city to ~3,400ft amsl
- Terrain on the island of KEA at 25nm SE to ~1,800ft amsl and on the Euboea Peninsula 26nm ENE to 4,600ft amsl
- Spot elevations of 775ft amsl at 3.5nm on the Rwy 21L extended centreline, and 972ft amsl at 4nm just 0.5nm S of the extended centreline

Special Considerations

- Different material types have been used in the construction of the runways, with the first and last 800m of each runway (including the threshold and touchdown points) in light coloured concrete. The rest of the runways are black asphalt.

ARRIVAL

Diversion Airports

THESSALONIKI	SKG/LGTS	162 nm/344°T	CAT B
RHODES	RHO/LGRP	219 nm/115°T	CAT B
SOFIA	SOF/LBSF	287 nm/355°T	CAT B
IRAKLION	HER/LGIR	167 nm/159°T	CAT B

Others which may be used include Istanbul and Kerkyra (Corfu)

Approach

- Circling not permitted for Cat C and D aircraft
- With Rwy 21L/R in use aircraft may be radar vectored from DDM, significantly reducing track miles compared to the STAR.

GROUND

- Ensure correct aircraft type displayed on AGNIS board
- Note weight restrictions when taxiing over Twy K and H bridges

DEPARTURE

- Emergency turn procedures for all runways

WEATHER

- Occasional thunderstorms throughout the year
- Fog reasonably frequent during winter and spring
- Extremes of temperature range from 42°C (July) to -3°C (Feb)

OPERATIONAL INFORMATION

Handling Agent	Swissport
Handling Agent VHF	131.7
Potable Water	Uplift permitted

IF ONLY Electrical Power is required	Use if available (if not then use APU)
If BOTH electrical power and air conditioning is required:	Use both ground services at all times (if fixed equipment not available, use APU)

KERKIRA (Corfu) (CFU/LGKR)

Elevation 6ft

CATEGORY B

No AV brief currently available.

REGULATION

- A Captain must not operate to Kerkira (Corfu) at night (between sunset and sunrise) unless they have previously operated to Kerkira (Corfu) during daylight hours.

GENERAL

- Airfield located on the East coast of Corfu, amongst high ground.
- Busy airfield in summer
- Traffic on road 60m N of the Rwy and pedestrians/cyclists on the causeway running through the approach lights to Rwy 35.

Threats
CFIT

- 8 nm N there is terrain to nearly 3,300ft asl.
- 3 nm SW spot elevation to nearly 1,900ft asl.
- 2 nm S of Rwy 35 threshold and less than 1 nm left of Rwy 35 centreline, terrain to nearly 1,000ft asl.
- Further obstructions up to 206ft asl within 0.5 nm of Rwy 35 threshold and only just left of the centreline.
- Obstructions and a ridge up to 226ft asl to the right of Rwy 35 threshold, obscuring the 35 threshold at the start of a Rwy 35 offset VOR/DME/NDB approach.
- At 0.4 nm and only just to the right of Rwy 35 centreline an island to 90ft asl.
- Masts to 558ft asl 0.5 nm to the W of the airfield and in line with the Rwy 35 offset VOR/DME/NDB approach.
- N of Rwy 17 threshold ground rises to nearly 200ft asl at 0.5 nm.
- Bars and road lighting along the coast give a good indication of the coastline and hence the high ground on the Rwy 35 approach.
- High ground to over 4,000ft asl 20 nm E.
- GPWS warnings possible after GAR 7DME inbound on the Breakcloud procedure unless aircraft flown level. Note that the Breakcloud procedure commences at GAR 260R/15DME.
- At night instrument approaches should be flown, with the Captain carrying out the landing.

Runway Excursion

- Rwy 17 has a considerably inset threshold; therefore Rwy 17 LDA is 350 m less than the reciprocal Rwy 35.
- VOR 35 Final Approach path to Rwy 35 is 3.4°, whilst the PAPIs are set to only 3.1°. To avoid destabilising the final approach it is preferable to utilise the vertical path guidance (brick/height vs distance) rather than dive for the PAPIs once visual. The PAPIs may show 4 whites until later in the approach, this is acceptable as long as the VOR vertical profile is being accurately adhered to.

Loss of Control

- All instrument approaches to Rwy 35 are offset by 2°.
- Careful consideration should be given to appropriate energy management, final descent angle of 3.4°.
- Heavy turbulence in strong winds.

Mid Air Collision

- Local traffic controlled in Greek.
- Considerable traffic density during summer months.
- Adhere to appropriate speed restrictions.
- Make maximum use of the TCAS system, and a good lookout would be prudent for non-mode C TCAS returns.

ARRIVAL
Diversion Airports

ATHENS	ATH/LGAV	214 nm/118°T	CAT A
THESSALONIKI	SKG/LGTS	151 nm/068°T	CAT B
IRAKLION	HER/LGIR	359 nm/135°T	CAT B
RHODES	RHO/LGRP	432 nm/116°T	CAT B

- Albanian airspace 5nm NE
- Arriving aircraft may have to hold due ramp congestion
- Descent clearance often delayed
- ATIS available Apr-Oct
- Pilots should ensure that the ATC clearance for an instrument approach to Rwy 35 specifies the procedure to be used
- VOR T/U/V/W/X/Y/Z procedures are published

Approach

- Maximum IAS published for base turns during instrument letdowns to Rwy 35.
- Rwy 17 requires a visual approach after circling to the E of the airfield
- Many of the missed approach procedures are lengthy in track miles to position back to BETAK in sequence.

BAV Crew Reports

- *Rwy 35 TDZ markings reported to be very worn*

GROUND

- Frequent ramp congestion
- Heavy rain leaves standing water on Rwy not easily seen from cockpit
- 180° turns to backtrack after landing Rwy 17 must be made on the turning circle at the 35 threshold
- See Start-up CLR (01 Apr – 31 Oct) notes on Lido AOI 2
- Published PCN for Rwy 17/35 is 33/F/B/X/U, however BAV have authorisation from the Greek CAA to operate Airbus A320 aircraft up to MTOW.

DEPARTURE

- SIDs include a maximum IAS during turns due terrain.

Emergency Turn Procedures

Rwy 17

IDIMI, LATAN, MALED, NIKRO, OLGAT, Parna, RIPID, TIGRA, VARDI and YNN SIDs:
Engine failure BELOW 4000ft QNH

- Climb on RWY track to GAR 3d.
- Turn Left to KRK hold (If beyond GAR 3d turn immediately to KRK).

Engine failure ABOVE 4000ft QNH

- No restrictions provided SID followed to MSA.

Rwy 35

IDIMI, LATAN, MALED, NIKRO, OLGAT, PARNA, RIPID, TIGRA, VARDI and YNN (F/G/L DEPs)

Engine failure BEFORE GAR 2d

- Climb on RWY track to GAR 3d.
- Turn Right to KRK hold.

Engine failure AFTER GAR 2d but BELOW 4500ft

- Turn to heading 265 degrees.
- Climb to MSA.

Engine failure ABOVE 4500ft

- No restrictions provided SID followed to MSA.

IDIMI, LATAN, MALED, NIKRO, OLGAT, PARNA, RIPID, TIGRA, VARDI and YNN (Visual DEPs).

Engine failure BELOW 4000ft

- Follow visual DEP routing to KRK hold.

Engine failure ABOVE 4000ft

- No restrictions provided DEP route followed to MSA.

WEATHER

- Heavy turbulence in strong winds.
- Gusting NW and N winds result in severe WINDSHEAR at 500ft on finals Rwy 35.
- In light winds, wind direction may reverse along the runway.
- Frequent thunderstorms in winter.
- Early morning mist/fog in spring, late summer and autumn generally clears by 0830 (0630Z).

OPERATIONAL INFORMATION

Handling Agent	SWISSPORT HELLAS SUD
Handling Agent VHF	131.7
Potable Water	Uplift Ban

IF ONLY Electrical Power is required	Use for 60 mins ONLY – then use APU
If BOTH electrical power and air conditioning is required:	Use APU (ACU equipment not available)

INNSBRUCK (INN/LOWI)

Elevation 1907FT

CATEGORY C

Video briefing: [LOC/DME East Circle to Land 08](#)

REGULATION

The following procedures are **not** approved for use:

- RNAV RNP 26 (AR)
- LOC/DME West Special
- LOC/DME East
- RNAV SIDs with an RNP <1

Circling:

- When circle is required for Rwy 08, the BAV procedure is to utilise prescribed tracks, i.e. the "Special" Visual 08

Rwy 08 Take-off Minima:

- Lower Rwy 08 Takeoff Minima (by state permission only) is approved for use.

Operations to INN require a 'Safety Pilot' as P3. If due to unforeseen circumstances a P3 is not available, the Commander is authorised to operate without a P3, considering the P1/P2 experience and prevailing operational environment.

GENERAL

Guidance regarding operations in to INN are available from the following sources:

- This briefing
- The Innsbruck Aide-Memoire, available on the A320 fleet page, which details specific approach and departure procedures
- The forum thread at <https://forum.bavirtual.co.uk/viewtopic.php?f=15&t=24474>.

The definitive sources of information are the RIM and the Innsbruck Aide-Memoire.

Prior to operating to INN crews must be extremely familiar with all the provided briefing materials.

The Aide Memoire must be used for approach and departure procedures.

Dispatch Restrictions

The following must be serviceable for Airbus A319/A320 aircraft:

- One transponder
- TCAS
- EGPWS including automatic voice callouts
- Minimum of one autopilot
- At least one GPS

- ILS1 must be operative
- At least one VOR and ADF
- DMEs may be inoperative provided a serviceable GPS is available. This is in accordance with the MEL.

Threats
CFIT
<ul style="list-style-type: none"> • The airfield is located 2nm W of the city of Innsbruck in the valley of the River Inn. • On both sides of the valley the terrain is steep and mountainous • Typical spot heights (amsl) in the vicinity of the airfield are as follows:
2.5nm NORTH 8,655ft
12nm WEST 9,462ft
16nm EAST 8,288ft
13.nm SOUTHWEST 10,108ft
9nm SOUTHEAST 9,173ft
5nm SOUTH 8,386ft
Temperature Deviation from ISA
<ul style="list-style-type: none"> • When actual OAT differs from ISA by more than -10°C ATC will inform crews of corrections to be added to published altitudes. Refer to the Cold Temperature Corrections section of this manual for additional guidance.
Runway Excursion
<ul style="list-style-type: none"> • The runway is short and combined with the high airfield elevation landing performance can be limiting, especially in contaminated conditions. Careful consideration is required regarding touchdown point and use of retardation devices.
Runway Incursion
<ul style="list-style-type: none"> • Backtrack is required to use the full length of the Rwy. Turning circles are provided.
Loss of Control
<ul style="list-style-type: none"> • Aircraft specific procedures are required in the event of normal and engine-out take-off to assure the required turn radius and climb performance are achieved • Föehn conditions with associated moderate to severe turbulence, WINDSHEAR and downdraughts especially on finals to Rwy 26. However the conditions on the approach to Rwy 08 can also be quite marked.
Mid Air Collision
<ul style="list-style-type: none"> • Extensive glider activity in spring, summer and autumn (rarely in winter) as well as during Föehn conditions. Generally to the N of the airfield and close to the mountains up to the cloud base • Crews should be aware that there will be a number of light aircraft operating, possibly without mode C transponders, in the Inn valley. Verify any potential TCAS threats with ATC.

ARRIVAL
Diversion Airports

MUNICH	MUC/EDDM	068 nm/015°T	CAT A
LINZ	LNZ/LOWL	129 nm/063°T	CAT A
NURNBERG	NUE/EDDN	135 nm/355°T	CAT A
VIENNA	VIE/LOWW	217 nm/076°T	CAT A
ZURICH	ZUE/LSZH	114 nm/276°T	CAT B

- After landing following a diversion, assess the situation at Innsbruck. Weather improvement at Innsbruck is often possible and will allow continued flight after refuelling. If the weather conditions are inclement, road conditions will be bad also and surface transfer times can be 5 to 6 hours.

Approach

Information is provided in the Lido AOI pages regarding the approach procedure at Innsbruck. Thorough briefing is essential before starting any approach.

- The primary approach is the Special LOC/DME East approach from NDB 'RTT'.
- The LOC/DME West approach from waypoint 'KUDAV' may be used on occasion by ATC.
- Guidance as to the approach, NOT the runway, in use may be obtained from Munich ATC.
- When turning at positions quoted as DME ranges it is **very important to commence the turn at that position and not before**. Reaction time is allowed for in the procedures.
- Be aware of erroneous 'OEJ' LOC indications from D2 before the LOC station until D2 after the LOC station.
- The 'OEV' LOC is offset 4° to the right of the Rwy 26 extended centreline and crosses it 0.2nm from the runway threshold.
- PAPIs to both Rwy 08 and Rwy 26 are set to a slope of 3.5°
- No approach lighting to Rwy 08
- A large block of flats on the eastern side of the city situated on the NORTH bank of the River Inn and close to the extended centreline gives additional guidance to Rwy 26.

Only the A319 and A320 are approved for Innsbruck.

Planning

The minima for the **LOC/DME East Special** is dependent on the Missed Approach Climb Gradient (MACG) and hence alters the maximum landing weight. The Lido (Aerosoft) approach chart shows the minima relating to the maximum structural landing weight.

Lower minima can be utilised for reduced landing weights as follows:

A319

- **Landing weight 60.0T or below WAI 'on':** Rwy 26 DA 2,890ft (996ft) RVR 2400m
- **Landing weight 58.0T or below WAI 'on':** Rwy 26 DA 2,860ft (966ft) RVR 2400m

If WAI is selected 'off' then the published LOC/DME East Special DA can be reduced by 20ft.

A320

- **Landing weight 62.0T or below WAI 'on':** Rwy 26 DA 2,750ft (856ft) RVR 2400m
- **Landing weight 60.0T or below WAI 'on':** Rwy 26 DA 2,740ft (846ft) RVR 2400m

There is no allowance for WAI 'off' for the A320.

Note that all minima/landing weights above and on the approach chart are based on 'Packs Off/APU to Packs' performance. This configuration is required from the start of the final approach until the missed approach acceleration altitude of 7,000ft amsl has been achieved.

Careful evaluation is required to balance the minima required against the landing weight. An in-flight landing distance calculation must also be completed prior to the approach to guard against runway excursion. Respect the most limiting of the landing weight limited by MACG and the in-flight landing distance calculation.

GROUND

- A follow-me service is provided on the apron.

DEPARTURE

- Crew **MUST** refer to the aide-memoire for departure procedures.

WEATHER

- Generally good in both winter and summer with good visibility and high cloudbase, although heavy rain showers in summer and snow showers in winter can restrict this visibility and lower the cloudbase.
- During the winter dense fog can form during the early morning hours, especially if snow is present
- In the summer frontal precipitation may occur but most is in the form of brief showers or thunderstorms
- Be prepared for low angle sun dazzle in autumn and winter, and the difficulties of differentiating between terrain and cloud in snow covered conditions
- Winds are usually westerly except when Föehn winds occur (in autumn and winter, surface wind of 100° to 180°, average windspeed of 15kt to 20kt gusting 30kt to 50kt)
- Föehn winds require high pressure over Eastern Europe and low pressure over SW Europe. This situation results in strong southeasterly winds which are channelled through the valley south of Innsbruck (the Brenner Pass) with associated good visibility (50km+) and high ceilings (11,000ft+).

- Anemometers are positioned around the airfield and are known as 'Patscherkofel' (5 nm SE), 'Eigels' (in the vicinity of 'INN') and 'Citynorth' (N abeam of Rwy 26 centreline). The information derived allows ATC to advise the possibility of turbulence and WINDSHEAR.
- Refer to Lido AOI pages for further information on this and other met conditions that may be encountered.

OPERATIONAL INFORMATION

Handling Agent	Tiroler Flughafenbetriebsges mbH
Handling Agent VHF	131.475
Potable Water	

IF ONLY Electrical Power is required	Use ground power at all times
If BOTH electrical power and air conditioning is required:	Use APU for air conditioning (keep ground power connected to reduce APU fuel burn)

SALZBURG (SZG/LOWS)

Elevation 1411ft

CATEGORY C (CAT B FOR OPERATIONS TO CAT 1 MINIMA)

AV brief not currently available.

REGULATION

- Rwy 15 has a CAT I ILS and ‘Special’ CAT II/III ILS procedures. Flying the Special ILS CAT II/III requires approval from the Austrian CAA.
- RNAV Visual V Rwy 33 not approved for Simfest aircraft
- Commanders must be qualified to operate to CAT II/III minima

GENERAL

- Airfield located on the western outskirts of Salzburg, at the S end of a valley
- Mountainous terrain close to airfield.

Threats

CFIT

- Terrain rises to nearly 5,900ft asl within 6nm W, 6,100ft asl 4nm S and 4,600ft asl at 4nm E. To the N and NW the terrain is relatively flat but there are hills to 2,800ft asl 7nm N.
- There is an aerial cableway approximately 800ft agl, 3nm S of the airfield, leading E from a 5,961ft asl peak just W of the runway centreline. The Visual Approach chart shows this detail together with the visual manoeuvring area. Note the SW sector within this area is not to be used for visual manoeuvring.
- Rwy 15 Approach – if forced to go around from close in (e.g. a baulked landing) use type specific guidance to follow the ILS 15 Go Around procedure to ensure terrain clearance.

Runway Excursion

- Instrument approaches are made to Rwy 15 only, thus tailwind landings may be necessary.
- Contamination is possible in winter months however snow clearance reported efficient
- Aircraft specific approach procedures may require additional approach speed to assure missed approach climb gradient and turn radius is achieved.

Mid Air Collision

- All arrivals and departures are to the NNW of the field because of the terrain. This results in delays due to conflicts.
- Additionally, there is much general aviation traffic
- Hang-, Para-, Glider area NE of the airfield
- Flight within German airspace (state boundaries) may be within Class E with uncoordinated VFR traffic present. Flight within Austrian airspace is within Class D airspace. Caution is advised, use all available situational awareness tools to identify potential conflicts.
- Crew should strictly adhere to all applicable speed limitations and make maximum use of lights to aid conspicuity.

Ground Collision

- Busy apron with self-manoeuvring stands and marshalling via hand signals – refer to Ground section for detail

Special Considerations

- It is recommended that the Captain is the nominated P1 for flights inbound to SZG and for flights that require a takeoff from Rwy 15
- All procedures include frequent reference to speeds, gradients, bank angles and acceleration altitudes due terrain
- Map shift errors have been reported on non-GPS aircraft

Operational Considerations

- Due to the relative differences between operations in to this airfield and more routine operations, Captains are required to ensure all relevant briefing material is covered prior to commencing an approach
- Planning should take in to account forecast landing conditions but with the aim of achieving the highest planned landing weight. The balance between holding potential and achieving a practical landing weight can be a difficult exercise to judge. Automatic tinkering is not recommended, however any return fuel carried to SZG is beneficial and cost efficient
- Maximum use of the autopilot is recommended for all approaches in to SZG
- Planned single-engine, partial flap or other approaches where defects restrict the manoeuvre capabilities of the aircraft in flight are not permitted
- Linz, Munich and Vienna are available as diversions. Weather diversions to Linz have proved very efficient, whilst engineering and spares support at Munich are probably better. Advice from Ops Control should be sought.

Decision Altitude/Max Landing Weight

- Landing weight restrictions apply to Rwy 15 dependent on DA. The Special ILS CAT II/III Rwy 15 has the most restrictive landing weight.

Visual and Circling Minima

- See Lido chart VAC Visual 33.
- All manoeuvres must be carried out in the area shown. Attention is drawn to the prohibited sector to the SW and the lower circling minima applicable to the circling procedure for Rwy 33 following an ILS approach to Rwy 15.

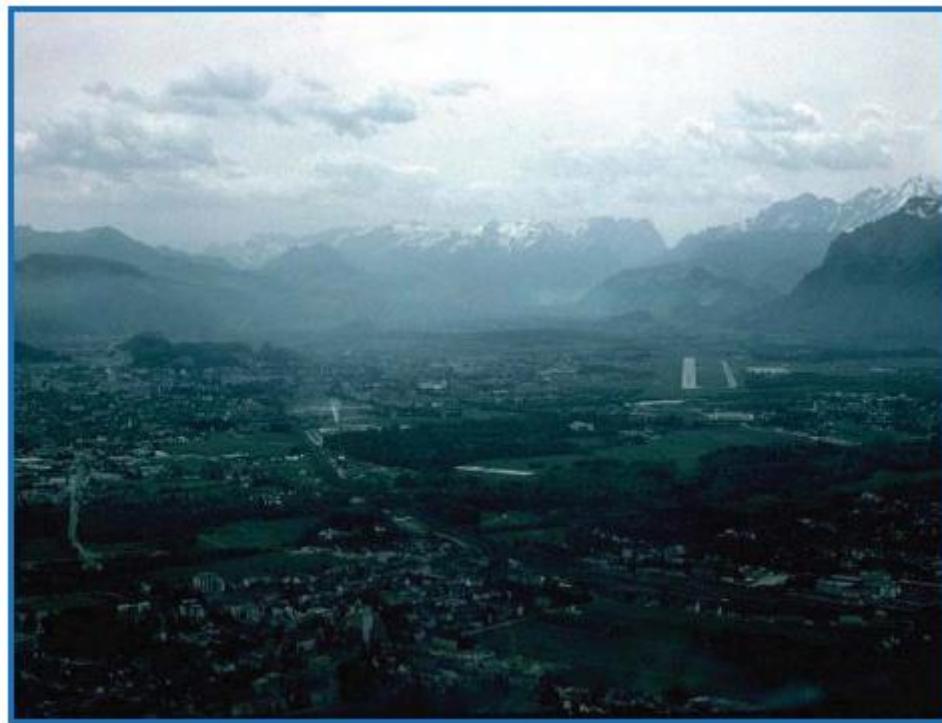
Go Arounds

- Each approach has a different GA profile. Where a turn is described as 'As soon as operationally practicable' it should not be commenced prior to the MAP. For an ILS this is coincident with DA/DH.

ARRIVAL
Diversion Airports

LINZ	LNZ/LOWL	054 nm/061°T	CAT B
MUNICH	MUC/EDDM	059 nm/304°T	CAT A
NURNBERG	NUE/EDDN	128 nm/323°T	CAT A
VIENNA	VIE/LOWW	145 nm/082°T	CAT A

- Surface wind permitting, expect landing Rwy 15; inbound aircraft may be asked to reduce speed very early to avoid holding closer in.

ILS Rwy 15


- If Rwy 33 is in use for landing (strong N'ly wind) and the weather is fine, radar vectors are sometimes provided direct in to a right hand downwind for visual approach Rwy 33. This procedure may be accepted after careful consideration of prevailing conditions, however whilst experience is gained during initial operations it may be appropriate to decline and fly the circling procedure.

Approach

- To land Rwy 33, a circling pattern must be flown from a Rwy 15 approach; the charting contains details including missed approach from the visual segment. The end of the circling downwind leg (i.e. the SI 125° radial at 3.5nm) corresponds to 14.7D from the SBG VOR, this may provide additional situational awareness. Lower circling minima are published for Rwy 33 approaches that follow an initial ILS Approach to Rwy 15.

AIRCRAFT SPECIFIC PROCEDURES

A32N

Regulation

ILS 15 and Special ILS CAT II/III Procedures are approved for the A319 and A320. **The A321 is not approved.**

Commanders must be qualified to operate to CAT 2/3 minima.

Planning

Operation to Rwy 15 tends to be the most limiting. It is essential that both the RLW MISAP climb gradient and IFLD are always considered to find the most limiting landing weight.

Which Landing Weight is Likely to Be Limiting?

- In contaminated conditions the IFLD is likely to be the most limiting.
- In other conditions the RLW MISAP climb gradient weight is likely to be most limiting.
- In CAT 2/3 conditions the RLW MISAP climb gradient weight can be very restricting.

Which Rwy 15 Approach Procedure Should I Use?

To determine which approach procedure is the most relevant for the prevailing conditions answer the following questions:

1. Do I need the lowest CAT1 minima or CAT2/3 minima?

If yes use the "ILS 15 CAT1 with turn radii (1780m) and SPECIAL ILS 15 (CAT II/III)" approach procedure.

2. Do I need to achieve the best IFLD?

If yes use the "ILS 15 CAT1 – Normal MISAP turn radii" approach procedure if the weather conditions allows. This procedure does not require additional approach speed and produces the shortest IFLD.

The performance manual contains a flow chart and specific MISAP climb gradient tables which takes you through the steps to calculate the RLW limited by MISAP CLG.

ILS 15

The ILS 15 has the possibility of two different MISAP turn radii. Generally the tighter radii needs a lower climb gradient. In order to achieve the tighter turn radii a unique approach procedure needs to be complied with as detailed below. Crew must carefully consider the MISAP that they are going to fly. The RLW is dependent on the MISAP climb gradient achievable. Refer to Lido Minima tables and the Performance Manual.

Lido provides minima in the following places:

1. ILS CAT 1 Normal MISAP turn radii: On IAC ILS or LOC 15 page and WX Minima OVERFLOW page
2. ILS CAT 1 with 1780 m turn radii: On AOI P2
3. Special CAT II/III: On CCI page

Specific approach techniques are required to assure sufficient bank angle to remain within the required turn radius, these are specific to the approach being flown.

Carefully review the speed/bank angle requirements.

ILS 15 CAT1 – Normal MISAP Turn Radii

Note: Use only the missed approach climb gradient tables for the Normal MISAP turn radii.

A319

Rwy 15 ILS/DME Missed Approach Climb Gradient

IAC ILS or LOC 15 & WxMinima Overflow				
MISAP CLG	Packs (Note 1)	Anti Ice	Max. Landing Weight	Max. OAT
ILS/DME 5% (Cat C)	ON	ON	52,600 kg	45°C
		OFF	54,000 kg	50°C
ILS/DME 4% (Cat C)	ON	ON	55,600 kg	45°C
		OFF	57,100 kg	50°C
ILS/DME 3% (Cat C)	ON	ON	57,600 kg	45°C
		OFF	59,100 kg	50°C
ILS/DME 2.5% (Cat C)	ON	ON	57,600 kg	45°C
		OFF	59,100 kg	50°C

A320

Rwy 15 ILS/DME Missed Approach Climb Gradient

IAC ILS or LOC 15 & WxMinima Overflow				
MISAP CLG	Packs (Note 1)	Anti Ice	Max. Landing Weight	Max. OAT (Note 2)
ILS/DME 5% (Cat C)	ON	ON	61,700kg	33°C
		OFF	63,100kg	38°C
ILS/DME 4% (Cat C)	ON	ON	63,100kg	33°C
		OFF	64,500kg	38°C
ILS/DME 3% (Cat C)	ON	ON	64,500kg	33°C
		OFF	64,500kg	38°C
ILS/DME 2.5% (Cat C)	ON	ON	64,500kg	33°C
		OFF	64,500kg	38°C

Rwy 15 LOC/DME Missed Approach Climb Gradient

IAC ILS or LOC 15 & WxMinima Overflow				
MISAP CLG	Packs (Note 1)	Anti Ice	Max. Landing Weight	OAT (Note 2)
LOC/DME 4% (Cat C)	ON	ON	63,100kg	33°C
		OFF	64,500kg	38°C
LOC/DME 2.5% (Cat C)	ON	ON	64,500kg	33°C
		OFF	64,500kg	38°C

- 1) The MISAP CLG limited landing weight may be increased by 1000kg for packs off landing.

1) The MISAP CLG limited landing weight may be increased by 1000kg for packs off landing.

2) If OAT is above 38°C, reduce MISAP CLG limited landing weight by 550kg per 1°C above 38°C. (Applicable to Anti-ice off only).

In the event of MISAP from DA (either Dual or Single Engine) the speed and bank angle requirements have been inspected and will be met by utilising the following procedure:

Preparation:

- Enter Vapp as a speed constraint at the “SI” NDB in the F-PLN MISAP coding (to stop early acceleration).
- On the PERF GO AROUND Page enter the MISAP stop altitude (6,000ft) as the THR RED/ACC ALT and EO ACC ALT.

Go Around:

- If, during a GA using NAV, the bank angle reduces below that required, select HDG to increase the bank angle.
- DO NOT accelerate until the turn is complete.

ILS 15 CAT1 with Turn Radii (1780 m) and SPECIAL ILS 15 (CAT II/III)

Note: Use only the missed approach climb gradient tables for the Lower DA MISAP with turn radii (1780 m).

A319

Rwy 15 ILS/DME Missed Approach Climb Gradient

ILS Rwy 15 Lower DA (LIDO Chart AOI-2)				
MISAP CLG	Packs	Anti Ice	Max. Landing Weight	Max. OAT
ILS/DME 4.7% (Max IAS 165kt)	OFF	ON	55,700 kg	45°C
		OFF	57,100 kg	50°C
ILS/DME 4.2% (Max IAS 165kt)	OFF	ON	57,800 kg	45°C
		OFF	59,200 kg	50°C
ILS/DME 3.8% (Max IAS 165kt)	OFF	ON	59,600 kg	45°C
		OFF	61,000 kg	50°C
ILS/DME 3.2% (Max IAS 165kt)	OFF	ON	61,000 kg	45°C
		OFF	61,000 kg	50°C
ILS/DME 2.7% (Max IAS 165kt)	OFF	ON	61,000 kg	45°C
		OFF	61,000 kg	50°C

A320

Rwy 15 ILS/DME Missed Approach Climb Gradient

ILS Rwy 15 Lower DA (LIDO Chart AOI-2)				
MISAP CLG	Packs	Anti Ice	Max. Landing Weight	Max. OAT (Note 1)
ILS/DME 4.7% (Max IAS 165kt)	OFF	ON	63,900kg	33°C
		OFF	64,500kg	41°C
ILS/DME 4.2% (Max IAS 165kt)	OFF	ON	64,500kg	36°C
		OFF	64,500kg	45°C
ILS/DME 3.8% (Max IAS 165kt)	OFF	ON	64,500kg	39°C
		OFF	64,500kg	49°C
ILS/DME 3.2% (Max IAS 165kt)	OFF	ON	64,500kg	47°C
		OFF	64,500kg	50°C
ILS/DME 2.7% (Max IAS 165kt)	OFF	ON	64,500kg	50°C
		OFF	64,500kg	50°C

1) If OAT is higher than the value listed above, reduce landing weight by 550kg per 1°C above the listed temperature. (Applicable to Anti-ice off only).

In order to obtain the MISAP climb gradient and tighter turn radius required for these approaches a unique approach procedure is required:

For CAT 2/3 approach Confirm Special ILS available with ATC.

Preparation:

- The Approach must be flown with PACKS OFF (or APU BLEED ON). Note if WAI is required turn APU BLEED OFF.
- The final approach must be flown in CONF FULL at VLS + 10 kt, ensure this is entered in the FMGC PERF APP page.
- Account for the increased approach speed in the IFLD calculation.
- Enter VLS (Conf FULL) +10 kt as a speed constraint at the "SI" NDB in the F-PLN MISAP coding (to stop early acceleration).
- On the PERF GO AROUND Page enter the MISAP stop altitude (6,000ft) as the THR RED/ACC ALT and EO ACC ALT.

Approach:

- CONF FULL must be used.
- The final approach speed is VLS + 10 kt.
- Due to the higher approach speed be alert to the tendency to float on landing.

Go Around:

- Go Around track keeping and turn radius is CRITICAL.
- If, during a GA using NAV, the bank angle reduces below that required, select HDG to increase the bank angle.

- DO NOT accelerate until the turn is complete.

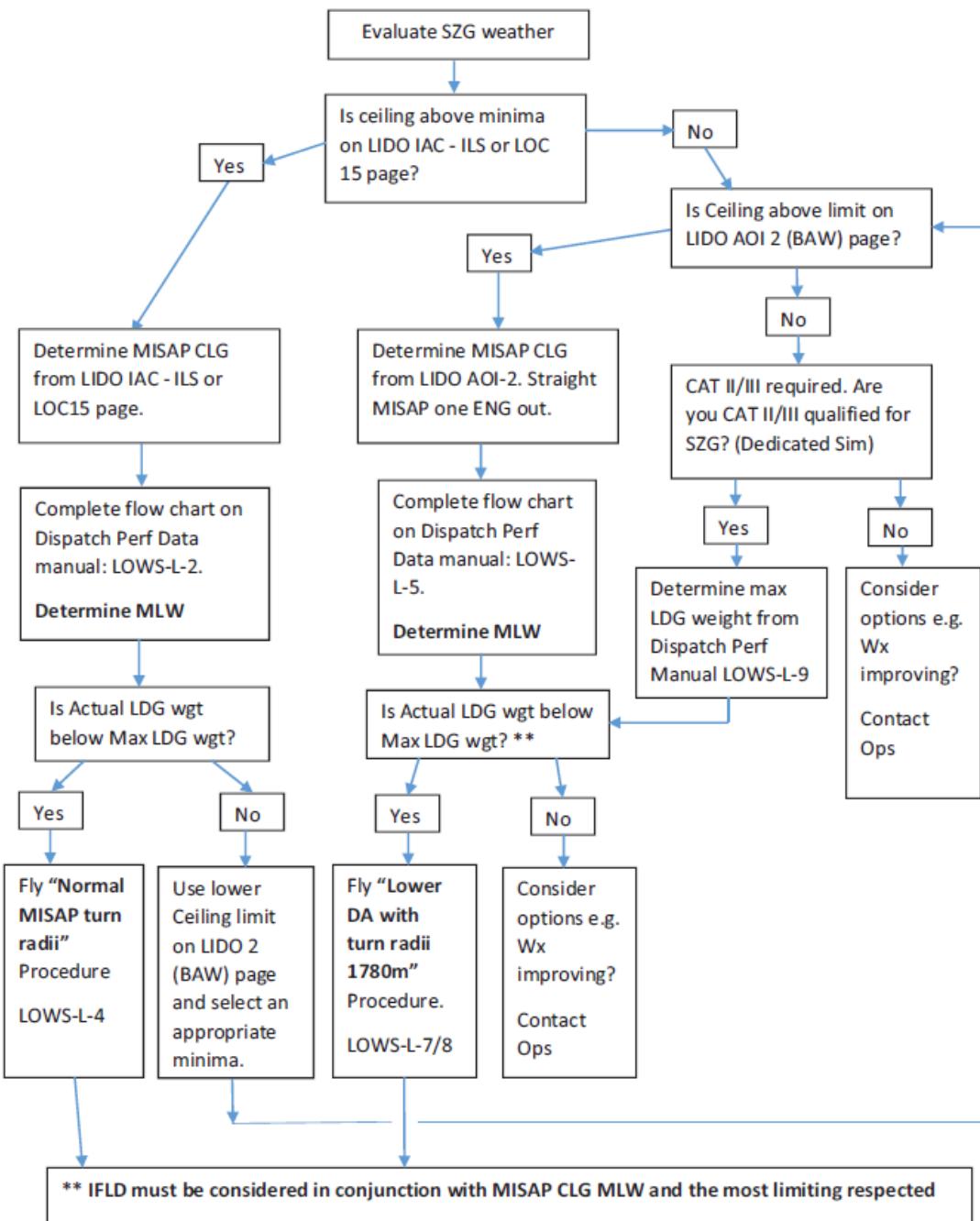
IFLD

- Add an additional 5 kt SPD correction to the IFLD to account for the approach speed increase.

CAUTION: *In the event of a single engine missed approach, the bank angle commanded by the AP/FD is reduced below manoeuvring speed -3 kt. The required radius of turn has been inspected and will be fulfilled using the procedure detailed above. However in the event of doubt about the flight path with NAV, use HDG to provide the greatest angle of bank during the missed approach turn.*

Flow Chart

The flow chart below is designed to be a rough guide to help with the planning. This briefing, Lido IACs and the relevant aircraft performance manual should be used in conjunction with this chart.



Circling Rwy 33

- Strict adherence to the published tracks are necessary, do not pass through the extended centreline.
- Use Flap FULL for landing to minimise final turn radius.

GROUND

- Boarding can take place on adjacent stands during engine start/self-manoeuvring.
- Good look out required when self-manoeuvring from stand – ground vehicle infringements have occurred.
- Wing man can be requested if required.
- Push back can be provided if requested by flight crew, however this must be requested via ATC, ideally as soon as the aircraft has arrived in SZG. Request for use of pushback will incur delay and additional cost, so must only be requested when absolutely necessary.

DEPARTURE

- Engine start clearance is given by hand signals.
- Rwy 33 is preferential for performance requirements.
- To increase traffic flow (Particularly on Ski charter weekends), ATC favour use of Rwy 15 for arrival and departure. If Met conditions permit, ATC will define 'Rwy 15 only' on ATIS.
- To reduce noise, and if cloud base and visibility permit, ATC may request aircraft to climb on runway heading to 2 nm to the south before starting the visual left turn.
- Rwy 15: Note restrictive take-off weather minima for normal SIDs.
- ATC favour departure from intersection Twy B. If full length is required for take-off inform ATC on clearance request; this will greatly assist with ATC planning and they will co-ordinate the closure of a road crossing the undershoot.
- Standard SIDs require visual initial terrain clearance, however "Special Performance" SIDs are published allowing take off in poor visibility. See charting for details of authorisation; CARD will indicate if these are approved for aircraft types.
- Ground frequency is only in use when promulgated on the ATIS.
- For environmental reasons ATC will avoid situations where delayed outbound aircraft have engines running. To avoid excessive delay at the holding point for Rwy 33, pilots should call for start up when fully ready to allow appropriate sequencing.
- When de-icing is necessary crews may be required to fill in a de-icing request form.

WEATHER

- Cb activity in summer.
- Local weather can change very rapidly affecting cloud base and/or visibility and causing wind reversals. The terrain frequently causes turbulence on Rwy 33 approaches.
- Strong W'ly winds give turbulence on short finals Rwy 15 due to the wooded area W of threshold Rwy 15.
- Radiation fog in winter.

- In otherwise good weather conditions, low cloud often persists at 2 nm finals Rwy 15 over an area of river and woodland; if the ATIS reports “cloud base final approach Rwy 15 xxxft” fly the Rwy 15 Special ILS Approach to give the lowest DA.
- Two ceilometers are positioned in the visual manoeuvring area (See Visual Approach chart).

OPERATIONAL INFORMATION

Handling Agent	Salzburg Airport Services. Not dedicated for Simfest only and handling all airlines.
Handling Agent VHF	131.9 'Salzburg Services'
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 APU (ACU not available). Keep ground power connected to reduce APU fuel burn.

FUNCHAL (FNC/LPMA)

Elevation 191ft

CATEGORY C

AV brief – available

GENERAL

- Airfield is situated on a plateau engineered out of the side of a hill.
- Single runway 05/23. Parts of the runway are built on manmade culverts over the roads below. The first 1000m of Rwy 23 is effectively a bridge structure.
- Island of Porto Santo, 30nm to the NE, provides a good diversion.

Rwy 23

Threat Based Briefing Topics
CFIT

- The ground rises rapidly inland to the W and NW reaching over 2500ft asl within 3nm and over 6000ft asl within 9nm. The Jepp MRC and approach charts depict the terrain well.
- The landscape creates turbulence and WINDSHEAR, with a mountainous area on one side and the edge of the plateau on the other.
- ETPs require a turn at the departure end of the runway (DER) which must be adhered to to assure terrain clearance.
- TOGA must be used for take-off**

Runway Excursion

- Due to the nature of the topography any crosswind can vary markedly along the length of the runway
- THR insert and Rwy slope can cause strange visual aspect

Runway Incursion

- Backtrack is required for both Rwy

Loss of Control

- Steep rising ground, wind variation and turbulence create operating limitations not common at other airfields. These wind limitations must be respected.
- All take-offs and landings require VMC
- At night the hills (Picco do Faccho – lighted) on the right of Rwy 23 may be confused with mist
- Wind reports are transmitted for a point 1nm on final Rwy 05 "Rosario", the tower itself, and for the touchdown area. Comparison assists in anticipating the level of turbulence on finals. A wind difference of more than 5kt between Rosario and the MID anemometer can indicate TURB on final.
- Wind direction indicators on the S side of the Rwy are useful in showing the varying wind conditions.
- Up/down draughts/variable crosswinds can cause control issues in close proximity to the runway. Be go around minded.
- Review Jepp 10-1P2 and 10-1P3 for all Turbulence considerations**
- With westerly winds, tail WINDSHEAR may be expected.

Crew Qualifications

Note: Captains Only Takeoff and Landing

ARRIVAL
Diversion Airports

PORTE SANTO	PXO/LPPS	31 nm/044°T	CAT A
TENERIFE SUR	TFS/GCTS	280 nm/178°T	CAT B
GRAN CANARIA	LPA/GCLP	296 nm/166°T	CAT B
LANZAROTE	ACE/GCRR	279 nm/144°T	CAT B
FUERTEVENTURA	FUE/GCFV	297 nm/149°T	CAT B
TENERIFE NORTE	TFN/GCXO	255 nm/175°T	CAT B

Diversion Strategy

Funchal's relatively remote location and challenging weather conditions mean that diversion planning can be tactically challenging.

Severe windshear can be experienced even in light winds, but the risk of diversion is higher in winter (Nov-Mar). Non-precision approaches only are available with high MDA and Rwy 05 is circling only. Simfest not approved for RNP AR approaches.

- Porto Santo (PXO) is the fuel alternate and is located on another island 45 miles from Madeira.
 - There are limited aircraft stands, handling facilities and hotel availability at PXO. Aircraft steps are in particular short supply during diversions.
 - LIS is the designated commercial alternate but is 90 mins to the north of FNC, with FAO also available. Additional alternates TFS, LPA, FUE and ACE only to be used if PXO, LIS and FAO are unavailable, and then as fuel and go.
- If the cloud base/visibility is forecast to be out of limits for a prolonged period then it is recommended to delay or cancel the flight. However, as the wind is extremely variable there is a chance of landing even if the wind is out of limits on the TAF and therefore cancellation for TAF wind is unlikely.
- If the forecast FNC weather conditions are marginal prior to departure, or degrade whilst enroute, an assessment should be made as to whether to continue to FNC or divert to LIS.
 - If weather allows a good chance of landing at FNC, continue and attempt an approach, if possible.
 - If the approach is unsuccessful then either divert to LIS, or if loitering may result in a successful approach then consider burning any extra fuel loading and LIS fuel, diverting to PXO if subsequently unable to land FNC.
 - In the event of a diversion to PXO, a decision will need to be taken in conjunction with Ops as to whether continue to FNC, operate to LIS or return to base.
- If the FNC weather is below limits and forecast to remain so divert to LIS
 - A decision will then need to be taken as to whether to continue to FNC, nightstop at LIS or return to base.

Approach

- The main difficulties are crosswinds, turbulence and WINDSHEAR.
- The approach charts contain the differing wind limitations and these are to be treated as maximum limits. The restraining walls bordering the runway have been identified as created vortices.
- Strict adherence to published crosswind limits is essential.
- PAPIs set at 3° for both runways. Maintain the correct approach path and aim to touch down without delay.
- When landing Rwy 05 crews shall use the "recommended" circling altitude on the VOR/DME 05 (Visual) IAC rather than the minimum published circling altitude. This recommended circling altitude (949ft aal), though below the normal ops manual minimum of 1000ft aal, is

specifically approved as the aircraft is more than 1000ft above the terrain under the circling approach.

- Use all available aids, including the points GELO (2nm to run to threshold on a curved approach track and identified by the large white banana packing sheds) and ROSARIO (ROSRO in the FMS) in order to facilitate line up and a stable vertical profile.

Note: The curved approach light poles between GELO and ROSARIO should be to the left of the aircraft approaching Rwy 05. Do not fly W of these approach lights on final due to high ground.

GROUND

- Limited apron parking space
- Follow me vehicle used for parking
- Fuelling with passengers on board requires authorisation from 131.850 or 131.875

DEPARTURE

- Review Jepp 10-1P2, 10-1P3 for all turbulence considerations and 10-1P4 and 10-1P5 for Departure procedures
- Respect the takeoff wind limitations on 10-1P2
- ETPs are in CARD for both runways and require a turn at the DER. This will need to be accomplished in HDG as the EOSID is not coded in the 744 navigation database.

WEATHER

- The airfield is in the lee of high ground and with the prevailing W'ly winds gives the hazards of crosswinds, downdraughts and turbulence on finals
- Most of the annual rainfall occurs from October to March, averaging 3" per month.

OPERATIONAL INFORMATION

Handling Agent	Portway
Handling Agent VHF	131.875
Potable Water	Uplift permitted

IF ONLY Electrical Power is required	Use ground power for 45 mins ONLY – then use APU
If BOTH electrical power and air conditioning is required:	Use APU for air conditioning (ACU equipment not available)

PONTA DELGADA/Joao Paulo II (PDL/LPPD)

Elevation 259ft

CATEGORY B

AV brief not required.

GENERAL

- Joao Paulo II International Airport is located 1 nm west of Ponta Delgada on the island of São Miguel
- It is the primary and busiest airport in the Azores and serves as a major hub for SATA Air Açores
- The island, as with the rest of the Azores, is volcanic in nature and characterised by two major calderas, Sete Cidades on the western extremity of the island and Água de Pau in the central region.
- Água de Pau is the island's highest point and contains the Lagoa do Fogo ("Lake of Fire"), a crater lake within the central caldera
- Sete Cidades is also known for its lakes, Lagoa Azul ("The Blue Lake") and Lagoa Verde ("The Green Lake"). Local legend has it that the lakes were formed following a romance between a princess, Antília, and her lover, a young shepherd.
- The King, a bad-tempered widower, refused to allow Antília to travel outside the castle, but each day she would secretly escape to the local hills in the afternoons whilst her father slept. One day, hidden behind some bushes, she found a young shepherd sitting on top of a hill playing a flute and returned secretly for weeks until she was discovered. The two continued to meet, talking, laughing and enjoying each other's company until eventually the shepherd proposed.
- When the couple went to see the King at the castle, however, he refused to allow them to be married, expelled the shepherd from the castle and forbade his daughter from seeing him. Antília, not wishing to cause any ill feelings, obeyed her father's order but secretly met with the shepherd on the hill that afternoon in order to tell him that she would never see him again. They cried all afternoon, their tears forming two beautiful lakes: one green, for the Princess's eyes were green, and the other blue, for that was the colour of the shepherd's eyes.

Threats

CFIT

- The island is volcanic in nature and terrain rises sharply to the NW and NE
- The highest point is at Fogo in the Agua de Pau massif, 3,500 ft asl 9 nm E. This is the fourth highest volcano in the Azores.
- To the NW at 7 nm is Pico das Eguas 2,867 ft asl and Sete Cidades, 2,808 ft asl

Runway Excursion

- Rwy 12 is situated on upsloping terrain leading to a sense that the aircraft is low with tendency to overshoot. Rapid radio altimeter ramping will also be experienced on short final.
- High intensity flashing and non-flashing lights are installed on the coastline at approximately 3-4 nm final Rwy 12. These are intended to highlight the proximity of the coastline, but at night or in poor visibility take care not to mistake these for either the runway, or the extended centreline.
- Rwy 12 has a pronounced downslope
- Runway may be slippery when wet

Loss of Control

- Rapid variations in tailwind may be experienced on approach Rwy 30
- N to NE winds bring increasing WINDSHEAR due to the elevation of the Rwy 30 threshold above the valley to the N
- Turbulence and WINDSHEAR may be expected with any northerly wind

Special Considerations

- RNP Z Rwy 12 offset by 8°
- LCTR Rwy 30 offset by 11°

ARRIVAL

Diversion Airports

SANTA MARIA	SMI/LPAZ	052 nm/151°T	CAT A
LAJES	TER/LPLA	090 nm/313°T	CAT A
PORTO SANTO	PXO/LPPS	536 nm/119°T	CAT A
LISBON	LIS/LPPT	784 nm/080°T	CAT A

- The usual alternate aerodromes are LPAZ and LPLA. However, weather systems affecting Ponta Delgada are very likely to affect the rest of the Azores.
- If weather conditions preclude these aerodromes from being designated as alternates, Lisbon (LPPT) or Porto Santo (LPPS) may be used instead.

ATC Units

- Note the difference between LPPO_FSS 132.075/124.850 ("Santa Maria **Radio**") and LPPO_CTR 132.150 ("Santa Maria **Radar**") – the _FSS stations are the Oceanic non-radar positions

Approach

- Delays are likely. Holding will be at XUVAG, TUSEX, PETUD or the São Miguel VOR (VMG) as published on STAR charts. Additional holds are available at SM700 (119°/R turns), SM800 (148°/L turns) and SM900 (277°/R turns)

- The RNP Z approach is the only Rwy 12 approach approved for Simfest Operations. It is offset by 8°
- There are a row of high intensity, flashing and non-flashing lights installed on the coast on approximately a 3-4 NM final for Rwy 12. These lights are **NOT** lead-in lights and do **NOT** indicate the extended centreline. They are intended to highlight the proximity of the coastline, but especially at night or in poor visibility may be mistaken for approach lighting or for the runway itself
- Range/height checks on Jeppesen charts are referenced to SM456, NOT the runway threshold
- Rwy 12 is located on the cliff edge with rapidly upsloping terrain. This provides an unusual visual aspect with a tendency to feel as though the aircraft is low and over-correct accordingly. Make full use of VNAV glidepath and PAPI lights to confirm the aircraft is maintaining the correct glidepath.
- The radalt will also ramp very rapidly on short final Rwy 12 leading to the possibility of a late flare and hard touchdown. The radalt will indicate 370R when the aircraft is just 110 ft above the threshold.
- Turbulence and WINDSHEAR is liable to be encountered at any time when the wind is from the north
- Rapidly shifting tailwinds are likely on approach to Rwy 30
- LCTR Rwy 30 approach 11° offset

GROUND

- Official Worldflight teams can expect parking at Apron N and S
- Other aircraft will be parked at Apron W and Twy E, or on the grass near the apron if no stands are available.

DEPARTURE

- Before push-back, request or expect to be asked for:
 - The intended FL for oceanic crossing;
 - The highest acceptable flight level which can be maintained;
 - Requested Mach number;
 - Any other information deemed important by the crew.
- Full oceanic clearance will not be given whilst on the GND. Tower will only issue a standard ATC departure clearance including an initial flight level clearance.
- After departure, Santa Maria **Radar** will issue the climb to the approved final level for the oceanic crossing. Crew will only receive the oceanic route and Mach number clearance later on from Santa Maria **Radio** on HF or VHF
- Most departures are via 38N20W or LENSI.
- Radar service will be terminated sometime after reaching TOC. Later on expect HF hand off
- Rwy 12 is the preferred departure runway when possible
- SLOP (0, 1 or 2 NM offset right of track) should be applied within the Santa Maria FIR.

WEATHER

- Weather conditions eventually leading to diversions to the mainland are more frequent during seasonal change over in May/June and October/November
- Fog and wind are features of Azores weather pattern. Flight crews are recommended to frequently monitor the weather conditions at LPPD, LPLA and LPAZ

OPERATIONAL INFORMATION

Handling Agent	SATA Air Açores
Handling Agent VHF	131.6
Potable Water	Uplift permitted

IF ONLY Electrical Power is required	Use at all times
If BOTH electrical power and air conditioning is required:	Use APU (ACU equipment not available). Keep GPU connected to reduce APU fuel burn.

ZURICH (ZRH/LSZH)

Elevation 1417ft

CATEGORY B

No AV brief required.

GENERAL

- Airfield is in a shallow valley with low hills on all sides. 3nm S is the city of Zurich with the lake beyond.
- 5nm SE is Dubendorf military aerodrome
- Lots of general aviation traffic in the Zurich area.
- All runways are 60m wide

Threat Based Briefing Topics

CFIT

- 4nm S the terrain reaches ~2,400ft asl
- 7nm SW there is terrain to ~2,600ft asl
- To the W, in line with the extended centreline of Rwy 28, is a range of hills reaching ~3,000ft asl within 5nm
- Alps are just over 30nm to the S
- Note max speed in turns during missed approach procedures.

Runway Excursion

- Frequent tailwind on approach/finals plus speed limits and descent restrictions inbound can lead to being fast and high for a straight-in approach to Rwy 14/16. The final deceleration point needs to take account of the airfield elevation. Be aware than on Rwy 14 there will be two 1000R points, the first when passing over a ridge at 5 mile finals
- Deep landings Rwy 14/16, GPWS sink rate warning Rwy 14/16 and high energy or high approach on all runways are a recurrent problem

Loss of Control

- SEVERE TURBULENCE should be expected with strong W winds when positioning for a landing Rwy 28

Special Considerations

- During Rwy 14 approach, due to ATC speed restrictions and frequent tailwinds, it is recommended to aim to achieve landing configuration by 3500ft QNH
- The approach to Rwy 14 passes over undulating terrain and at 5nm finals on the Rwy 14 ILS G/P the aircraft is only 800ft above ground level
- Rwy 28 approach terrain: at 1000ft radio, the height above the landing threshold is approximately 1400ft.

ARRIVAL
Diversion Airports

BASLE	BSL/LFSB	42 nm/281°T	CAT B
GENEVA	GVA/LSGG	124 nm/234°T	CAT B
STUTTGART	STR/EDDS	079 nm/020°T	CAT B
MUNICH	MUC/EDDM	141 nm/068°T	CAT A

Others that may be used include Frankfurt, Milan and Paris CDG.

Approach

- Note the changeover times for preferential runway in use, particularly if operating in the evening or early morning (details in Jepp 10-1)
- Expect ILS Rwy 14 during daytime and Rwy 28 for night-stopping aircraft (see Jepp 10-1 for times of runway use)
- Expect radar vectors normally to Rwy 14 (possible Rwy 16); speed and altitude requests by ATC may invite an undesirably steep, fast approach.
- Rwy 14 and 16 can be confused: they may both be in use for alternate landings
- ATC use hold short operations Rwy 28 which allow smaller aircraft to land on the first part of Rwy 28 holding short of the intersecting Rwy. Participation in LAHSO, either actively or passively, is not authorised for Simfest.
- Rwy 28 has an ILS but it is ‘Uncategorised’ and has a high DA
- Both the VOR/DME and ILS Rwy 28 have a 3.3° approach
- ILS or VOR/DME approach to Rwy 28 is preferable to a visual approach for landings Rwy 28
- If a visual approach is required to Rwy 28 after instrument approach to Rwy 14 or 16 break left for a RH base leg to avoid possible GPWS problems
- Circling is prohibited to the SW of the airfield. If the airfield is overflowed after the instrument approach Rwy 14 or 16, a left base turn can be made (inside the rising terrain and Dubendorf military AD) without straying to the prohibited SW

Note: Use of Rwy 32 for landing widebody aircraft will only be approved in exceptional circumstances in order to meet ATC requirements (for widebody aircraft – to avoid a backtrack on 60m wide Rwy with no turning area, plan to vacate Rwy at Twy G (LDA 2700m).

- Crews report false localiser capture and glide path signal disturbances on ILS 16

CAUTION: False glideslope lobe capture has been experienced on intercept HDG to Rwy 34. To avoid upset it is suggested to only arm the approach once the glideslope

indication on the PFD is correct, relative to the position of the aircraft on the vertical profile.

GROUND

- Surface Movement Radar and 'Follow Me' vans are available
- SIMFEST use western end of the terminal at E to the North of Rwy 28 and terminal B to the South of Rwy 28
- Contact ground handling agent for expected stand to allow for pre-briefing of potentially complex taxi patterns.

DEPARTURE

- Take-off is normally from Rwy 28
- For start-up procedure see Jepp 10-1 which also contains lengthy notes on noise abatement
- Zurich is very noise sensitive
- See CARD for Emergency Turn Procedures
- Altitude 'gates' must be achieved on the SIDs. Some are ATC requirements.
- High ground on departure
- Transition altitude is 7000ft. Some procedures include '9000ft or above' as conditions at some waypoints.
- There has been a high incidence of fast rotation rates, especially on Rwy 28
- High thrust settings and unusual visual perspective contribute to this event rate
- Refer to FCOM and FCTM guidance on rotation technique.

WEATHER

- Winter – 2 to 3 ins of rain or snow per month
- During high pressure periods persistent fog is a problem
- Summer – 4 to 5 ins of rain per month. Thunderstorms fairly frequent and may continue well into the night.

OPERATIONAL INFORMATION

Handling Agent	Dnata
Handling Agent VHF	130.45
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

GIBRALTAR (GIB/LXGB)

Elevation 12ft

CATEGORY B

AV brief availability

REGULATION

- Captain only landing

GENERAL

- The airfield is located at the N end of the Gibraltar peninsula adjacent to the Spanish border
- High levels of situational awareness are required, especially in IMC due to terrain, airspace restrictions and non-standard approach procedures
- Aircraft performance for take-off may provide challenges given the short runway and high summer temperatures.

Threats

CFIT

- The Rock extends approximately 2nm N-S and reaches nearly 1500ft asl. 200m N of the Rwy 27 threshold there is a 280ft asl mast.
- La Linea is the Spanish town immediately N of the Spain/Gibraltar border. At night the lights of the pier at La Linea can be mistaken for Rwy 09.
- The terrain of Gibraltar necessitates radar patterns involving a late turn on to finals for Rwy 09 and a large turn during the missed approach for Rwy 27
- Use of the TERRAIN display on at least one ND is highly recommended
- Basic GPWS modes may not trigger warnings due to the vertical nature of the Rock.

Runway Incursion

- Several instances of holding point confusion and runway infringement by civil operators
- Arrester cables are fitted to Rwy 09/27. The published landing distances assume that these are removed from the runway (de-rigged).

Runway Excursion

WARNING: *To ensure a safe stop, touchdown must occur prior to passing the penultimate TDZ marker. Otherwise a rejected landing is mandatory.*

CAUTION: *There have been a number of instances of undesirably high groundspeed close to the runway stop end at GIB. To reduce runway excursion risk maintain appropriate braking until a safe stop is assured.*

- Due to the short runway and turbulence/WINDSHEAR associated with the Rock itself, the possibility of rejected landings and go arounds is greater at Gibraltar than at other destinations (5% of approaches in to Gibraltar have resulted in a go-around, primarily due to WINDSHEAR and unstable approaches).
- It may be possible to utilise a **10% IFLD factor** by using the procedure detailed in the 'Stopping' section later in this brief.

Loss of Control

WARNING 1: Wind speeds on the Wind Effect chart are to be treated as limits

WARNING 2: If ATC report "waterspouts on the approach" crews are to delay making an approach until conditions improve

CAUTION: Windshear and turbulence can be severe. Refer to charts and Landing and Takeoff notes.

- Considerable track shortening can be anticipated
- Bird strike risk – see ATC Bird Strike Policy below

Mid Air Collision

- Gibraltar has no MATZ or ATZ and offers traffic information or deconfliction service to aircraft that contact them
- ATC is provided by VATSIM-UK and the majority of controllers are British
- Helicopter routes in the Bay of Gibraltar conflict laterally with the Rwy 09 approach and Rwy 27 departure and missed approach paths

Special Considerations

- Met Vis/Ceiling of 5 km/1000ft are required to commence an approach into GIB (this is denoted by the 'C' on the Lido chart meaning 'ceiling required to commence the approach').
- Wind limitations stated on the chart are maximum mandatory limitations.
- Approaches must not be commenced if the TDZ wind exceeds the published maximum, and are to be broken off if the wind increases above limits during the approach at any point until touchdown. Gusts must be taken into account.
- The METAR is normally only updated every half hour and is the wind recorded at the meteorological observation post. This post is situated near the runway mid-point. "Top of the Rock" wind may also be included if significant.
- Due to Gibraltar's unique microclimate, the METAR wind can often bear little resemblance to the TDZ/MID/END runway winds
- The wind limitations displayed on the chart must be applied to the reported TDZ wind, which is an instantaneous value, and not that of the METAR.
- Malaga is the preferred commercial alternate. On occasions the operation may be planned to operate to Malaga due to adverse weather in Gibraltar.
- At least 90 minutes notice is required for engineering assistance at GIB as this is provided from Malaga.

ATC Bird Strike Policy

- Gibraltar is a staging point for birds migrating between Africa and Northern Europe, resulting in heavy bird concentrations around the Rock during the spring/early summer and autumn seasons. Accordingly, Gibraltar ATC has an active and effective bird control policy with the following bird threat classifications:

BIRD THREAT – NORMAL/MODERATE/HEAVY

When a significant bird strike threat exists the following phraseology will be used:
"SERIOUS BIRD STRIKE RISK ATC."

Aircraft will be advised of the hazard as follows:

"BAWXXX, serious risk of bird strike on landing, request your intentions"

or

"BAWXXX, serious risk of bird strike on take-off, request your intentions"

This warning will be given in sufficient time for the aircraft to break off the approach or cancel take-off.

In extreme circumstances, ATC may instruct a go around if a multiple bird strike is inevitable.

ARRIVAL
Diversion Airports

MALAGA	AGP/LEMG	051 nm/053°T	CAT B
SEVILLE/SAN PABLO	SVQ/LEZL	081 nm/341°T	CAT A
JEREZ	XRY/LEJR	050 nm/316°T	CAT A
ALMERIA	LEI/LEAM	150 nm/074°T	CAT B

Contact GIB approach by at 50 nm inbound at the very latest. It is recommended by Gibraltar ATC to contact Approach on VHF2 prior to top of descent.

During this initial contact:

- The latest METAR will be passed.
- Provide the number of persons on board (including crew) and the squawk code.

You can request ATC to give SRA instructions in TRACKS or HEADINGS.

Fuel figures for departure can be passed to the handling agent via VHF or ACARS.

Approach

- One of the following approaches can be offered by Gibraltar ATC:
 - Surveillance Radar Approach
 - RNAV VPT
 - Procedural Approach (only when Gibraltar Radar unserviceable)
 - Visual
- In good weather conditions, it is recommended to use the RNAV VPT approaches as the visual picture to both runways at GIB is hard to assess.
- In conditions which preclude the use of the RNAV VPT approach, the SRA is the only instrument approach available.

Surveillance Radar Approach – Rwy 09/27

Crews will be offered radar instructions as TRACKS or HEADINGS.

If instructions as TRACKS are accepted, the following phrase will be used:

“All instructions passed will be TRACKS, but terminology remains HEADING”.

Therefore, when passed an instruction it is to be interpreted by crews as a track even though the phraseology will remain “heading”.

The “Talkdown” Approach Controller provides the crew with precise vectoring using either TRK or HDG adjustments and prescribing final descent from 1500' at 5 nm Radar Range with a 3° vertical path to a Visual Decision Point (VDP).

Note: Distance to touchdown is based on a radar range, not the GBR DME.

- It is recommended that SRA approaches at Gibraltar be flown in TRK-FPA on the Airbus as this will reduce workload and ensures the FPV is ON for the subsequent Visual Approach.

- A fully stabilised, automatic approach from the 5 nm radar fix to the VDP will establish the aircraft on the correct 3° profile for landing.
- The vertical profile is difficult to judge purely visually, even in excellent conditions.
- Workload on the short instrument portion of the approach may be very high.
- There can be as many as five RT exchanges as well as the assessment of the stable approach criteria during 60 seconds of instrument approach.
- Radar's objective is to place the aircraft at the VDP, within an envelope, both vertically and horizontally from the runway, from which the crews are able to continue visually on a 3° VISUAL APPROACH to the runway. This envelope is defined by the minimum weather conditions required to commence an approach; i.e. Visibility 5 km or 5 km in the direction of the approach path and a cloud ceiling of 1000ft aal. (Denoted by a C on the approach chart minima box.)
- For civilian operators, the Visual Decision Point (VDP) is defined as "X-RAY" on SRA Rwy 09 and "YANKEE" on SRA Rwy 27.
- Due to the unique terrain and operating environment at Gibraltar SRA Approaches do not conform to PANS-OPS or APATC-1 approach standards, and as such Conventional DA, DH(HAT) and RVR minima is not applicable.
- All Civil Aircraft are informed by Gibraltar Approach that Approach Minima is 920ft QNH. This is confirmed by the approach plate state minima.
- Therefore, Minimum Height at the Visual Decision Point (Pt X/Y) is 920ft QNH, and this value should be treated as an MDA as far as vertical profile is concerned.
- Regulations state:
 - "Crews not in visual contact with the threshold at the 3 nm VDP are to initiate a Missed Approach as directed by ATC".
 - Thus, the VDP should be treated as the Missed Approach Point geographically.
- The 90° turn from the 09 VDP (X-RAY) may require up to 25° of bank if there is a southerly wind.

Standard Talkdown Controller Phraseology for SRA Rwy 09/27:

Range (NM) to Touchdown	ALT	ATC Phraseology
20-15	↓	“SPEEDBIRD XXX IDENTIFIED, READ BACK QNH”
		“VECTORING FOR AN SRA Rwy 09/27, TERMINATING AT Pt X/Y, APPROACH MINIMA 920ft”
<12	↓	“VECTORING FOR AN SRA Rwy 09/27, TERMINATING AT Pt X/Y, APPROACH MINIMA 920ft”
6	1500	<i>Following consultation with Gibraltar ATC and experience from pilots, it is highly recommended that the aircraft is configured and landing checks completed prior to this point.</i>
		<i>Performing a Continuous Descent Approach to the 5 nm SRA DESCENT POINT, particularly in the case of SRA Rwy 09 is not recommended. With the aircraft flown level at 1500' SRA Platform Altitude, crews are assured maximum capacity to adhere to radar instructions as accurately as possible.</i>
5.5	1500	“APPROACHING DESCENT POINT”
5	1500	“BEGIN DESCENT NOW FOR A 3° GLIDEPATH” ATC will pass Radar Range and Check Altitudes as per standard SRA protocols.
4.5	1350	“CHECK GEAR, ACKNOWLEDGE” ATC will not clear aircraft to land unless they receive confirmation of gear down.
4	1200	LANDING CLEARANCE <i>Given regardless of whether crew visual with runway or still IMC. No requirement to read back this clearance.</i>
3.5	1050	
3	920	Pt X/Y: “ARE YOU VISUAL WITH THE THRESHOLD?” <i>As stated on the Aerosoft/Lido IAC, pilots not in visual contact with the threshold at the 3nm VDP are to initiate a Missed Approach “AS DIRECTED BY ATC”. It is vital that the aircraft is flown as per ATC instructions to ensure terrain clearance is maintained.</i>

In limiting conditions crews can expect to remain with “talk down” until after landing. Handover to tower frequency will take place on the runway.

RNAV VPT Approach

The RNAV VPT to Rwy 09/27 are visual approaches with prescribed tracks which are coded in the Navigation Database. The FMGC provides lateral and Vertical AP/FD guidance which must be utilised.

For FS purposes, these approaches can be considered as 'overlays' of the RNAV (RNP) approaches for Rwy 09 and Rwy 27 and it is these approaches which should be loaded and flown provided the weather is above VFR minima (5000m visibility). BAV are not authorised to fly the RNAV (RNP) approach below VFR minima.

The following recommendations will assist in preparing one for the peculiarities of each approach.

Approach Preparation

- Review FCOM Approach Guidance – RNAV Visual.

Note: The BARO/MDA field on the PERF APPR Page is left empty.

- Review FCTM for RF Leg flying techniques.

The approach is approved for Day and Night and the aircraft must be achieving a minimum of RNP1.

Rwy 09 Specific Procedures

The RNAV VPT Rwy 09 includes two RF legs, one which is a tight arc which aligns the aircraft with the runway centreline and creates an odd visual perspective on the final turn.

It is not unusual to see at least 3 whites on the PAPI's from 1000-400ft as the aircraft is following a curved approach path (PAPI's are calibrated for a straight in approach only). Resist the urge to disconnect the AP and fly more "usual" visual approach. As the aircraft aligns with the centreline 2 reds/whites will be shown.

Energy Management

The FL90/240kt restriction should give sufficient track miles to achieve the platform altitude by the "Visual Point" (VP) which is **GB092**.

Aim to be level at the platform altitude by at least the VP (GB092).

Configuration Management

Good Weather:

- Aim for at least intermediate configuration by the VP (GB092) e.g. Flap 2/180 kt (max).
- Achieve final approach speed and configuration prior to the FAF (GB09F) to assure a smooth RF leg.

Marginal Weather:

- Aim for Flap 3/F Speed by the VP (GB092) to improve chances of visual references acquisition.

Guidance Management

- DIR TO GB092 (VP) or subsequent points is not permitted to avoid overshoot on RF Leg. BUGOV is the last permitted DIR TO point.
- FINAL APP should be armed prior to the VP. It is best armed once level at platform altitude to prevent unexpected descent path adjustments.
- AP must be used (when available) and disconnected by the minimum disconnect height.

VP Decision Making

- With the limiting visual conditions required for the approach (5 km) it is possible that at the VP one would not be visible with the rock and only have sea visible. If the reported visibility is still sufficient it is acceptable to continue following the prescribed tracks otherwise a Missed Approach is required.
- Sufficient visual references to categorically determine your position e.g. Gibraltar, Rwy, Rock and/or Spanish coast must be visible prior to descent at the FAF.

Note: This assumes one is visual with any large shipping on approach and can decide if clearance is sufficient.

RF Leg

- The final RF leg flies a very tight turn aligning with the Rwy extended centreline at only 1 nm.
- The perspective is very strange as we seldom would visually fly and approach such as this. Thus monitor the guidance carefully and “trust the kit”.
- Whenever possible use the AP to the minimum AP disconnect height to reduce PF workload on short final.

Note: The approach chart includes an Altitude vs distance table. To use this correctly one must consider the curved approach track not the direct distance to the THR, as such a distance to the THR on the PROG page CANNOT be used.

Use the distance to GB096 shown on the ND. As GB096 is 1 nm from the THR, subtract 1 nm from the distance from THR row, see below:

Dist from THR (on Chart)	4	3	2	1
Dist from GB096 (on ND)	3	2	1	0
Altitude	1340	1020	700	380

Failures

Aircraft failures resulting in less than that required in the FCOM section on RNAV Visual Approaches and/or RNP degradation to > 1 nm require mitigation.

Prior to the FAF:

- It may be possible to continue the approach visually as long as:
 - This possibility has been thoroughly briefed
 - Visual approach criteria are met
 - The Aircraft can be manoeuvred to a more usual visual final position. Descent from the platform must not be started until the safety of the remainder of the approach is assured.
 - Full visibility of rock and LDG THR is assured.
 - If any doubt – Go Around.

At or after the FAF:

- It is unlikely to be able to visually execute the final turn safely with no guidance due to the descent position. Thus, a Go Around is required.
- Follow the VPT track to the MAPt then through to the MAP track. Separation from the rock is guaranteed due to the visual conditions.

Rwy 27 Specific Procedures

The approach to Rwy 27 is more straightforward than the approach to Rwy 09, however energy management is key to a successful approach.

Energy Management

- There are approx. 21 nm between PIMOS (FL90/240 kt) and the FAF (BG27F) to lose 7500ft and reach the landing configuration. This is difficult to achieve clean at 240 kts.
- It is suggested to use at least Flap 1 and speedbrake to assure stability.
- Caution is required for any direct routing towards KUXOX as extra drag will be required.
- Aim to be level at the platform altitude by at least the VP (**GB276**).

Configuration Management

- Aim to achieve at least F speed – Flap 3 with GR DOWN prior to the FAF (**GB27F**) due to the low platform altitude.

Guidance Management

- GB276 is the last permitted DIR TO point.
- FINAL APP should be armed prior to the VP. It is best armed once level at platform altitude to prevent unexpected descent path adjustments.
- AP must be used (when available) and disconnected by the minimum disconnect height

VP Decision Making

With the limiting visual conditions required for the approach (5 km) it is possible that at the VP one would not be visible with the Rwy and only have sea visible. If the reported visibility is still sufficient it is acceptable to continue following the prescribed tracks otherwise a Missed Approach is required.

- Sufficient visual references to categorically determine your position e.g. Gibraltar, Rwy, Rock and/or Spanish coast must be visible prior to descent at the FAF.

Failures

Aircraft failures resulting in an less than that required in the RNAV Visual section of the FCOM and/or RNP degradation to > 1 nm require mitigation.

- It may be possible to continue the approach visually as long as:
 - This possibility has been thoroughly briefed
 - Visual approach criteria are met
 - Full visibility of rock and LDG THR is assured.
 - If any doubt – Go Around.

Final Approach

- The short runway has very wide concrete shoulders presenting an unusual aspect. PAPIs for both runways are set with an eye height at threshold of 31 feet (below the Airbus MEHT limitation of 45') and should not be used.
- Use of "Bird"/FPV and all other aids to assess height v distance to the threshold is recommended. Stable approach criteria must be maintained to touchdown. The harbour wall to the south of runway 09 extends 500 m west of the landing threshold making identification harder in low visibility. Shipping is uncontrolled except for prohibited areas at the runway ends and can be a distraction.
- There are no approach or centreline lights. There are edge lights and strobes at the runway thresholds. The double flashing buoys shown on Aerodrome plate are difficult to see at night. Both landing thresholds are slightly displaced. The touchdown zones for both runways are shorter than standard at 330 m/1000ft due to the short runway.

Note: Rwy 27 has an 8ft dip in the first 305m; standing water is possible. Rwy 09/27 is grooved to aid braking and drainage. There is an ATC mandatory requirement to advise aircraft if the arrester gear is rigged, assume it is de-rigged unless advised otherwise.

Stopping

At Gibraltar ONLY, the in-flight landing distance factor may be reduced to 10% provided:

- Runway surface condition is DRY or DAMP or WET runway only; and
- Autobrake MED is selected and remains engaged until a safe stop is assured; and
- PF is prepared to apply Maximum Manual braking if additional retardation is necessary to ensure a safe stop is achieved.

GROUND

- The only road into Gibraltar runs across the centre of the runway and is closed prior to all aircraft movements (a tunnel beneath the 27 threshold is under construction).
- The airfield is entirely paved but only the taxiways, runway and turning shoulders are designated for aircraft manoeuvring.
- Lighting at night is good.

- The airfield signage and holding point information is of RAF specification and as such there are no red stop bars or wigwags.
- Aircraft are marshalled nose-in onto the civil apron.

DEPARTURE

- Standard departure routes are as follows:

Rwy 09	Direct to PIMOS
Rwy 27	Either: <ul style="list-style-type: none"> Left turn visually around Gibraltar on track to PIMOS, or Radar heading after departure of 180° until the radar controller can permit a direct routing to PIMOS

WEATHER

- Due to its geographic location between the waters of the Mediterranean and Atlantic Gibraltar's weather conditions can be difficult to forecast accurately.
- The wind most favourable for fog is a light Northeasterly. The Met Office state that it is hard to forecast the onset of fog but easier to predict its clearance.

Summer

- During the summer months, thick air mass fog moving at more than 15 kts can appear at short notice and linger for several days.
- Hazy visibility of around 6 km and thunderstorms are also common in summer.
- Average summer temperatures reach 30°C, occasionally 35°C.

Winter

- Strong winds are most common in the months of October to April.
- Northerly winds are rare, and Easterly or Westerly directions present few problems.
- However, any wind direction with a Southerly component can cause severe turbulence and WINDSHEAR due to the location of The Rock; hence the published wind limitations. With Southerly winds, tailwinds at both end of the runway, and crosswinds in excess of 25 kts at the centre are not uncommon.

GIB TAF – Special Turbulence Code/Decode

- A six-figure code is often added to the end of the TAF because variable air turbulence phenomena affect GIB.
- This code provides information on the expected intensity of turbulence in the area, and the 'depth' of the turbulence layer.

Example: 520021

- 5 INDICATOR that this is a turbulence code message
- 2 TYPE/INTENSITY of turbulence
- 0 None

1	LIGHT		
2	MODERATE	In clear air	Infrequent
3	MODERATE	In clear air	Frequent
4	MODERATE	In cloud	Infrequent
5	MODERATE	In cloud	Frequent
6	SEVERE	In clear air	Infrequent
7	SEVERE	In clear air	Frequent
8	SEVERE	In cloud	Infrequent
9	SEVERE	In cloud	Frequent

002 Height of LOWEST level of turbulence in HUNDREDS of feet

1 Depth of turbulent layer in THOUSANDS of feet

Decode: Moderate, infrequent clear air turbulence. Base of turbulence layer at 200ft, 1000ft thick.

OPERATIONAL INFORMATION

Handling Agent	Gibair Handling
Handling Agent VHF	131.675
Potable Water	Uplift not permitted

IF ONLY Electrical Power is required	Use APU
If BOTH electrical power and air conditioning is required:	Use APU (ACU equipment not available)

BRATISLAVA – MR STEFANIK (BTS/LZIB)

Elevation 436ft

CATEGORY A

No video brief available.

GENERAL

- Simple airport, with 2 crossing runways
- Preferred runway:
 - RWY 13 and RWY 04 for Take-off
 - RWY 22 and RWY31 for landing
- ILS:
 - RWY 22 – Cat I
 - RWY 31 – Cat IIIA
- Circling approaches:
 - RWY 22 to RWY 04
 - RWY 31 to RWY13
- LOWW traffic is nearby – monitor for traffic (significantly higher activity)
- General aviation activity is light to moderate

Threats

CFIT

- There is a mountain range to the NW of the airport – peak 2133' – other factors: man-made structure (TV tower – 2067', 5NM NW of LZIB) – refer to charts for MSA at OKR NDB
- Crews should be on high alert when departing RWY 31 (terrain is straight ahead) and plan accordingly
- When landing on RWY 22, crew should ensure to be on track as mountain range is close (right side)
- RWY 22 departure is over the city, there are high-rises in city centre (846', 845', 2067' should be no factor if strong adherence to track, altitude, and speeds)
- Oil refinery is close by the city

Runway Incursion

- No threat identified

Runway Excursion

- No threat identified

Loss of Control

- No threat identified

Special Considerations

- LZIB is a noise sensitive airport
- Continuous Descent Operations are in use – adopt low-engine and low-drag configuration as long as possible – aim to level at initial approach fix (2500')
- Several Noise monitoring points installed near vicinity of the APT.
- Reverse thrust IDLE between 2300 – 0700 LT, expect for safety reasons
- Dep. on RWY 31 and RWY22 between 2300 – 0700 LT, for ACFT with MTOM 45T+ is prohibited

ARRIVAL

Diversion Airports

VIENNA	VIE/LOWW	26 nm/258°T	CAT A
BRNO	BRQ/LKTB	63 nm/336°T	CAT A
BUDAPEST	BUD/LHBP	94 nm/113°T	CAT A
POPRAD TATRY	TAT/LZTT	132 nm/060°T	CAT A
KOSICE	KSC/LZKZ	163 nm/073°T	CAT A

APPROACH

- Airport is not usually very busy, however do not over-extend time on RWY

GROUND

- Use of APU:
 - Arrival: max 30 min after arrival
 - Departure: max 30 min prior to start-up time
- Taxiing to parking stands – only with Follow-me car OR marshaller
- For ACFT cat D – over-steering technique should be applied on tight corners
- For ACFT cat E – Follow-me car only
- Stands 1, 13, and 14 used for ACFT CAT D, E – refer to chart 10-9A

DEPARTURE

- Southbound and Eastbound departures: VAMOG and TABIN, NITRA
- Westbound and Northbound departures: TOVKA, BERVA
- Pilots should be ready for a rapid line-up according to ATC instructions
- Cockpit checks should be completed prior to line-up and any checks requiring completion whilst on the runway should be kept to a minimum required. Commence take-off roll immediately after receiving take-off clearance. Pilots not able to comply with the above requirements shall notify ATC as soon as possible

WEATHER

- LZIB lies in the northern temperate zone and has a moderately continental climate
- Cool winters and warm and humid summers (average annual temp. 10.5°C)
- Fogs are present mainly during the fall season
- Summer thunderstorms are frequent (can be severe at times) / precipitation evenly spread
- Often windy (with strong gust) – usually west-to-east direction, and north-to-south direction
- De-icing and winter operations effective (airport is not closed very often)
- De-icing operations active on Stand 21 (refer to chart 10-9A)

OPERATIONAL INFORMATION

Handling Agents	Bratislava Airport Handling, ABS Jets
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Handling Agent VHF	-
Potable Water	Uplift permitted

IF ONLY ELEC. PWR is required	Use ground power at all times
If BOTH ELEC. PWR and A/C is required:	Use both ground services at all times

TEGUCIGALPA/Toncontin Intl (TGU/MHTG)

Elevation 3307ft

CATEGORY C

No AV brief available

GENERAL

- Toncontin Intl Airport is situated in Tegucigalpa, 4 nm south of the city centre and surrounded by built up areas
- The airfield is surrounded by steep terrain on all sides, which combined with the short and sloped runway and orographic wind effects makes the RNAV (RNP) Rwy 02 one of the world's most challenging approaches
- Arrivals to Rwy 20 are less affected by terrain but remain challenging
- Transition altitude 19,000 ft

Threats

CFIT

- Terrain surrounds the airfield on all sides with numerous close-in obstacles.
- Part of the hill on short final Rwy 02 has been quarried away in recent years, but there is still a hill over 3,800 ft asl (over 500 ft above the threshold elevation) on the 02 extended centreline at 1 nm. The RNAV (RNP) approach leaves the aircraft pointing at this hill at the VDP.
- Beyond this terrain rises over 4,300 ft asl within 2 nm of the airport and to in excess of 5,000 ft asl within 4 nm
- The 6,000 ft contour is within 10 nm to the W and there is a peak of 7,612 ft asl at 10 nm NE
- Missed approach requires LNAV and accurate tracking is essential due to proximity of terrain. Consider how this will be flown.

Runway Excursion

- Unstable approaches, especially to Rwy 02, as a result of being high/and or fast at 1000R or failing to achieve centreline alignment
- Rwy 02 has a significant displaced threshold (LDA 1664m)
- RNAV approaches have a 3.5° nominal glidepath
- **Rwy 02 -- touchdown MUST be achieved before 1st taxiway after threshold or a go around MUST be initiated**



- Runway lighting is poor and pilot activated (118.7 MHz)
- Rwy 02 PAPIs are set at 5.3° and are designed for small aircraft. **They are NOT suitable for use by large aircraft**
- Rwy 20 PAPIs set at 5°
- Runway is slippery when wet
- High rates of descent and density altitudes may lead to under-flaring and risk of hard landing

Loss of Control

- Turbulence and WINDSHEAR may be expected at any point during the approach, and particularly in the later stages

- WINDSHEAR has been cited as a contributing factor in a number of fatal accidents at TGU

Special Considerations

- At typical temperatures TAS will be approximately IAS + 12-15% and therefore turning radii, ground speed and rates of descent will be notably higher than usual. Ensure sufficient time is allowed to slow and configure the aircraft and particularly note the impact on the visual turn to Rwy 02 final
- Things will happen extremely quickly in the latter stages of the RNP approach. Establish the aircraft in the landing configuration early.
- See 'HOT AND HIGH OPERATIONS' brief for additional information

ARRIVAL

Diversion Airports

GUATEMALA CITY	GUA/MGGT	195 nm/280°T	CAT B
SAN PEDRO	SAP/MHLM	092 nm/334°T	CAT B

- Guatemala City is the preferred diversion airfield and will be staffed during World Flight.

Approach

- Rwy 02 is the preferred runway and also the most challenging of the two options.
- RNP AR capability with GPS and RF legs is required to fly any of the RNAV approaches. VOR approaches are available for aircraft without this capability.
- Delays are likely. Holds are at MELVO and TALAG.

Rwy 02

Approach Preparation

- The Simfest preference is to fly the RNAV (RNP) approach, and special authorisation from the Honduran CAA has been obtained to enable us to fly this approach during World Flight
- There are two RNAV approaches available, a "North" approach which starts at MELVO and a "South" approach which starts overhead the TNT VOR/DME and brings arrivals from the south overhead the airfield to pick up the main procedure
- Note the missed approach speed limit of 175 kt and confirm this is correctly set in the FMS

Initial Approach

- The approach proper starts at TG015. The aim is to bring the aircraft through the valley to a position from which a visual turn through 104° can be made to align the aircraft with the runway.
- The approach should be flown auto-coupled in LNAV/VNAV. Confirm that the RNP value on PROG page 4/4 is set to 0.30, and PM should have PROG page 4/4 open in order to monitor the ANP and XTK error throughout the approach.
- It is strongly recommended that the aircraft should be established in the landing configuration with checks completed no later than TG014
- By TG014 ensure the MCP altitude is set to 4400 ft to allow the aircraft to descend on the VNAV path. Once established on the VNAV path the missed approach altitude may be set; no

missed approach altitude is specified on the charts but 8,000 feet would be a sensible initial value in the absence of ATC instruction

- Handover of control may occur once visual reference has been achieved and can be maintained to touchdown

Visual Segment

- The segment from TG011 to touchdown is visual and it is essential that visual reference with both the airfield and surrounding terrain can be maintained throughout.
- F/D and ND lateral and vertical guidance should be available as the final turn is coded as an RF leg from TG011 to TG010 and RW02
- The approach broadly follows the Las Casitas highway outlined in blue below. The cloverleaf junction ringed in yellow is a useful aiming point to judge the rollout and progress of the turn.



- High rates of descent of close to 900 fpm will be necessary due to the 3.5° glidepath and effects of density altitude. However, it should **not** be necessary to unduly increase the RoD in the visual segment.
- Landing performance is critical and the aircraft must not be allowed to float. Touchdown must be no later than the first taxiway after the threshold or a go around **must** be flown.
- Note that a slightly earlier than usual flare may be necessary due to the steeper than usual approach and effects of density altitude.

Missed Approach

- The missed approach should be thoroughly briefed and rehearsed as missed approaches are common and may be required at any stage of the approach, including from the flare.
- The missed approach requires LNAV tracking. This must be **manually** selected above 400 ft AGL; it is critical that this is not missed as there is a 4,512 ft hill at 4 nm on the Rwy 20 extended centreline. Accurate tracking of the missed approach route is absolutely essential.
- Consider how a go-around from very low height or a windshear go around would be handled
- Consider how a go-around from an earlier point in the approach would be handled

VOR Rwy 02

- The RNP approach is the preferred approach. However, should it be necessary in extremis to fly the VOR approach, it is recommended that the aircraft be flown level at the MDA to a

position overhead the airfield from which a visual left-hand circuit can be flown to touchdown, with a base/final leg approximating that of the RNP approach. This is because the straight-in VOR approach takes the aircraft over the high terrain at the approach end of the runway, requiring excessive (>1500 fpm) rates of descent in the final stages of the approach in order to place the aircraft in a position for landing.

Rwy 20

- The RNP Rwy 20 approach is generally less challenging than that for Rwy 02 as the terrain allows for a much more 'straight' final segment with only minimal track changes in the final stages.
- However, it should not be underestimated and there is a significant risk of rushed/fast approaches as a result of the relatively short track mileage to touchdown in comparison to Rwy 02.
- Note that MELVO to touchdown is only 12.6 nm, and TG024 to touchdown only 8.5 nm with a 3.5° glidepath at high density altitude. It is strongly recommended that the aircraft be fully configured no later than TG024.
- The missed approach is toward terrain. It requires RNP 0.3 and contains RF legs. Accurate LNAV tracking is essential and the procedure should be thoroughly briefed and rehearsed. Ensure speed constraints are correctly entered and achieved. PM should monitor PROG Page 4 for RNP vs ANP and XTK error.

GROUND

- All civilian aircraft must remain west of the runway due to the military area to the east, depicted on charts as MH(R)-4

DEPARTURE

- Full length departure Rwy 02 will require backtrack.
- All departures are from Rwy 02 due to terrain. Extremely high climb gradients are required which will significantly restrict RTOW.
- SIDs require GPS and RNP2. This should be confirmed and monitored on PROG p4/4.

WEATHER

- Temperatures are more or less constant throughout the year
- Dry season (Nov-Apr) sees little rainfall and slightly cooler temperatures
- Oct 1998 saw HURRICANE MITCH cause widespread flooding and damage
- Wet season (May-Oct) characterised by convective build-up during the day, thunderstorms and heavy rainfall in the afternoons

OPERATIONAL INFORMATION

Handling Agent	Swissport
Handling Agent VHF	
Potable Water	Uplift not permitted

IF ONLY Electrical Power is required	Use ground power at all times
If BOTH electrical power and air conditioning is required:	Use APU; keep GPU connected to reduce APU fuel burn

ACAPULCO (ACA/MMAA)

Elevation 16ft

CATEGORY A

AV brief not required

GENERAL

- Located 16 NM SE of Acapulco city on a strip of land between the Pacific Ocean and the Laguna de Tres Palos
- ACA is one of the top 15 airports in Mexico with numerous scheduled and charter flights in peak season

Threats

CFIT

- Terrain rises steeply to the north of the airfield with peaks in excess of 10,000ft amsl within 40 NM
- Cerro Teotepec 11,610ft amsl 50 NM NW

Runway Excursion

- ILS Rwy 10 has a slightly steeper than usual 3.1° glidepath

ARRIVAL

Diversion Airports

IXTAPA-ZIHUATANEJO	ZIH/MMZH	110 nm/297°T	CAT A
MEXICO CITY	MEX/MMMX	164 nm/014°T	CAT B
VERACRUZ	VER/MMVR	249 nm/054°T	CAT A
CANCUN	CUN/MMUN	776 nm/069°T	CAT A

- Speed restrictions apply in the Acapulco TMA:
 - 250 kt at or below 10,000ft amsl within 30d ACA
 - 200 kt at or below 3,000ft amsl within 10d ACA

GROUND

- Parking is relatively limited and manoeuvring on the main apron requires care and minimum thrust
- Note Twy C not suitable for widebody operations

DEPARTURE

- Northerly SIDs have minimum climb gradient requirements and altitude restrictions for terrain clearance purposes
- Consider climbing at Vref +100 until restrictions are met

WEATHER

- Tropical storms and hurricanes may be encountered May-Nov
- Most rain falls Jun-Sep, with March and April the driest months
- Temperatures remain fairly constant all year round

OPERATIONAL INFORMATION

Handling Agent	Manny Aviation Services
Handling Agent VHF	
Potable Water	Not assessed

IF ONLY Electrical Power is required	Use ground power at all times
If BOTH electrical power and air conditioning is required:	ACU equipment only available on jetbridge stands – if parked on remote stand use APU

MEXICO CITY (MEX/MMMX)

Elevation 7316ft

CATEGORY B

No AV brief available

GENERAL

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

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 18,000 ft asl 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 Rwy 23 approach paths. 10,000 ft contour is reached at 15 nm and there is a peak to nearly 13,600 ft asl 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. The 10,000 ft contour lies about 17 nm W and 15 nm SW. The terrain reaches nearly 13,000 ft asl by 16 nm SW.
- Notable isolated spot elevation of 10,200 ft asl to the NE at 038°/22 nm
- Closer in is high ground commencing 5 nm N and reaching nearly 10,300 ft asl 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**

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 taxiing to Terminal 2.
- Runway lighting intensity is low with no centreline lights. Rwy turn offs and taxiways do not have centreline lighting. Runway turnoffs identified by blue taxiway edge lights only and are difficult to see at night, especially at the end of 05R

Runway Excursion

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

Mid Air/Ground Collision

- Local traffic is controlled in Spanish
- Exercise extreme caution when taxiing 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
- Taxiway A unsuitable for heavy jets
- While taxiing for takeoff 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 Taxiway H1 which is not depicted on charts. At night it is brightly lit and there is the possibility of confusing it with Taxiway H1.

Special Considerations

- The airfield elevation of 7,316 ft gives a high TAS of approximately IAS +15% and consequently a high ground speed and large turn radii. High temperatures will compound this effect.
- A low platform altitude coincident with the completion of the final turn on to 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.

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	DFW/KDFW	813 nm/007°T	CAT A

Others that may be used include Miami and Phoenix

- Transition altitude is 18,500 ft
- Enroute area QNHs are used
- There is a speed restriction of 250 kt within 30 nm of MEX VOR below 18,000 ft

Approach

- The airfield elevation is 7,316 ft. With this in mind, consider using FL200 for the 10,000 ft check.
- Note 20,000 ft max flap extension altitude and ensure this is observed.
- Approaches from the north route via SLM to SMO. Confirm whether ATC expect you to 'descend via' or in accordance with their clearances, and carefully monitor all altitude selections.
- If cleared to 'descend via' crews are reminded to confirm the lowest published altitude relating to their specific STAR clearance. There is potential for confusion as some altitudes are published which are relevant ONLY to transitions beyond the SLM.**
- 05R is the usual landing runway. **The high density altitude, combined with terrain and a late turn to a short final approach make this one of the most challenging approaches on the B744 route network.**
- Last minute changes to 23L are possible. This should be considered when preparing for the approach and it is worth setting the 23L approach up in RTE 2. If this is done make sure the transition is correctly sequenced prior to activating RTE 2.
- It is not uncommon to be taken off the published arrival and given a heading to intercept a VOR radial with the remainder of the approach as published. Radials are often equivalent to one of the other STARs. ATC may clear you direct SMO or MAVEK (same position). Consider how to handle these requirements.

- Rwy 05R: expect ATC speed control of 200 kt to SMO and 160 kt thereafter.
- Rwy 23L: as above except 200 kt to SLM.
- If flying the ILS approach, brief the procedure for capturing the G/S from above. However use of the RNAV approach is recommended as this improves the transition from the STAR to the approach.
- Ensure the aircraft is fully configured with the landing checklist completed BEFORE making the turn to final as this will minimise workload.
- VOR/DME 05L has a 3.25° glidepath
- If offered, a switch to Rwy 05L should be resisted due to the reduction in track mileage
- A sidestep to land on 23R following an ILS 23L approach is also sometimes used. The threshold of Rwy 23R is further displaced than that of 23L.
- Landing clearance may be given while the runway is still occupied
- 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

ILS DME ONE is a procedural approach defined by conventional navaids.

ILS DME TWO is basically the same approach but defined instead by RNAV waypoints.

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 8,800ft (which is only 1,500 ft aal) as the turn on to final is started can result in “chasing” the G/S from above and of course you will only 500 ft available to achieve stability.

- The approach starts at SMO. MAVEK is an RNAV waypoint at the same location.
- Arrival at SMO is generally in accordance with the published STAR or via ATC instruction to intercept an inbound radial (often the 340 radial – which is not on the approach chart).
- Once at SMO you will be cleared for the ILS, with the expectation that you will follow the published lateral and vertical profiles.
- Plan to configure to an intermediate flap setting (e.g. 20) at SMO to ensure the aircraft does not drift above the profile.
- Use LNAV for the lateral profile, and arm LOC as you start the final turn. Note that this is a 113° turn which, combined with the increased radius of turn due to high GS, can result in going through the localiser even though it will have captured.
- Passing SMO set the MCP to 8,800 ft and use VNAV for the descent. If you choose to use a different vertical mode you will need to set appropriate values in the MCP. It is vital to descend promptly to 8,800 ft and arm G/S as soon as LOC is captured.
- During the turn to final an RoD of approximately 900 fpm will be required to help maintain the profile. A similar RoD can be expected once the G/S is captured.

Rwy 23L

- The approach starts from SLM and tends to be easier to manage than 05R
- When intercepting the LOC from LNAV mode, the aircraft may parallel the LOC without capturing it. Ensure LOC is captured early on so that the G/S can also be captured, thus reducing the likelihood of having to capture from above.

- A switch to 23R may be offered – this increases the track miles to touchdown
- Terrain constraints mean ATC are sometimes forced to achieve separation through quite aggressive speed control
- Go around is toward terrain

GROUND

- EOT (Engine Out Taxi) not approved
- Simfest normally park on Stand 31A
- Caution is advised when taxiing to Rwy 05R – signage where Twy A1 splits from Twy A has been reported to be confusing

DEPARTURE

- Use FCOM1 Noise Abatement Procedure
- Packs OFF etc should be used to enhance performance. If using Packs OFF for departure bear in mind the high elevation and be mindful of distractions – if the packs are not reconfigured by the time the aircraft passes 10,000 ft a CABIN ALTITUDE warning will be generated, and above 14,000 ft cabin altitude the ‘rubber jungle’ will drop!
- On pushback from most T1 stands you will be blocking the main taxiway. This can also result in extensive pushback delays. Starting one engine on stand may be a good option.
- B747 - hot/hung starts are a possibility. To avoid this a manual engine start should be carried out, one engine at a time. Await max motoring before introducing fuel.
- Rwy 05L departures are more restricted by obstacles than 05R
- Departures from Rwy 23L/R have a higher workload due to terrain restrictions
- ATC speed restrictions as low as 180 kt may be issued; advise unable to comply if this would result in an unacceptable delay to flap retraction/acceleration
- If routed direct TAMPICO or PACHUCA on departure, bear in mind the isolated spot elevation of 10,200 ft asl at MEX 038°/22 nm

WEATHER

- Dry Season (Nov – Apr): mainly dry and sunny with a few light showers.
- Early morning radiation fog is a possibility
- On occasions depressions move south in to the Gulf of Mexico giving low cloud and poor visibility over a wide area and strong to gale force northerly winds behind the cold front, leading to dust and poor visibility
- Early morning mist and smog usually dissipates by midday
- Wet Season (May – Oct): Frequent afternoon thunderstorms. Rain falls almost daily in July and August, and hurricanes to the east can also influence the weather.

OPERATIONAL INFORMATION

Handling Agent	Menzies
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

PANAMA CITY (PTY/MPTO)

Elevation 135ft

CATEGORY B

AV brief not available.

GENERAL

- Tocumen Intl is on a coastal plain 2 NM inland from the Gulf of Panama
- The city is 15 NM to the SW
- Beyond the city is the Pacific exit of the Panama Canal

Threats**CFIT**

- High ground to 3,484ft amsl at approx D11 TUM from NW to NE
- Terrain on Taboga Island 19 NM SW to nearly 1,100ft amsl
- Taboga VOR is sited on the island
- Circling is to the SE only

Loss of Control

- Large flocks of birds may be encountered, particularly to the SW

Mid Air Collision

- Numerous nearby airports including Marcos A Gelabert 8 NM S, La Joya 10 NM NE and Howard Air Force Base 16 NM SW

ARRIVAL**Diversion Airports**

COLON Enrique A Jimenez	ONX/MPEJ	033 nm/301°T	CAT B
AIRFIELD	IATA/ICAO	xxx nm/xxx°T	CAT A/B/C

Approach

- Radar vectors to final approach are usual, but vectors to TBG VOR for a full procedural approach are also used.
- Transition altitude 18,000ft
- Numerous restricted areas W of the airfield
- ILS only available on 03R
- Rwy 21L/R instrument approaches consist of an offset RNAV and an offset VOR/DME
- Missed approaches for Rwy 03L/R involve a right turn away from the high ground

GROUND

- Rwy 03L has a marked upslope

DEPARTURE

- No SIDs for Rwy 21L/R

WEATHER

- Dec – Apr – Dry season with surface winds mainly NNW in the region of 10kt
- May – Nov – Wet season with frequent thunderstorms after 1400L and off the coast before dawn
- Rain and minor squalls follow occasional westerly troughs

OPERATIONAL INFORMATION

Handling Agent	Aircraft Services
Handling Agent VHF	133.0
Potable Water	Not assessed

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

KUWAIT (KWI/OKBK)

Elevation 204ft

CATEGORY A

AV brief not required.

GENERAL

- Airfield lies 8NM south of Kuwait City.

Threats

CFIT

- Surrounding terrain rises gently to approx 600ft amsl 25NM west with obstacles to 830ft amsl
- Towers in the city rise to a height of 1,395ft amsl

Runway Excursion

- Runway TDZ slippery when wet resulting in poor or worse braking action

ARRIVAL

Diversion Airports

BAHRAIN	BAH/OBBI	227 nm/141°T	CAT A
ABU DHABI	AUH/OMAA	459 nm/129°T	CAT A
DUBAI	DXB/OMDB	461 nm/121°T	CAT A
DOHA	DOH/OTBD	306 nm/141°T	CAT A
MUSCAT	MCT/OOMS	703 nm/121°T	CAT A
DAMMAM	DMM/OEDF	200 nm/150°T	CAT A

GROUND

- Stand 21 and 22 not approved for Simfest due reduced obstacle clearance along the taxilane
- Expect stand 5 or 26 for B747 and B777 operation. Stands 3 and 4 may also be allocated.

DEPARTURE

- 33L/33R departures – ATC may take aircraft off the SID immediately after take-off by providing radar vectors toward Kuwait City. In the event of an engine failure, obstacle clearance will not be achieved (see Terrain above) if vectored over the city. Inform ATC of this issue immediately if you are instructed not to follow the SID track.

WEATHER

- Troughs bring rain with occasional reduced ceiling during winter months; embedded Cu/Cb a possibility

- Early morning fog occurs during winter
- Dust storms occur mainly in summer
- Prevailing wind northerly

OPERATIONAL INFORMATION

Handling Agent	National Aviation Services
Handling Agent VHF	132.025
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

DUBAI INTL (DXB/OMDB)

Elevation 62ft

CATEGORY B

No AV brief available.

GENERAL

- OMDB is major global hub serving Dubai, and rest of the United Arab Emirates
- It is a hub for following airlines - expected heavy traffic flow:
 - Passenger: Emirates Airlines, Fly Dubai
 - Cargo: FedEx Express
- OMDB has two main parallel runways, RWY 12L/30R and RWY 12R/30L
- Operations are affected by winds and also noise abatement procedures
- Due to congested airspace, expected delays and holds (norm during heavy periods)
- Transition altitude: 13000', Transition Level: FL150
- OMDB is surrounded by residential, industrial, and commercial real estate

Threats

Runway Incursion

- RWYs and TWYs are clearly marked in most cases, there are some potential conflict areas
- Hot-Spots are described in detail in chart 10-9A, there are too many to mention

Low Visibility:

Low visibility operations (LVO) are commenced when:

- Touchdown RVR is indicated to be 600 metres or less
- Reported meteorological visibility is 600 metres or less
- The reported cloud ceiling is less than 300 feet
- LVO may be pre-emptively initiated when RVR or meteorological visibility is reported at or below 1500 m and forecast to reduce below LVO minima, or the cloud ceiling is reported as 500 ft, and forecast to reduce below LVO minima. Runway crossings shall be kept to a minimum.

Loss of Control

- Birds in vicinity of airport

ARRIVAL

Diversion Airports

SHARJAH INTL	SHJ/OMSJ	9 nm/059°T	CAT A
FUJAIRAH INTL	FJR/OMFJ	53 nm/097°T	CAT A
ABU DHABI INTL	AUH/OMAA	63 nm/216°T	CAT B
MUSCAT INTL	MCT/OOMS	188 nm/119°T	CAT A
DOHA HAMAD INTL	DOH/OTHH	204 nm/269°T	CAT A
BAHRAIN INTL	BAH/OBBI	263 nm/282°T	CAT A

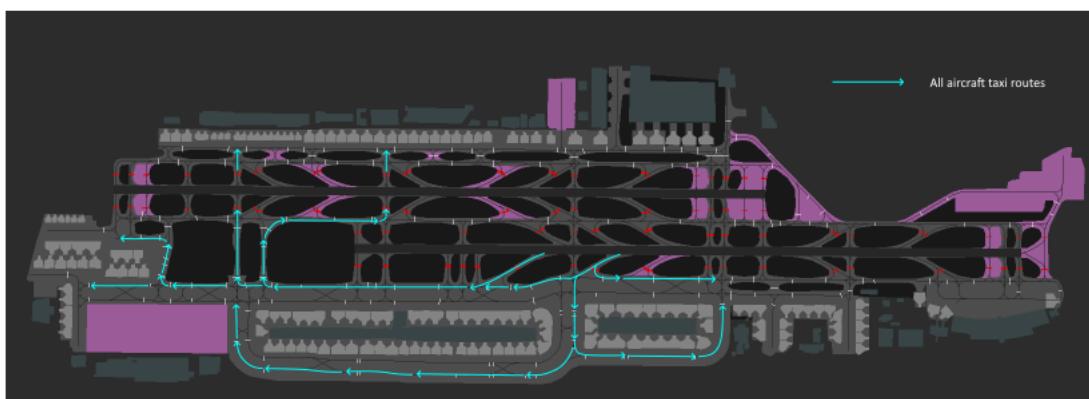
Approach

- There are several STARs from various directions, all have speed and altitude restrictions
- Plan accordingly and in advance – ATC and traffic volume can get busy at times
- Plan to meet all restrictions (speed and altitude)
- Be ready to be offered short cuts if traffic is light – make sure that you can meet criteria prior to accepting such shortcut
- Expect speed limit instructions from the ATC
- Preferred exit points

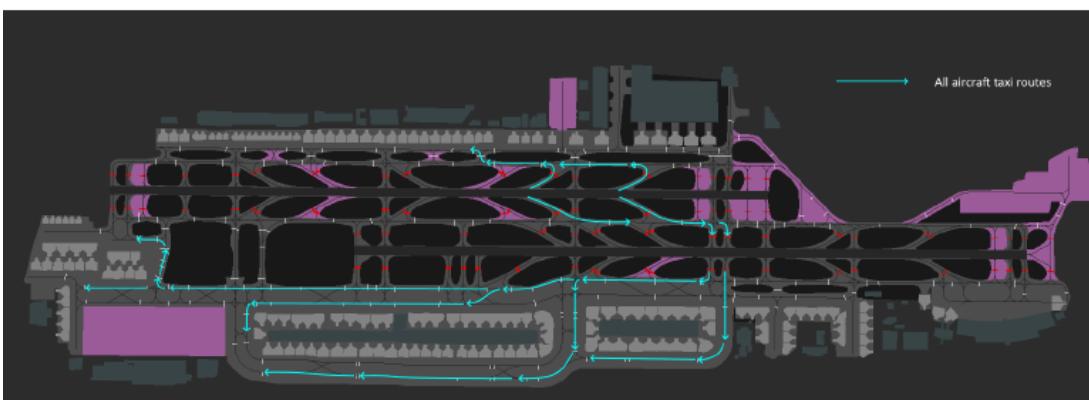
Landing RWY	Preferred Exit
RWY 30L	TWY K8 or TWY K6
RWY 30R	TWY M6 or TWY N5
RWY 12L	southern aprons, TWY M9 or TWY M12A
RWY 12L	northern aprons, TWY N6 or TWY N8
RWY 12R	TWY K13

- Single RWY Mode Procedure:
 - ATC may issue landing clearance, even if other ACFT temporarily occupies landing RWY – assuming ATC has a reasonable assurance that separation criteria will be met, when landing ACFT crossover the RWY THR – stay on high alert; for more information refer to chart 10-1P4
- Reduced RWY Separation Minima operations are in effect 24H, advise ATC if SOP allow for it
- Consult chart 10-1P5 for Parallel Approach Separation and D-APO procedures

A2. Runway 30L taxi-in diagram



A5. Runway 12L taxi-in diagram



- Vacate landing RWY expeditiously and ensure to be fully vacated before stopping

GROUND

- RWYs:
 - RWY 12L/30R
 - RWY 12R/30L
 - Preferred RWY configuration – up to tailwind of 10 kts:
 - Landing: RWY 30L
 - Departing: RWY 30R
 - Alternative RWY configuration:
 - Landing: RWY 12R
 - Departing: RWY 12L
- ATC may instruct ACFT “Follow the greens...” instead of detailed route instructions
- For standard taxi routes, kindly refer to chart 10-9, 10-9B, 10-9C
- Code F ACFT refer to chart 10-9P
- Low visibility routes are presented in charts 10-9F, 10-9G, 10-9H, 10-9J
- OMDB may be confusing to navigate on ground, despite best efforts from the ATC and planning from the crew
- Brief in detail for expected taxi route and any Hot Spot en-route to RWY / stand (there are many of them)
- Clearance may be obtained via CPDLC
- CTOT is provided with clearance
- TSAT and TOBT operations in use – expect push back near CTOT – 15 minutes (during heavy traffic periods earlier), to depart on TOBT
- General Stand information:
 - Concourse A (aprons A and D) assigned to Emirates (EK) only
 - Concourse B (stands B14 to B27, F16 to F27), assigned to EK only
 - Concourse C (stands B1 to B13, F1 to F14) assigned to EK only
 - Concourse D (stands C48 to C64) assigned to all other international airlines, except low cost carriers (LCCs)
 - Apron E stands are for LCCs (mainly FlyDubai and Air India Express), stands E1 to E36; they may be shared with cargo operators
 - Apron H is for VIP Aircraft (government and state aircraft)
 - Overflow stands: stands C38 to C47 (Cargo + LCC), stands G1 to G17 (EK), and S1 to S15
- Preferred Stands:
 - Pax: Concourse D
 - Gates: C53 – C64
 - Cargo: Apron E
 - Stands: E14 – E30

DEPARTURE

- Departing ACFT from aprons F, B and D are usually taxied out using the TWYs closest to the concourses (U, W, Y, Z) – *only exception to this is A380 (code E) traffic departing from apron B which must taxi using J and must not be allowed to taxi on U, W or Y*
- Several “cross-over” TWYs exist to allow ACFT to transfer between the inner and outer TWYs
- Expected intermediate holding point instruction, in order to de-conflict ground traffic

- OMDB has standard departure points – expect them on your departure and cross check calculated performance data

RWY	Standard departure points
30L	K16
30R	M13A
12L	M1A
12R	K5

- For TORA distances, from respective departure points, refer to chart 10-9A
- OMDB primarily uses RNAV standard instrument departures (SIDs) as preferred departure type for IFR ACFT
- Regional Altitude / FL Restrictions

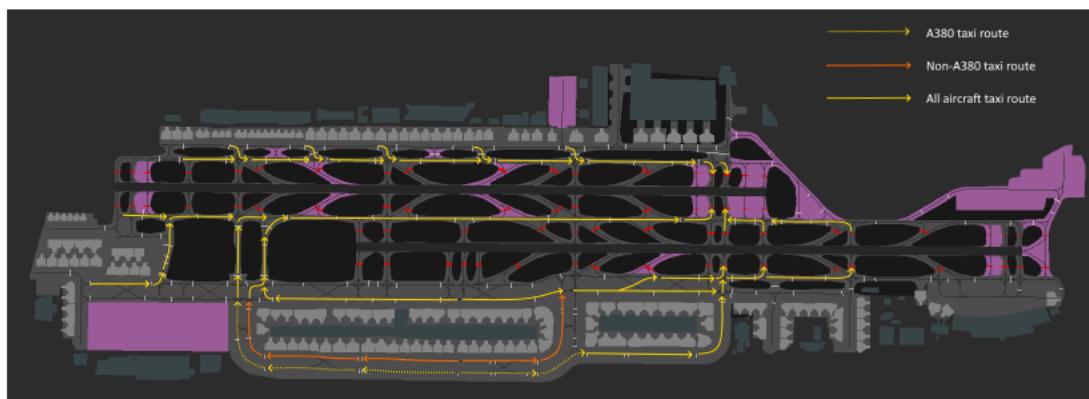
ARPT	FL Limit
OMAA	10000'
OTHH, OTDB, OBBI	Max FL260
OOSH	11000'

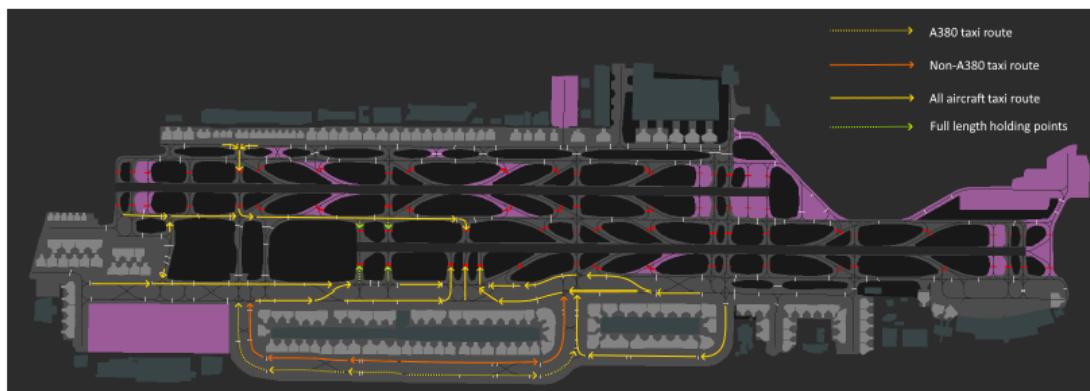
- Crew shall expect to be assigned an appropriate RNAV departure according to the first fix in the flight plan and runways in use

First Fix	RWY 30L / RWY 30R	RWY 12L / RWY 12R
ANVIX	6F	5G
DAVMO	3F	3G
EMERU	1F	1G
IVURO	GETID1F	GETID1G
KUTLI	3F	3G
MIROT	2F	2G
NABIX	2F	2G
RIDAP	1F	2G
SENPA	1F	2G

- The omnidirectional departure procedure shall only be used when ACFT is unable to accept an RNAV departure
- ATC has zero tolerance on assigned speed – crews are advised strictly to adhere to it
 - Immediately inform ATC when ACFT is unable to follow speed assigned by the ATC
 - Request safe operational speed as soon as possible
- Single RWY mode procedure:
 - T/O clearance may be issued to ACFT commencing its T/O roll from full length, before preceding ACFT has passed the upwind end of the RWY – see chart 10-1P7

A1. Runway 30R taxi-out diagram



A4. Runway 12R taxi-out diagram


- Pilots should be ready for a rapid line-up according to ATC instructions
- Cockpit checks should be completed prior to line-up and any checks requiring completion whilst on the runway should be kept to a minimum required. Commence take-off roll immediately after receiving take-off clearance. Pilots not able to comply with the above requirements shall notify ATC as soon as possible

WEATHER

- OMDB has a hot desert climate
- There are two distinct seasons - summer and winter climate
- Summer is characterized by hot weather, warm winds and high humidity
- Winter is characterized by warm weather, lower humidity
- Periods of seasonal changes are known to produce unstable weather (thunderstorms, rain, and fog) – in recent years there has been more rainfall
- Summer seasons are associated with sandstorms
- Average annual daily temperature is 28.0°C
- Annual rainfall averages 95 mm (Jan – Mar most active)
- Prevailing winds are westerly about 53 percent of the year

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

ISLAMABAD (ISB/OPIS)

Elevation 1,761ft

CATEGORY B

AV brief not available.

GENERAL

- This is the new Islamabad airport which commenced operations in 2018 to replace the now defunct Benazir Bhutto International Airport
- The airport is located 11 nm west of the city and is one of the largest airports in Pakistan

Threats

CFIT

- Islamabad is located at the edge of the Pothohar Plateau. The Margalla Hills rise to the north of the city and the highest point is Tilla Charouni, 5,262 ft asl 23 nm NE
- Another significant spot elevation of ~3950 ft asl 16 nm N
- By 37 nm NE the terrain has reached over 7,000 ft asl and over 10,000 ft asl by 60 nm NE
- Published missed approach Rwy 28L/R takes the aircraft toward terrain to the south of the airfield and an TV mast 3,104 ft asl 6NM S. Ensure published altitudes are achieved before turning.

Runway Incursion

- Closely spaced parallel runways. Take care to ensure lined up on the correct runway, and if landing 10R/28L ensure that 10L/28R is not crossed without clearance when vacating

Runway Excursion

- Rwy 28L is 60m wide giving an unusual visual aspect

Mid Air Collision

- Qasim Airfield located 11 nm E and has a long runway oriented 14/32
- Light aircraft traffic may be operating below the final approaches. Descent below 3,700 ft should be avoided until beyond the FAF

Special Considerations

- Driftdown and depressurisation procedures for operations to and from Islamabad are detailed separately
- Temperatures in Islamabad are generally above ISA year-round and especially in summer. See 'HOT AND HIGH' brief for further information regarding High Density Altitude Airfield operations.

ARRIVAL

Diversion Airports

LAHORE	LHE/OPLA	145 nm/146°T	CAT A
DUBAI	DXB/OMDB	1039 nm/246°T	CAT A
BAHRAIN	BAH/OBBI	1233 nm/255°T	CAT A
MUSCAT	MCT/OOMS	970 nm/236°T	CAT A

Others that may be used include Delhi, Kolkata and Mumbai

- Some STARs (BOBAM 1J, BELKO 1C, DAMTO 1D, INDEK 1A and KALMI 1A) are 'RNP arrivals' and require RNP1. Ensure that the correct RNP value is inserted in PROG p4/4 and confirm acceptable ANP if these arrivals are used

Approach

- Track shortening is possible for arrivals to Rwy 28L/R. Be aware of MSAs and energy management.
- RNP 1 is required for the transitions to the ILS approaches. Ensure correct RNP value inserted in PROG 4/4 and ANP sufficient.

GROUND

- Standard taxi routes detailed in Jeppesen 20-1P2

DEPARTURE

- Summer temperatures can be performance limiting, especially for northbound departures

WEATHER

- Heavy Cb activity May – Aug with low pressure of the SW Monsoon affecting the area
- Some early morning fog during July
- Strong N to NW'ly winds in excess of 40 kt possible from Feb to June
- Strong E to SE'ly winds in excess of 40 kt possible from Jul to Sep

OPERATIONAL INFORMATION

Handling Agent	Shaheen Airport Services
Handling Agent VHF	
Potable Water	Uplift not 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

KARACHI (KHI/OPKC)

Elevation 100ft

CATEGORY A

AV brief not required.

GENERAL

- Jinnah International Airport is just to the east of the city of Karachi on the Pakistani coast.

Threats

Loss of Control

- Arrester cables located at 07L and 25R threshold

ARRIVAL

Diversion Airports

LAHORE	LHE/OPLA	551 nm/042°T	CAT A
MUSCAT	MCT/OOMS	493 nm/263°T	CAT A
DUBAI	DXB/OMDB	643 nm/274°T	CAT A
BAHRAIN	BAH/OBBI	899 nm/279°T	CAT A

Approach

- Caution not to confuse the airfield with Faisal Airbase (OPSF) 2.5 NM SW with runways oriented 08/26
- 07L/25R not suitable for widebody aircraft.

WEATHER

- Karachi has a hot desert climate with annual temperatures varying from 13°C to 36°C.
- Cloudier weather Jun-Sep which is when most precipitation falls.

OPERATIONAL INFORMATION

Handling Agent	Shaheen Airport Services
Handling Agent VHF	
Potable Water	Not 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

FAIRBANKS (FAI/PAFA)

Elevation 439ft

CATEGORY A

No AV brief required.

GENERAL

- The airport is situated 3 nm southwest of the central business district of Fairbanks, at the confluence of the Tanana and Chena rivers
- Fairbanks is the smallest city in the USA with non-stop service to Europe
- The city has a population of 35,252, of which nearly half are military personnel, plus an estimated 500 moose.
- Large EASTERLY variation (18°E)

Threat Based Briefing Topics

CFIT

- Terrain rises rapidly to the N and E, with notable peaks at 2,450ft asl 15nm NE and 2,930ft asl 16nm W
- Mt Prindle, 5,286ft asl 52nm NE
- The Alaska Range of mountains runs E-W approximately 70nm to the south, with very high peaks including Mt Deborah 12,339ft asl 72nm SSE and Mt Hayes 13,832ft asl 78nm SE
- Denali (Mt McKinley), 20,320ft asl 134nm SW is the highest peak in North America

Mid Air Collision

- Numerous military operating areas in the vicinity with Eielson AFB 21NM SE

ARRIVAL

- Rwy 02L preferred
- Note that the ILS DMEs read D2.0 at the runway thresholds
- A seaplane landing area is established at the northern end of the airfield between the two hard runways
- Crew report that compass disruption and radio interference has occurred as a result of high-energy RF transmissions, particularly in the area of R-2206 47nm SW of FAI

GROUND

- Parking available at the terminal or the heavy cargo area to the west of Rwy 02L/20R.
- Do not park on the East ramp as access to Rwy 02L/20R for departure is severely restricted from this side of the airport

WEATHER

- Fairbanks has a subarctic climate, with short summers and long, cold winters. However, summers are generally very warm for the latitude with temperatures approaching 30°C a fairly common occurrence.
- Daily mean max/min temperatures 22°C/11°C (July) -17°C/-27°C (Jan).
- Snowfall is generally confined to the months between October and March, with October and November the snowiest months.
- Very large temperature inversions are a frequent occurrence due to warm air rising to the tops of the hills to the north whilst cold air drawn in to the Tanana Valley accumulates in and around the city.
- Inversions in winter are associated with the development of thick ice fog.
- Southerly winds bring warm moist air from the Gulf of Alaska, which can lead to sudden and very rapid rises in temperature to well above freezing in winter and a risk of advection fog.

OPERATIONAL INFORMATION

Handling Agent	Simfest Ground Services
Handling Agent VHF	
Potable Water	Uplift not permitted

IF ONLY Electrical Power is required	Use ground power at all times
If BOTH electrical power and air conditioning is required:	Use APU (ACU equipment not available). Keep ground power connected to reduce APU fuel burn.

JUNEAU INTL (JNU/PAJN)

Elevation 25ft

CATEGORY C

<https://www.youtube.com/watch?v=eXGV3k1r2Yo> – Rwy 08 approach terrain overview

<https://www.youtube.com/watch?v=2VvAx-XaaLw> – Rwy 26 approach terrain overview

GENERAL

- The airfield is located 7nm NW of central Juneau
- Large EASTERLY variation (20°E)
- A well-provisioned destination with good facilities
- Significant terrain in all sectors and offset LDA approach

Threats

CFIT

- The airport is surrounded by significant terrain on all sides with peaks over 6,700ft asl within 20nm
- MSAs of 10,800ft within 30nm
- Rwy 08 final approach terrain: a ridge of 588ft asl is located on a 1.5nm final which is NOT shown on the charts. The offset approach takes the aircraft to the south of this ridge prior to visual alignment with the extended centreline. See '[Approach](#)' section for more details.
- The ridge immediately prior to the 08 threshold is likely to present an unusual visual aspect, especially at night
- The Rwy 08 missed approach profile requires an immediate turn to avoid terrain. Close adherence to the published procedure is necessary to maintain separation from terrain and the possibility of a go-around after the missed approach point should also be considered.
- Careful handling and strict adherence to published tracks and altitudes necessary to avoid GPWS activations on final approach
- Visual turn required after departure Rwy 08 with terrain in close proximity

Mid-Air Collision

- Significant GA and VFR activity on and in the vicinity of the airfield

Runway Excursion

- Rushed approaches Rwy 08 due to steep (3.7°) vertical profile
- Late turn (inside 1nm) required to align with the extended centreline

Loss of Control

- Rwy 08 stable criteria: LDA track passes over the southern edge of Coghlan Island at 3.3nm. This will cause a sharp reduction in radio altimeter reading and when the aircraft is at 1000ft aal the radalt will indicate ~600ft above terrain.

Special Considerations

- LDA Rwy 08 minima are higher than standard VFR minima. The weather conditions and forecast should be checked carefully before departure and appropriate contingency measures planned if the forecast is marginal.

ARRIVAL
Diversion Airports

SITKA	SIT/PASI	095 nm/198°T	CAT C
GUSTAVUS	GST/PAGS	041 nm/277°T	CAT C
ANCHORAGE INTL	ANC/PANC	571nm/296°T	CAT A

Approach

- The only instrument approach available is the LDA Rwy 08. Note the temperature restriction on the chart for use of VNAV.
- The aircraft should be fully configured prior to reaching the FAF in order to mitigate against rushed approaches and to minimise the likelihood of spurious GPWS activations
- No Category D straight-in minima are published. However, Simfest are authorised to use the Category D circling minima instead. Note that two sets of circling minima are published for day and night operations.
- The LDA 08 takes the aircraft over a ‘saddle’ between two hills with peaks approximately 590ft asl at around 1.5nm final. The southern peak is slightly lower than the northern peak. After passing over this ridge the aircraft can then be manoeuvred to align with the extended centreline, but not before. This is shown in the video linked above.
- Note that the VASIs are set at 3.5° compared to the LDA vertical path of 3.7°. As such the VASIs will likely indicate high on short final, particularly with the B744 eye-wheel height. Avoid the temptation to dive for the VASIs once visual.

GROUND

- Twy B1 unsuitable for wide-body operations

DEPARTURE

- Steep climb gradients are required to 10,000ft from both runways
- Use full CLB thrust and climb at Vref +100 to 10,000ft.
- Note Above 10,000ft restriction at CUSHI. If necessary the aircraft can be placed in to a hold at CUSHI whilst climbing above 10,000ft, but this must be requested from ATC in advance. Check the LEGS and VNAV CLB page prior to departure to verify whether the restriction will be met.
- Rwy 26 is preferred for departure wherever possible.
- SDs from Rwy 08 require a visual climb and right-hand turn to avoid terrain. This will need to be accomplished in the take-off configuration using 25° of bank. Brief how the turn will be flown and consider AFDS modes (e.g. use of SPD INTV to prevent acceleration). Ensure the AFDS bank selector is set to 25°.

- In the event of engine failure from either runway, the safest course of action is likely to be to follow the SID to BARLO then route to EEF NDB and take up the hold (right hand turns, inbound 347°).

WEATHER

- Temperatures are milder than might be expected for the latitude due to the warming influence of the Pacific Ocean
- Moist, long winters with short but mild summers
- Snowfall mainly Nov-Mar
- Spring (Apr-May) is the driest season, whilst Autumn (Sep-Oct) is the wettest
- Mean daily min/max temperatures -14°C/+7°C (Jan) +6°C/+25°C (Jul)

OPERATIONAL INFORMATION

Handling Agent	Aero Services
Handling Agent VHF	122.950
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 APU (ACU equipment not available). Keep ground power connected to reduce APU fuel burn.

ANCHORAGE (ANC/PANC)

Elevation 151ft

CATEGORY A

AV brief availability

GENERAL

- Ted Stevens International Airport is located 5nm SW of downtown Anchorage
- No instrument approaches to westerly runways
- Large EASTERLY variation (16°E)

Threats

CFIT

- Terrain rises inland beyond the city of Anchorage
- Denali (Mt McKinley), the highest mountain in North America, rises to 20,310ft amsl 120 NM NNW
- Terrain in the Chugach Mountains to the East rises rapidly from 2,000ft amsl at 9 NM to 5,270ft amsl at 14 NM
- Terrain to the E rises to over 13,000ft

Runway Excursion

- Do not mistake parallel taxiway north of 25R/07L for a runway

Loss of Control

- Turbulence and WINDSHEAR can be expected with strong S/SW winds

Mid Air Collision

- High levels of VFR traffic operating in the area, including underneath approaches to 07L/R
- Military traffic from Elmendorf AFB 7nm NE

ARRIVAL

Diversion Airports

FAIRBANKS	FAI/PAFA	227 nm/015°T	CAT A
KENAI	ENA/PAEN	051 nm/222°T	CAT A

Approach

- Preferred arrival runways are 7R/L or 15 with crosswind <15kt or tailwind <5kt
- Severe turbulence and WINDSHEAR may be experienced up to 15,000ft amsl with strong low-level S/SW winds

GROUND

- Taxiways and aprons are tight and caution is required
- Limitations for B747-400 aircraft parking at the North Terminal. The preference is for remote parking at R2-R14. Parking on a jetbridge stand may require tow-in – see Lido

DEPARTURE

- RNAV departures available from Rwy 25L/R and 33
- Most departures are radar vectored

WEATHER

- Fog most common Nov-Feb
- Overcast ceilings and low cloud common throughout the year
- Snowfall mostly Sep-May.
- Average min/max temperatures -12°C/-5°C (Jan), 9°C/17°C (Jul)

OPERATIONAL INFORMATION

Handling Agent	Swissport
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 APU (ACU equipment not available)

NOME (OME/PAOM)

Elevation 41ft

CATEGORY B

No AV brief available

GENERAL

- The airport is located 2 NM west of Nome's central business district, on the coast adjacent to Center Creek
- The city of Nome claims to be the world's largest gold pan
- Nome is home to Alaska's oldest newspaper, the Nome Nugget, founded in 1899
- Terrain precludes instrument approaches to Rwy 21 and departures from Rwy 03

Threats

CFIT

- Terrain rises to the north of the airfield and reaches over 2,000 ft asl within 20 NM
- Several hills reaching over 1,000 ft asl are located on the Rwy 21 extended centreline at approx 4 NM
- Cold temperature corrections to altitudes may be required for PSX users

Runway Incursion

- LAHSO may be in use on crossing runways. Simfest aircraft are not permitted to participate either actively or passively.

Runway Excursion

- The runways are short and Rwy 03/21 have significant displaced thresholds

ARRIVAL

Diversion Airports

KING SALMON	AKN/PAKN	431 nm/140°T	CAT A
ANCHORAGE	ANC/PANC	468 nm/108°T	CAT A

Approach

- Missed approaches for Rwy 03 and Rwy 28 require early turns due to terrain

GROUND

- Taxiway and apron space is very limited
- Backtrack required for most runways

DEPARTURE

- There are no SIDs published for OME. An omnidirectional departure procedure is described on the bottom of the 10-9 chart.

WEATHER

- Winters are long and very cold whilst summers are short and cool; however the coastal location tends to moderate extremes
- Mean low/high temperatures -19°C/-10°C (Jan) and 7°C/14°C (Jul) with temperatures typically below freezing from late October to late April
- Snowfall significant between October and May

OPERATIONAL INFORMATION

Handling Agent	Bering Air Inc
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 APU (ACU equipment not available). Keep ground power connected to reduce APU fuel burn.

SITKA (SIT/PASI)

Elevation 27ft

CATEGORY C

No AV brief available.

GENERAL

- Large EASTERLY variation (20°E)
- Sitka Rocky Gutierrez Airport is named after a former mayor of the city and is located west of Sitka's central business district
- The city has no direct road access to the outside world, though there is a car ferry service to Juneau, Ketchikan and other towns in southeast Alaska
- Deceased tuberculosis patients from the nearby hospital were buried on airport grounds and had to be relocated during construction. That section of the airport is still unofficially called The Mausoleum.

Threat Based Briefing Topics

CFIT

- The airfield is surrounded by high terrain on all sides except the SW
- Mt Edgecumbe 3,201ft asl 13nm W
- Notable peaks include 3,226ft asl 3nm N and 2,805ft asl 6nm S
- Terrain rises to over 5,300ft asl within 13nm E and N.

Mid Air Collision

- No Radar available
- No ATC service available. There is an Aerodrome Flight Information Service only, but the FISO's instructions are advisory only in the air and no ATC separation can be guaranteed. A good lookout is essential.

Runway Excursion

- Runway may be slippery when wet
- Offset LDA approach Rwy 11

Loss of Control

- Large flocks of birds on and in the vicinity of the airport
- Turbulence and possible WINDSHEAR with strong E/S winds

ARRIVAL

- Rwy 11 has an offset LDA plus an RNAV (GPS) approaches. No published instrument procedure for Rwy 29 though a generic VOR let-down is available
- If weather permits the RNAV will likely reduce workload, though the LDA has lower minima
- Both approaches have numerous step-down fixes which must be carefully observed
- Circling not authorised northeast of the airfield

GROUND

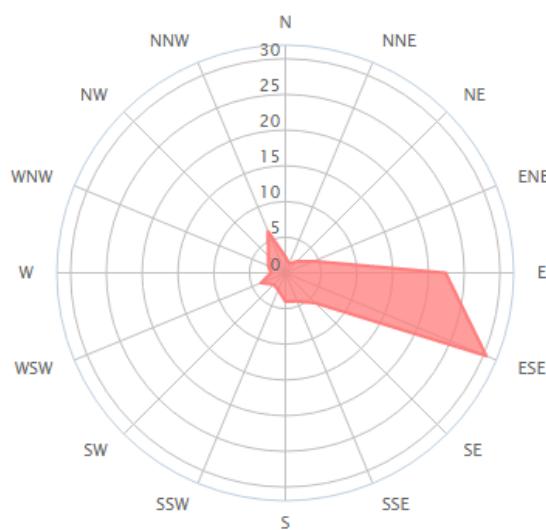
- Limited apron space
- Departing Rwy 29 liable to be problematic as a large lake precludes use of Taxiway G for departure

DEPARTURE

- Terrain is well-depicted on Lido charts. Close adherence to charted tracks and altitude requirements is essential to ensure terrain clearance
- Emergency turn procedure Rwy 11:
 - As soon as practical and **no later** than 1.5nm from DER, RIGHT turn hdg 223 to intercept R358 BKA to BKA VOR, climbing to 5,000ft
- Emergency turn procedure Rwy 29:
 - LEFT turn dct BKA VOR, climbing to 5,000ft

WEATHER

- Sitka has an oceanic climate with moderate, but generally cool temperatures and abundant precipitation. Winters are extremely mild compared to inland areas of similar latitude.
- Snowfall averages 84cm per year, almost all falling between November and March
- Average daily high/low temperatures 14°C/9°C (June) 4°C/0°C (January)
- The prevailing wind is easterly and strong, gusty winds may be anticipated Nov-Feb



OPERATIONAL INFORMATION

Handling Agent	Simfest Ground Services
Handling Agent VHF	
Potable Water	Not assessed

IF ONLY Electrical Power is required	Use APU at all times (B744 GPU not available)
If BOTH electrical power and air conditioning is required:	Use APU (ACU equipment not available)

TAIPEI / Taoyuan Intl (TPE/RCTP)

Elevation 108ft

CATEGORY A

AV brief not required.

GENERAL

- The airfield is located approximated 25nm west of central Taipei
- A well-provisioned modern international airport with two independent CAT II runways
- High ground to the south rises to over 12,700ft within 50nm
- Taoyuan mean “peach garden” in Chinese since the area used to have many peach trees

Threats

CFIT

- The most significant high ground rises to the south into the central part of the island of Taiwan with Xueshan (Mt Sylvia) rising to 12,749ft msl at 50nm S
- The Tatun Volcanoes rise 20 nm NE with the highest point at 3,616ft close to the Rwy 23 initial approaches from the S and approx 5nm SE of the extended centreline
- A further peak of 1,930ft amsl is located 3nm SE of the Rwy 23 centrelines at 10nm

Runway Excursion

- 60m wide runways may lead to an unusual visual aspect
- Rwy 23L has a significant inset threshold

ARRIVAL

Diversion Airports

KAOHSIUNG Intl	KHH/RCKH	157 nm/189°T	CAT A
TAICHUNG, Cingcyuangang	RMQ/RCMQ	059 nm/205°T	CAT A
TAIPEI, Songshan	TSA/RCSS	017 nm/096°T	CAT B

Diversions – Political Considerations

- Diversions to mainland China should be avoided
- Diversions from mainland China or Hong Kong to Taiwanese airfields may give rise to problems if communist Chinese passengers are on board

Approach

- Standard speed restrictions apply in the descent – see Lido AOI for details

WEATHER

- General weather and climactic synopsis, e.g. max/min temps, prevailing winds, likelihood of fog, local meteorological phenomena etc.

OPERATIONAL INFORMATION

Handling Agent	Evergreen Airline Services Corporation
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

TOKYO / Narita (NRT/RJAA)

Elevation 135ft

CATEGORY A

AV brief not required.

GENERAL

Threats

Mid Air Collision

- Exercise caution with pressure settings provided by ATC in Japan
- Departure clearances may include, for example, A110. This is a clearance to an altitude of 11,000ft. This clearance does not in itself override the need to comply with the altitude constraints on the SID.

ARRIVAL

Diversion Airports

TOKYO Haneda	HND/RJTT	032 nm/247°T	CAT B
CHUBU CENTRAIR Intl	NGO/RJGG	184 nm/253°T	CAT A
SAPPORO	CTS/RJCC	426 nm/008°T	CAT A
FUKUOKA	FUK/RJFF	508 nm/255°T	CAT B

Others that may be used are Sendai and Osaka.

Approach

- Simfest use Terminal 2. As a result you may be asked to land on Rwy 16L/34R. This runway is much shorter than 16R/34L so consideration must be given, especially if a runway switch occurs late during the approach.
- Landing 34L/R it is a requirement to lower the landing gear no later than when crossing the coast on final approach. Crews should ensure the gear is down and locked no later than IYQ 11.9d (NRE 14d) for 34L and ITJ 13.6d (HKE 15.4d) for 34R
- Landing 16L significant track shortening is possible with radar vectors from the vicinity of COMET direct to the ILS likely.

GROUND

- T2 northern ramp must be entered via U2, following Twy U anticlockwise to gates
- B777/B787 cannot use Twy B between E1 and B9 in the apron to runway direction, but are permitted to use it in the opposite direction.

WEATHER

- Early morning fog a possibility throughout the year

- Snowfalls occur Jan-Mar
- Typhoons may be encountered Jun-Nov
- Prevailing wind Northerly Oct-Mar, Southwesterly in summer.

OPERATIONAL INFORMATION

Handling Agent	British Airways
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

OSAKA/KANSAI (KIX/RJBB)

Elevation 17ft

CATEGORY A

No AV brief required.

GENERAL

- Osaka Kansai is located on a man-made island in Osaka Bay
- Some controllers are difficult to understand. Use standard phraseology.

Threat Based Briefing Topics

CFIT

- On the mainland S of the airport there is high ground to just over 1,600ft asl at 8nm
- Approaches to Rwy 06 pass the island of Awaji, which has terrain to just under 2,000ft asl 25nm SW

Mid Air Collision

- Exercise caution with pressure settings provided by ATC in Japan. Refer to section on [Japanese operations](#) for details
- Departure clearances may include, for example, A110. This is a clearance to an altitude of 11,000ft. This clearance does not, in itself, override the need to comply with the altitude constraints on the SID.

ARRIVAL

Diversion Airports

TOKYO Narita

NRT/RJAA

265 nm/072°T

CAT A

Approach

- Osaka is noise sensitive. See Lido AOI.

GROUND

- Contact 'Speedbird Tokyo' 131.7

DEPARTURE

- Contact Kansai Delivery 5 mins prior to start. See Lido AOI.

WEATHER

- Oct-Apr. Occasional light rain or snow.
- Average minimum temperature +2°C

- May-Sep. The wet season with one or two typhoons in Aug or Sep
- Average maximum temperature +26°C

OPERATIONAL INFORMATION

Handling Agent	JAL
Handling Agent VHF	
Potable Water	Not assessed.

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

SAPPORO/New Chitose (CTS/RJCC)

Elevation 70ft

CATEGORY A

No AV brief available.

GENERAL

- New Chitose Airport opened in 1988 to replace the adjacent Chitose Airport which has now been converted to a Japanese Air Self-Defense Force base.
- It is the largest airport in Hokkaido and in the top 100 busiest airports in the world in terms of passenger numbers
- Air Traffic Control is provided by the Japanese military. Some controllers may be difficult to understand, use standard phraseology.
- Use correct callsign for ATC units; callsigns prefixed “RJCC” are referred to as “Chitose Approach/Tower” etc – NOT “Sapporo”. RJCG_CTR = “Sapporo Control”
- The proximity and near-identical runway layout of Chitose Air Base make misidentification a significant threat
- Terrain rises to the east, west and north
- Altimeter settings may be given in inches or hPa

Threats

CFIT

- The airfield lies in a wide valley with high ground to the east, west and north
- Significant high points include Mt Tarumae 3,415 ft asl 14 nm SW, Mt Yoichi 4,882 ft asl at 33 nm NW and Mt Yotei, an active volcano of 6,227 ft asl 39 nm W
- The Shokanbetsudake Mountains rise 30 nm north. Mt Shokanbetsu 4,894 ft asl 56 nm N
- The Yubari Mountains rise less than 10 nm E. Mt Yubari 5,471 ft asl is 33 nm NE.

Runway Incursion

- Chitose Air Base is immediately adjacent to the NW of New Chitose Airport and has a near-identical runway layout. Take extreme care to identify the correct runway and make maximum use of all available navigation aids
- Closely spaced parallel runways. Take care if landing Rwy 01R/19L that 01L/19R is not entered without clearance
- If instructed to hold short of Rwy 19R on A1, the inner hold line should be used unless otherwise instructed

Mid Air Collision

- Simultaneous approaches with Chitose Air Base runways may take place

ARRIVAL
Diversion Airports

KUSHIRO	KUH/RJCK	111 nm/091°T	CAT A
HAKODATE	HKD/RJCH	072 nm/223°T	CAT A
TOKYO, Haneda	HND/RJTT	442 nm/202°T	CAT B
TOKYO, Narita	NRT/RJAA	508 nm/188°T	CAT A

Approach

- Use correct callsign for ATC units; callsigns prefixed “RJCC” are referred to as “Chitose Approach/Tower” etc – NOT “Sapporo”.
- Track shortening is a possibility, particularly when arriving from the south and landing 01L/R

GROUND

- There are two hold short lines on Taxiway A1. Departing aircraft instructed to hold short of Rwy 19R on A1 should use the inner line (nearest 19R) unless otherwise instructed
- Wingtip clearance is limited, particularly on Twy K6 behind the International Terminal. Ensure the taxiway centreline is followed precisely and ensure a safe speed is maintained.

WEATHER

- Winters are cold and snowy whilst summers are warm and relatively wet.

OPERATIONAL INFORMATION

Handling Agent	JAL
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

FUKUSHIMA (FKS/RJSF)

Elevation 1,220ft

CATEGORY A

No AV brief required.

GENERAL

- FKS is located 19 km southeast of Koriyama
- Traffic declined significantly following the 2011 earthquake and nuclear disaster, but is starting to increase again
- Some controllers are difficult to understand. Use standard phraseology.

Threat Based Briefing Topics

CFIT

- High ground to the E and W with spot heights of 3,064ft asl ~6nm E and 3,562ft asl ~15nm NW
- There is also an area of high ground to the S with terrain up to 3,333ft asl inside 20nm
- Mt Nantai, 8,031ft asl, is 50nm SW
- Terrain is well-depicted on Lido charts and a minimum vectoring altitude chart is provided

Runway Excursion

- Risk of overshooting due to unusual visual aspect from 60m wide runway

Mid Air Collision

- Exercise caution with pressure settings provided by ATC in Japan. Refer to section on [Japanese operations](#) for details
- Departure clearances may include, for example, A110. This is a clearance to an altitude of 11,000ft. This clearance does not, in itself, override the need to comply with the altitude constraints on the SID.

ARRIVAL

- RNAV arrivals in use from the north
- The runway is wide and slightly shorter than average for the B744 route network, leading to an unusual visual aspect

GROUND

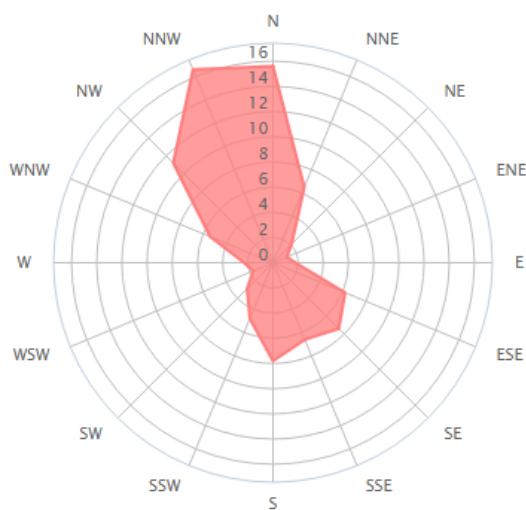
- Runways and taxiways are well-maintained and of good quality
- Very limited apron space

DEPARTURE

- Some SIDs require quite steep climb gradients. Consider use of full CLB thrust and Vref+100 if required.

WEATHER

- The climate is humid continental with mild summers and cold winters with heavy snowfall.
- Rainfall is significant with July, the wettest month, seeing an average of 7.3 inches
- Average daily mean max/min temperatures 29°C/20°C (Aug), 4°C/-3°C (Jan)
- Winds can be high and gusty, particularly in winter
- Prevailing wind N-NW'ly



OPERATIONAL INFORMATION

Handling Agent	JAL
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

SEOUL/Incheon (ICN/RKSI)

Elevation 23ft

CATEGORY A

No AV brief available

GENERAL

- The airport is located on Yongjang Island 9 nm west of Incheon and 32 nm west of Seoul.
- All runways are 60 m wide
- QNH may be given in inches or millibars

CFIT

- The airfield is build on reclaimed land between two islands with hills to N, NE, E and SW reaching up to 850 ft asl

Unstable Approach

- Beware of getting high on profile due to the crossing altitude restrictions as a result of adjacent military airspace.
- Strong westerly winds on arrival can result in 50 kt tailwinds on base leg. These tailwinds in conjunction with direct routings to the FAF can substantially shorten the distance to touchdown. Proactive energy management is essential!
- Rwy 15L/R and 33L/R ILS DME reads from the stop end, **not** the landing threshold.

Mid Air Collision

- **DO NOT ENTER NORTH KOREAN AIRSPACE OR YOU WILL BE FIRED UPON.**
- North Korean airspace is indicated on charts by P518 and YJU R270. **Do not fly direct to YJU.**
- Seoul Gimpo (GMP/RKSS) is a very busy regional airport and Osan Air Base (RKSO) is 30 nm to the South East

Special Considerations

- Note similarity between 14,000 ft TA and TL of FL140
- ATC may issue a number of clearances as follows:
 - “RESUME NORMAL SPEED” meaning cancel previous ATC speed instructions but **DOES NOT CANCEL PUBLISHED** speed restrictions
 - “NO SPEED RESTRICTIONS” meaning speed will be at pilot’s discretion
 - “DESCEND VIA THE ARRIVAL” meaning descent should commence after passing the first fix of each arrival
- GPS should be monitored carefully at all times as jamming is frequent. Use alternate means of navigation and position fixing if required and crosscheck regularly.

ARRIVAL
Diversion Airports

BUSAN, Gimhae Intl	PUS/RKPK	183 nm/138°T	CAT B
BEIJING, Capital	PEK/ZBAA	486 nm/289°T	CAT A
SHANGHAI, Pudong	PVG/ZSPD	444 nm/211°T	CAT A
SEOUL, Gimpo Intl	GMP/RKSS	018 nm/071°T	CAT B

Approach

- Expect Rwy 15L/33R. Rwy 16/34 normally available between 0000 and 1200 UTC.
- Preferential runway direction is northwesterly with a tailwind to avoid flying close to the North Korean border during the approach.
- Early descent may be given by Chinese ATC to be level below FL300 prior to entry in to Korean airspace
- All STARs avoid flying within North Korean airspace. Any deviation to the north should be closely monitored.
- Continuous Descent Operation procedure used for Rwy 33L/R and described in Jeppesen 20-1P2
- Simultaneous ILS approaches authorised to all runways
- Note speed restrictions on missed approaches due to airspace restrictions
- ILS charts state “Special Aircraft & Aircraft Certification Required” – this relates to CAT II/III operations, not the RNAV transitions
- VOR 15L has a 3.3° glide path
- Circling approaches not authorised

GROUND

- Three sets of parallel runways with 15L/33R and 15R/33L adjacent to each other. The proximity of these runways should be kept in mind to avoid runway incursions.
- Vacate via the Rapid Exit Taxiways as described in Jeppesen 20-1P4 in order to comply with High Intensity Runway Operations
- The apron has multiple entry points close to each other with opposite direction taxiways on the same tarmac area
- Simfest use Concourse A parking stands

DEPARTURE

- Specific pushback procedures and ATC phraseology exist for every stand and is described in Jeppesen 20-9 “PUSHBACK PROCS”
- Be aware of the need to contact Ramp for pushback when apparently cleared to push by delivery. It has been reported that Incheon Delivery clearance was “CLEAR TO PUSH,

CONTACT 121.8" – the apparent intention of Dilvery being for the crew to contact Ramp on 121.8 to obtain pushback clearance.

- De-icing pads located near all Rwy thresholds. Shut down all engines prior to deicing. Ground services are available if APU inoperative.
- SID allocated by ATC depending on time of departure
- SIDs are coded in the navigation database as per the AIP. This may result in a turn below 400 ft aal on some SIDs; it will therefore be necessary to intervene to ensure the turn commences at or above this height.
- There is a published Radar SID which should be carefully reviewed for situation awareness and to avoid North Korean airspace.

WEATHER

- Fog is common during winter and spring and can reduce visibility below Cat 3A minima. This may be unforecast.
- NW Monsoon mid-Oct to March brings dry and cold conditions with WNW winds
- Siberian anticyclone occasionally weakens and depressions will bring rain or snow
- Temperature rises rapidly in spring with more frequent depressions leading to mainly westerly winds
- Rainfall maximum in July/August with occasional thunderstorms
- Prevailing wind direction ENE

OPERATIONAL INFORMATION

Handling Agent	Sharp Aviation
Handling Agent VHF	132.0
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 APU – ACU is not available. Keep ground power connected to reduce APU fuel burn.

TOYKO HANEDA (HND/RJTT)

Elevation 128ft

CATEGORY B

No AV brief available.

GENERAL

- RJTT is major domestic and international airport for Greater Tokyo Area
- It is a hub for – expect heavy traffic flows, look out for ATC instructions:
 - Japan Airlines, All Nippon Airways, Skymark Airlines, Air Do, Solaseed Air, StarFlyer
- RJTT has two main parallel runways, RWY 16R/34L and RWY 16L/34R and two secondary RWYs to be used mainly in a south wind operation; RWY 04/22 RWY 05/23
- Operations are affected by winds and also noise abatement procedures
- RJTT is surrounded by a port to the North and North-East of the field, Tokyo Bay to the East, South of the field, Kawasaki Petrochemical Plant to the South-West, and residential and commercial real estate is to the West, and North-West of the field
- Maximum speed at or below 10000' in a terminal area is 250 kts
- Max. speed at or below 3000' in control zones is 200 kts for jet aircraft
- Altimeter settings in Japan are provided in inHg vs. hPa
- ATC communication may be challenging due to difficulty to understand instructions

Threats

Runway Incursion

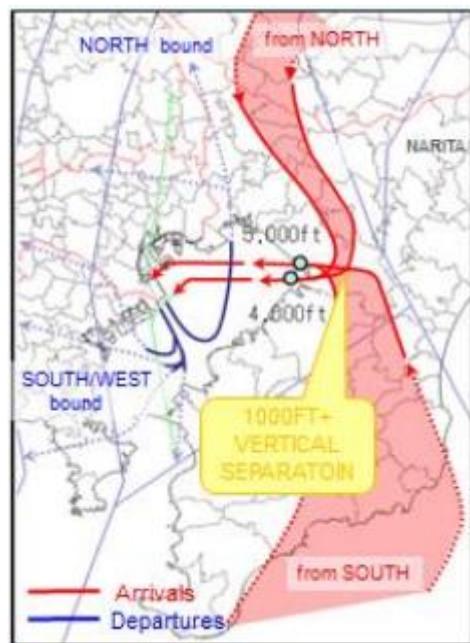
- RWYs and TWYs are clearly marked in most cases, there are some potential conflict areas – refer to chart 10-9B (Inset 1 and Inset 2)
- Hot-Spots are described in detail on chart 10-9B, brief in advance for them:
 - ACFT may confuse TWY L with TWY L13 when taxiing from TWY B7 to TWY L
 - ACFT may confuse TWY B with TWY B6, when taxiing from TWY U4 to TWY B
 - RWY Holding positions marking are installed on TWY A16 and TWY L16, obtain ATC clearance to cross RWY 16 from both respective locations

Loss of Control

- Birds in vicinity of airport

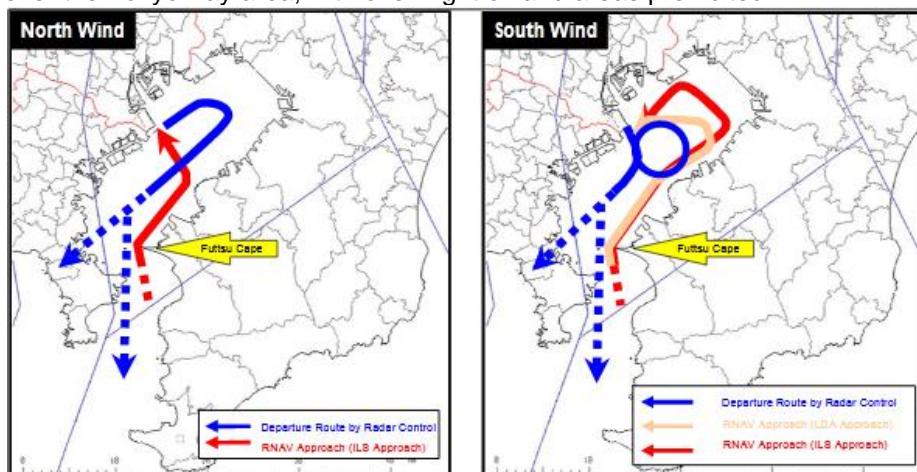
Loss of Separation

- For North wind operations
 - When on approach to RWY 34R, be cautious of departures on RWY 05
 - When on approach to RWY 34L, be cautious of crossing traffic
 - Departing traffic from RWY 34R and RWY 05 may experience a conflict
- For South wind operations
 - When on approach to RWY 24, be cautious of traffic departing/on RWY 16R
 - When on approach to RWY 25, be cautious of traffic departing RWY 16L and RWY 16R
 - When departing RWY 16R, be cautious of traffic crossing the RWY
- During South wind operations, traffic on approach to RWY 22 and RWY 24 may cross each other at 1000' separation – maintain good situational awareness
 - Refer to inset below:



Special Considerations

- All departure routes and arrival routes are established by RNAV
 - Between the hours of 2300L – 0555L, RNAV1 and RNAV5 certification are required to operate in/out RJTT
- There is Kawasaki Petrochemical Complex area – South-West of the field
 - Maintain at least 3000' when overflying
 - Located South-West of the field
- Noise Abatement:
 - Kindly refer to charts 10-4, 10-4A – 10-4E for detailed information
 - All ACFT departing from and arriving at RJTT **may not fly over Metropolitan Tokyo**, unless they fly at or above a prescribed altitude.
 - ACFT may not fly over the residential area located on the North side of RJTT or the oil refinery area located on the west side of the airport.
 - ACFT may not fly over Chiba Prefecture, unless they fly at or above a prescribed altitude.
 - Between the hours of 2300L – 0555L, the departure and arrival routes are limited over the Tokyo Bay area, with over flight of land areas prohibited

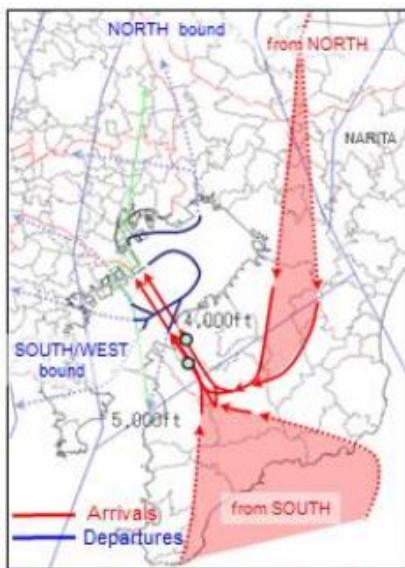


ARRIVAL
Diversion Airports

NARITA INTL	NRT/RJAA	32 nm/074°T	CAT A
FUKUSHIMA	FKS/RJSF	105 nm/105°T	CAT A
CHUBU CENTRAIR INTL	NGO/RJGG	152 nm/262°T	CAT A
OSAKA INTL	ITM/RJOO	218 nm/267°T	CAT A
KANSAI INTL	KIX/RJBB	234 nm/262°T	CAT A
FUKUOKA INTL	FUK/RJFF	477 nm/266°T	CAT A

Approach

- For North wind operations:
 - Domestic traffic arriving from the north is usually assigned to the RWY 34R
 - Domestic traffic from the south (majority) can expect RWY 34L in order to prevent the traffic from crossing in the air
 - International flights coming from north like Trans-Siberia or NOPAC routes, expect RWY 34R
 - International flights arriving from the south (Southeast Asian countries) will be assigned to land on the RWY34L

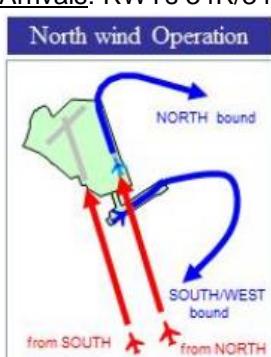


- For South wind operations:
 - Domestic traffic arriving from the north (30 percent) will be assigned to the RWY 25
 - Domestic traffic arriving from the south (70 percent) will be assigned to the RWY 24
 - International flights coming from the north, such as Trans-Siberia or NOPAC route traffic, will be assigned to the RWY 23
 - International flights coming from south, i.e., flights from South East Asian countries, will be assigned to the RWY 24
- Simultaneous approach operations, generally used under good weather conditions, is the LDA approach (Localizer Type Directional Aid) – see APP charts for RWY 22 and RWY 23
- Under bad weather conditions, ILS approaches to the RWY 22 and RWY 23 will be used
- There are several STARs from various directions, all have speed and altitude restrictions

- ACFT is usually cleared to descend via STAR
 - Plan accordingly and in advance – ATC and traffic volume can get busy at times
 - Plan to meet all restrictions (speed and altitude)
- ATC vectors are to be expected at the end of the STAR to final approach
- Be ready to be offered short cuts if traffic is light – make sure that you can meet criteria prior to acceptance
- Expect speed limit instructions from the ATC
- Vacate landing RWY expeditiously and ensure to be fully vacated before stopping

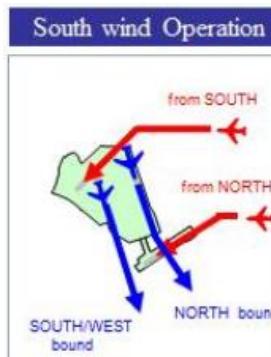
GROUND

- RWYs:
 - RWY 16L/34R
 - RWY 16R/34L
 - RWY 04/22
 - RWY 05/23 – RWY 05 NOT USABLE FOR LANDING
- Operations:
 - North wind operations - *Preferred operations:*
 - Departures: RWYs 34R/05
 - Arrivals: RWYs 34R/34L



- - ◆ to avoid air proximity
 - ◆ to realize expeditious traffic flow
 - ◆ to maximize airport capacity

- South wind operations – *used roughly 30% at times*
 - Departures: RWYs 16R/16L
 - Arrivals: RWYs 22/23

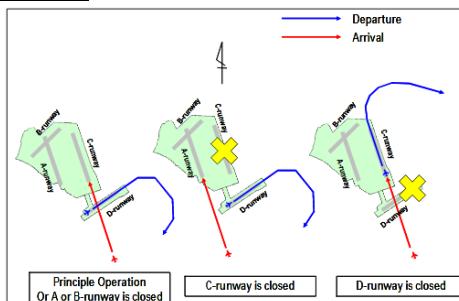


- - ◆ to avoid air proximity
 - ◆ to realize expeditious traffic flow
 - ◆ to maximize airport capacity

- During Late Night and Early Morning Hours – *Noise abatement configuration (in use 2300L – 0555L):*

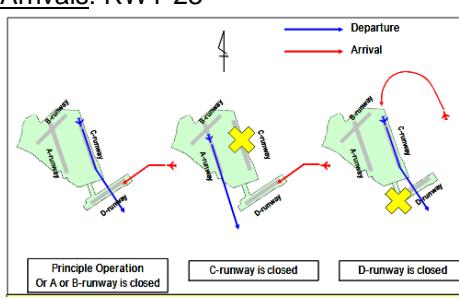
- *North wind operations:*

- Departures: RWY 05
- Arrivals: RWY 34R



- *North wind operations:*

- Departures: RWY 16R
- Arrivals: RWY 23



- For standard taxi routes, kindly refer to chart 10-9 and chart 10-9A-1
- All ACFT should hold at "GP HOLD LINE" on TWY A1, TWY A12, TWY A13, TWY C12, TWY B13, TWY B14 until further ATC clearance
- Several ACFT have limited ground operations
- Refer to charts 10-9A-3, 10-9A-4, 10-9A-5, 10-9A-6, 10-9A-7, 10-9A-8, 10-9A-9, 10-9A-10
 - Limited ACFT types:
 - A388, A346, A345, A351, A359
 - B748, B773, B77W, B764, B788, B789, B78X
- TSAT and TOBT operations in use – see charts 10-9J and 10-9K
- Preferred Gates:
 - Pax: Terminal 3
 - Gates: 107 – 114, 142 - 148
 - Cargo: International Cargo
 - Gates: 101 – 103

DEPARTURE

- Departure Clearance by Data Link is in operations – 24/7 – see charts 10-9D-5 and 10-9D-6
- Intersection departures are possible – refer with dispatch, ACFT performance tables, and confirm length remaining in chart 11-0D
- For North wind operations (majority of the time) - to prevent the traffic from crossing in the air:
 - The traffic departing to the north (30% of traffic) will be assigned to the RWY 34L
 - The traffic departing to the south and west-bound traffic (70%) expect the RWY 05
- For South wind operations (30% of the time):
 - The traffic departing to the north will be assigned to the RWY 16L
 - The traffic departing to the south and west (70% of the time) expect the RWY 16R

- Several SIDs to various locations are offered – kindly make sure that you have briefed in detail for all restrictions (speed and altitude) and expected routing
- Pilots should be ready for a rapid line-up according to ATC instructions
- Cockpit checks should be completed prior to line-up and any checks requiring completion whilst on the runway should be kept to a minimum required. Commence take-off roll immediately after receiving take-off clearance. Pilots not able to comply with the above requirements shall notify ATC as soon as possible

WEATHER

- RJTT has humid subtropical climate, with hot and humid summers and cool winters with cold spells
- Average annual temperature is 15.6°C
- Annual rainfall averages nearly 1435 mm
- Summers are generally wetter and winters drier
- Snowfall is sporadic, but does occur almost annually – plan accordingly for possible delays
- Typhoon occur every year, though few are strong – plan accordingly for possible flight disruptions
- Prevailing winds are northerly about 60 percent of the year, and the prevailing winds are southerly the remainder of the year



OPERATIONAL INFORMATION

Handling Agent	Haneda Turtle Service Co. / Qantas Freight
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

BUENOS AIRES (Ezeiza Intl) (EZE/SAEZ)

Elevation 67ft

CATEGORY A

AV brief not required

GENERAL

- Buenos Aires is situated on the south shore of the Rio de la Plata estuary (in Argentina)
- Ezeiza Intl is located SSW of the city with no significant terrain in the vicinity
- During months when early morning fog is expected, there is a risk of diversion. Diversion airfields further away than MVD have limited facilities which may preclude a quick 'fuel and go'.

Threats

Runway Excursion

- Rwy 11/29 is the main landing runway and is 60m wide, giving the illusion of being too low
- This is particularly significant if a last minute visual approach is requested by ATC
- Rwy 17/35 is 45m wide
- Runway end markings are non-existent and the runway end can only be identified by a change in tarmac colour. Raised yellow runway end lights are positioned a few feet before this and should be used as the end of the runway.

Loss of Control

- If landing Rwy 11 exercise extra caution if vacating on to Rwy 17/35 which may be active, particularly during LVOs

Special Considerations

- Use standard R/T phraseology to avoid language difficulties
- It is highly likely a clearance for a procedural ILS may be changed to a visual approach whilst flying overhead and the procedure for flying this should be appropriately considered

ARRIVAL

Diversion Airports

MONTEVIDEO	MVD/SUMU	234 nm/090°T	CAT A
CORDOBA	COR/SACO	355 nm/306°T	CAT A
SAO PAULO Intl	GRU/SBGR	931 nm/043°T	CAT B
RIO DE JANEIRO Intl	GIG/SBGL	1080 nm/048°T	CAT B

Approach

- Actual and forecast weather has been known to be inaccurate, particularly during local winter months
- Radar is only used to monitor aircraft so radar vectors are very rare
- Arrivals tend to be via PAPIX to EZE followed by a procedural approach

- Occasionally a routing to ARSOT may be given
- Low TA of 3,000ft means procedural arrivals may commence above TL
- Occasionally crew will be cleared for an approach from a FL without a trigger to set QNH

GROUND

- Simfest use stands 2-11
- Wingtip clearance is tight between B747-400 aircraft and aircraft parked on stands 4-6 when taxiing around the edge of the ramp
- Exercise caution if conducting a 180° turn on Rwy 11/29 due lack of runway end markings
- Rwy 11 and Rwy 35 backtracks – follow yellow taxi lines in to turn pad and use aircraft type markings on the tarmac to identify correct taxi line for an anticlockwise turn on to the runway

DEPARTURE

- Request clearance from Ground as soon as practical advising expected pushback time
- On departure an altitude restriction may be given just prior to takeoff – this is normally lifted when established on the departure radial or a given DME distance has been achieved

WEATHER

- Sudden, unexpected weather changes are common in the Rio de la Plata estuary
- Line squalls associated with cold fronts approach rapidly from SW
- The warm waters of the estuary aggravate the intensity of the squalls
- During May/Jun and Aug/Sep, unforecast reduction in visibility is possible
- Poor weather conditions at Buenos Aires may also affect Montevideo
- Summer – large Cbs form inland and may affect the airfield
- Winter – Fog and low cloud forming over the South Atlantic drifts over the airfield and radiation fog may form at night

OPERATIONAL INFORMATION

Handling Agent	Intercargo SAC
Handling Agent VHF	131.35
Potable Water	Uplift permitted

IF ONLY Electrical Power is required	Use APU
If BOTH electrical power and air conditioning is required:	Use APU

SAO PAULO (Guarulhos) (GRU/SBGR)

Elevation 2,459ft

CATEGORY B

AV brief not required

GENERAL

- Airfield pronounced 'Gwa-rule-ihos'
- Situated in the northeastern outskirts of Sao Paulo
- English is generally a distant third to Portuguese and Spanish in Brazil – slow and standard R/T gives the best results

Threats

CFIT

- The airfield sits in a wide valley running NE-SW
- Immediately north of the airfield terrain reaches nearly 3,900ft amsl at 5 NM N and 4,700ft amsl 9 NM E. On base leg 09L/R the terrain reaches nearly 4,200ft amsl
- Between Sao Paulo and the coast are hills reaching 3,900ft amsl at 25 NM S and 4,400ft amsl at 40 NM E

Runway Excursion

- Anecdotal evidence suggests all SIDs/STARs were designed and tested for A320s, so proactive energy management may be required in larger types
- Refer to 'Hot and High Operations' brief for guidance on operations to High Density Altitude airfields.

Mid Air Collision

- Birds, kites and balloons are common

Runway Incursion

- Landing traffic can expect to hold short of 09L/27R after landing

ARRIVAL

Diversion Airports

CAMPINAS	VCP/SBKP	045 nm/305°T	CAT B
RIO DE JANEIRO Intl	GIG/SBGL	182 nm/078°T	CAT B
BELO HORIZONTE	CNF/SBCF	269 nm/031°T	CAT B
BRASILIA	BSB/SBBR	463 nm/350°T	CAT A

Should a diversion be likely, an early decision is better as there is limited handling capacity at all alternates.

Approach

- ATIS in Portuguese and English

- Initial descent with Brasilia Centre. STAR clearance will only be issued later by Sao Paulo Approach and is often different to the flight plan. Consider loading the most likely alternative in to RTE2 to reduce workload.
- “Descend via” used, particularly if quiet
- 09R/09L – STAR clearance may deliberately increase track miles to allow ATC time to organise arrival traffic – also stops traffic automatically turning on to approach following downwind
- As traffic becomes sequenced, revised STARs or direct routings may be given to reduce track miles. Whilst the STAR may not be formally changed, routing should be confirmed approaching the end of the arrival. Beyond this point there is relatively little ability to lose excess energy – a suggested configuration is F5/180kt level at 7,000ft.
- Rwy 27L/R – expect a shortened route to the localiser
- In good weather expect ILS ‘T’ 09R, in poor weather the ILS ‘V’ will be used
- Procedural approaches are used – it is important to consider “how” these will be flown compared to radar vectoring. For instance, once cleared for the procedure no further descent clearances are issued – what strategy will be used for setting MCP altitudes?
- DME references and ability to check glidepath changes depending on the procedure – note that BCO is 6 NM beyond the threshold
- A localised tailwind is often encountered on base leg as you pass over the terrain to the north

GROUND

- Normal stand on Apron 5/6 of T3. Remote stands may be used if significantly off-schedule

DEPARTURE

- If performance is critical, contact ATC for the latest temperature
- ‘Climb via’ SID terminology occasionally used. Departure route climbs toward arriving traffic so altitude restrictions are common and can occur at short notice.

Enroute

- Recife Centre will ask for your Mach Number – this is your intended speed over the ocean for separation purposes
- Proactive climbs whilst still under radar control should be considered
- No Oceanic clearance is required if you are on one of the airways of the EUR-SAM corridor (e.g. UN866). However if the route transits Santa Maria clearance should be requested at least 40 mins prior to entry both northbound and southbound.

WEATHER

- Radiation fog common in the mornings during colder months (Apr-Oct), forming at sunrise and lasting 1-2 hrs. Thick overnight fog can also form in the coldest winter months.
- The normal diversion airfield Campinas (VCP/SBKP) is usually clear but prone to occasional unforecast bad weather
- Afternoon Cbs and Thunderstorms occur daily during hotter parts of the year. They can be extremely violent, occur at short notice and produce significant turbulence and windshear.

OPERATIONAL INFORMATION

Handling Agent	BA (Pax) PROIR (Ramp)
Handling Agent VHF	131.7
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

RECIFE / Guararapes-Gilberto Freyre Intl (REC/SBRF)

Elevation 33ft

CATEGORY A

AV brief not required

GENERAL

- Guararapes-Gilberto Freyre Intl is located 9 NM from downtown Recife.
- Joint civil/mil airfield
- Large W'ly variation (22°W)
- What happens in Recife stays in Recife

Threats

CFIT

- Terrain rises inland with spot heights to 1400ft amsl within 20NM
- Numerous small hills and obstructions to the west of the airfield with spot heights from 400-1,000ft amsl

Runway Incursion

- Parallel taxiways M and D are insufficiently far from the runway centreline to permit simultaneous operations with widebody aircraft

ARRIVAL

Diversion Airports

NATAL	NAT/SBSG	143 nm/349°T	CAT A
FORTALEZA	FOR/SBFZ	338 nm/320°T	CAT A
RIO DE JANEIRO	GIG/SBGL	1000 nm/208°T	CAT B

Approach

- ILS only available for Rwy 18. Rwy 36 has a straightforward runway-aligned RNAV or offset VOR letdown.
- Note large westerly variation (22°W) and resulting discrepancy between METAR winds (true) and magnetic heading

GROUND

- Taxiways and aprons are quite tight and congestion is likely
- The parallel taxiways are located too close to the runway centreline to permit simultaneous use of the runway with aircraft larger than A321 size taxiing for departure. Caution is required when taxiing a widebody aircraft.
- Parking is on the main apron on the south-eastern corner of the airfield.

WEATHER

- Recife has a tropical monsoon climate with warm to hot temperatures and high humidity throughout the year.
- The warmest months are January and February with temperatures in the region of 30°C
- July is the cloudiest month and sees the most rainfall
- November is usually dry and sunny

OPERATIONAL INFORMATION

Handling Agent	DNATA
Handling Agent VHF	
Potable Water	Uplift not 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

SANTIAGO (Chile) (SCL/SCEL)

Elevation 1551ft

CATEGORY B

AV brief not available.

GENERAL

- Airport with joint civil-military facility
- The following seatbelt sign requirements must be observed for arrival and departures as it is a local regulatory requirement and is due to the possibility of severe turbulence over the Andes. Ensure close coordination with Cabin Crew to ensure that in-flight service and landing PA is coordinated with this requirement.
 - **Landing** – approximately 40 minutes before landing the seatbelt signs must be switched on and remain on for the duration of the flight. Passengers and crew must remain in their seats.
 - **Takeoff** – the seatbelt signs must remain on until approximately 30 minutes after takeoff. Passengers and crew must remain in their seats.
- The approximate geographic location of the above positions is to the east of JUA VOR and MDZ/SAME
- In the event of a diversion to MDZ the seatbelt sign must remain switched on for the duration of the return sector MDZ to SCL
- Santiago is in the central N/S valley of Chile with the Andes to the east and coastal hills to the west.

Threats**CFIT**

- Terrain to the east reaches nearly 10,700 ft asl within 18nm and nearly 22,350ft asl within 50nm
- Terrain to the west reaches nearly 6,550 ft amsl within 12nm
- Approaches follow the axis of the N/S valley
- Due to high terrain in the surround, special care should be taken during all descents. Consider the use of slower descent speed in order to avoid high rates of descents as well as excessive ground speeds over high terrain
- Terrain is depicted on the charts. It is strongly recommended to crosscheck clearances with the MRC chart.
- The magnitude of the terrain will not be visible during night arrivals and departures

Loss of Control

- Laser activity in the vicinity of airport Friday through Saturday and evening holidays from 2300-0400 UTC
- During adverse conditions, strong mountain waves with moderate/severe turbulence can be present. Whenever possible avoid flying parallel and immediately to the east of the Andes in the region around SCL
- Birds in vicinity of airport
- Use of the Turbulence Penetration Speed is recommended prior to and when crossing the Andes with due consideration given to the CFIT threat close to and below MSA.

Runway Excursion

- High energy approaches due to arrival and descent over the Andes

Runway Incursion

- Taxiing westbound on taxiway G, aircraft may miss turn onto taxiway P and incur on RWY 17R/35L,
- Taxiing northeast on taxiway C, aircraft may miss turn onto taxiway A and incur on RWY 17L/35R.
- Low Visibility Taxi routings as shown on the LVO taxi chart will be used when RVR is less than 550m. ATC will make reference to the geographic marking points illustrated on it.
- Departing 17L beware of the requirement to turn from the diagonal taxiway C on to A to avoid an incursion on Rwy 17L/35R

Special Considerations

- Minimum Runway Occupancy Time (MROT) applies: All aircraft arriving at the holding point must be completely ready to roll into the position on the runway and immediately start the take-off after receiving authorization. If unable to start the take-off, the said authorization will be cancelled, and instructions will be given to leave the runway at the first available taxiway.

ARRIVAL
Diversion Airports

Mendoza	MDZ/SAME	107 nm/071°T	CAT B
Concepcion	CCP/SCIE	232 nm/208°T	CAT A
Cordoba Intl Airport	COR/SACO	385 nm/079°T	CAT A
Buenos Aires (Ezeiza Intl)	EZE/SAEZ	619 nm/098°T	CAT A

Approach

- Preferential LDG RWY 17L and 17R with tailwind up to 10KT
- The primary landing runway is 17L which is CAT IIIB capable
- Occasionally landings are permitted on 17R at night but the use of reverse thrust is not permitted between 2200 and 0000 local time.
- The preferred approaches are the ILS Y 17L and ILS 17R. When RVR is <550m the ILS Z 17L will be used.
- Simultaneous parallel approaches to Runways 17R und 17L may be made using ILS, RNAV (RNP/GNSS) procedures when indicated on the approach charts.
- The preferred STARs crossing the Andes route via SIMOK or ASIMO. STARs routing via UMKAL should be avoided, especially when mountain wave activity or moderate/severe turbulence is expected as this is the area where it will be at its worst. See Mountain Weather below for background on possible re-routing decisions due turbulence over the Andes.

Initial Approach

- Radar is available but particular care should be taken to monitor aircraft position in relation to high ground.
- Transponder code for entry in to Chilean airspace is allocated before crossing the Andes

- It is customary when passed to Mendoza Control to request turbulence reports for the Andes. Equally when released by Mendoza after crossing the Andes give a report for the guidance of other crews.
- The descent profile over the Andes is such that a light tailwind can make it difficult to maintain the ideal profile so proactive energy management will be required.

GROUND

- Departure/Arrival Low visibility taxi routes available
- Surface Movement Guidance and Control System (SMGCS) in use when LVP activated.
- The preferred arrival taxi route to the International Apron is:
 - 17L: B, A, C and G
 - 17R: U and G
- The preferred departure taxi route from the International Apron is:
 - 17L: G, C and A
 - 17R: G, H, Z and V

DEPARTURE

- Preferential TKOF RWY 17L and 17R with tailwind up to 10KT. The primary departure runway is 17R, except between 0000 and 0700 local time when it is not available for noise abatement reasons.
- Call for clearance 15 mins before departure to avoid delay
- Recommended SIDs are via DILOK, DONTI and GUVO. The shorter track mileage SIDs routing East immediately after departure should not be used as terrain clearance will not be achieved without a significant reduction in payload.
- The recommended SIDs provide the greatest track mileage in order to gain altitude prior to crossing the Andes
- On departure the seatbelt sign should be left on until the Andes are crossed eastbound. Advise the CSD of this.

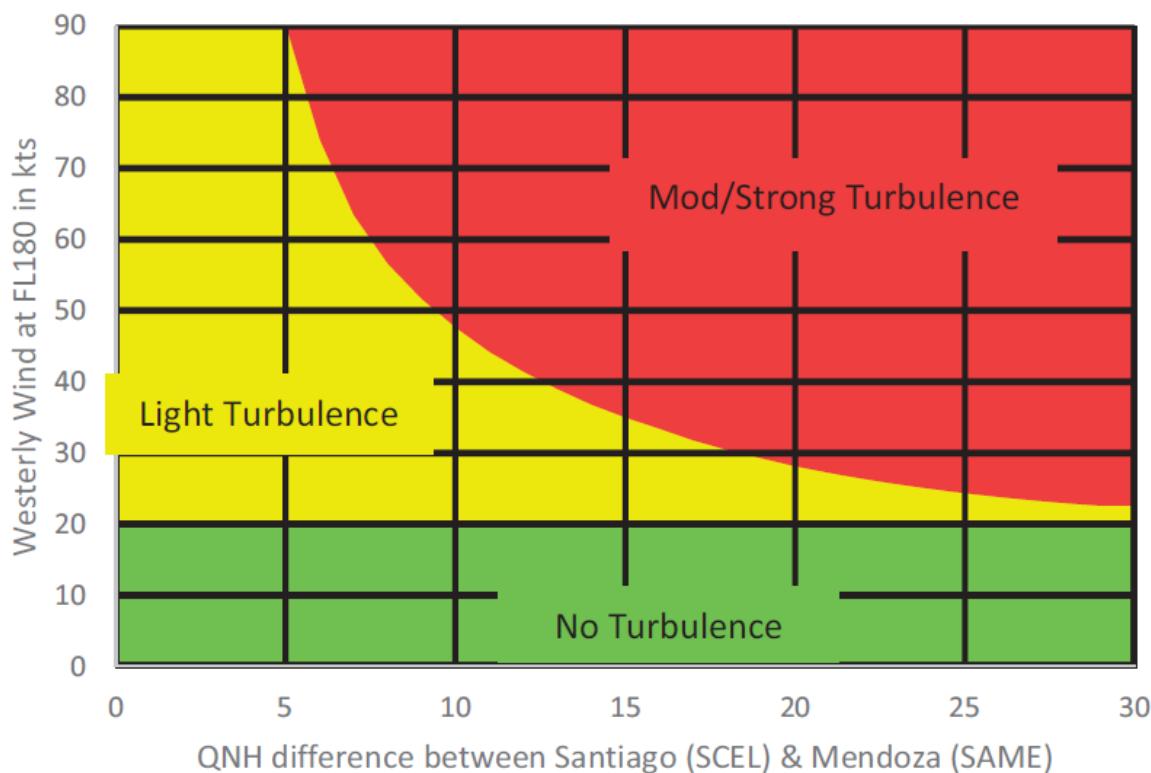
WEATHER

- Highest incidences of fog reported from May through July, averaging 22 days per month during this period. Smoke and haze as well as dust and sand average 23 days per month from May through August. Overcast ceilings are predominant from May through July. Fog usually clears by 1000-1100 local time in spring and summer, but not until 1200-1300 local time during winter. The airport is CAT IIIB capable.
- Smoke and haze as well as dust and sand obstructions reported from May through August,
- Overcast ceiling is predominant sky condition from May through July,
- Prevailing winds are from south southeast in January, March, and June and rarely exceeds 15kts.
- Frontal activity that brings poor weather has a prevailing Northerly wind
- Temperature between 7°C (March to May) and 29°C (December to February)

MOUNTAIN WEATHER

- The following chart can be used to give an indication of whether mountain waves and associated severe turbulence can be expected in the region to the east of Santiago in the vicinity of UMKAL:

Turbulence/Mountain Wave Prediction Chart



- Weather over the Andes is normally good
- In winter there might be cloud cover, whilst in summer Cb activity is often evident on the W side rising to over 40,000 ft; however they tend to be isolated and do not present a severe problem.
- A 100-150 kt jet stream, West to East at FL350-390, is a permanent feature but does not affect the FLs normally used to cross the Andes. There are other features, however, of which crews should be aware:
 - Cb Activity** – not only over the mountains, but also over the Argentine plains, similar to North America. It can be frontal or isolated.
 - Orographic Turbulence** – when the lower winds (FL150-FL300) are strong (80kt+) a lower crossing of the Andes is not recommended due to the turbulence caused by the mountains at these levels. In this case it is suggested that a high crossing (FL330) be made via SIMOK or ASIMO or more northerly routing. Another alternative is to proceed via ANKON or further where the mountains are lower.
 - Clear Air Turbulence** – by far the most dangerous conditions. It does not occur frequently and it is highly predictable.

- The situation is caused by the rapid movement of an entire air mass from West to East with the result that mountain waves form in increasing severity up to FL400
- This results from a large differential atmospheric pressure from West to East and will generally occur when the QNH at Santiago differs by 10hPa or more from that at Mendoza.
- The humid, fast-moving air creates rotor turbulence above and downwind of the Andes. These rotors extend from ground level to altitudes above FL350. The rotors, combined with the severe mountain waves, give rise to turbulence.
- Visual cues of this are:
 - Lenticular or roll clouds on the easterly edge of the Andes
 - Dust storms on the Argentine side as the air mass descends
- These conditions can occur at any time of year
- When the conditions above are forecast, or there is even a suspicion of it and the usual northerly arrivals via ASIMO or SIMOK are not available, arrivals via ANKON or further south can be used. The Andes are lower at this point and the mountain wave effect and turbulence is much reduced.

OPERATIONAL INFORMATION

Handling Agent	Acconia/Andes
Handling Agent VHF	130.825
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

LIMA (LIM/SPJC)

Elevation 113ft

CATEGORY B

AV brief not required

GENERAL

- Jorge Chavez International is the only airport currently serving Lima, the third-largest city in the Americas with a population of nearly 9 million
- Significant expansion is planned over the coming years with a new terminal and second runway
- The airport is located on the coast, 6 NM W of the city centre
- Naval and air force bases are located adjacent to the airfield with associated restricted areas within the terminal area – ATC clearance must be received before deviating from route.

Threats
CFIT
<ul style="list-style-type: none"> The Andes dominate central Peru and a thorough examination of the MRC chart and its relation to the relevant STAR is essential The high MSAs require vigilance with altimeter settings The immediate area around the airport consists of mostly flat desert coastal plain Significant obstacles 2 NM SSE to 450ft amsl and 3 NM E 1,120ft amsl A hill to 341ft amsl is located left of the Rwy 15 centreline on short final Terrain 5 NM E reaches 2,480ft amsl, rising to 12,500ft amsl within 35 NM and 18,900ft amsl at 65 NM. A 250 kt restriction occurs early on in the STAR and is above FL100. High IAS will lead to high rates of descent and ground speeds close to MSA, increasing the risk of EGPWS activation. It is recommended to moderate speed accordingly and if necessary reduce speed to 250 kt earlier than required by the STAR Be mindful of Ops Manual limitations regarding rate of descent (no more than 3,000fpm within 3,000ft of MSA) If arriving or departing at night the magnitude of the terrain will not be visible
Runway Incursion
<ul style="list-style-type: none"> Beware aircraft vacating Rwy 15 at Twy C, stopping short of Twy A and infringing the rwy
Runway Excursion
<ul style="list-style-type: none"> Rwy 33 has a displaced threshold of 610m (LDA 2897m) The single runway is reported as being rough and bumpy with neither grooves nor a crown The runway should be considered slippery when wet, with appropriate consideration given to takeoff and landing performance.
Loss of Control
<ul style="list-style-type: none"> Birdstrikes have been reported at Lima Congestion and confusion may occur during LVOs Temperature inversions may be expected on departure during the summer
Mid Air Collision
<ul style="list-style-type: none"> Expect local traffic to be controlled in Spanish A training school operates 30 NM S during daylight hours The air force base 13 NM S operates with MiG-29s and Mirages; this traffic may interfere with departures from Rwy 15 A small chance of simultaneous movements in opposite directions from the single runway
Special Considerations
<ul style="list-style-type: none"> Enroute driftdown procedures apply The final stages of the flight involve crossing the Andes. Options are very limited in the event of a decompression immediately prior to this Emergency turn procedures published for departure. 'F' SIDs currently not authorised.

ARRIVAL

Alternates

Enroute

- Whilst sufficient alternates are available, they are not as numerous as in other areas of the world
- Most Peruvian airfields are military controlled, with few scheduled services and therefore a lack of facilities

- However most have runways of at least 2,500m and could be considered in an emergency
- Many major cities in the area are at altitude and the airports are close to or above the maximum elevation for B747 operation
- The following airfields are suitable and may be useful:
 - MPTO (Panama City)
 - SKRG (Medellin, Colombia)
 - SVMC (Maracaibo, Venezuela)
 - SLVR (Santa Cruz, Bolivia)
 - SBEG (Manaus, Brazil)
 - SEMT (Manta, Ecuador)
 - SPQT (Iquitos, Peru)
 - SPRU (Trujillo)
 - SPCL (Pucallpa, Peru)
 - The diversion airfields listed below:

Diversion Airports			
PISCO	PIO/SPSO	114 nm/152°T	CAT B
CHICLAYO	CIX/SPHI	348 nm/332°T	CAT A
GUAYAQUIL (Ecuador)	GYE/SEGU	612 nm/344°T	CAT A

- Holding may be expected at VUMOM, PADIS, KALAR or ILROL, or delay vectoring

Approach

- MSAs enroute and in the initial stages of arrivals may be in excess of 20,000ft – check driftdown requirements
- A proactive check of MSA before deviating from the planned lateral profile is essential. Shortcuts are unlikely to be helpful.
- Full use should be made of the Lido MRC charts which break down the safe altitudes by sector
 - VADOS is overhead Lago Junin, the large lake shown on the MRC approx. 85 NM NE of Lima
- ATC will often clear aircraft to 5,000ft with the STAR. The use of MCP and altitude selections should be discussed in the briefing
- ATC may request high speed – monitor rate of descent in accordance with Ops Manual limitations (no more than 3,000fpm within 3,000ft of MSA)
- Rwy 15 is preferred due noise and the majority of arrivals are in this direction. Expect ILS V, a standard ILS approaching over the sea.
- ILS T is for LVOs, ILS U and S are similar but procedural.
- Rwy 33 has a single 3° VOR approach and overflies the city

GROUND

- Plan to vacate at D (2000m, 90° turn) or G (2600m, RET)
- If ground is congested aircraft may be asked to vacate at F (full length) to hold short of the apron
- Be aware that if vacating D but unable to proceed to the gate the tail may remain infringing the runway
- Landing Rwy 33 expect to vacate at A, though B is technically possible
- Preferred stands 17 and 19, 22 and 21 may also be used

DEPARTURE

- Rwy 15 preferred, Rwy 33 compulsory 0500-1000 due noise
- Call 20 mins prior to departure for clearance
- Refer to CARD for emergency turn procedures
- 'F' SIDs are not authorised
- AMVEX, ILROL and OPROS departures are achievable at medium weights using VNAV and derated climb, but this may not be possible at high weights, in unfavourable conditions or using Rwy 33.
- If SID altitudes/climb gradients cannot be achieved, consider:
 - Asking ATC for an unrestricted climb on first contact with Departure
 - Climb at Max Angle speed and/or remove the climb derate
 - Consider extending the SID by request to ATC once airborne. If required, plan the extra miles early in the departure over the sea. 30 NM should be sufficient.
- Critical targets for planning are:
 - **FL250** of above by **AMVEX/ILROL**
 - **FL290** or above by **20 NM beyond AMVEX/ILROL**
 - **FL200** or above by **OPROS**
 - **FL260** or above by **20 NM beyond OPROS**

WEATHER

- Lima has a desert climate controlled primarily by the cooling effect of the Humboldt current which brings year-round light southerly winds and dry air masses.
- Lima is one of the world's driest capitals. Only in winter (Jun-Aug) is any amount of drizzle likely
- Cloud cover is surprisingly high for the latitude and desert topography
- Humidity is high
- Dense winter fogs are regular (18-24 days per month) and caused by proximity to the coast
- Summer fogs are occasional and a result of inversions
- Fog generally occurs in the morning

- Despite the above, the airport operates in IMC less than 15% of the time

OPERATIONAL INFORMATION

Handling Agent	Talma Servicios Aeroportuarios
Handling Agent VHF	131.65
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

PROVIDENIYA BAY (PVS/UHMD)

Elevation 71ft

CATEGORY C

B744 – [NINDA Training Video](#)

GENERAL

- The airstrip is located 3 km southwest of Provideniya itself, in a narrow valley
- The settlement was established as a port providing a suitable deep-water harbour for Russian ships
- Known as the ‘Doorway to the Arctic’, tourism has risen significantly since the dissolution of the Soviet Union and there are charter services to Nome and Anchorage.
- PVS is most well-known for being the destination of the 1988 Alaska Airlines ‘Friendship Flight’ from Nome with around 80 passengers on board
- However a special permit is required for non-Russian nationals to visit the airport and surrounding area

Threat Based Briefing Topics

CFIT

- The airport lies in a narrow valley with terrain on both sides rising above 1,500ft asl
- A peak of ~2,000ft asl lies 4nm N. Other notable peaks include 2,361ft asl 4nm W and 2,147ft 2nm SW
- There are no Lido charts available for PVS and the terrain is very poorly depicted on the available Jeppesen charts.
- ATC clearances are very likely to be in metres QFE. QNH is available on request. The Jeppesen charts provide a conversion table and it is this which should be used, not the PFD metres function. Cross-checking of all altitudes is vital.

Mid Air Collision

- Complex arrival and departure procedures are published with numerous course reversals required in order to circumnavigate the terrain.

Runway Excursion

- The runway is described in Jeppesen as having a grass surface, but is in fact a combination of gravel and sand. Stopping performance is likely to be extremely marginal.
- There are no runway markings and no runway lighting is available.
- The runway and airport itself may be very difficult to pick out, especially at dawn/dusk or if there is snow on the ground.
- Note the runway is 52m wide. Combined with the short length and lack of other visual aids, this is liable to present a highly unusual visual aspect

ARRIVAL

- The NDB PAR approach for Rwy 01 is the only available instrument let-down. It is not included in the navigation database and thus will need to be constructed manually. FCTM 5.39 (Non-ILS (Non-Database) Approach) refers, as does the [B744 NINDA training video](#)

produced by Britjet. Note that use of LNAV and VNAV beyond the FAF is not authorised as the final approach track is offset.

- Pay close attention to step-down altitudes published on the Jeppesen STAR charts and take time to carefully verify the procedure is correctly entered in the FMS before top of descent.
- Be mindful of turn radius and modify FMS speeds appropriately in good time. Do not allow the aircraft to get high and/or fast during the approach and take prompt corrective action as required.
- Final approach to both runways is necessarily offset due to terrain
- The 52m wide runway, especially combined with its short length, will give a very unusual visual aspect and a strong sense of being low on final approach and in the flare. This is compounded by the fact that there are no glidepath aids (either visual or electronic) available and no runway lighting. Make maximum use of all in-aircraft aids such as VNAV V/DEV and height/distance checks.
- FOD ingestion is a significant concern due to the sand/gravel runway surface. Although use of full reverse is authorised due to stopping distance concerns, ensure reverse thrust is reduced to idle by 60kt GS unless a safe stop is in doubt. Idle reverse thrust may be used down to taxi speed (~20kt GS).

GROUND

- Note a stream runs E-W under the runway, effectively preventing use of Twy G for 01 departures/19 arrivals
- Very limited parking

DEPARTURE

- The SIDs are not in the navigation database and will need to be manually constructed and flown with reference to raw data
- Emergency turn Rwy 01: Follow GIRLO SID

WEATHER

- Provideniya experiences a polar climate though the coastal location tends to make winters less severe than might be expected for the latitude
- Summers are cool with heavy rainfall
- Average daily max/min temperatures 12°C/6°C (July), -11°C/-16°C (Dec)

OPERATIONAL INFORMATION

Handling Agent	Simfest Ground Services
Handling Agent VHF	
Potable Water	Not available

IF ONLY Electrical Power is required	Use APU (GPU equipment not available)
If BOTH electrical power and air conditioning is required:	Use APU (ACU equipment not available)

SOKOL (GDX/UHMM)

Elevation 574ft

CATEGORY B

AV brief not available.

GENERAL

- The airport is located near Sokol, some 43 nm north of Magadan
- GDX gained notoriety in 1991 with the inauguration of Alaska Airlines flights to the US. According to an anecdotal story, the first Alaska Airlines flight required de-icing, which was unavailable, so the flight crew acquired a quantity of vodka and sprayed it on to the wings.

Threat Based Briefing Topics

CFIT

- Terrain rises to the north with peaks over 3,800ft within 10nm and a peak of 5,469ft asl ~43nm NE
- The terrain is well-depicted on the Lido charts
- ATC will give clearances in metres QFE. Note that the conversion table on the Lido chart should be used to convert to feet QNH, not the PFD metres option.

Loss of Control

- The surrounding terrain can lead to heavy turbulence with downdrafts and WINDSHEAR on final to both Rwy's, especially with strong winds

Runway Excursion

- Deep landing risk due to unusual visual aspect from 60m wide runway and slightly shallower (2.8°) ILS
- Short landing Rwy 10 due to displaced threshold

Special Considerations

- Twy 2 and Twy 3 unsuitable for B744 operations (width 16m). Take care not to confuse Twy 3 with Twy 4 when landing Rwy 10.

ARRIVAL

- ILS Rwy 10 has a slightly shallower than normal 2.8° glide path. This, combined with the 60m wide runway, will give an unusual visual aspect
- Note that the first 600m of Rwy 10 is not available for use as it is a closed section of the old runway
- NDB Rwy 28 offset 6°

GROUND

- B744 vacate via Twy 4. Twy 3 unsuitable for B744 operations.
- Wingtip and main gear clearance on all taxiways is minimal and taxiing must be conducted slowly and with extreme caution.

DEPARTURE

- Note all SID turns require minimum 20° bank
- There is an automatic hand-off procedure in place. Pilots are expected to contact APP passing 1,200ft QNH. There will be no formal hand-off from TWR.

WEATHER

- The Magadan area experiences a subarctic climate. Winters are prolonged and very cold, with up to six months of sub-zero temperatures. Much of the region is covered with permafrost and tundra.
- Daily mean max/min temperatures 15°C/10°C (Aug), -14°C/-19°C (Jan)
- Snowfall is generally light
- Prevailing wind NE'ly. Winds can be gusty and strong particularly in winter months.

OPERATIONAL INFORMATION

Handling Agent	Simfest Ground Services
Handling Agent VHF	
Potable Water	Not available

IF ONLY Electrical Power is required	Use ground power at all times
If BOTH electrical power and air conditioning is required:	Use APU (ACU equipment not available). Keep ground power connected to reduce APU fuel burn.

KHOMUTOVO/YOUZHNO-SAKHALINSK (UUS/UHSS)

Elevation 59ft

CATEGORY A

No AV brief required.

GENERAL

- UUS is the largest airport in Sakhalin Oblast, and is situated on the southern outskirts of the town of Youzhno-Sakhalinsk ('Southern Sakhalin').
- The town was founded by convicts in 1882 but ceded to Japan, along with the southern half of Sakhalin Island, in 1905
- After the end of World War II the Japanese portion of Sakhalin Island was occupied by Soviet troops and ownership of the town was transferred to the USSR

Threat Based Briefing Topics

CFIT

- The airfield is located in a narrow valley. There is high ground on both sides with spot heights up to 3,497ft asl ~9nm NE and 2,549ft asl ~20nm NW.
- ATC clearances in metres QFE. Conversion charts to feet QNH provided on Lido charts; these must be used rather than the PFD metres option.

Runway Excursion

- Rwy 01 shallow glidepath (2.7°) leading to unusual visual aspect and risk of undershooting

ARRIVAL

- Rwy 01 preferred
- Two different missed approach procedures are published dependent on the status of restricted area R1399. Ensure the correct procedure is entered in the FMS.
- Rwy 01 has a 2.7° glidepath which gives a slightly unusual visual aspect
- Numerous restricted areas which may determine the STAR flown. Details on Lido.
- Turning pad 2 not available for aircraft B767 size and above

GROUND

- Lido AOI has extensive information on ground movement restrictions.
- Twy 3 not available to civilian aircraft. Route G not suitable for B747.
- B747 – taxi using thrust on inboard engines only. No more than idle thrust permitted on outboard engines due to FOD ingestion concerns.

- Engine start should be accomplished after pushback at one of the marked start-up points. Lido AGC and AOI 4 refer. Note that B744 aircraft are not permitted to start at points 6 or 7.

DEPARTURE

- Backtrack will be required for departure. WF ATC may use Twy G.

WEATHER

- Yuzhno-Sakhalinsk experiences mild summers and cold winters. Mean daily max/min temperatures 22°C/13°C (Aug), -7°C/-17°C (Jan)
- Fog is a frequent occurrence in summer
- Snowfall is almost entirely between Nov-Mar

OPERATIONAL INFORMATION

Handling Agent	Simfest Ground Services
Handling Agent VHF	
Potable Water	Not available

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

ANADYR/Ugolny (DYR/UHMA)

Elevation 194ft

CATEGORY B

No AV brief available

GENERAL

- Ugolny Airport is situated 6 NM east of the town of Anadyr, separated from the town by the Andyrsky Liman (river)
- Transport to and from the town is by boat in the summer, by a road on the ice in the winter and by helicopter during spring and autumn
- The airfield is well-equipped and suitable for widebody diversions.
- A Korean Air B777-300 diverted in 2013 after an engine failure and an Air China B777-300 diverted in 2019 following a fire warning
- Use standard phraseology

Threats

CFIT

- A ridge of high ground rises to the east/north east. A spot height of 1,135 ft asl is situated 2 NM east of the Rwy 19 final approach track on a 1 nm final, whilst terrain rises to 2,320ft asl 12 NM north east
- Charts have segments with “not below” altitudes shown

Runway Incursion

- It is necessary to cross the Rwy 01 threshold to gain access to/from the main apron

Runway Excursion

- The runway is 60m wide leading to an unusual visual aspect with accompanying deep landing risk

Loss of Control

- Expect heavy turbulence, downdraughts and WINDSHEAR on short final to both runways with easterly winds

Special Considerations

- All altitude clearances below transition level will be in metres QFE
- Refer to SHORT HAUL OPERATIONS TO THE CIS and EAST EUROPE – SIBERIA Area Briefs for more information regarding CIS procedures and metric altimetry

ARRIVAL

Diversion Airports

PROVIDENIYA BAY

PVS/UHMD

234 nm/091°T

CAT C

Approach

- Track shortening may occur for arrivals to Rwy 01

- Clearance to intercept the final approach will probably not be given, the aircraft being expected to make the last turn on to finals without specific instructions
- Clearance to land is given after crew have reported undercarriage down

GROUND

- Arrivals to Rwy 01 should vacate left on to Main Twy 5
- Departures from Rwy 19 will be required to cross the Rwy 01 threshold when leaving the main apron and taxi via Main Twy 5
- The terminal facilities are modern and well-equipped

DEPARTURE

- Turbulence and WINDSHEAR may be expected on departure, especially with easterly winds
- Note departures have minimum altitudes **and** distances from thresholds before turns may be commenced

WEATHER

- Winters long and very cold whilst summers are cool and short. Average min/max temperatures -26°C/-18°C (Jan), 8°C/15°C (July)
- Weather can be very changeable with storms brought in from Anadyrsky Liman and the Bering Sea, sometimes unforecast

OPERATIONAL INFORMATION

Handling Agent	Rusaero
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 APU (no ACU equipment available). Keep GPU connected to reduce APU fuel burn

OMSK/Tsentralny (OMS/UNOO)

Elevation 312ft

CATEGORY B

AV brief not available.

GENERAL

- Tsentralny Airport is located 2 NM southwest of Omsk, at the confluence of the Om and Irtysh Rivers
- 1,389 miles from Moscow, Omsk is Russia's third largest city east of the Ural Mountains, and seventh largest nationally
- A major engineering and petrochemical centre, Omsk is home to some of Russia's largest companies
- The gates of the original fort built in 1716 marking are still present in the city
- Large easterly variation

Threats

Runway Excursion

- Unstable/rushed approaches – platform altitudes are very low and the procedural approach brings the aircraft to a 7 NM final which can be surprising if not anticipated

Mid Air/Ground Collision

- Taxiways 6 and 7 not fully visible from the Tower and available in daylight only

Special Considerations

- Metric altimetry in use with clearances below transition given in metres QFE which will need to be converted to feet QNH using the tables on the charts. Take care to ensure correct pressure setting.

ARRIVAL

Diversion Airports

NOVOSIBIRSK	OVB/UNNT	320 nm/085°T	CAT A
NURSULTAN	NQZ/UACC	246 nm/196°T	CAT A

Approach

- Platform altitudes are very low (500 m)
- Missed approach stop altitudes are very low (400-600m) which may pose handling and A/T difficulties. Consider how the missed approach will be handled, particularly if a go around is required significantly above DA.
- The radar controller may not give the final turn on to the ILS, the aircraft being expected to make the last turn on to finals without specific instructions
- Clearance to land given after crew have reported undercarriage down.

GROUND

- Limited space for widebody parking
- Taxiways 6 and 7 are not visible from the Tower and available only in daylight
- SIDs require both minimum height AND distance from thresholds before turning. Manual intervention may be necessary to comply.

DEPARTURE

- Use FCOM noise abatement procedure
- Aircraft are expected to remain on Tower frequency until passing 970 ft QNH (200m QFE) on the SID, then contact Omsk Radar 119.0

WEATHER

- The climate is generally humid continental and characterised by dramatic swings in weather.
- Average daily low/high temperatures -20°C/-12°C (Jan), +14°C/+25°C (July). Temperatures as low as -45°C have been recorded in January and as high as +40°C in July.
- Snow falls mainly Oct-Mar
- Summer sees thunderstorms with associated heavy rainfall

OPERATIONAL INFORMATION

Handling Agent	Omsk Airport
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 APU (ACU equipment not available). Keep GPU connected to reduce APU fuel burn.

PETROPAVLOVSK-KAMCHATSKY (PKC/UHPP)

Elevation 128ft

CATEGORY B

No AV brief available

GENERAL

- The airfield is situated 8 NM north west of Petropavlovsk-Kamchatsky, in the south east of the Kamchatka Peninsula
- The airport is surrounded by volcanoes and mountainous terrain
- On the opposite side of Avacha Bay from Petropavlovsk is the Rybachiy Nuclear Submarine Base. This is the largest submarine base in Russia
- No roads connect the Kamchatka Peninsula to the rest of the world
- Limited diversion options

Threats

CFIT

- The airport is surrounded by high terrain.
- Koryaksky, 11,339 ft asl, is an active volcano 13 NM north east of the airfield. Its neighbouring peak Avachinsky, 8,993 ft asl, is 15 NM east of the airfield
- Terrain to the east is also significant with spot heights of 1165 ft asl within 3 NM and rising to in excess of 4,000 ft asl within 15 NM
- Clearances below transition level will be given in metres QFE. The QNH will be provided on request but clearances will still be in metres QFE. Take care to ensure correct altimeter setting and conversion to feet QNH using the tables on the charts.

Runway Excursion

- 2.7° ILS glidepath to both runways leading to an unusual visual aspect

Runway Incursion

- Disused runway 16L/34R is close to the active 16R/34L and not immediately obvious on charts

Special Considerations

- See SHORTHAUL OPERATIONS TO THE CIS or EAST EUROPE – SIBERIA Area Briefs for details of metric units, altimetry and other CIS common procedures

ARRIVAL

Diversion Airports

MAGADAN, Sokol	GDX/UHMM	479 nm/331°T	CAT B
YUZHNO-SAKHALINSK	UUS/UHSS	714 nm/244°T	CAT A

Approach

- Both ILS approaches have shallow 2.7° glide paths
- RNAV and GPS are both required in order to fly Rwy 16R ILS approaches

- Circling prohibited west of the airport
- All altitude clearances below transition level will be given in metres QFE. Conversion tables to feet QFE are available on charts
- Standard R/T is recommended
- **Clearance to intercept the final approach will probably not be given, the aircraft being expected to make the last turn on to final without specific instructions**
- **Clearance to land is given after crew have reported undercarriage down**

GROUND

- Only access to and from the apron is via Taxiway C
- Backtrack required for full length departure Rwy 34L

DEPARTURE

- SIDs have high climb gradient requirements due to terrain, especially from 34L. A variety of procedures are available with additional track miles if performance precludes the more direct routing.
- KULOD4D departure has a 215 kt speed restriction and 25° bank angle requirement combined with "at or above FL100".

WEATHER

- Snow is common November – April and seawater is known to freeze in spring
- Winter temperatures much milder than the rest of Siberia, whilst summers are generally cool and relatively dry
- Average daily temperatures ranging from -7°C in January to +13°C in August
- Weather generally less cloudy than the adjacent Kuril Islands as the terrain tends to block fog formed by the Oyashio Current offshore

OPERATIONAL INFORMATION

Handling Agent	Norpac Aviation
Handling Agent VHF	118.8
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 APU (ACU equipment not available). Keep GPU connected to reduce APU fuel burn.

KYIV (Boryspil) (KBP/UKBB)

Elevation 427ft

CATEGORY B

AV brief not required.

GENERAL

- The city of Kyiv is situated south of a large reservoir
- North of the reservoir and approximately 50nm north of Kyiv is the town of Chernobyl
- Boryspil is a town 20 NM SSE of Kyiv with Boryspil Airport on its western edge.

Threats

Loss of Control

- Birds may be problematic throughout the year, particularly around sunrise and sunset

Special Considerations

- For details of metric units, altimetry and CIS common procedures see OM C East Europe – Siberia and Shorthaul Operations to the CIS.

ARRIVAL

Diversion Airports

WARSAW	WAW/EPWA	389 nm/286°T	CAT B
BUCHAREST	OTP/LROP	398 nm/209°T	CAT A
BUDAPEST	BUD/LHBP	491 nm/249°T	CAT A
VIENNA	VIE/LOWW	577 nm/257°T	CAT A
KRAKOW	KRK/EPKK	427 nm/268°T	CAT B
L'VIV	LWO/UKLL	269 nm/263°T	CAT A

Approach

- Anticipate direct to RNAV arrival fix for landing runway on first contact with Kiev Control
- ATC clearances in feet QNH with metric on request.
- Use standard R/T
- Descent clearance may be given early but it is advisable to accept to avoid being too high when closer to the airfield.
- At ETA -30 mins latest contact Boysip Operations Control 131.775 and provide POB and luggage information (Lido AOI p3)
- Expect to fly procedural ILS in the absence of radar vectors

- Clearance to intercept final approach will probably not be given with the aircraft being expected to make the last turn on to final without specific instructions
- Circling W of the airfield only
- 18L/36R is the usual runway as Rwy 18R/36L has a weight restriction of 61,300kg (however Airbus crews can accept 18R/36L without weight restriction if allocated by ATC).
- 18R/36L not usable by widebody aircraft due to low PCN and narrow taxiways to/from apron.

GROUND

- 18R/36L and taxiways reported as being “very rough”
- Ramp surfaces are uneven with protruding manhole covers
- Simfest part on Apron D for Terminal D.
- Wingspan restrictions on various taxiways – refer to Lido AOI for details

DEPARTURE

- Expect Rwy 18L/36R in normal operation
- Anticipate the possibility of an early turn to the west
- Wingspan restrictions on certain taxiways – refer to Lido AOI for details.

WEATHER

- Thunderstorms most common May-Aug, at times severe and widespread with heavy hail
- Otherwise precipitation falls throughout the year with snow Nov-Mar
- Advection fog or very low cloud is a common occurrence throughout the year.

OPERATIONAL INFORMATION

Handling Agent	Interavia
Handling Agent VHF	131.55
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

YEKATERINBURG/Koltsovo (SVX/USSS)

Elevation 766ft

CATEGORY A

AV brief availability

GENERAL

- Located 8 nm SE of Yekaterinburg in the eastern foothills of the central Urals on the banks of the Iset River
- Also known by its old Soviet name of Sverdlovsk
- A well-equipped airfield which is one of the top seven busiest airports in Russia
- Standard R/T is recommended
- Large Easterly variation

Threats

CFIT

- The airport is surrounded by low hills which are heavily wooded
- Between the airport and the city are numerous smokestacks reaching almost 1,300 ft asl 7 nm WNW
- Hills W of the airport reach nearly 1,350 ft asl at 5 nm and almost 1,250 ft at 8 nm E

Runway Incursion

- Aramil Airport is 2 nm S. Do not confuse with Yekaterinburg.

Special Considerations

- Metric altimetry in use.

ARRIVAL

Diversion Airports

CHELYABINSK	CEK/USCC	089 nm/164°T	CAT B
PERM	PEE/USPP	171 nm/296°T	CAT A
KHANTY-MANSIYSK	HMA/USHH	364 nm/042°T	CAT B

Approach

- Non standard ILS GP to RWYs 08R, 26L and 26R
- NDB approaches are available to all runways
- Clearance to intercept final approach will probably not be given, the aircraft being expected to make the last turn on to final without specific instructions
- Clearance to land given after crew have reported undercarriage down.

DEPARTURE

- Initial climb clearance may be to only 300m. Call airborne promptly for further climb from Radar as levelling off at 300 m may pose handling and A/T difficulties.

WEATHER

- Summer begins in June and is often hot with temperatures as high as 25°C and long stretches of dry, clear weather which can last until October
- Autumn is brief and winter begins with heavy snowfalls in mid-November
- Winter weather characterised by brief, heavy, dry snowfalls followed by long stretches of clear, sunny but very cold days. Temperatures can reach -18°C and remain there for weeks on end.
- Snow begins to thaw in March and typical springtime weather is chilly and damp.

OPERATIONAL INFORMATION

Handling Agent	Rusaero
Handling Agent VHF	
Potable Water	Uplift not permitted

IF ONLY Electrical Power is required	Use ground power at all times
If BOTH electrical power and air conditioning is required:	Use APU (ACU equipment not available). Keep GPU connected to reduce APU fuel burn.

MOSCOW/Sheremetyevo (SVO/UUEE)

Elevation 630ft

CATEGORY B

AV brief not available.

GENERAL

- The city lies 15 nm SE of the airfield and flight over the city is prohibited.
- Standard R/T should be used to minimise any potential language difficulties

Threats

CFIT

- TV mast to nearly 2,400 ft asl 10 nm SE

Runway Excursion

- Reports indicate that braking action may be worse than stated

Runway Incursion

- Be careful not to confuse parallel taxiway with Rwy 06R/24L

Special Considerations

- Metric altimetry in use. Clearances will be given in Metres QFE below transition level which must be converted to feet QNH using the tables on the charts. Take care to ensure the correct altimeter setting is used as only QFE may be given on the ATIS.

ARRIVAL

Diversion Airports

MOSCOW, Vnukovo	VKO/UUWW	023 nm/192°T	CAT B
MOSCOW, Domodedovo	DME/UUDD	038 nm/154°T	CAT B
SAINT PETERSBURG, Pulkovo	LED/ULLI	323 nm/315°T	CAT B

- STARs are used followed by radar vectors to final approach
- Descent clearance, which may be delayed, will be given by radar and may not conform to the STAR

Approach

- The radar controller may not give the last turn on to the ILS Localiser. Make this turn using bearings from locators without further instructions.
- Clearance to land given after crew have reported undercarriage down
- If an autoland is planned, ensure that you inform the controller on first contact that full autoland procedure will be used in order to ensure the ILS is properly protected.

GROUND

- Approach to Stand 21 is uneven and significant power may be required
- Snow obscured apron markings may make parking difficult
- Runways are usually kept clear of snow but taxiways and apron left hard packed

DEPARTURE

- On takeoff, clearance to follow a particular SID may not be given, ATC assuming the SID specified in the ATIS will be followed.
- Information on initial cleared altitude may be promulgated in the ATIS and is likely to be different for each runway
- It is important to call airborne immediately after takeoff because an initial clearance to only 500 m or 900 m should be expected. Levelling at 500 m after takeoff has caused some handling and A/T difficulty for crews unused to ATC procedures at Moscow
- Take special care if departing with a very low pressure setting; clearance above transition may only involve a small climb.

WEATHER

- Cbs and thunderstorms in summer, severe and widespread with heavy hail
- In winter light S winds give advection fog or very low cloud, particularly Nov and Dec
- Snow falls Oct to Apr
- Prevailing wind SW'ly

OPERATIONAL INFORMATION

Handling Agent	Sheremetyevo Airport
Handling Agent VHF	131.625
Potable Water	Uplift not 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

COLOMBO/KATUNAYAKE (CMB/VCBI)

Elevation 29ft

CATEGORY A

No AV brief required.

GENERAL

- The airfield is on the W coast of the island 12nm N of Colombo harbour and 15nm N of the city of Colombo.
- The airfield is almost on the coast with a large lagoon on the seaward side.

Threat Based Briefing Topics

CFIT

- It is flat in the vicinity of the airfield, but starts to rise 15nm to the E slowly.
- Mountain range 40nm to the E with peaks to 8300ft asl.
- Mountains 40-75nm in an arc from NE to SE up to 10,000ft.
- The airfield is surrounded by trees up to 80ft agl.

Loss of Control

- Concentrations of birds crossing the approach paths of RWYs 22 and 04 at dawn and dusk from Nov to Jan.

Runway Excursion

- Colombo (Ratmalana) RML/VCCC is also oriented 04/22 and is only 21nm S of Colombo Intl. It handles domestic services only.

ARRIVAL

Diversion Airports

CHENNAI	MAA/VOMM	350 nm/003°T	CAT A
BANGALORE	BLR/VOBL	385 nm/340°T	CAT A
MALE	MLE/VRMM	421 nm/245°T	CAT A
HYDERABAD	HYD/VOHS	611 nm/352°T	CAT A
COCHIN	COK/VOCI	274 nm/311°T	CAT A
THIRUVANANTHAPURAM	TRV/VOTV	294 nm/193°T	CAT A

Approach

On first contact with Colombo Airways once inside SIN or SUPSA (FIR boundary), expect initial descent to FL150 and to report 60 or 70 DME to KAT VOR, where you will be handed over to Colombo Director.

- Circling is not allowed.

- Expect Radar vectors for an ILS via the KAT VOR.
- Max 250kts below 10,000ft.
- Max 220kts below 10,000ft and within 15nm of KAT VOR.
- Descent clearance is often given to altitudes below MSA; monitoring of the high ground to the E is needed.
- The runway surface is rough.
- Slight airborne delays are possible inbound (4 min hold WF 2016)

GROUND

- The old Rwy 04/22 is now the parallel taxiway.
- SIMFEST aircraft are NOT to use the taxiway to the Air Lanka Apron or the Air Lanka Apron itself.
- The ramp to the NW of the runway is military.
- Taxi after landing is via the parallel taxiway to Apron A, B or C.
- Use of a marshaller is compulsory for taxi in/out. Nose in parking only.
- There is an isolated stand on the parallel taxiway, 100m from Twy B, to serve Emergency requirements

DEPARTURE

- Typical WF congestion can be expected but taxi-out time in 2016 was below average (15 min)
- SIDs are published but may not be used
- Take-off clearance will likely be a turn left or right after takeoff and contact Director. This indicates you will make your own turn after takeoff in the direction instructed to establish on the airway. Director will then direct you to the first waypoint. Passing approx. 10,000ft you will be handed over to Colombo Airways.
- Emergency turn procedures in CARD.

WEATHER

- Typical Tropical Island weather, similar to Male.
- Frequent thunderstorms and heavy rain.
- Little temperature variation throughout the year, staying between 24°C and 30°C.

- Dec to Apr (mid) – Occasional dawn fog, soon clearing. Overcast mid-afternoon, clearing early evening.
- Feb to Sep – Prevailing SW'ly wind.
- Apr (mid) to Jun – Monsoon season. Heavy cloud develops before dawn and lasts all day with heavy rain and frequent thunderstorms generally of short duration. Expect approaches to Rwy 22 during this period.
- Jun to Sep – Generally fine with broken Cu. Very occasional squalls with heavy rain lasting only a short time.
- Oct to Jan – Rain squalls more frequent and more persistent. Thunderstorms especially in the evening. The NE Monsoons blow and an approach to Rwy 04 can be expected.

OPERATIONAL INFORMATION

Handling Agent	Sri Lankan
Handling Agent VHF	131.5
Potable Water	Not assessed

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

SIEM REAP (REP/VDSR)

Elevation 59ft

CATEGORY B

No AV brief.

GENERAL

- The airfield is located 3 nm north of the city of Siam Reap in northwestern Cambodia.
- The city is a popular tourist destination due to its proximity to the Angkor temples and hotel accommodation is plentiful
- Flight over the Angkor temple 5 nm NE of the airfield is prohibited. For this reason all takeoffs are from Rwy 23 and landings on Rwy 05.

Threats

Runway Incursion

- Backtrack required for both arrivals and departures

Mid Air Collision

- Opposite direction runway operations in use

ARRIVAL

Diversion Airports

PHNOM PENH	PNH/VDPP	127 nm/152°T	CAT B
HO CHI MINH CITY	SGN/VVTS	228 nm/133°T	CAT A
RAYONG/U-Tapao Pattaya	UTP/VTBU	170 nm/256°T	CAT B

Approach

- All arrivals are normally to Rwy 05 due to the prohibited area over the Angkor temple located 5 NM NE of the airfield. There are no instrument approaches to Rwy 23

GROUND

- Parking is limited
- See Jeppesen 10-9A for pushback procedures

DEPARTURE

- All departures are usually from Rwy 23 due to the prohibited area over the Angkor temple. However this is likely to be waived for World Flight.
- Departures from Rwy 05 will require visual conditions and a visual climb to MSA

WEATHER

- Generally hot throughout the course of the year with average highs above 30°C year round
- The wet season runs May-Oct and brings heavy rains and afternoon thunderstorms
- January is the driest month

OPERATIONAL INFORMATION

Handling Agent	Asia Flight Services
Handling Agent VHF	
Potable Water	Uplift not permitted

IF ONLY Electrical Power is required	Use ground power at all times
If BOTH electrical power and air conditioning is required:	Use APU (ACU not available). Keep GPU connected to reduce APU fuel burn.

KOLKATA (CCU/VECC)

Elevation 17ft

CATEGORY A

AV brief not required.

GENERAL

- Rwy 01L/18R is a Code D runway so should only be used for B747/B777 aircraft in an emergency or if the other runway is closed.
- If used, plan to exit 01L at A and 19R at C or turn in the dumbbell and backtrack to exit at C.

Threats

Runway Excursion

- Caution advised when turning at the thresholds as the turning pens are tight for widebodied aircraft. Ensure clearance is maintained to the edge of the paved surface.

ARRIVAL

Diversion Airports

DHAKA	DAC/VGZR	129 nm/056°T	CAT A
DELHI	DEL/VIDP	710 nm/300°T	CAT A
BANGKOK	BKK/VTBD	870 nm/127°T	CAT A
MUMBAI	BOM/VABB	901 nm/256°T	CAT B

Approach

- ATC will normally radar vector for a long approach which can be shortened on request.

GROUND

- Usual parking Stand 43 with sidemarker boards for parking guidance.

WEATHER

- Dec to Feb – Cool season. Early morning fog may be troublesome.
- Mar to May – Hot season. Heavy thunderstorms appear from the NW with severe squall conditions lasting 30-40 mins.
- Jun to Sep – SW monsoon with frequent Cbs.
- Visibility occasionally reduced in rising dust at any time of year
- Cyclones may affect the area during the period Jun to Nov.

OPERATIONAL INFORMATION

Handling Agent	Indian Airlines
Handling Agent VHF	131.75
Potable Water	Uplift not 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

HONG KONG (HKG/VHHH)

Elevation 28ft

CATEGORY B

No AV brief required.

GENERAL

Threat Based Briefing Topics

CFIT

- The airport for Hong Kong is built on reclaimed land to the N of Lantau. It is some 11nm W of Hong Kong Island. On Lantau Island there is high ground which begins to rise 1nm S of the airport reaching nearly 3,100ft asl at 3nm S and nearly 2,600ft asl at 3.5nm SE
- The peak on Hong Kong Island reaches nearly 2,000ft asl and is 12nm E
- 12nm NE and only 1.5nm N of the extended centreline to Rwy 25R is a peak to nearly 3,300ft asl
- The airport for Macau is some 20nm SW

Loss of Control

- Due to the proximity of the hilly terrain of Lantau Island to the S and E, significant low level windshear and moderate to severe turbulence can be expected when winds blow from E through to S to SW at about 15 kt or more. See [HKG weather section](#) for detailed information.

ROUTE

- Driftdown/Depressurisation procedures apply on routes to HKG.

ARRIVAL

Initial Approach

- Ensure HKG ATC contacted at appropriate time as detailed on Operational Flight Plan. Contact Hong Kong Radar 3 minutes prior SIERA; ATC should give STAR clearance. SIERA is the boundary and just to the South West of Macau. If there are significant inbound delays a hold may be assigned at CANTO.
- Guangzhou ATC will often require you to descend early, sometimes with direct routings to cross SIERA as low as FL190. Do not delay the descent/arrival briefing based on FMS predicted TOD point.
- Landing on Rwy 07L is preferable when landing Easterly and vacating at RET A8 or A9 will minimise taxi in, however if landing beyond A7 inform approach so they can adjust spacing
- Rwy 25R will be given when landing Westerly (Rwy 25L is used for cargo operators).
- D-ATIS is available for HKG.

Crew Reports

- Map shift errors on B747-400 aircraft have been reported

Approach

- Be alert to the possibility of an ATC descent to a very low platform altitude on the approach to Rwy 07L and plan/brief aircraft configuration appropriately
- Tailwinds on short finals are very common. Pre-brief the latest acceptable touchdown point on the runway.
- There is significant terrain on the approach to Rwy 25 and the missed approach for Rwy 07. The missed approach, following an approach towards Rwy 07R, involves climbing straight ahead initially and then turning right, over the water, between the high ground on Lantau Island and the high ground on Hong Kong Island. Accurate tracking and flying is essential.
- During the winter monsoon, northerly wind of 25kt or more may produce WINDSHEAR and severe turbulence during a missed approach
- Reduced Runway Separation Minima procedures are in place. In favourable meteorological conditions crews may expect to receive clearance to land before the preceding aircraft has vacated or departing aircraft has left the runway.

Diversion Preference

- Macau, if approach feasible
- Shenzhen
- Guangzhou

A380 Operations

- Note that Macao and Shenzhen are not available for A380 operations. In this case, Guangzhou (ZGGG), in mainland China about 100nm north of VHHH will be planned as the fuel alternate. Passenger dispersion facilities are limited. If a diversion is likely, plan to load sufficient fuel for Taipei (RCTP) first and then Clark/Angeles City (RPLC) in the Philippines. The OFP will provide the definitive commercial priority of alternates in the normal way (C1, C2 etc).
- From time to time these alternates may not be available for A380 operations
- In the event of a typhoon warning in force at the planned arrival time the flight will be delayed at LHR and operate the following day.

Alternate and Diversion Airports

- Macau, Shenzhen and Guangzhou are in the local area. Kaohsiung, Taipei or Taiwan provide further alternates along with Manila, which is the most distant.

Diversion Airports

MACAU

MFM/VMMC

021 nm/242°T

CAT B

- Macau is very close and has good handling but limited apron space so may become congested fairly rapidly in the event of mass diversions. Fuel approved. Not suitable for A380.
- For northerly arrivals, aircraft are controlled by Hong Kong for the initial approach. Rwy 34 is fully Cat 2 equipped and provides the only AWOPS capability in the area.
- Shenzhen controls intermediate approach to Rwy 16 with cleared altitudes given in metres. Rwy 16 has an offset localiser only approach which is not recommended unless in good weather conditions.

Diversion Airports

SHENZHEN

SZX/ZGSZ

021 nm/344°T

CAT A

- Located 30nm to the NW. Little traffic and reputed to be acceptable from a handling viewpoint. Straightforward approaches to Rwy 15/33. Fuel is approved and more apron capacity than Macau. Not suitable for A380.

Diversion Airports

GUANGZHOU

CAN/ZGGG

074 nm/344°T

CAT A

- New airport opened August 2004. Good surface links to Hong Kong for passenger transfer.

Diversion Airports

KAOHSIUNG

KHH/RCKH

359 nm/087°T

CAT A

- Located on the southern end of Taiwan. Can become congested at times of mass diversion. Immigration difficulties may be experienced.

Diversion Airports

TAIPEI

TPE/RCTP

436 nm/068°T

CAT A

ANGELES CITY

CRK/RPLC

572 nm/138°T

CAT A

BEIJING

PEK/ZBAA

1077 nm/007°T

CAT A

SHANGHAI, Pudong

PVG/ZSPD

679 nm/039°T

CAT A

GROUND

- B747/B777 parking stands normally used are between E15-E19
- APU ban for aircraft parking at frontal parking stands
 - The APU is to be shut down 5 mins after chocks on and not started in excess of 25 mins (60 mins A380) before STD

- In the event of Red Lightning warnings, refuelling and pushbacks are suspended (see Lido AOI 11)

A380 Operations

- A380 stands are N60/62/64, E15 and S25
- If vacating from Rwy 07L at A8 it is possible to be parked at the N gates in less than 5 minutes; this will require running engines on the gate to complete 5 mins at idle thrust
- After disembarking aircraft will be tugged off; complete full shutdown as departure is not for approx. 9hrs
- Stands E15, S23, N60, N62, N64, N66 have provision for A380 FEGP and PCA
- Note only two jetties are available at HKG and these will be attached at M1L and U1L
- Stands N60/N62/N64 reached via a track transit system which takes approx. 10 mins from the main passenger terminal

DEPARTURE

Starting and Taxi

- Parking bays generally have two standard pushback procedures, pushback BLUE and pushback RED; the colour defines the direction the aircraft faces after pushback.
- When commencing taxi pilots are requested to use minimum breakaway thrust.

Departure

- When departing from Rwy 07L there is a significant risk of aircraft taking off from Twy A instead of Rwy 07L. Beware when turning from Twy B to Rwy 07L so as not to confuse Twy A with Rwy 07L. The risk is promulgated as a Hot Spot in the AERODROME OVERVIEW chart.
- Non-standard acceleration altitudes Rwy 07. Check CARD notes.
- RW07 departures have a right turn over PORPA or ROVER. These must be checked as being coded as FLY-OVER waypoints in the FMS and MUST be flown over. An early turn prior to these waypoints will result in a hard EGPWS warning.
- Any speed restriction on departure such as 220 kt will require Flap 1 to be maintained until acceleration is allowed

WEATHER

- Jan-Apr: Low stratus and drizzle, ceiling down to 600ft (300ft over the sea), particularly in the mornings
- May-Sep: SW Monsoon period with Cb and heavy rain. TYPHOONS (3-4 per season).
- Oct-Dec: NE Monsoon. Good weather.

Windshear and Turbulence

- Due to the proximity of the hilly terrain of Lantau Island to the S and E, significant low level WINDSHEAR and moderate to severe turbulence can be expected when winds blow from E through S to SW at about 15 kt or more. Due to terrain and land-sea breeze effects, the surface winds at the airport are generally not good indications of the prevailing winds. Instead pilots should use the wind conditions at about 2000ft along the approach to assess the likelihood of significant local effects further down the approach. The magnitude of WINDSHEAR and turbulence can be expected to increase towards final.
- Whilst the Hong Kong charts describe significant wind phenomena, they do not go in to detail about the systems that are used and how reports passed by ATC regarding WINDSHEAR should be interpreted by the crew.
- There are two WINDSHEAR detection systems specifically in use at Chek Lap Kok:
 - WINDSHEAR and Turbulence Warning System (WTWS)
 - Terminal Doppler Weather Radar (TDWR)

WTWS

- This system is the most comprehensive and advanced terminal WINDSHEAR and turbulence detection system in the world. The main goal of WTWS is to provide real-time WINDSHEAR and turbulence alerts to pilots through tower controllers to enhance flight safety in the terminal area.
- The WTWS makes use of a network of anemometers around the airport to detect terrain induced low-level WINDSHEAR. The difference in windspeed and direction measured at adjacent anemometers is used to determine the location and magnitude of the horizontal WINDSHEAR in the arrival and departure corridors.

TDWR

- This system supplements the WTWS by using an advanced data processing algorithm which is applied to other raw data to detect terrain induced WINDSHEAR and turbulence in clear air.

Alert Types

- The systems report 3 types of alerts:

Alert Type	Description
Microburst	Only generated by the TDWR and indicates WINDSHEAR events with wind loss of 30kt or more
WINDSHEAR	Can be generated by both the TDWR and WTWS. It indicates a WINDSHEAR event with wind speed loss or gain of 15 kts or greater except for microburst.
Turbulence	Only generated by the WTWS. The minimum threshold setting is for moderate turbulence relative to heavy commercial aircraft.

ATC Reporting

- An event is analysed and reported when it falls within 3nm of the runway thresholds based on observations made by the weather sensors
- The reports will be in the following format and there will only be one WINDSHEAR/microburst alert for each runway at any time.

CAUTION: WINDSHEAR plus 15 knots on departure.

- Unlike some US systems, this means that the aircraft may encounter the WINDSHEAR event with the maximum intensity anywhere along the corridor and there may be more than one event.
- The event will also be shown on the relevant ATIS as:
 - Significant WINDSHEAR forecast 25L and 25R
- In the case of multiple WINDSHEAR occurrences being detected by WTWS and TWDR there is a system of priorities to determine what is reported by ATC. All occurrences are integrated in to one report based on the following table.
- Alert type priorities are:

Priority	Alert Type
Highest	TDWR Microburst
	WTWS WINDSHEAR of minus 30kt or greater
	TDWR WINDSHEAR of minus or plus 15 kts or greater except Microburst

Lowest WTWS WINDSHEAR of minus or plus 15 kts or greater

- Microbursts are only reported by the TDWR system
- The will be reported in a similar format to WINDSHEAR, e.g. Caution, Microburst minus 30 knots on final approach.
- A turbulence warning may be reported in conjunction with a Microburst or WINDSHEAR alert, e.g. Caution, WINDSHEAR minus 20 knots and moderate turbulence on departure

Typhoons

- Hong Kong issues warnings of Typhoon activity within the area 10°-30°N and 105°-125°E, commencing 48 hours before expected passage of typhoon through Hong Kong. Simfest Ops will advise all ground stations of typhoon activity. Typhoon information is passed in plain language by the normal Met Broadcast and by Company messages. Advance warning is good, as is strength forecasting. The weather data below is compiled from observations made for the old Kai Tak airport adjacent to Kowloon opposite Hong Kong Island. There is a Simfest Typhoon Conditions Code described below.
- **SIMFEST TYPHOON, HURRICANE OR CYCLONE CONDITIONS**
 - SIMFEST CONDITION I – Winds are forecast to increase to 50 kt within 48 to 24 hours
 - SIMFEST CONDITION II – Winds are forecast to increase to 50kt within 24 to 12 hours. Aircraft are picketed or flown out of the area.
 - SIMFEST CONDITION III – 50 kt winds are forecast within 12 hours, are imminent or are actually being experienced. No aircraft operations except in an emergency.
 - SIMFEST CONDITION IV – Winds reduced to less than 50kt after passage. Aircraft operations resume.

OPERATIONAL INFORMATION

Handling Agent	Jardine Airport Services
Handling Agent VHF	131.8
Potable Water	Uplift Permitted

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

KATHMANDU/Tribhuvan Intl (KTM/VNKT)

Elevation 4,395ft

CATEGORY C

AV brief not available

GENERAL

- Tribhuvan International Airport is located in the eastern part of Kathmandu, surrounded by built-up areas
- The city and airport are located in a bowl-shaped valley, surrounded by the Himalayas
- One of the top ten upcoming travel destinations in the world, one of the earlier names of the city, Kantipur, means “City of Glory”
- The Nepalese flag is unique as the only flag in the world that is not rectangular

Threats

CFIT

- The airfield is located in a bowl-shaped valley and there is high terrain on all sides. The most significant terrain is to the north, where the 6,000 ft contour is within 7 nm, and there is a spot height of 9,003 ft 8 nm NW
- Peaks of over 6,500 ft encircle the airfield within 10 nm
- To the W there are two spot heights of 8,379 ft asl and 8,462 ft asl at 7 nm, and further terrain in excess of 8,000 ft at 15 NM
- The 10,000 ft contour is within 20 nm N, and by 30 nm the terrain has risen to in excess of 18,000 ft asl
- Terrain is over 20,000 ft asl within 40 nm NE
- Mt Everest 29,029 ft asl 85nm/078°T

Runway Incursion

- Backtrack is required for full length departures from either runway

Runway Excursion

- The runway is situated on a ‘tabletop’ with terrain rising toward both thresholds, giving the illusion of being low with a tendency to overshoot. Make maximum use of VNAV and PAPI guidance

Mid Air Collision

- Paragliders operate to 6,000 ft asl 10-12 nm to the NE of the airfield in the Lafsifedi area and to 7,000 ft asl in the Bistachkap Valley area to the SE within 3-6 nm of the airfield

Special Considerations

- Kathmandu can be surprisingly warm and the effects of density altitude can be significant. Simfest crew see ‘HOT AND HIGH OPERATIONS’ brief for further details.

ARRIVAL
Diversion Airports

VARANASI	VNS/VEBN	190 nm/226°T	CAT A
LUCKNOW	LKO/VILK	245 nm/258°T	CAT A
DELHI	DEL/VIDP	440 nm/278°T	CAT A
KOLKATA	CCU/VECC	345 nm/150°T	CAT A

- STARs noted as 'RNP ARRIVAL' require RNP 1.0 and RF capability. If flying these STARs ensure that the RNP value is set correctly on PROG p4/4 and that ANP is sufficient. These STARs also require two GPS receivers to be operational and there are minimum temperature limits which must be observed.
- For aircraft not capable or authorised to fly the RNP arrivals conventional STARs are also available

Approach

- Rwy 02 is the preferred landing runway and has an RNAV (RNP) approach. Simfest have special authorisation from the Nepalese CAA to fly this procedure during WorldFlight.
- VOR approaches also available
- Landing Rwy 20 will require circling from the VOR B breakcloud procedure. This procedure is not available at night and the aircraft must remain within 2.5 NM of the KTM VOR during the circuit due to the proximity of terrain to the north.
- The effects of density altitude must be considered. With an OAT of 25°C in the summer and standard pressure, the density altitude at KTM can be 6,700 feet or more, giving a TAS (and consequently GS) of around IAS + 15%. Whilst the aircraft will follow the descent profile as normal with usual configurations and thrust settings, deceleration will take significantly greater time and distance
- As a rule of thumb, a minimum of 50% extra distance should be allowed on top of normal 'gates' for deceleration. This should be increased further if other factors (e.g. tailwind, high approach speed due to weight, non-normal configuration etc) are also present.

RNP Rwy 02

- RNP Rwy 02 approaches can start from DANFE (arrivals from N and W) or RATAN (arrivals from S). The initial approach funnels aircraft in to point KT532 from where the final approach segment is commenced.
- The approach briefing should cover:
 - Equipment serviceability (2 GPS receivers required)
 - Altimeter setting
 - How any equipment failure or loss of RNP during the approach will be dealt with
 - How navigation performance will be monitored
 - Modes and MCP altitude setting
 - Speeds and configuration points

- Handover of control for landing
- Missed approach handling
- Confirm the correct RNP value (0.30) is inserted in to PROG p4/4 prior to arrival at DANFE/RATAN. After DANFE/RATAN PM should keep PROG p4/4 displayed in order to monitor ANP vs RNP and XTK error
- It is very important that the speed restrictions on the approach are met in order to ensure the required turning radii can be achieved
- Use of LNAV, VNAV and A/P is required
- Configure early to minimise workload in the latter stages of the approach
- Handover of control for landing should occur after the aircraft is stabilised on final approach and visual references can be achieved and maintained to touchdown
- The missed approach takes the aircraft in a right hand turn overhead the airfield and out of the valley to the west. **LNAV is required.** In the event of a missed approach you will need to re-engage LNAV manually above 400R. It is critical that this is not missed!
- The missed approach also requires RNP 0.30 to DARKE and this should be confirmed and monitored on PROG p4/4 as for the rest of the approach

DEPARTURE

- Most departures involve a climbing turn overhead the airfield to gain altitude before continuing toward the SID exit point
- Ensure SID minimum altitudes and enroute MEAs are achieved before continuing enroute
- Consider full CLB thrust and Vref + 100 kt to MEA. This can be entered as a speed restriction in to the VNAV CLB page e.g. 265/17000

WEATHER

- The climate in the Kathmandu Valley is generally fairly temperate with summer temperatures averaging 20-25°C. Highs of 37°C have been recorded in June
- Winters are also mild with average temperatures around 10-15°C though temperatures close to 30°C have been recorded in November and 24°C in January
- Days are usually warm whilst nights and mornings are cool.
- Weather can be unpredictable with sudden and unforecast fog
- Rainfall generally associated with monsoon conditions and concentrated June-Sep. Summer sees diurnal Cb buildup with thunderstorms common in the afternoon.

OPERATIONAL INFORMATION

Handling Agent	Nepal Aviation
Handling Agent VHF	
Potable Water	Uplift Permitted

IF ONLY Electrical Power is required	Use at all times
If BOTH electrical power and air conditioning is required:	Use APU (ACU equipment not available). Keep GPU connected to reduce APU fuel burn.

MALE (MLE/VRMM)

Elevation 6ft

CATEGORY A

No AV brief required.

GENERAL

- MLE is located in a long group of coral islands approximately 400 nm southwest of Colombo

Threat Based Briefing Topics

CFIT

- The runway almost totally dominates a narrow island 1 nm to the northwest of the island of Male. Terrain is not a consideration however there are obstacles up to 200ft in the immediate vicinity located on a nearby island.

Runway Excursion

- Backtrack on the runway end turn pads to exit from the runway to the apron. Use the standard FCOM turning pad technique for the 180° turn. Do not follow the yellow turning pan markings as the radius of the circle is smaller than the minimum nosewheel turning radius of a 777/747.

Special Considerations

- There is a water aerodrome to the east side of the main runway and seaplanes may operate across the main runway paths. ATC will ensure that seaplanes do not conflict with aircraft on the main runway.

ARRIVAL

Diversion Airports

BANGALORE	BLR/VOBL	596 nm/025°T	CAT A
CHENNAI	MAA/VOMM	660 nm/037°T	CAT A
HYDERABAD	HYD/VOHS	837 nm/020°T	CAT A
THIRUVANANTHAPURAM	TRV/VOTV	329 nm/038°T	CAT A
COCHIN	COK/VOCI	398 nm/026°T	CAT A
COLOMBO (Katunayake)	CMB/VCBI	421 nm/065°T	CAT A

Approach

- Delays may be encountered on arrival due to the long runway occupancy time of aircraft both arriving and departing.
- Radar vectoring and speed control may be used by ATC to delay arrival time. This may also lead to short notice changes between a Rwy 18 VORDME and a Rwy 36 ILS approach.
- Vectoring to final approaches is generally good.

GROUND

- There is no taxiway or markings on the apron so exit from runway will be given by tower directly to a marshalled parking position.
- The standard procedure in MLE is that all SIMFEST aircraft will have a main marshaller located on the apron area with two wing walkers to ensure clearance. SIMFEST aircraft are normally parked nose in, with a left or right angle, but please note other aircraft on the apron may be parked at different angles.
- Space on the ground – let alone the apron – is likely to be at a premium during WorldFlight. Expect Taxiway G for departure and consider parking in a position that will not require pushback.
- It has been reported that the GPU can be unreliable.

DEPARTURE

- Expect delays due to apron and taxiway congestion. In real life aircraft are pushed back from the apron on to the runway for start-up, but during WF this is highly unlikely.
- Departure routing may not be received until very late on. Reports from crew of receiving routing at the runway threshold point.

WEATHER

- Typical tropical island weather
- Thunderstorms and showers are a frequent occurrence, but generally pass quickly
- A crosswind is often experienced due to runway orientation

OPERATIONAL INFORMATION

Handling Agent	MACL (Ramp) MLEK (Pax)
Handling Agent VHF	119.7
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 APU

HANOI (HAN/VVNB)

Elevation 40ft

CATEGORY B

No AV brief available

GENERAL

- The airfield is located 18 nm north east of downtown Hanoi
- It is largest airport in Vietnam in terms of capacity and the second busiest after Tan Son Nhat International Airport in Ho Chi Minh City
- The airfield is situated near sea level but terrain rises sharply to the north and west.
- Metric altimetry is used.

Threats

CFIT

- Terrain rises sharply to the north with a spot height of 1,516 ft asl 7 nm N.
- Ba Vi, 4252 ft asl, is 27 nm WSW, just outside the 25 nm MSA sector
- Terrain rises to over 8,400 ft asl within 90 nm W of the airfield with MSAs in excess of 10,000 ft

Runway Incursion

- Closely spaced parallel runways. Take care to ensure lined up on the correct runway
- The parallel taxiway runway to the north of the runways is wide and could be mistaken for 11L/29R

Mid Air Collision

- Metric altimetry in use. Refer to charts for conversion tables.

ARRIVAL

Diversion Airports

NANNING	NNG/ZGNN	156 nm/059°T	CAT B
HA PHONG/Cat Bi Intl	HPH/VVCI	57 nm/117°T	CAT B

GROUND

- Restrictions on use of certain taxiways for wide bodied aircraft – Jeppesen 10-9 refers

DEPARTURE

- Initial climb likely to be to a Flight Level

WEATHER

- Summer (May-Aug) characterised by hot and humid weather with abundant rainfall
- Autumn (Sep-Nov) is significantly drier and slightly cooler

- Fog and low cloud are common in winter (Dec-Jan)

OPERATIONAL INFORMATION

Handling Agent	T&T Company
Handling Agent VHF	125.1
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

HO CHI MINH CITY/Tan Son Nhat Intl (SGN/VVTS)

Elevation 33ft

CATEGORY A

AV brief not available.

GENERAL

- Tan Son Nhat Intl is located in the centre of Ho Chi Minh City, surrounded by built-up areas.
- It is the busiest airport in Vietnam and handled over 38 million passengers in 2018.
- During the Vietnam War Tan Son Nhut was one of the busiest military airbases in the world and during 1973 a Pan Am Boeing 747 service was operated four times weekly to San Francisco via Guam and Manila
- In 2004 United Airlines became the first US airline to fly to Vietnam since Pan Am's last flight during the Fall of Saigon in April 1975
- The Ho Chi Minh City – Hanoi route is the busiest in Southeast Asia and the seventh busiest in the world, serving 6,769,823 customers in 2017

Threats

CFIT

- A TV mast at 1,529 ft asl is located 5 nm SE and there is a 443 ft asl mast 2 nm NW

Runway Incursion

- Closely spaced parallel runways. Take care to ensure the correct runway is identified.

ARRIVAL

Diversion Airports

CAN THO	VCA/VVCT	071 nm/232°T	CAT A
PHU QUOC	PQC/VVPQ	162 nm/256°T	CAT A
PHNOM PENH	PNH/VDPP	115 nm/292°T	CAT B

- Preferred landing runway 25R
- Note that ILS approaches have minimum ceiling requirements (see charts)
- Descent will often be “via the profile” (i.e. ICAO “descend via...”). This implies that the aircraft should descend to the cleared level, observing any intermediate altitude restrictions on the STAR chart.

Approach

- Separation often achieved primarily through quite aggressive speed control
- Typical ATC speeds on final: 190 kt to 8 DME, then 160 kt to 4 DME
- Aircraft may be radar vectored to final or cleared own navigation via an RNAV fix to join final or a DME arc to final

GROUND

- ATC expect aircraft to squawk standby on the ground after vacating the runway on arrival, and until approaching the holding point for departure

DEPARTURE

- Rwy 25L preferred for departures
- xxxx2x SIDs will usually be issued in preference to the xxxx1 versions.
- Expect departure from the full length. E4 may be offered to medium and light aircraft departing Rwy 25L

WEATHER

- Average temperatures are around 28°C with little variation throughout the year
- The wet season (May-Oct) is dominated by the SW monsoon and marked by heavy rainfall, Cb activity and TYPHOONS. Rainfall can be prolonged and torrential
- The NE monsoon (Nov-Apr) brings calmer and more settled weather with regular sunny days

OPERATIONAL INFORMATION

Handling Agent	Saigon Ground Services
Handling Agent VHF	
Potable Water	Uplift not 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

YANGON (RGN/VYYY)

Elevation 110ft

CATEGORY A

AV brief not available.

GENERAL

- Yangon Intl is Myanmar's primary and busiest international airport. The airfield is located 8 nm north of central Yangon.
- During WWII the airfield was known as RAF Mingaladon and served as an operating base for fighter aircraft until its capture by the Japanese, who based bombers there
- However, British codebreakers in Delhi were able to break Japanese codes and thus could predict Japanese air raids from the base

Threats

Runway Excursion

- Rwy is 60 m wide giving an unusual visual aspect and risk of early flare and floating

Mid Air/Ground Collision

- Taxiways are narrow and FOD is a hazard, particularly for 4-engined aircraft

ARRIVAL

Diversion Airports

CHIANG MAI	CNX/VTCC	196 nm/055°T	CAT B
CHITTAGONG	CGP/VGEG	402 nm/323°T	CAT A
BANGKOK, Suvarnabhumi	BKK/VTBS	329 nm/125°T	CAT A

Approach

- RNP Rwy 03 has a very low platform altitude of 1800ft
- Note 230 kt speed limit for missed approaches

GROUND

- Charts note that landing traffic should aim to roll to the end of the runway. It is likely that during World Flight use of the RETs will be beneficial to increase runway capacity if landing Rwy 21
- B747: use idle power on outboard engines when taxiing due to FOD risk

DEPARTURE

- SIDs require GPS and RNAV1

WEATHER

- Wet season May-Oct sees substantial rainfall and Cb activity
- Dry season Nov-Apr sees more stable conditions
- Temperatures fairly constant throughout the year with average daily highs ranging from 29-36°C

OPERATIONAL INFORMATION

Handling Agent	YAG
Handling Agent VHF	
Potable Water	Uplift not permitted

IF ONLY Electrical Power is required	Use APU
If BOTH electrical power and air conditioning is required:	Use APU

MAKASSAR (UPG/WAAA)

Elevation 47ft

CATEGORY A

No AV brief required.

GENERAL

- The airport is located 20 km NE of Makassar's city centre
- It is named after Sultan Hasanuddin, a Sultan of Gowa who fought against the Dutch East India Company in the 1660s.

Threat Based Briefing Topics

CFIT

- Significant high ground rises to the east of the airfield. The terrain is well-depicted on Lido charts.
- Mt Moncong Lompobatang, 9,429ft asl, is 30nm SE
- There is also a peak of 5,541ft asl at 24nm less than 2nm to the east of the Rwy 21 extended centreline

Runway Excursion

- Sudden extreme rainfall during wet season may very quickly result in significant standing water and flooding.
- The runways are not grooved and water dispersion may be poor with associated reduction in braking action

ARRIVAL

- Expect radar vectors to final approach
- Rwy 03/21 preferred

GROUND

- Parking is on the new apron to the west of Rwy 03/21

WEATHER

- Makassar experiences a tropical monsoon climate, with virtually no seasonal temperature variation but significant differences in rainfall due to the movement of the ITCZ
- Jun-Oct: Dry season with very little rainfall
- Nov-May: Wet season. Rainfall peaks at 28.9 inches in January

OPERATIONAL INFORMATION

Handling Agent	Simfest Ground Services
Handling Agent VHF	
Potable Water	Not assessed

IF ONLY Electrical Power is required	Use at all times
If BOTH electrical power and air conditioning is required:	Use APU (ACU equipment not available). Keep ground power connected to reduce APU fuel burn.

BALI (DPS/WADD)

Elevation 14ft

CATEGORY B

AV brief not required.

GENERAL

- The airfield lies across a narrow isthmus joining a peninsula to the south with the main part of the island to the

Threats

CFIT

- High ground on the peninsula within 3 NM and reaches ~750ft amsl within 5 NM south
- Terrain N is flat to 9 NM then rises steadily reaching ~7,500ft amsl 25 NM N and ~10,300ft amsl 31 NM NE
- 21 NM E on the extended runway centreline is an island with a peak ~1,750ft amsl

Loss of Control

- Soaring birds are a hazard during the day
- Birds tend to congregate on the runway at night

ARRIVAL

Diversion Airports

SURABAYA	SUB/WARR	163 nm/300°T	CAT A
JAKARTA	CGK/WIII	530 nm/287°T	CAT A
KUCHING	KCH/WBGG	676 nm/334°T	CAT B

GROUND

- Sea wall marked with red lights 5ft above threshold elevation, 130m short of Rwy 09 threshold
- B747 turning – follow nosewheel guidance when using west turning area on the north side of Rwy 09

DEPARTURE

- Northbound SIDs require the aircraft to be climbed steeply to clear the high ground

WEATHER

- Monsoon climate with rainy and dry seasons, between which are comparatively short inter-monsoonal seasons
- Apr-Oct dry season. Weather normally good, but hazy at times particularly when SE trade winds are strong. Little cloud except for Cu over the land during the afternoon.
- Large Cu/Cb at beginning and end of the dry season

- Nov-Mar wet season. Frequent heavy showers and thunderstorms, most frequent over the land during day and evening. Over the sea, maximum development takes place at night and early morning, resulting in a secondary maximum of rainfall during the second half of the night.
- Visibility may fall to almost zero in heavy rain.

OPERATIONAL INFORMATION

Handling Agent	JAS/Kapura Handling Agent and Garuda
Handling Agent VHF	131.9
Potable Water	Uplift not 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

SURABAYA (SUB/WARR)

Elevation 11ft

CATEGORY A

No AV brief available

GENERAL

- Juanda International Airport is located on the outskirts of Surabaya, approximately 6.5 NM SE of the city centre
- It is the third busiest airport in Indonesia

Threats

CFIT

- High ground is located to the south of the airfield and the 25 NM MSA is 13,300 ft.
- Mt Semeru 12,060 ft asl 43 NM S, Mt Bromo 7,641 ft asl 40 NM S
- Arjuno-Welirang is an active volcano of 10,955 ft asl 22 NM SSW
- Mt Kawi 8,369 ft asl 39 NM SW

ARRIVAL

Diversion Airports

DENPASAR	DPS/WADD	163 nm/120°T	CAT B
LOMBOK	LOP/WADL	223 nm/112°T	CAT A
YOGYAKARTA	YIA/WAHI	165 nm/259°T	CAT A

Approach

- Note Rwy 10 glideslope intercepts the runway 308 m after the landing threshold, with an LDA of 2693 m beyond

GROUND

- Taxiways S1 and S5 not suitable for use. Use S2, S3 or S4 and backtrack as appropriate if using the south apron area. North side taxiways and apron are suitable for B777 use.

WEATHER

- Surabaya has a tropical climate and is generally hot and humid with temperatures in the mid 20-30°C's
- Thunderstorms common throughout the year, especially in the warm season from October to May.

OPERATIONAL INFORMATION

Handling Agent	Garuda Indonesia
Handling Agent VHF	
Potable Water	No 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

KUCHING (KCH/WBGG)

Elevation 88ft

CATEGORY B

No AV brief available

GENERAL

- Kuching is the capital and largest city of the Malaysian state of Sarawak on the island of Borneo
- The airport is located in the west of the island, 6 NM south of Kuching city centre

Threats

CFIT

- High ground rises to the south and west of the airfield precluding ILS approaches to Rwy 07. A spot height of 1,673 ft asl rises just south of the Rwy 07 extended centreline at 7 NM, and there are spot heights in excess of 3,200 ft within 10 NM north west of the airfield
- Gunung Niut 5,606 ft asl is 37 NM south west

Runway Excursion

- VOR approaches Rwy 07 are offset 10°

ARRIVAL

Diversion Airports

SIBU	SBW/WBGS	109 nm/065°T	CAT B
SINGAPORE	SIN/WSSS	382 nm/269°T	CAT A

Approach

- Due to terrain, the only approaches available to Rwy 07 are an RNAV RNP AR, the VOR Z direct arrival and procedural VOR Y. Simfest do not hold approval for the RNP AR approach.
- The VOR approaches are offset 10° due to the terrain.
- Note there is a spot height of 1,450ft asl 0.5 NM south of the offset approach to Rwy 07 at approximately 4 DME VKG
- Missed approach Rwy 25 requires accurate tracking and speed restriction due to terrain

DEPARTURE

- Rwy 07 - note that departure from Taxiway C does not provide full length Rwy 07. Take care to ensure correct performance calculations/data entry
- Rwy 25 departures require high climb gradients due to terrain

WEATHER

- Hot and very humid with substantial rainfall. Kuching is the wettest populated area in Malaysia with an average of 247 rainy days per year and only 5 hours of sunshine per day on average
- NE Monsoon (Nov-Feb) brings heavy rains and regular thunderstorms, especially late afternoon and evenings
- March is the driest month
- Temperatures are fairly constant year round at around 30°C

OPERATIONAL INFORMATION

Handling Agent	Aerodarat
Handling Agent VHF	
Potable Water	Uplift not 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

BRUNEI (BWN/WBSB)

Elevation 73ft

CATEGORY A

No AV brief required.

GENERAL

- The airport is situated in a built-up area at the northern tip of Brunei, within the confines of the capital Bandar Seri Begawan
- Joint civil/military airfield also serving as the headquarters of the Royal Brunei Air Force.
- No significant terrain within the immediate vicinity of the airfield but there is high ground to the SE

Threat Based Briefing Topics

CFIT

- Terrain rises to the SE of the airfield up to 2,700ft asl within 27nm
- The 30nm MSA is 6,200ft and the 50nm MSA 8,100ft

Loss of Control

- A powerplant at under the Rwy 03 approach path at 1.2nm is reported to generate turbulence and low stratus cloud

Special Considerations

- The navaids at the airfield, including the VOR, DME and ILS for both runways, undergo weekly scheduled maintenance and are unavailable at these times. See Lido AOI for details.

ARRIVAL

- Rwy 03 has a slightly steep (3.2°) glidepath
- Rwy 21 – the localiser signal has been reported unreliable outside 18nm beyond 10° L/R of centreline, and at more than 15° left of centreline at 17nm

DEPARTURE

- No SIDs published. Expect radar vectors after departure.

WEATHER

- Hot, wet tropical rainforest climate with heavy precipitation throughout the course of the year.
- Jun-Oct: SW Monsoon associated with Cb and heavy rain.
- Dec-Mar: NE Monsoon, with generally good weather.
- Very little seasonal variation in temperature with daily mean high/low temperatures of 32°C/23°C almost year-round

OPERATIONAL INFORMATION

Handling Agent	Simfest Ground Services
Handling Agent VHF	
Potable Water	Not assessed

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

KOTA KINABALU (BKI/WBKK)

Elevation 14ft

CATEGORY B

AV brief not available

GENERAL

- Kota Kinabalu International Airport is located 4 nm southwest of Kota Kinabalu city centre on the island of Borneo
- It is the second busiest airport in Malaysia with good connections across the Asia-Pacific region
- Terrain rises steeply inland

Threats**CFIT**

- Terrain rises inland from the airport and reaches over 3,000 ft asl within 15 nm
- Mt Kinabalu, 13,435 ft asl, is the highest mountain in the entire Malay Archipelago and lies 31 nm ENE
- Spot heights of 2,010 ft asl 7 nm SE, 3,700 ft asl 12 nm E and ~3,200 ft asl 15 NM NE
- A low ridge runs to the E of the airport in line with the runway orientation and there are obstructions at 490 ft 600 m E of the Rwy 20 threshold
- At 4 NM final Rwy 20 there are spot heights of ~1,100 ft asl on Gaya Island 2 nm W

Mid Air Collision

- A radiosonde balloon is released 2x daily from a site approximately 2 nm E of the airport
- Parasailing activity takes place to the west of airfield up to 500 ft AGL

ARRIVAL**Diversion Airports**

BRUNEI	BWN/WBSB	089 nm/229°T	CAT A
SIBU	SBW/WBGS	327 nm/228°T	CAT B
KUCHING	KCH/WBGG	433 nm/232°T	CAT B

Approach

- STARs generally sequence to the FAF
- Missed approaches are to the east away from terrain
- Note that 1500 ft must be achieved before left turn on Rwy 02 missed approach

DEPARTURE

- Aircraft are expected to automatically change to Kinabalu Radar 119.1 once airborne unless otherwise instructed

WEATHER

- NE Monsoon Nov – Mar brings relatively drier and more stable conditions
- SW Monsoon May – Sep is the wetter season with frequent Cb activity and torrential but generally brief rainstorms
- Cb activity prevalent during the afternoons
- Winds generally light

OPERATIONAL INFORMATION

Handling Agent	Aerodarat
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

JAKARTA (CGK/WIII)

Elevation 34ft

CATEGORY A

No AV brief required.

GENERAL

- Located 20km northwest of central Jakarta
- CGK is the busiest and largest airport in South East Asia and one of the busiest airports in the world
- Terrain rises rapidly S and E of the airfield, with MSAs of 12000ft within 40 NM
- Local ATC may be difficult to understand. Use standard phraseology.

Threat Based Briefing Topics**CFIT**

- Mt Pangrango 39NM SE rises to 9,905ft asl
- Gunung Karang 37NM W rises to 5,833ft asl
- Other notable peaks are: 20NM S ~4000ft asl, 30NM SE ~7000ft asl, 67NM SE ~7000ft asl
- 120NM MSA 15000ft

Runway Excursion

- Wider than standard runways leading to potential for misjudgement of height
- Runways may be slippery when wet

ARRIVAL

- Note stepped descent profile on STARs
- Expect radar vectors to final. Jakarta Approach also handles traffic to/from Hakim Perdanakusuma (WIHH)
- Both runways are 60m wide – beware visual illusions
- Ground and Tower positions may be split – North frequencies for landing 07L/25R and parking T2/T3, South for T1 and 07R/25L

GROUND

- Potential long taxi times dependent on parking position

DEPARTURE

- Expect TULIP or DOLTA SID

- Note stepped climb profiles

WEATHER

- Prevailing wind direction south westerly in November
- Wet season runs Oct-May with frequent heavy rainfall
- November average daily max/min temperatures 30°/23°C

OPERATIONAL INFORMATION

Handling Agent	Simfest
Potable Water	Not Assessed

IF ONLY Electrical Power is required	Use ground power at all times
If BOTH electrical power and air conditioning is required:	Use APU for air conditioning (Keep ground power connected to reduce APU fuel burn)

BANDA ACEH (BTJ/WITT)

Elevation 65ft

CATEGORY B

No AV brief required.

GENERAL

- BTJ is located approx. 13km SE of Banda Aceh city (pronounced: BAN-dah ATCH-ay) in the far north-west of the island of Sumatra.
- The airport was rebuilt and upgraded to its current specification after the Boxing Day tsunami of 2004
- The airport is situated in a wide valley with steeply rising terrain to the E, S and W

Threat Based Briefing Topics

CFIT

- Mt Seulawah Agam, 5,940ft asl 14nm SE
- Other notable peaks ~5,800ft asl 9nm SW, ~6,900ft asl 18nm S, ~2,000ft 18nm N, 1,702ft 5NM NE, 2,018ft 10nm W

Loss of Control

- Turbulence and/or windshear likely on approach with strong E wind

Runway Excursion

- Tailwind approaches Rwy 17

ARRIVAL

- No instrument approaches available for Rwy 32. If tailwind out of limits for landing 17 it is possible to perform a circling approach but be aware of very high MDAs (2300 ft) and proximity of high terrain to the E
- DME arc procedures in use but radar vectoring to final is highly likely during WF
- Note max 220 kt speed restriction in go-around due to terrain

GROUND

- Very limited apron space
- Rwy 17 departures will require backtrack or Taxiway G

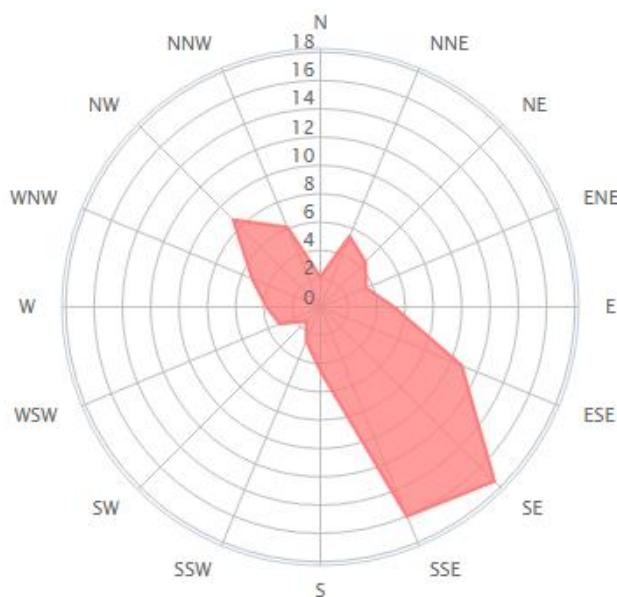
DEPARTURE

- Note departure speed and climb gradient requirements
- Emergency turn procedures rwy 17:

- All SIDs: engine failure below 1500ft QNH: turn RIGHT to BAC
- Above 1500ft QNH: no restrictions provided SID tracks and climb profile achieved

WEATHER

- Banda Aceh has a tropical rainforest climate, with the driest months being Jun-Aug but frequent heavy rainfall can be expected throughout the year
- Average temperatures consistent throughout the year at around 27°C
- Prevailing south-easterly wind in November
- Average wind distribution in November:



OPERATIONAL INFORMATION

Handling Agent	Simfest Ground Services
Handling Agent VHF	
Potable Water	Uplift permitted

IF ONLY Electrical Power is required	Jetway: Use GPU (remote: use APU)
If BOTH electrical power and air conditioning is required:	Use APU for air conditioning (Keep ground power connected if available to reduce APU fuel burn)

KEDAH (AOR/WMKA)

Elevation 14ft

CATEGORY B

No AV brief available.

GENERAL

- Sultan Abdul Halim airport is located 8 NM north of Alor Setar on Malaysia's north western coast.
- Terrain precludes approaches to Rwy 22 and departures from Rwy 04

Threats

CFIT

- Although the airfield is at sea level, terrain rises steeply to the north, east and south with a spot height of 1,414 ft asl at 7 NM on the Rwy 22 extended centreline
- The 2000 ft asl contour is within 15 NM and there are numerous peaks over 2,500 ft asl within 20 NM directly north-east.
- The SSA to the south east is 5,500 ft and there is a 2,836 ft peak 20 NM SE

Runway Incursion

- Opposite direction runway operations
- Departures from Rwy 04 will require backtrack, as would arrivals on Rwy 22

Mid Air Collision

- Due to the terrain, opposite direction arrivals and departures are normally used with departures from Rwy 22 and arrivals to Rwy 04

ARRIVAL

Diversion Airports

HAT YAI	HDY/VTSS	44 nm/360°T	CAT A
PENANG	PEN/WMKP	54 nm/188°T	CAT B
KUALA LUMPUR	KUL/WMKK	220 nm/160°T	CAT B

Approach

- The only instrument approaches available are to Rwy 04 due to terrain rising steeply on all other sides of the airfield
- Missed approach Rwy 04 requires an early left turn and accurate tracking due to terrain
- Normal operations use Rwy 04 for arrivals and Rwy 22 for departures (opposite direction); for World Flight it is likely that this will be suspended and arrivals and departures will operate in the same direction.

GROUND

- Departure Rwy 04 requires backtrack

- Note that Taxiways K and L are limited to small aircraft (<7,000kg MTOW) only
- Limited parking available

DEPARTURE

- Normally all departures are from Rwy 22. However during World Flight it is likely that this procedure will be suspended.
- Departure Rwy 04 will require visual conditions to MSA

WEATHER

- Temperatures are relatively consistent year round with average daily high/low 32°C/23°C.
- The wet season is lengthy and runs Mar-Nov with September and October the wettest months, though rain is often seen even during the 'dry' season. Thunderstorms are frequent during the afternoons.

OPERATIONAL INFORMATION

Handling Agent	Aerohandlers
Handling Agent VHF	
Potable Water	Not assessed

IF ONLY Electrical Power is required	Use APU (GPU equipment not available)
If BOTH electrical power and air conditioning is required:	Use APU (ACU equipment not available)

SINGAPORE (SIN/WSSS)

Elevation 22ft

CATEGORY A

AV brief not required.

GENERAL

- Runway 02R/20L military only

ARRIVAL

Diversion Airports

KUALA LUMPUR	KUL/WMKK	238 nm/301°T	CAT A
PENANG	PEN/WMKP	350 nm/317°T	CAT B
JAKARTA	CGK/WIII	550 nm/160°T	CAT A
BANGKOK	BKK/VTBD	842 nm/345°T	CAT A

- Paya Lebar (QPG/WSAP) is a military airbase and is not suitable for commercial operations. There is no ground handling and no customs & immigration facilities. Permission to land would only be granted if it is an absolute emergency.
- Ground handling equipment would have to be moved from SIN if an aircraft was to divert to Paya Lebar.

Approach

- Local VATSIM ATC generally of a good standard but lengthy vectors can be expected if arriving in the middle of the pack and air delays of up to 20 min can be expected (WF 2016: 20 min, WF 2017: 14 min)
- Review approach speed requirements in the Jepp Airport Briefing pages as early selection of flap and landing gear may be required
- ATC expect arriving aircraft to vacate at the first available taxiway so as to minimise runway occupancy times. Jepp 10-1P1 refers.
- Parking is normally along the C pier of T1 and may be any of the stands C1, C20, C22-25

Parking

- Rwy 02L exit W4 works well for parking on stand C23 but be mindful of engine cooldown requirements before shutdown

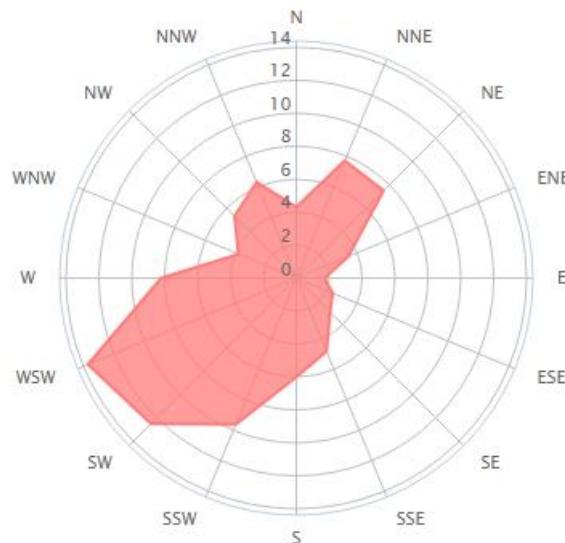
DEPARTURE

- Above average taxi-out times (WF 2016: 27 min, WF 2017: 24 min)

- Expect AROSO 2A SID off rwy 02C
- If the SID vertical profile cannot be achieved inform ATC prior to departure and expect radar vectoring if necessary

WEATHER

- Heavy rain during Cb activity rarely results in a cloudbase below 500ft or visibility less than 1000m
- WorldFlight takes place at the start of the NE monsoon season (Nov to Jan). During this period frequent heavy rainfall can be expected with Cb build-ups during the afternoon and evening.
- Average daily high/low in November 31°C/24°C
- Average wind distribution November:



OPERATIONAL INFORMATION

Handling Agent	Singapore Air Terminal Services (SATS)
Handling Agent VHF	Speedbird Singapore 131.225
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 APU for air conditioning (Keep ground power connected to reduce APU fuel burn)

BRISBANE (BNE/YBBN)

Elevation 13ft

CATEGORY A

AV Brief not required.

ARRIVAL

Approach

- Rwy 19 – most approaches to this runway are flown visually from a 90° intercept to a 5nm final
- Cutting the corner when visual with the runway and thus reducing the track miles to touchdown has resulted in some unstable approaches

WEATHER

- Dec to Apr – risk of tropical cyclones tracking S to SE, however the frequency is around 5 in 30 years
- Fog may occur in any month but the frequency is highest from May to Sep with July being the worst month
- Strong gusty W'ly winds can occur for periods lasting up to 48 hrs from Jun to Aug
- Surface winds are mainly:
 - SW'ly Mar to Sep
 - NE'ly Oct to Dec
 - E to SE'ly Jan to Feb

OPERATIONAL INFORMATION

Handling Agent	Menzies
Handling Agent VHF	131.9
Potable Water	Not assessed

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

GOLD COAST (OOL/YBCG)

Elevation 21ft

CATEGORY A

AV brief not available

GENERAL

- Formerly known as Coolangatta Airport, Gold Coast Airport is located at the southern end of the Gold Coast approximately 48 nm south of Brisbane
- It is the sixth-busiest airport in Australia and the busiest outside a state capital in terms of passengers

Threats

CFIT

- Terrain rises inland with spot heights of 2,132 ft asl 8 nm W and 3,337 ft asl 15 NM WSW
- Isolated spot heights of 803 ft asl within 3 nm SW and a 427 ft asl mast 1 NM W of the Rwy 14 final approach at 2 DME.

Runway Excursion

- Rwy 32 has a significantly inset threshold (LDA 2042m)

ARRIVAL

Diversion Airports

BRISBANE	BNE/YBBN	051 nm/336°T	CAT A
SYDNEY	SYD/YSSY	366 nm/199°T	CAT A

Approach

- Note 210 kt max speed after OOLSC/OOLA/FIKUL for RNAV 32

GROUND

- Twy G not suitable for large aircraft

WEATHER

- Summer (Nov-Mar) warm and wet whilst winters (Jun-Aug) generally cool and moist
- Average temperatures fairly stable across the years in the mid 20°C range

OPERATIONAL INFORMATION

Handling Agent	Menzies
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 APU (ACU equipment not available). Keep GPU connected to reduce APU fuel burn.

CAIRNS (CNS/YBCS)

Elevation 10ft

CATEGORY B

No AV brief required.

GENERAL

- Cairns is situated on the E coast of Queensland in latitude 17°S
- The city is immediately S of the airport and overlooks Cairns Harbour
- Preferred runways are 15 for landing and 33 for take-off.

Threat Based Briefing Topics

CFIT

- W of the airfield is Mt Whitefield, rising to 1,250ft asl within 1 nm of the runway.
- Further high ground from NW through S to E.
- Notable peaks/obstructions, are: 12 nm NW ~2,700ft asl, 7 nm NW ~2,250ft asl.
- 5 nm E ~2,200ft asl, 7 nm E ~2,750ft asl, 14 nm SE ~3,350ft asl, 23 nm SE ~5,400ft asl.
- 6 nm SW ~3,500ft asl, 10 nm SW ~4,350ft asl.
- There is a steep sided valley to the S of the city which narrows as it extends S.

Runway Incursion

- There is a short runway (925 m) orientated 12/30. Clearance is required to taxi across Rwy12 threshold.

Loss of Control

- Low level turbulence on final approach to both runways with SE to W winds; WINDSHEAR on short finals.
- If taking off with a tailwind on Rwy 33, expect an increasing tailwind component during early climb-out.
- Birds are a hazard, especially Pelicans.

ARRIVAL

- DME arc procedures are used but aircraft may be radar vectored to final approach.
- Maximum speeds are published for some procedures due terrain.
- Landings Rwy 33 rare, most likely during the afternoons July, August and September.
- The visual circling approach Rwy 33 is flown right hand and must not extend beyond 4.4 DME to the S. Consider accepting a tailwind landing on Rwy 15.

GROUND

- 4 engined aircraft are required to use low power on outboard engines whilst taxiing

- If the exit at B2/B5 are missed a backtrack may be required (though WF procedures may implement Taxiway G)
- Expect ATC and ramp congestion.

DEPARTURE

- High traffic levels can be expected with resulting ATC frequency congestion.
- Long taxi out times can be expected (2017: 34 mins and 21 mins). Plan taxi fuel and start-up time accordingly.
- Backtrack possible, but Taxiway G to runway end more likely

WEATHER

- Apr to Nov Cairns generally fine weather with prevailing SE wind
- High terrain surrounding Cairns has a significant orographic effect on the weather from Nov through to Mar. The onset of the wet season is signalled by a shift in the winds to the NE in Nov.
- Poor conditions can be expected to persist for lengthy periods throughout the wet season
- Cyclones can be expected to affect the area during the wet season
- Mean max/min temperatures: 32°/24°C in summer; 26°/17°C in winter.

OPERATIONAL INFORMATION

Handling Agent	Simfest Ground Services
Potable Water	Not Assessed

IF ONLY Electrical Power is required	Use APU (GPU/FEGP not available)
If BOTH electrical power and air conditioning is required:	Use APU (ACU not available)

BROOME (BME/YBRM)

Elevation 57ft

CATEGORY B

No AV brief required.

GENERAL

- Located on the NW coast of Australia, Broome is a class D airfield
- There is no radar.
- Cable Beach on the western side of the town is the site where an undersea telegraph cable to Java and on thence to the UK makes landfall in Australia, as well as being one of Australia's most famous nudist beaches
- A colony of over 50,000 megabats lives in the mangroves nearby
- Broome is also a site of palaeontological significance with what are thought to be the world's largest fossilised dinosaur tracks a short distance out to sea at Gantheaume Point

ARRIVAL

- RNAV and NDB approaches only
- Expect RNAV (GNSS) approach runway 28
- Note PAPIs set for 54ft MEHT – B744 aircraft consider flying 3w/1r

GROUND

- B777-200ER and B747-400 aircraft not authorised to use taxiways north of Rwy 10/28
- Simfest aim to park on the RPT apron south of the runway

DEPARTURE

- The published SIDs are for helicopters, so expect radar vectors
- No backtrack required for departures from 28 but the apron and taxiway areas are very tight

WEATHER

- Generally settled in November but thunderstorms and torrential rain build up during the rainy season (Dec-Mar)
- Average high/low temperatures in November 33°/22°C respectively

- Prevailing wind in November almost exclusively westerly

OPERATIONAL INFORMATION

Handling Agent	Simfest Ground Services
Potable Water	Not Assessed

IF ONLY Electrical Power is required	Use APU (GPU/FEGP not available)
If BOTH electrical power and air conditioning is required:	Use APU (ACU not available)

MELBOURNE (MEL/YMML)

Elevation 434ft

CATEGORY A

AV brief not required

GENERAL

- Melbourne Airport is located approximately 12 NM NW of downtown Melbourne
- The second busiest airport in Australia behind Sydney
- CAT III available to Rwy 16

Threats

CFIT

- Terrain rises to the north with spot heights of ~3,500ft amsl within 25 NM NW
- To the E terrain reaches 2,000ft amsl within 15 NM and to over 4,000ft amsl within 35 NM
- Spot height of 4,961ft at 55 NM WNW
- There is a history of aircraft descending below the Rwy 34 charted approach path and minimum altitudes during both RNAV and visual approaches
- On approach to Rwy 34 do not confuse MEL with Essendon, 4 NM SE oriented 17/35 and 08/26

Runway Incursion

- Both Rwy 27/09 and 16/34 may be in use simultaneously
- LAHSO may be used – Simfest aircraft are not permitted to take part, either actively or passively
- Reduced runway separation may be in use – see APPROACH section for more details

Runway Excursion

- Stable approaches Rwy 16 – arrivals via ARBEY are effectively straight-in and may require proactive energy management
- Rwy 09/27 is short (LDA 2286m)
- Rushed approaches Rwy 34 due to potential track shortening

Mid Air Collision

- Go arounds from Rwy 27/09 conflict with Rwy 34 departures
- Busy air traffic environment with Melbourne Essendon and Avalon airports in close proximity

ARRIVAL

Diversion Airports

AVALON	AVV/YMAV	028 nm/219°T	CAT A
HOBART	HBA/YMHB	332 nm/159°T	CAT B
ADELAIDE	ADL/YPAD	347 nm/296°T	CAT A
SYDNEY	SYD/YSSY	381 nm/056°T	CAT A

Approach

- Both runways may be used for arrivals and departures. Widebody traffic is routinely offered Rwy 09/27.
- Rwy 16/34 is significantly better suited to widebody operations due to increased length and width, but note that ILS is only available to Rwy 16. Rwy 34 has a straight-in RNAV or offset VOR approach.
- There have been several incidents in recent years involving aircraft descending below terrain safe levels on approaches to Rwy 34:
 - An Emirates A380 descended below the charted minimum altitude and out of controlled airspace in July 2016 after the crew selected the platform altitude following a rushed approach after a runway change, resulting in busting the restriction at the IAF
 - A Virgin Australia B777 descended below MSA in August 2013 during a visual approach to Rwy 34 as a result of an FMS programming error following a runway change
- LAHSO may be in operation. Simfest crews must make clear to ATC that they are unable to participate, either actively or passively.
- Reduced runway separation procedures are used for departures/arrivals on Rwy 16/34. This allows two aircraft to be on the runway at the same time provided at least 2,400m separation can be achieved, in good visibility and with good braking characteristics. See Lido AOI for more information.

GROUND

- Parking at Pier D
- Apron areas can be heavily congested.

WEATHER

- The weather in Melbourne can be very changeable owing to its location on the boundary of the hot continental interior and cool Southern Ocean. It is often said that Melbourne experiences four seasons in one day.
- “Southerly Busters” bring squally, gale-force winds with a rapid change of wind direction and form when a cold front lies between two high-pressure systems in the Tasman Sea and Great Australian Bight. This phenomenon can happen in the space of minutes and may be repeated multiple times in a day.
- Strong cold fronts can form particularly in spring and summer months (Sep-Feb) bringing gales, thunderstorms, hail and heavy rain.
- Winter (Jun-Aug) brings damp and cloudy but otherwise generally stable conditions
- Melbourne is the cloudiest capital city in Australia with 180 annual overcast days. May-Aug are the cloudiest months.
- Bay effect rain can result in particularly heavy rain showers to the leeward side of the bay. Heavy showers can affect very localised areas with other parts of the city remaining dry.

OPERATIONAL INFORMATION

Handling Agent	Qantas
Handling Agent VHF	131.9
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

DARWIN (DRW/YPDN)

Elevation 103ft

CATEGORY A

No AV brief required.

GENERAL

Threat Based Briefing Topics

Loss of Control

- Arrester cables are located at the Rwy 11 and Rwy 29 TDZ.

Runway Incursion

- It is not permitted to vacate directly on to or cross Rwy 18/36 without explicit ATC approval

ARRIVAL

- Rwy 11 preferred for arrivals from sector SW clockwise to NE
- Rwy 29 preferred for arrivals from sector NE clockwise to SE

GROUND

- Consider parking at S apron during WorldFlight to avoid backtrack
- Note that ATC approval is required to cross or vacate on to Rwy 18/36

OPERATIONAL INFORMATION

Handling Agent	Simfest Ground Services
Handling Agent VHF	
Potable Water	Not assessed

IF ONLY Electrical Power is required	Use at all times
If BOTH electrical power and air conditioning is required:	Use APU (ACU equipment not available). Keep ground power connected to reduce APU fuel burn.

SYDNEY (SYD/YSSY)

Elevation 21ft

CATEGORY A

No AV brief required.

GENERAL

- Sydney Airport is very noise sensitive. Extensive noise abatement notes in the charts.
- High traffic levels can be expected with accompanying ramp and ATC congestion. Previous years have seen in excess of 200 aircraft taking part in the first and final legs.
- Official sims can generally expect some measure of priority handling but be prepared for long delays outbound and load taxi fuel accordingly.

ARRIVAL

Diversion Airports

MELBOURNE	MEL/YMML	381 nm/234°T	CAT A
BRISBANE	BNE/YBBN	407 nm/014°T	CAT A
ADELAIDE	ADL/YPAD	629 nm/264°T	CAT A

- Official sims will be issued with special arrival procedures prior to the final leg
- Simultaneous close parallel ILS approaches and independent visual approaches to parallel runways may be in use. In the latter case, remember it is the pilot's responsibility to maintain the necessary separation from adjacent aircraft and that traffic information WILL NOT be given about aircraft on adjacent approaches.

GROUND

- Only taxiway T6 is wide enough for exit from 16L.
- Exercise caution with regard to jet blast when taxiing within the vicinity of the international ramp/terminal area.
- If aircraft, ground equipment or personnel are present on stands 11 and 12, crews should anticipate the potential for jet blast when parking on opposing stands (8, 9, 10, 24, 25)

DEPARTURE

- Be prepared for ground and ATC congestion and long taxi delays. Simfest taxi out time at SYD in 2017 was 27 minutes.
- ATC may elect to issue pre-departure clearance instead of a normal airways clearance. When pre-departure clearances are in use, pilots will be notified by ATIS, for example:

"PDC AVBL. ACFT IN RECEIPT OF PDC TO MNTN 5000FT"

- In order to reduce radio congestion, pilots of eligible aircraft shall contact Clearance Delivery by text only on frequency chat and request "PDC REQ" with the ATIS identifier. For Example: "PDC REQ with INFO A".
- ATC will require readback of the SID (Including runway and/or transition if issued) and transponder code as received from your PDC message. Your clearance read back should also include any other requirements and must state your current parking position/bay. You should read back on the Clearance Delivery Frequency prior to pushback.
- Once you have completed this process, you can contact the appropriate ground frequency for further requests.

WEATHER

- In moist SE winds behind a cold front and within 3 hours of its passage, broken scud with base 400-800ft drifts in from the sea. It is followed later by showers and further scud of up to 8/8 cover. The "black north-easter" which develops ahead of a trough also brings low cloud, but conditions are less severe than those with SE winds.
- Most thunderstorms occur at cold fronts, which if active are of the line squall type (southerly buster) and may persist for periods of up to 3 hours. Dust with NW winds may reduce visibility.
- Prevailing wind Oct to Apr is easterly

OPERATIONAL INFORMATION

Handling Agent	QANTAS (Pax), MENZIES (Ramp)
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

BEIJING/Daxing Intl (PKX/ZBAD)

Elevation 98ft

CATEGORY A

No AV brief available.

GENERAL

- Beijing Daxing International Airport is Beijing's second international airport, located 25 nm south of Tiananmen Square, 13 nm west of downtown Langfang and 35 nm south of Beijing Capital International Airport
- Hub for Skyteam and Oneworld alliance airlines
- It has been nicknamed 'starfish'.
- The terminal building is the largest single-structure airport terminal in the world and has an area of more than 700,000 m².

Threats**CFIT**

- Terrain in the immediate vicinity is flat
- Mountains extend from W to NW to NE
- Terrain 30 nm W reaching over 4,300 ft asl
- Terrain 60 nm N reaching over 3,000 ft asl
- Terrain further north rises over 8,000 ft asl

Mid Air Collision

- As applicable

Special Considerations

- Single engine taxi prohibited with wind speeds in excess of 21 kt (10.8 m/s)
- Below transition altitude all clearances are given in metres QNH
- China uses metric RVSM at cruising levels. Check correct feet setting in MCP versus cleared metric flight level (see conversion charts)
- Refer to MID/FAR EAST Area Brief for further information regarding China operations

ARRIVAL**Diversion Airports**

BEIJING, Capital	PEK/ZBAA	036 nm/022°T	CAT A
TIANJIN	TSN/ZBTJ	050 nm/124°T	CAT A
SHANGHAI, Pudong	PVG/ZSPD	566 nm/158°T	CAT A
SHANGHAI, Hongqiao	SHA/ZSSS	553 nm/160°T	CAT A
HONG KONG	HKG/VHHH	1037 nm/195°T	CAT B

Other airfields that may be used are Dalian and Shenyang

Approach

- Preferred arrival runways 01L/19R and 17R/35L
- RNAV required for missed approach procedures
- Check in advance which STAR is to be flown. Late changes of STAR vs OFP can happen at short notice, especially to avoid routing near prohibited areas
- Overflying central Beijing and the Forbidden City is totally prohibited

GROUND

- If multiple ground frequencies are in use, pilots are expected to request frequency change approaching the boundary. Boundaries are shown clearly on ground charts and the split is east/west – 122.15 east of approximately Twy Z1 and 122.7 west of Z1. Contact must be made with the next controller before proceeding across the boundary. Request the frequency change in good time to avoid having to stop.
- Rwy 17L/35R crossing procedures are detailed in AOI/Jeppesen 20-1P2. ‘Runway Vacated’ call is required for all crossings once the aircraft is clear of the runway.
- B747: use inner engines for taxi if snow is on the ground

DEPARTURE

- Preferred departure runways 11L and 17L/35R
- Strictly adhere to departure routes including altitude crossing restrictions during the climb
- Consider use of alternative SIDs if direct SIDs require a greater climb gradient than is achievable on the day. Consider climbing at VREF + 100 until all restrictions have been met to maximise climb gradient if required.

WEATHER

- Winter: NW Monsoon. Cold, dry and mainly cloudless. Breaks in the monsoon lead to disturbed weather with sleet or snow and the possibility of fog at night. The monsoon re-establishes with strong Northerly winds.
- Visibility may be poor in smoke haze below the monsoon inversion.
- Summer: SW Monsoon. Heavy rain and thunder in shallow depressions. Diurnal Cu and Cb during monsoon conditions. TYPHOONS may be experienced on rare occasions.
- Spring/Autumn: Depressions move from Siberia in to the Pacific. Marked cold fronts move SE with rain or dust storms.
- Upper winds are given in kilometres per hour. Surface winds are in metres per second.
- Approximate conversions: Kph / 2 = kts
m per sec x 2 = kts

OPERATIONAL INFORMATION

Handling Agent	Beijing Aviation Ground Services Co Ltd
Handling Agent VHF	Simfest Beijing 131.25
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

XIAMEN/Gaoqi Intl (XMN/ZSAM)

Elevation 59ft

CATEGORY B

AV brief not available

GENERAL

- The airport is located on the northern side of Xiamen Island in the Taiwan Strait
- Gaoqi Intl is due to be replaced by a new airport at Xiang'an

Threats**CFIT**

- High ground rises sharply inland with peaks over 4,000 ft within 25 nm north and in excess of 5,000 ft within 45 nm
- The approach to Rwy 23 takes the aircraft over a ridge of high ground of approximately 1,650 ft asl at 10 nm.
- The aircraft will pass within 0.5 nm of a hill 780 ft asl at 4 nm final Rwy 05
- A spot height of 1,253 ft asl 7 nm SW is just inside the 23 missed approach track. Close adherence to tracks and published minimum altitudes is essential.

Runway Incursion

- As applicable

Runway Excursion

- During runway changeover periods ATC may allocate landing/takeoff runways with up to 10 kt tailwind. Pilots are required to advise ATC if the tailwind is not acceptable.

Special Considerations

- Metric RVSM and metric altimetry in use. Clearances below TA given in metres QNH. Refer to charts for conversion tables and to MID/FAR EAST Area Brief for further details.
- Note that the FIR border with Taipei is relatively close (approx 45 nm) to the south east which may result in limited options for manoeuvring to the south east of the airfield (e.g. for weather avoidance etc).

ARRIVAL**Diversion Airports**

HONG KONG	HKG/VHHH	268 nm/245°T	CAT B
TAIPEI	TPE/RCTP	173 nm/083°T	CAT A
FUZHOU	FOC/ZSFZ	118 nm/049°T	CAT B

Approach

- Missed approaches to both runways require early turns due to terrain
- Note standard altitudes for missed approaches are significantly below MSA and in the XLN hold at the standard altitude the aircraft will be approximately level with terrain less than 5 NM NW

- Outbound from XLN on the VOR Rwy 05 approach the aircraft will pass 900 ft above a hill at approx D6 XLN, leading to a likely early 1000R call. The aircraft is not required to be fully configured at this point.

DEPARTURE

- Multiple intersections available for departure. Take care to ensure correct performance figures inserted and that the aircraft is lined up from the planned intersection.
- SIDs tracking south of the airfield – no deviation east of the published route will be authorised due to the proximity of Taiwanese airspace

WEATHER

- Summers are hot and humid whilst winters are short, mild and dry
- March to June are the wettest months
- Typhoons common Aug-Sep
- Autumn generally dry and sunny

OPERATIONAL INFORMATION

Handling Agent	Transasia Handling
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

SHANGHAI/HONGQIAO (SHA/ZSSS)

Elevation 10ft

CATEGORY A

No AV brief required.

GENERAL

- Airfield is located on the westernmost edge of the city, 7nm from its centre
- No significant terrain within the vicinity

Threat Based Briefing Topics

Special Considerations

- Aircraft are prohibited from flying in to area R559 E of airfield
- All altimeter clearances are given in metres QNH. China uses RVSM at cruising altitudes. Check correct feet setting in MCP versus cleared metric flight levels (see Lido conversion charts). See Lido>RSI>Middle East/Asia>RAR>2.11 Altitude Regulations for RVSM flight level information and transitions to other FIRs
- Lido CRAR contains details of border crossing and turn back together with flight rules and special procedures peculiar to China.

ARRIVAL

Diversion Airports

SHANGHAI, Pudong

PVG/ZSPD

024 nm/098°T

CAT A

Initial Approach

- Aircraft will normally be radar vectored and sequenced from Andong, Wuxi and Hegsha VOR to appropriate final approach track
- Circling W of airfield only

WEATHER

- Due to their proximity, Hongqiao's weather is very similar to Shanghai Pudong's
- Winter Oct-Mar temps can drop below freezing with frequent fog periods generally clearing by mid-morning
- Spring, Apr-Jun is characterised by low cloud and rain with occasional sea fog
- Summer, Jun-Aug is monsoon season with the highest period of rainfall
- Typhoons can occur at any time from May-Nov

OPERATIONAL INFORMATION

Handling Agent	China Eastern
Handling Agent VHF	131.5
Potable Water	Not assessed.

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

URUMQI (URC/ZWWW)

Elevation 2,126ft

CATEGORY B

AV brief not available.

GENERAL

- The airfield lies at the NW end of a NW/SE valley running between two mountain ranges.
- Use standard R/T to reduce potential language difficulties

Threats

CFIT

- N in the sector from 275°M to 075°M the ground is fairly flat and open.
- E mountains rise to ~8,000 ft asl at 23 nm and peak ~18,300 ft asl at 35 nm
- S the ground rises gently for 26 nm before reaching ~12,000 ft asl at 33 nm SSW; this high terrain extends W to ~17,500 ft asl at 65 nm SW of the aerodrome.
- Mast 3,277 ft asl (1,151 ft aal) 800 m to the S of the runway and another 2,257 ft asl (131 ft aal) 200m S of Rwy 25 touchdown zone

Special Considerations

- Metric altimetry and RVSM in use. Clearances below transition will be given in metres QNH (compare to Russia/CIS where clearances are metres QFE). Above transition metric RVSM is used; this will be indicated by the phrase "ON STANDARD", e.g. "BAW47C, climb 10,100 metres on standard."
- It is important to use the conversion tables and not the 'metres' button to convert as the some levels are rounded to ensure 1,000 ft vertical separation. Simfest crew see MID/FAR EAST Area Brief for further information
- Urumqi is 'hot and high'. Simfest crew see 'HOT AND HIGH' brief for more information relating to High Density Altitude airport operations.

ARRIVAL

Diversion Airports

ALMATY	ALA/UAAA	455 nm/269°T	CAT B
LANZHOU	LHW/ZLLL	862 nm/115°T	CAT B
ULAANBATAAR	ULN/ZMUB	840 nm/067°T	CAT B

Approach

- Circling and all missed approaches are to the north away from the high ground
- Sequenced flashing lights to Rwy 25
- Restricted airspace to the north of the Rwy 07 final approach track. If active all approaches to Rwy 07 will be from the south.

GROUND

- Handling facilities are limited

DEPARTURE

- Taxi routes are published in Jeppesen charts; ATC may instruct pilots to follow a particular route as published.
- Note speed restrictions on Rwy 07 departures. Ensure these are correctly coded and/or inserted in to the VNAV CLB page to ensure that the LNAV track draws and is flown correctly.

WEATHER

- Climactic conditions generally stable throughout the year.
- Surface winds light and from SE by night and from the NW during the day. The two mountain ranges can occasionally give rise to a funnelling effect giving high winds speeds along the valley from 150°
- Early morning radiation fog common in winter
- Snow Nov-Feb
- Summer generally fine weather but thunderstorms are possible in late afternoon
- With strong jetstreams expect severe turbulence and mountain waves.

OPERATIONAL INFORMATION

Handling Agent	Fastransit Aviation Services
Handling Agent VHF	
Potable Water	Uplift permitted

IF ONLY Electrical Power is required	Use APU
If BOTH electrical power and air conditioning is required:	Use APU

AFRICA AREA

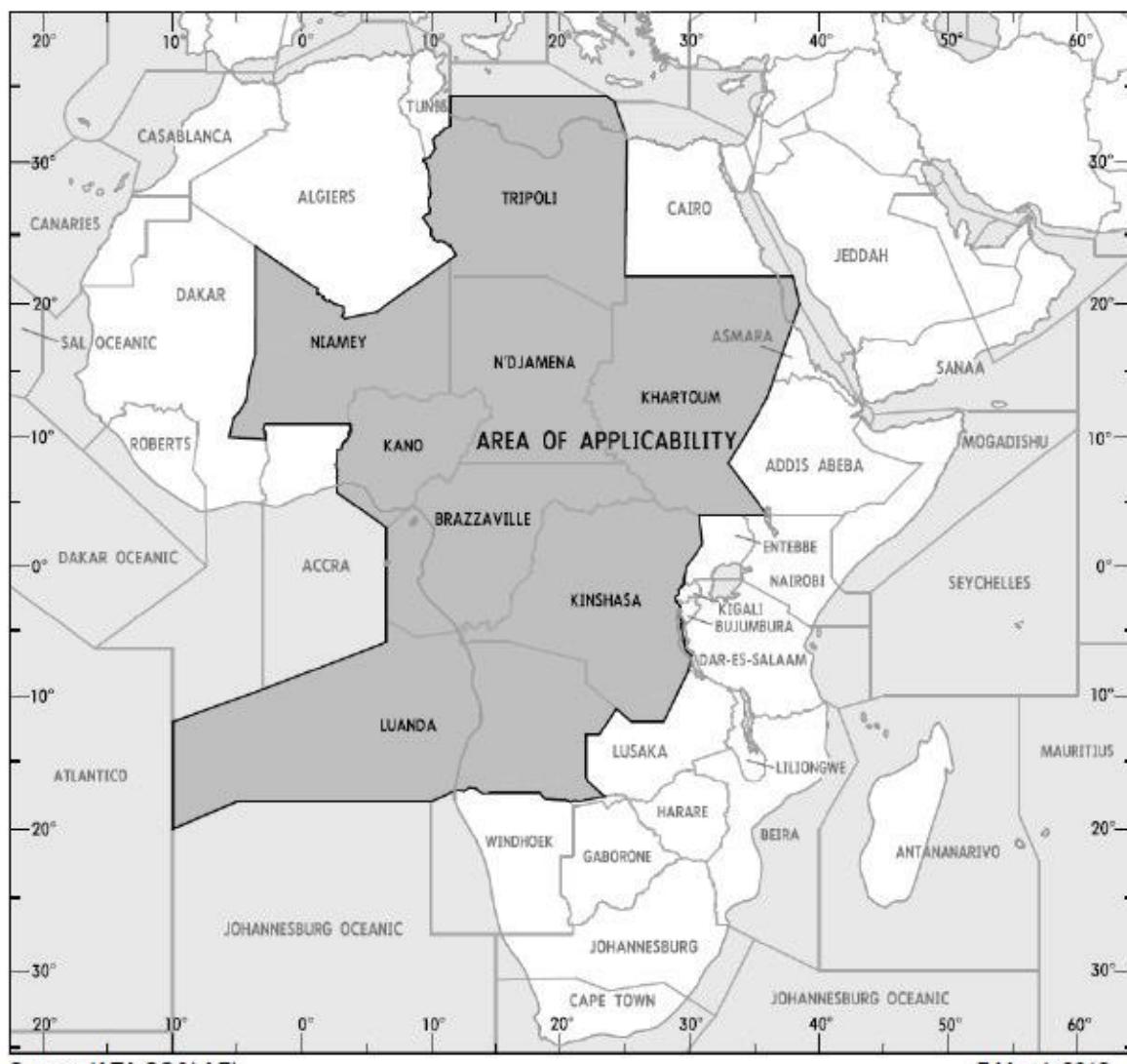
This briefing sheet is not intended to supersede information provided in the relevant Operations Manuals and NOTAMS.

For Hot and High Operations see ['Hot and High' Operations briefing](#).

For weather information see separate "Weather Notes" briefing.

IATA IN-FLIGHT BROADCAST PROCEDURE

This procedure is mandatory and applies to the following FIRs within the AFI region: Tripoli, Niamey, N'Djamena, Khartoum, Asmara, Kano, Brazzaville, Kinshasa, Luanda and Mogadishu.



Source: IATA SO&I AFI

7 March 2013

The standard IATA procedure is as follows:

1. Crews will maintain a listening watch on 126.9 MHz from 10 mins before entering the defined area until leaving the area.
2. Ensure transponder is operating for TCAS purposes; squawk A2000 if no specific code is assigned.
3. When using accurate navigation systems aircraft should fly 1 nm right of track.

Note: This is an IATA recommendation only and one that SIMFEST has decided to adopt. Many other operators in the region do not follow this policy.

4. In addition to normal ATS reporting procedures for the route being flown, flight crews will broadcast position data as follows:
 - a. 10 mins before entering or crossing an FIR within the IFBP region or as soon as appropriate after taking-off from an airfield within the IFBP region.
 - b. 10 mins prior to reporting points.
 - c. 10 mins prior to crossing or joining an ATS route.
 - d. At 20 min intervals between distant reporting points.
 - e. 2-5 mins where possible, before a change in flight level.
 - f. At the time of a change in flight level.
 - g. At any other time considered necessary by the crew.
 - h. In the interests of reducing congestion on the IFBP frequency, pilot may exercise discretion to omit closely spaced repetitive IFBP reports.

Example: "All stations, this is Speedbird 054, in the Khartoum FIR, Flight Level 310, Northbound on UB612, estimate SOGIN at 0523 UTC, Speedbird 054, Flight Level 310, in the Khartoum FIR".

It is a very good idea, particularly in W Africa, to plot the blind position reports of other aircraft. Any conflicts that cannot be resolved through ATC, perhaps because of communication difficulties, must be resolved between the individual aircraft.

GENERAL ADVICE

Note that many routes are in Advisory Airspace, and hence only an advisory service and not a control service will be offered. This means that separation will only be provided from known traffic; 10 min longitudinal separation is not unusual. As communications are notoriously bad throughout Africa (with the exception of South Africa), both between ATC Units and R/T between ATC and aircraft, flight plans may not have been received and aircraft may not have been able to contact ATC. This also applies to a lesser extent in controlled airspace. The use of SATCOM may be a possible solution to comms problems. As Radar coverage is negligible except in South Africa, there is likely to be unknown traffic. Hence:

1. Keep a good look-out and listening watch. Even with aircraft operating at the correct cruising levels conflicts have occurred between traffic converging almost head on, as semi-circular rules are generally used and traffic is mainly N-S.
2. Do not accept non-standard clearances (e.g. levels). As most of the routes are N-S and semi-circular rules are used, a small change of track may necessitate a level change. However, note that some N-S airways/advisory routes use the mean direction to determine the appropriate FL – see charts.

3. Direct routings may be offered, however, some countries prohibit foreign registered aircraft from operating outside controlled or advisory airspace. See AIS Briefing for current information.
4. Use the IATA In-Flight Broadcast Procedure (see IATA In-Flight Broadcast Procedure) when appropriate. But do not assume that all aircraft will use the facility. If it is apparent that there is a conflict with another aircraft, inform ATC as soon as possible and insist that they resolve the situation. Apparent conflict situations should be voyage reported.
5. When approaching an FIR boundary attempt to contact the onward ATC Unit well in advance, as co-ordination will probably not have been carried out, remembering, after this ctc has been established, to pass on any changes (e.g. FL) to the next unit.

RVSM

RVSM applies to all of Africa between FL290-410 and follows standard RVSM procedures.

WEST AFRICA

Radio aids, airfield lighting, VASIs/PAPIs etc are frequently unreliable or unserviceable at W African terminals. HF communications are often difficult, particularly with Lagos, Kano and Accra. Maximum use should be made of VHF relays. Maintain a SELCAL watch with Stockholm Radio passing operational details as appropriate.

All W African stations require total persons on board and endurance on arrival and departure.

Many MSAs on charts are unreliable due to incomplete surveying.

Aircraft water tanks should be full ex UK as drinking water uplift is often not available.

Aircraft APU should be serviceable ex UK as air starts are often unavailable.

Accurate weather information may not be available at London before departure. Obtaining Wx information en-route is extremely difficult due to poor communications.

IT IS IMPORTANT TO TAKE ANTI MALARIAL PRECAUTIONS.

DRINKING WATER is suspect at all W African destinations.

EN ROUTE AIRFIELDS

UK	- NIGERIA - GHANA - IVORY COAST	GHARDAIA (Algeria) TAMANRASSET (Algeria) – OUAGADOUGOU (Burkina Faso) NIAMEY (Niger)	although promulgated as H24 it has been reported impossible to make radio contact while overflying nearby at night
LAGOS	- ACCRA	COTOUNOU (Benin) LOME (Togo)	
UK	- GAMBIA	LAS PALMAS (Canarias) NOUADHIBOU (Mauritania) NOUAKCHOTT (Mauritania)	

ALGERIA

Difficulty contacting Algiers on HF occurs. Aircraft unable to maintain direct contact with Algiers ACC may be able to pass messages via Tamanrasset.

GHANA/IVORY COAST

See under Nigeria for operations between Accra and Lagos.

NIAMEY

There have been reports of flight level conflicts, some serious, with other aircraft while in Niamey FIR.

NIGERIA

For aircraft routing between Lagos and Accra it is usual to establish radio contact with Accra before being released by Lagos and vice versa.

There have been a number of airprox incidents involving Lagos and Accra due comms problems and lack of co-ordination.

TCHAD

Difficulty has been experienced contacting N'Djamena before their FIR Boundary for onward clearance.

N'Djamena shares some AFI 2 HF frequencies with Algiers.

There have been a number of reports of flight level conflicts, some serious, with other aircraft while in the N'Djamena FIR. Once again IFBP has been instrumental in resolving these conflicts.

A North/South route just to the West of N'Djamena takes the aircraft into the Kano FIR; contact Maiduguri Twr on VHF before the Kano FIR Boundary.

EAST AFRICA

Terrain information is incomplete over some of the area.

ETHIOPIA (ADDIS ABABA FIR)

MSAs in the Addis Abeba FIR are high, the highest being over 17,000 feet.

LIBYA (TRIPOLI FIR)

Difficulty contacting Tripoli on HF occurs.

Foreign registered aircraft must not fly outside ATS routes and controlled airspace. Overflight of oil installations is prohibited.

SUDAN (KHARTOUM FIR)

A SIMFEST crew report conflicting opposite direction traffic of which Khartoum ATC were totally unaware. The situation was resolved with the aid of TCAS although the conflicting traffic was not TCAS equipped.

Poor comms reported along UB612F between ORNAT and ALVOR.

Caution during Haj season due to high East – West traffic density. Haj traffic from Khartoum FIR to Jeddah routes Port Sudan – BOGUM – Jeddah and traffic from Jeddah to Khartoum FIR routes Jeddah – DUNGU – Port Sudan. Traffic departing Jeddah should attempt to contact Khartoum on HF immediately after departure, but remain in contact with Jeddah until released.

Prohibited Area P10A (to the NW of VOR KTM) – Any aircraft infringing this airspace may be subject to interception by the Sudan Air Force and indefinitely detained. Flights cleared along UA727/UR611D must be at FL280 or above. Do not deviate from the airway centre line.

SOUTHERN AFRICA

Mt Kenya 17,058ft is 50 nm E of Lodwar – Nakuru – Nairobi track.

Mt Meru 14,978ft is 38 nm E of LOSIN (121 nm SW of Nairobi along A405).

Mt Kilimanjaro 19,340ft is 20 nm SW of GABSO (100 nm SE of Nairobi along UB533).

Many Safety Altitudes on Charts are unreliable due to incomplete surveying.

ANGOLA

There have been reports of flight level conflicts with other aircraft while under Luanda Control, but few in recent years. HF Comms problems between TERBA and ILDIR have been reported with a SIMFEST crew (2004) passing through the sector without any direct contact with Luanda.

DEMOCRATIC REPUBLIC OF THE CONGO (DRC)

Conflicting crossing traffic, not advised by ATC between Bangui and Lubumbashi; the situation was resolved each time by the two aircraft crews using the In-flight Broadcast frequency 126.9. Major re-development project is ongoing within DRC to re-build ATC infrastructure.

MADAGASCAR (ANTANANARIVO FIR)

The following IFR levels are available in Antananarivo FIR/UIR.

Mogadishu – Mahajanga Odds to 290,330,370 etc.

Mahajanqa – Mogadishu Evens to 280,310,350,390 etc.

Seychelles – St Denis Evens to 280,310,350,390 etc.

St Denis – Seychelles Odds to 290,330,370 etc.

MAURITIUS

In order to facilitate the issue of descent clearances to aircraft approaching Mauritius from Antananarivo FIR above FL250 the following procedures are used:

1. Aircraft approaching from the SW shall call Mauritius over St Denis VOR.
2. Aircraft approaching from the W shall call Mauritius when abeam St Denis VOR.
3. Aircraft approaching from the NW shall call Mauritius at the FIR boundary.

Aircraft proceeding to Antananarivo FIR from Mauritius are requested to contact Antananarivo FIC as soon as convenient after take-off, but shall remain in contact with Mauritius until the FIR boundary or until released by Mauritius, whichever is later.

NAMIBIA

Strategic Lateral Offset Procedure (SLOP) is not authorised in FYWH due to adequate ATS surveillance coverage between FL290 and FL410.

REPUBLIC OF SOUTH AFRICA

Speed Control – Within a CTR, ATZ or aerodrome traffic area, 200 kt maximum unless authorised by ATC. If unable to comply advise ATC.

Aircraft operating off the West coast of South Africa, outside controlled airspace, are to broadcast position reports blind on the FIC frequency if two way contact cannot be established. Good communications reported with Johannesburg Oceanic on HF.

South Africa uses 124.8 as the Unicom frequency as 122.8 clashes with a number of ATC facilities. It is recommended to monitor 122.8 on box 2 as non-local pilots may not be aware.

ZAMBIA/MOZAMBIQUE

Aircraft using A405 between Harare and Mbeya need to monitor for conflicting traffic on A400 between Chileka and Lusaka. This traffic should be at FL320 or below.

There may be restrictions on entry/exit points to the South – see AIS Briefing for latest.

AUSTRALASIA INCLUDING NEW ZEALAND AND PACIFIC

AUSTRALIA

Australian ATC is empowered to prohibit an approach to land (except in an emergency) or a take-off when the weather conditions are worse than the published State minima. ATC may use the term "THE AERODROME IS CLOSED TO TAKE-OFF (OR LANDING)." The use of the terms relates solely to prohibition of the aircraft to carry out its desired manoeuvre; all services and facilities at the airport continue in full operation. BA minima are the more restrictive of State minima and minima calculated according to BA criteria.

There are specific Australian regulations with regard to alternates and fuel requirements which, for instance, allow a flight to proceed without a nominated alternate in good weather conditions. However BA fuel policy, which meets the requirements of EASA OPS and is approved by the UK CAA, is more restrictive than that required by the Australian AIP, therefore detailed knowledge of the Australian requirements is not necessary.

ROUTINGS AND POSITION REPORTS

Radar coverage is good, within Brisbane, Melbourne and Sydney CTA's. Therefore, unless otherwise instructed position reports are not required, but it is required to transmit level information at frequency change points.

RNAV routes are widely used.

Direct routings are now commonplace and INS separation as low as 30 nm may be given.

Heavy Aircraft – Pilots of heavy aircraft should always suffix their callsign with the word "HEAVY" in the initial radiotelephony contact with aerodrome control tower or approach unit.

REDUCED VERTICAL SEPARATION MINIMUM (RVSM)

RVSM is used throughout all Australian FIRs, vertical separation may be reduced from 2,000ft to 1,000ft. There is a minimum equipment requirement and an associated altimeter check before flight into RVSM airspace – see relevant manual for aircraft type.

If failure results in the aircraft having less than the minimum equipment required to enter RVSM airspace, ATC must be informed immediately.

RVSM CONTINGENCY PROCEDURES

Crew procedures are generally in accordance with global RVSM procedures, however crews should be aware that in the event of being unable to maintain assigned altitude and in the absence of a revised ATC clearance, then an aircraft should leave its assigned track by turning 90° right or left whenever this is possible. Additionally when flying in Australian Oceanic Airspace and unable to maintain RVSM compliance and/or unable to maintain assigned altitude, then crews should adopt an off-set of 25.0 nm from assigned track until a revised ATC clearance is obtained. (See In Flight Contingencies).

If WAKE VORTEX problems are encountered with adjacent RVSM aircraft (Oceanic Airspace), consider obtaining a revised ATC clearance. If not possible or practicable, establish contact (if possible) with the other aircraft on 123.45; one or both aircraft should initiate a lateral offset of up to 2 nm. Advise ATC and return to track as soon as the offset is no longer required.

There are Designated Routes in the Oceanic Control Areas with named reporting points.

Position Reporting on Designated Routes:

- a. Over Nav Aid or over water) Report if overhead; or
within 150nm of Terminal) True Bearing/Dist when abeam, or if
) a Terminal VOR DME can be used,
) the DME distance and radial flown
- b. More than 150nm from) Report as "at" the R/Pt if within 20nm
Terminal and over water) of it. If more than 20nm give True
) Bearing/Dist when abeam

AUSTRALIAN ORGANISED TRACK STRUCTURE (AUSOTS)

AUSOTS tracks may be established within the Melbourne and Brisbane FIRs for traffic operating between Singapore and Australian Intl airports Brisbane, Sydney and Melbourne.

LATERAL OFFSETS IN OCEANIC AIRSPACE

Aircraft operating in oceanic airspace in the Brisbane and Melbourne FIRs are authorised to use lateral offsets in accordance with the requirements detailed below:

- a. The offset shall only be applied by aircraft with automatic offset tracking capability.
- b. When an offset is applied, the offset must be established at a distance of 1 nm or 2 nm to the RIGHT of track relative to the direction of flight.
- c. The offset must only be applied during the en route phase of flight.
- d. The offset must not be used in addition to diversions or other offsets; e.g. weather or wake turbulence.
- e. The offset must not be applied at levels where obstacle clearance would be affected.
- f. Identified aircraft:
 - i. May continue an offset; and
 - ii. Must advise ATC prior to initiating or changing an offset.

The decision to apply a lateral offset is the responsibility of the pilot in command. Other than when an identified aircraft initiates or changes a lateral offset, pilots are not required to notify ATC that a lateral offset is being applied.

WEATHER DEVIATION PROCEDURES

The following procedures are intended to provide guidance for deviations around thunderstorms. All possible circumstances cannot be covered and therefore the pilot's judgment shall ultimately determine the sequence of actions taken.

If the aircraft is required to deviate from track to avoid weather and prior clearance cannot be obtained, an air traffic control clearance shall be obtained at the earliest possible time.

When the pilot initiates communications with ATC, rapid response may be obtained by stating "WEATHER DEVIATION REQUIRED" to indicate that priority is desired on the frequency and for ATC response.

If a revised air traffic control clearance cannot be obtained and deviation from track is required to avoid weather, the pilot should take the following actions:

1. If possible, deviate away from an organized track or route system.
2. Establish communication with and alert nearby aircraft by broadcasting, at suitable intervals: flight identification, flight level, aircraft position (including the ATS route designator or the track code) and intentions (including the magnitude of the deviation expected) on the frequency in use, as well as on frequency 121.5 MHz (or, as a back-up, the VHF inter-pilot air-to-air frequency 123.45).
3. Watch for conflicting traffic both visually and by reference to TCAS.
4. Turn on all aircraft exterior lights (commensurate with appropriate operating limitations).
5. For deviations of less than 10 nm, aircraft should remain at the level assigned by ATC.
6. For deviations of greater than 10 nm, when the aircraft is approximately 10 nm from track, initiate a level change based on the following criteria:

Route Centreline Track	Deviations >10nm	Level Change
East (000-179 magnetic)	Left	<i>Descend 300ft</i>
	Right	<i>Climb 300ft</i>
West (180-359 magnetic)	Left	<i>Climb 300ft</i>
	Right	<i>Descend 300ft</i>

7. If contact was not established prior to deviating, continue to attempt to contact ATC to obtain a clearance. If contact was established, continue to keep ATC advised of intentions and obtain essential traffic information.
8. When returning to track, be at its assigned flight level, when the aircraft is within approximately 10 nm of center line.

Note: 2 and 3 above call for the pilot to: broadcast aircraft position and pilot's intentions, identify conflicting traffic and communicate air-to-air with near-by aircraft. If the pilot determines that there is another aircraft at or near the same FL with which his aircraft might conflict, then the pilot is expected to adjust the path of the aircraft, as necessary, to avoid conflict.

IN FLIGHT CONTINGENCIES

The following procedures are intended for aircraft unable to maintain assigned level due to:

- a) Weather (for example severe turbulence);
- b) Aircraft performance problems; or
- c) Pressurisation failure.

They are applicable primarily when rapid descent, turn-back, or diversion to an alternate aerodrome is required. The pilot's judgement will determine the specific sequence of actions taken, having regard to the prevailing circumstances.

An aircraft unable to continue flight in accordance with ATC clearance should obtain a revised clearance prior to initiating any action USING THE DISTRESS (MAYDAY) OR URGENCY (PAN) PREFIX as appropriate.

If unable to comply with the above, leave assigned track by turning 90° right or left, climb or descend 1,000ft if above FL410, 500ft if below FL410 or if at FL410 climbing 1000ft or descending 500ft, while acquiring a track laterally offset by 25 nm from assigned track. Direction of turn to be determined by the position of aircraft relative to any organised tracks, levels allocated, direction to alternate and terrain.

If unable to maintain assigned FL minimise descent while turning to acquire the 25 nm offset. A subsequent FL should be selected which, differs by 1,000ft from those normally used if above FL410 or by 500ft if below FL410.

Obtain ATC clearance soonest USING THE DISTRESS (MAYDAY) OR URGENCY (PAN) PREFIX as appropriate and broadcast position (including Track code, if appropriate) and intentions on 121.5 (with 123.45 as back up) until ATC clearance received. Put all aircraft lights on, maintain the look-out assisted by TCAS.

Before diverting across the flow of adjacent traffic expedite climb or descent to a FL not used by majority of Oceanic traffic (i.e. above FL410 or below FL285).

TWIN-ENGINE AIRCRAFT – Using these procedures as a result of engine shutdown or primary system failure should advise ATC as soon as possible giving aircraft type and requesting expeditious handling.

LAND AND HOLD SHORT OPERATIONS (LAHSO)

Landing and holding short of an intersecting runway, taxiway or designated point on a runway. **BA (along with other international operators) policy is NOT TO PARTICIPATE in LAHSO for landing or departure, neither actively (cleared to land and hold short), nor passively (other aircraft cleared to land and hold short).** BA aircraft should not be offered (or accept) a landing or departure clearance with other traffic operating LAHSO on an intersecting runway. Pilots will be alerted that LAHSO are in progress via the ATIS.

SIMULTANEOUS OPPOSITE DIRECTION OPERATIONS

Used where arriving aircraft approach and land on one Rwy at the same time as departures in the opposite direction from the parallel Rwy. The use of these operations will be broadcast on ATIS and are subject to the following conditions:

1. Visual conditions.
2. Departure course diverges by 15° from approach course.
3. Traffic information is passed on conflicting aircraft, e.g. "Traffic (MD11) departing on opposite direction parallel Rwy, turning East".

SIMULTANEOUS PARALLEL ILS APPROACHES

Airports having parallel runways separated by at least 4,300ft may operate a system of simultaneous ILS approaches to both runways. The 4,300ft limit may be reduced with increased ATC monitoring of aircraft on final approach; the term ILS Precision Runway Monitor (ILS PRM) may be used. SIMULTANEOUS CLOSE PARALLEL APPROACH is the term used to describe this reduced separation.

INDEPENDENT VISUAL APPROACHES

These are simultaneous visual approaches to parallel Rwy's, used where normal radar or vertical separation standards are not applied. The ATIS will advise if independent visual approaches are in operation.

The following should be borne in mind:

1. When cleared for an Independent Visual Approach, the pilot is responsible for maintaining the necessary separation from the aircraft on the adjacent approach if it deviates from its flight path.
2. Fly accurate headings when being radar vectored onto final.
3. Ensure Rwy centreline is not crossed during intercept.
4. Monitor the other approach.
5. Accurately track your Rwy centreline.

Note: Traffic information WILL NOT be given about aircraft on adjacent approaches.

“AUSEP”

A term used by Australian ATC to identify airlines and aircraft which have been approved by the Australian CAA to operate on RNAV Routes within Australian airspace. All BA 747 aircraft are AUSEP approved.

Transponder – A serviceable transponder is mandatory for all IFR flights, although ATC may give a dispensation for individual flights.

ADS-B

B744 and B777 fleets have Air Service Australia approval for ADS-B Out operations. This uses the transponder signal to give ATC a psuedo radar picture, allowing closer separation, reducing ATC delays and allowing improved climb or descent opportunities. If ATC see a loss in signal they may ask you to switch transponder.

CRUISING LEVELS

Inside controlled airspace – Semi-circular.

Outside controlled airspace – Quadrantal.

SPEED CONTROL

Where Radar is employed speed control may be implemented. Normally this will be advised in advance to facilitate planning of the descent. It will not be attempted when known turbulence exists.

CUSTOMS

Do not import fruit or meat into Australia.

AERODROMES

Many aerodromes have restricted hours of operation. Should an aircraft divert to an airfield with a “jet-ban” in force, having landed, it will not be allowed to take-off until the period of the “jet ban” is over.

Pilots will normally be instructed, in advance, to change to tower frequency when established on final approach. If due to congestion on the frequency this instruction is not issued the pilot should change automatically at 4 nm from the threshold.

‘T’ BAR VASI

‘T’ Bar VASI installations are used.

Long bodied aircraft may use ‘T’ type VASIs by flying two lights high, i.e. using the two light fly down indication; this gives a 747 wheel height over the threshold of about 27ft.

PRATIQUE REPORTING

Routine calls confirming disinfection of aircraft are not required.

RFF

Throughout Australia a common RFF frequency, 131.0, is used by the Emergency services to enable direct contact with flight crew. It is managed through the tower as the rescue services do not continually monitor the frequency.

NEW ZEALAND

Only Auckland and Christchurch aerodromes are available to large aircraft, radar is available at both and facilities are good.

FLIGHT PLANNING

With only Christchurch available as an alternate within New Zealand, there can be problems when the weather is poor.

It may be necessary to flight plan with Christchurch as destination and Auckland as alternate and subsequently divert to Auckland.

If only one of the airfields is open this should be flight planned as destination with Sydney or Melbourne as alternate.

If either airfield is below destination limits but there is a prospect of improvement, use of a PNR should be considered to facilitate a departure.

DESIGNATED ROUTES

There are Designated Routes in the Oceanic Control Areas and requirements for position reports are the same as for Australia.

121.5 MHZ

121.5 MHz should be guarded on all ocean crossings.

SPEED CONTROL

Not above 250 kts below 10,000ft within 30 nm of destination.

CRUISING LEVELS

Oceanic FIRs and Control Areas use ICAO Basic rules for allocation for IFR traffic. Domestic FIRs use an unusual allocation system.

CLEARANCE DELIVERY PROCEDURE

Applicable to Auckland and Christchurch. Not later than 5 mins prior to start advise Ground Control with the following:

1. Pre-flight radio check.
2. ATIS received.
3. Level requested.
4. Alternate.
5. Take-off time.
6. Runway required if other than that notified on ATIS.
7. Number of persons on board.

CHRISTCHURCH

Extensive military and civil training occurs in VFR and “VFR on top”, a good look-out is needed.

PACIFIC**AIRSPACE DESCRIPTION**

The Oceanic Control Areas covering the Pacific are:

1. Tokyo and Anchorage CTAs to the North.
2. Oakland CTA covering the central Pacific, including the area South of the Tokyo CTA.
3. Brisbane, Auckland, Nadi and Tahiti CTAs to the South.

Reduced Vertical Separation Minimum (RVSM) is used.

NORTH PACIFIC (NOPAC) ROUTES

These are described in the Polar Area Briefing.

HAWAII AND US MAINLAND COMPOSITE ROUTE SYSTEM

This route system organises the considerable flow of traffic between the islands and the mainland.

IN FLIGHT CONTINGENCIES ICAO PAC REGION

Guidelines are published in the Flight Guide Supplement. Basically if unable to maintain assigned FL or a turnback is required:

1. Attempt to obtain re-clearance from ATC.
2. Keep ATC and other aircraft (using 121.5 MHz) advised of intentions.
3. Leave assigned track at 90° (turning in direction most suitable to keep clear of adjacent routes) to establish a track laterally separated by 25 nm from original and select a level 500ft separated from those normally used.

USAF RADAR ADVISORY SERVICE

This service is available over a large area of the central Pacific. The callsign is STARGAZER and initial contact is on 121.5.

COMMUNICATIONS

Families of HF frequencies are used, e.g. CEP 1-2-3 for the Hawaii/US Mainland routes.

121.5 should be monitored during ocean crossings.

SHORHAUL OPERATIONS TO THE CIS

COMMONWEALTH OF INDEPENDENT STATES (C.I.S.)

Members include: Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Russia, Tajikistan, Turkmenistan, Ukraine and Uzbekistan.

ATC GENERAL

Communication may take place through an interpreter causing delays to clearances.

Arriving aircraft usually stepped down gradually with numerous level checks. PAR control may be poor; information may be given as deviation from C/L and G/P in metres, corrective action being left to the pilot. Almost all markers are modulated at 3,000 Hz – airways lamp activates.

Departure may consist of short stepped climbs with several requests for passing levels.

ATC may ask: "Request your flying conditions", which means information as to whether you are flying over/in/below cloud, wind and ground speed in km/hr.

METRIC UNITS

See conversion tables in relevant charting documentation.

Ht, elevation, FL: metres. Surface wind: metres per sec.

Speed and Upper wind: kph. Cloud: tenths or octas.

Distance: km and metres. QFE: (mmHg) mb to foreign operators.

Aprox conversions:	SPEED (km/hr)	/2	= knots
	WIND (m/sec)	x2	= knots
	ROC/ROD (m/sec)	x200	=ft/min

Note: Conversions should be crosschecked by all pilots.

ALTIMETRY

C.I.S (excluding member countries listed below)

- At or above TL: RVSM FL
- At or below Trans Ht in the aerodrome area: Ht in metres (i.e. QFE).
- At or below Trans Ht outside the aerodrome area: Altitude in metres (i.e. QNH).
- QNH available on request. It may be included on the ATIS (e.g. Moscow) and on HF broadcasts.

Ukraine – FL290-410 ICAO RVSM FL System will be used and at crews request expressed in meters or as a FL.

RVSM

ATC will apply 1,000ft separation between "Approved" aircraft. Item 10 of the ICAO flight plan should contain "W" indicate RVSM approved aircraft.

STRATEGIC LATERAL OFFSETS PROCEDURES (SLOP)

In non radar environments it is the pilots decision whether to offset 1 or 2 nautical miles to the RIGHT of the centreline.

Within radar airspace lateral offsets, of 1 mile to the RIGHT of centreline, require approval from ATC.

SUSPENSION OF RVSM

ATC will consider suspending RVSM procedures when there are pilot reports of greater than moderate turbulence. Vertical separation will then be 600 m (2,000ft).

WAKE TURBULENCE

Pilots encountering wake turbulence should contact ATC as soon as possible and request either a) Flight Level change, b) a vector if possible, or c) a lateral offset.

CRUISING LEVELS

CIS

Vertical separation is based on semi-circular rules using TRUE track and are as follows:

000° to 179° TRUE		180° to 359° TRUE	
FL	Metres	FL	Metres
030	900	040	1,200
050	1,500	060	1,850
070	2,150	080	2,450
090	2,750	100	3,050
110	3,350	120	3,650
130	3,950	140	4,250
150	4,550	160	4,900
170	5,200	180	5,500
190	5,800	200	6,100
210	6,400	200	6,700
230	7,000	240	7,300
250	7,600	260	7,900
270	8,250	280	8,550
290	8,850	300	9,150
310	9,450	320	9,750
330	10,050	340	10,350
350	10,650	360	10,950
370	11,300	380	11,600
390	11,900	400	12,200
410	12,500		

Subject to traffic, ATC may occasionally vary these levels if so requested.

AIR TRAFFIC CONTROL**SPEED CONTROL**

There is a 270 kts speed restriction below FL100 down to transition level.

Max rate of descent = 3,000 fpm below FL100.

DEPARTURES AND ARRIVALS

Arriving aircraft usually stepped down with numerous level changes.

PAR control may be poor; information may be given as deviation from C/L and G/P in metres, corrective action being left to the pilot.

Departure may consist of short stepped climbs with several requests for passing levels.

ILS GLIDE SLOPE

Many provincial airfields have glideslope angles which are shallower than the standard 3°.

EAST EUROPE – SIBERIA AREA

This brief covers the various routes to Eastern Europe and Russia. It also covers the routes across Russia to India, China and Japan.

METRIC UNITS

Ht, elevation, FL: metres.	Surface wind: metres per sec.									
Speed and Upper wind: kph.	Cloud: tenths or octas.									
Distance: km and metres.	QFE: (mmHg) mb to foreign operators.									
Approx conversions:	<table style="margin-left: 20px; border: none;"> <tr> <td>SPEED (km/hr)</td> <td>/2</td> <td>= knots</td> </tr> <tr> <td>WIND (m/sec)</td> <td>×2</td> <td>= knots</td> </tr> <tr> <td>ROC/ROD (m/sec)</td> <td>×200</td> <td>= ft/min</td> </tr> </table>	SPEED (km/hr)	/2	= knots	WIND (m/sec)	×2	= knots	ROC/ROD (m/sec)	×200	= ft/min
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ROC/ROD (m/sec)	×200	= ft/min								

See conversion tables in relevant charting documentation.

Note: Conversions should be crosschecked by all pilots.

ALTIMETRY

C.I.S (excluding member countries listed below)

At or above TL: RVSM FL

At or below Trans Ht in the aerodrome area: Ht in metres (i.e. QFE).

At or below Trans Ht outside the aerodrome area: Altitude in metres (i.e. QNH).

QNH available on request. It may be included on the ATIS (e.g. Moscow) and on HF broadcasts.

Lido charts give:

1. Ht inft and metres (QFE).
2. Equivalent altitude inft (QNH).
3. FL in feet and metres (1013.2).
4. Trans Ht and a derived Trans Alt.

AFGHANISTAN

RVSM only available between FL340-410 due Military Ops.

BALTIC STATES (ESTONIA, LATVIA, LITHUANIA) –

As Western Europe.

BELARUS

FL290-410 ICAO RVSM FL System will be used and at crews request expressed in meters or as a FL.

BULGARIA

At or above Transition Level, Flight Levels in feet. At or below Transition Height, height (QFE) in metres. However ATC now often give clearances below Transition in feet on QNH as opposed to metres on QFE.

CZECH AND SLOVAK REPUBLICS

As Western Europe.

GEORGIA

As Western Europe.

HUNGARY

As Western Europe.

MOLDOVA

As Western Europe.

MONGOLIA

At or above Transition Level, Flight Levels in Metres (Using China's Metric FLAS RVSM – FL290-FL410). Vertical separation is based on semi-circular rules using MAG track. Plan to move to Russian RVSM levels in 2013.

POLAND

As Western Europe.

ROMANIA

As Western Europe but metres may be used below Transition Altitude.

UKRAINE

FL290-410 ICAO RVSM FL System will be used and at crews request expressed in meters or as a FL.

RVSM

ATC will apply 1,000ft separation between "Approved" aircraft. Item 10 of the ICAO flight plan should contain "W" to indicate RVSM approved aircraft.

STRATEGIC LATERAL OFFSETS PROCEDURES (SLOP)

In non radar environments it is the pilots decision whether to offset 1 or 2 nautical miles to the RIGHT of the centreline.

Within radar airspace lateral offsets, of 1 mile to the RIGHT of centreline, require approval from ATC.

SUSPENSION OF RVSM

ATC will consider suspending RVSM procedures when there are pilot reports of greater than moderate turbulence. Vertical separation will then be 600 m (2,000ft).

WAKE TURBULENCE

Pilots encountering wake turbulence should contact ATC as soon as possible and request either:

1. Flight Level change,
2. A vector if possible, or
3. A lateral offset.

DEVIATION ACTIONS TAKEN BY THE PILOT

When deviating for any reason by 90 m (300ft) or more from cleared flight level by ATC in RVSM airspace, report to the relevant ATS unit concerned via radio or data link as soon as practicable.

RVSM TRANSITION PROCEDURES

Russia-Mongolia (LHR-PEK/LHR-HKG):

- Expect climb from FLft to FLm 5 mins after boundary (GINOM/NIGOR).

Mongolia-Russia (PEK-LHR):

- Expect descent from FLm to FLft to be level 5 mins before boundary (AMUTA).

Russia-Mongolia (LHR-PVG):

- Expect climb from FLft to FLm to be level 5 mins before boundary (DARNO).

Mongolia-Russia (PVG-LHR/HKG-LHR):

- Expect climb from FLft to FLm 5 mins after boundary (DARNO).

CONTINGENCY

In case of no communication with ATC/ATS at the switch over time the following contingency procedure as per Doc 4444 chapter 15.3 shall be followed:

- Make a call on the emergency frequency 121.5 MHz to announce your intentions then:
- In airspace where procedural separation is being applied, maintain the last assigned speed and level, or minimum flight altitude if higher, for a period of 20 minutes following the aircraft's failure to report its position over a compulsory reporting point and thereafter adjust level and speed in accordance with the filed flight plan.

MINIMUM SAFE ALTITUDES

C.I.S determined MSAs are as follows:

- In the take-off and landing area at least 1,000ft (300 m).

- In the approach area and along airways:
 - Over relatively flat terrain at least 2,000ft (600 m).
 - In mountainous areas at least 3,000ft (900 m) above the highest obstacle located within 13.5 nm (25 km) of the airway centre line.

BORDER CROSSING

CHINA

Border crossing only allowed within a specified air corridor or over a specified entry/exit point. ATC must be contacted 15-20 mins prior to the border giving call sign, ETA for border and FL. Border crossing clearance should then be issued.

The border must not be crossed without ATC permission. A position report must be made when crossing the border and the change to metric cruising levels for China co-ordinated.

INDIA

Call 10 mins prior to the FIR boundary.

PAKISTAN

Call 15 mins prior to the FIR boundary.

UZBEKISTAN

Call 10 mins prior to FIR boundary.

TOKYO/C.I.S

N-Bound Call KHBABOVS CONTROL on HF requesting clearance to cross the C.I.S border and enter KHBABOVS FIR, also the requested FL.

There may be difficulty establishing contact with KHBABOVS CONTROL on both HF and VHF when N-bound over the SEA OF JAPAN. SAPPORO CONTROL may be able to relay entry clearance.

S-Bound Call KHBABOVS CONTROL and request relay to SAPPORO of estimate for the FIR boundary and requested FL. If unsuccessful call TOKYO CONTROL on HF.

AIR TRAFFIC CONTROL

C.I.S

Almost all airfield marker beacons are modulated to 3,000 Hz – airways lamp activates.

Communications

In the C.I.S care should be taken to adhere to standard phraseology as understanding of English is limited. Communications sometimes take place through an interpreter rather than direct with the controller, thus requests for further descent etc, should be made early. There is often an apparent lack of awareness among the controllers of deteriorating situations.

ATC may ask: "Request your flying conditions", which means information as to whether you are flying over/in/below cloud, wind and ground speed in km/hr. A conversion table is given in the Flight Guide Supplement.

VHF is satisfactory and is used over practically the whole of the C.I.S except for part of KHABAROVSK FIR and on the Oceanic portion of the ARCTICA route, where HF is required. On W-bound flights there is sometimes difficulty establishing contact with KHABAROVSK ATC on both VHF and HF when over the SEA of JAPAN. In such case SAPPORO CONTROL may be able to relay entry clearance.

The standard ICAO phonetic alphabet is used throughout the C.I.S. However, reporting points are sometimes given using their Russian name instead of the phonetic callsign.

SELCAL is not usually available.

The control frequency in use must be closely monitored. In case of no direct contact with the appropriate control/centre, try a sub-centre/relay.

Direct routings are not normally available, but deviations due to weather may be permitted with ATC permission and will probably be with Radar assistance.

121.5 is available at all ACCs.

Transponders are used as normal, including emergency codes. A discrete code should be given by ATC, otherwise squawk A2000.

Flight Plan

A Flight Plan must be filed and clearance received for all flights. In the Flight Plan indicate:

Cruising levels, on standard setting, in tens of metres with 4 digits and prefixed with S, e.g. 8,850 m = S0885.

Speed in km/hr as 4 figures with the prefix K, e.g. 600 km/hr = K0600.

Speed Control

There is a 270 kts speed restriction below FL100 down to transition level.

Max rate of descent = 3,000 fpm below FL100.

Departures and Arrivals

Arriving aircraft usually stepped down with numerous level changes.

PAR control may be poor; information may be given as deviation from C/L and G/P in metres, corrective action being left to the pilot.

Departure may consist of short stepped climbs with several requests for passing levels.

ILS Glide Slope

Many provincial airfields have glideslope angles which are shallower than the standard 3°.

TCAS

Not all aircraft operating in the C.I.S have standard transponders, so nearby traffic may not show as TCAS targets. The ability of TCAS to resolve a conflict with some C.I.S aircraft is limited, even when targets are shown on the display – so an RA generated on our aircraft may not have a co-ordinated manoeuvre on the other aircraft.

DIVERSION

If an emergency landing becomes necessary, ATC will provide Radar assistance for an approach and landing at a suitable aerodrome. The approach details will be given by the Approach Control Unit concerned and the approach itself will, if possible, be assisted by PAR. Information may be given as deviation from the centre line and glide path in m, corrective action being left to the crew.

An SAS 767 from Tokyo to Stockholm was forced to seek a diversion following an engine shut down. A Mayday call was made and ATC efficiently vectored the aircraft for an ILS at Syktyvkar, 61 38N 50 50E. Using standard phrases there were no language problems. The landing QFE was at first given in mm but on request both QFE and QNH were given in mb. The time from the Mayday call to touch down was some 50 minutes.

In the case of a normal diversion to a civil aerodrome, the diversion should be requested from ATC in the usual way.

ALTERNATES

Over Siberia the number of adequate civil en-route alternates is limited. See Siberia Flight Progress chart for information relating to routes and alternates.

The route SE over Afghanistan is rather better served.

It should be emphasised that ground handling facilities at en-route alternate airfields may be severely limited and diversion to such airfields should be for emergency only.

Any Guidance on ground manoeuvring, found within the airfield brief for those airfields, is given to ensure that the aircraft does not become disabled by departing the paved surface as some of the taxiways are not suitable for use. Crews should consider the use of differential braking and asymmetric power when executing 180 degree turns on the runway.

Information from the AIP and Boeing airfield surveys has been used to determine the suitability of taxiways, however, crews should request marshalling assistance if there is any doubt about wheel clearance on the paved surface.

Parking should be restricted to ‘taxi out’ stands as the availability of a suitable towbar and tug cannot be assured.

Fuel grade TS-1 (written TC-1) is the Russian equivalent of Jet-A1 and available at all the airfields.

De-icing is not generally an issue, however anti-icing can be problematic as there may be no published hold-over times available for the fluid used.

ARCTICA 1 ROUTE

This northerly route takes the aircraft over Norway and above the Arctic Circle to 7730N6600E and down over Siberia.

From LATEN,7230N3205E to NARKI,7527N8726E on B483 is classified as an Oceanic leg and all normal Oceanic procedures should be followed. Clearance for this leg will be passed by BODO Oceanic Eastbound and by Khatanga Control Westbound.

MET reports at En-Route reporting points may be requested during the Oceanic leg.

FUEL – LOW EN ROUTE TEMPERATURES

At the flight planning stage consideration should be given to the forecast en-route temperatures and the freeze point of fuel in tanks. Consult the FCOM for your aircraft type bearing in mind that extra fuel may be required to carry out the recommended procedures to keep fuel temperatures above limits.

COMPASS UNRELIABLE

Between reporting point's Narki,7527N8726E and Agada,7012N10811E, on the Arctica 1 Route, flights enter the Compass Unreliable area. Details on procedures to be adopted in case of Navigational Equipment failures can be found within the relevant FCOM.

TERRAIN

Note the high Safety Altitudes in the area of Almaty (24,000ft) and Kabul (over 19,000ft). This is of significance in case of a pressurisation failure.

Across Siberia, the terrain is rather lower. The Urals reach 6,300ft asl but there are further mountains to the E. On the Arctica route the terrain on the island of Novaya Zemlya is believed to not exceed a maximum of 6,700ft asl with a lower range of mountains on the mainland to 2,600ft asl just beyond the coast in point Narki of B483. At about 118E there are mountains to 10,200ft asl S of R22 and nearer the coast there is much high ground up to 8,800ft asl.

MID/FAR EAST AREA

This briefing sheet is not intended to supersede information provided in the relevant Operations Manual and NOTAMS.

For weather information see separate "Weather Notes" briefing.

GENERAL

RVSM

RVSM is now in force across many FIRs within the Middle East region and is being implemented in stages throughout the Asia region.

HAJJ PILGRIMAGE – JEDDAH, KINGDOM OF SAUDI ARABIA

HAJJ BACKGROUND INFORMATION

The Hajj is a pilgrimage to Makkah in Saudi Arabia. It is the largest annual pilgrimage in the world, and is the fifth pillar of Islam, an obligation that must be carried out at least once in their lifetime, by every able-bodied Muslim who can afford to do so. For many the journey starts with the flight to Jeddah. Because the Islamic calendar is a lunar calendar, 11 days shorter than the Gregorian calendar used in the western world, the apparent date of the Hajj changes from year to year. The Hajj pilgrimage lasts for approximately 10 days, but the Saudi Arabian Authorities publish official Pilgrimage travel dates that last for approximately one month outbound to Jeddah. BAVirtual must comply with these travel dates and are not permitted to carry pilgrims outside of these dates. For a defined period outside of the Hajj dates, Muslims can travel to Makkah to perform the pilgrimage known as Umrah (al-Umrat al mufradah), providing they are holding a specific Umrah visa.

About two million Muslims from more than 70 countries journey to the holy city of Makkah each year to make the spiritual pilgrimage. Over the course of the Hajj, pilgrims travel the nine miles from Makkah to the Plain of Arafat and back, stopping at the sacred sites of Mina and Muzdalifa to perform prayerful rituals.

The close of the Hajj is marked by a festival, the Eid al-Adha, which is celebrated with prayers and the exchange of gifts in Muslim communities everywhere. This, and the Eid al-Fitr, a day of celebration commemorating the end of Ramadan, are the main festivals of the Muslim calendar. Pilgrims generally travel to the Hajj in groups as an expression of unity.

During the Hajj, male pilgrims are required to dress only in the ihram, a garment consisting of two sheets of white un-hemmed cloth, with the top draped over the torso and the bottom secured by a white sash; plus a pair of sandals. Women are simply required to maintain their hijab – normal modest dress, which does not cover the hands or face. The majority of customers will have already changed into the ihram before boarding the aircraft.

OPERATIONAL

The Hajj generates an enormous amount of traffic into and out of Jeddah, including widebody charter aircraft from all over the world. The number of flights, particularly East/West traffic in the North and central part of the AFI region increases dramatically, and special attention is required to reduce the risk of Mid Air Collision. IATA IFBP procedures should be rigorously applied.

The airport is well versed in handling this volume of traffic, however, many of the crews involved are not used to the ATC situation and procedures in Africa. To ease traffic flows many of the temporary ATS routes created for HAJ are now becoming permanent and will therefore see traffic year round. It is hoped that this will lessen the impact of HAJ as crews will become familiar during the year to these cross routes.

OFP will use **Riyadh** as the first Commercial Alternate. Riyadh is by far the preferred destination alternate with Hajj passengers onboard. OFP should plan 15 minutes contingency.

Hajj traffic will have the word 'Hajj' in their callsign.

PRE-FLIGHT

Please ensure potable water levels are loaded to full prior to departure.

DURING THE FLIGHT

Throughout the flight there may be a high demand for the toilets as cleanliness is of great importance during prayer. Clothes, the body and the place of prayer must be clean. Pilgrims will want to perform "Wu'du" (ablution) where they will wash their hands, arms, face and feet before praying. There will be extra demand for water during this period therefore potable water levels will be loaded to full.

Flight crew should be aware of two communication requirements that we would be grateful for your assistance with; exact timings should be sought from ATC.

- **Approximately one hour before landing the flight crew should announce over the PA system that the aircraft is entering the "ihram" zone (pronounced "ee-ramm"). Those on pilgrimage will commence some rituals involving cleansing and changing attire, and the recitation of their "intention" prayer.**

These rituals place the pilgrim into the ihram sacred state, which is required before they cross the pilgrimage boundary of "Miqat" (pronounced "Mee-kaht").

- **Please confirm with ATC the time at which you pass the Miqat boundary, and make a further PA to the passengers informing them of this. This PA would likely be concurrent with the "20 minutes to landing" PA.**

THE MIDDLE EAST

There are pre-planned routes across the Middle East towards the Persian Gulf which are used as the political situation dictates. They are a Southern route via Egypt and Saudi Arabia, a Mid route across Syria and a Northern route via Iraq or Iran.

FIR BOUNDARIES

Some ATC units require contact to be made at least 10 minutes before arrival at their boundary. This is highlighted on OFP plans and charts. At times it is difficult to make such contact and use of relays by other aircraft or through other ATC units may be necessary.

HAJJ PILGRIMAGE SEASON

During the HAJJ Pilgrimage Season, the timing of which is variable, the number of flights and particularly E-W flights entering Saudi airspace from North and Central Africa increases dramatically and with it the risk of ATS incidents.

TURKEY

Airway closures for missile firing occur; check Operational Flight Plan against AIS information.

EASTERN MED

In the Eastern Med ATC co-ordination is poor and several VHF frequencies need to be monitored at one time. It is strongly recommended that all/both crewmembers be on the flight deck for this portion of the flight.

The area carries much Europe to MID/FAR EAST traffic and is extremely busy. Along the route between Nicosia and Bahrain changes in flight level are extremely difficult to obtain.

When routing through Turkey (via MUT-VESAR-NIKAS), at MUT, control will be passed to ERCAN freq 126.7 (another Turkish unit pronounced "ERJAN") who will require position reports at VESAR and NIKAS even though these points are in Nicosia FIR.

However this portion of the airway is in fact controlled by Nicosia and conflicting clearances may be given. In such cases it is important to check any clearance from ERCAN with Nicosia before it is followed.

Nicosia have long-range VHF and should be contacted as early as possible to ensure optimum levels and co-ordination through their airspace.

Damascus should be contacted (via Latakia Radio for relay if necessary) 10 minutes prior to NIKAS, although co-ordination between Nicosia and Damascus is good.

The same procedure in reverse will be required when flying westbound.

JORDAN

There is a mandatory speed restriction of 250 kts max below 10,000ft.

RED SEA

A listening watch must be maintained on 121.5. Information requests made on 121.5 must be replied to with:

1. Aircraft callsign.
2. Transponder code.
3. Heading.
4. Altitude.
5. Ground speed.

Deviations from an ATC clearance must be advised to ATC. Company comms must not interfere with the above.

SAUDI ARABIA

Usually there are route and flight level restrictions over Saudi Arabia, see AIS for current situation.

VHF contact with Jeddah ATC, while en-route to airports in the Gulf area, is sometimes at extreme range; loss of VHF communication does occur.

Aircraft bound to/from Israeli aerodromes are not permitted to operate in Saudi Arabian airspace.

There is a mandatory speed restriction of 250 kts max below 10,000ft.

There are large flights of migratory birds (up to 1 metre wing-span) in the periods March to May and September to November Jeddah shows a statistically high likelihood of a bird strike.

IRAN

Diversion to airfields in Iran should be avoided if at all possible.

Extensive high terrain requires the use of decompression profiles on routes into Iran.

Due to the geological configuration in the Tabriz area, considerable differences in the local atmospheric pressure may occur in the winter, leading to discrepancies in terrain clearance when operating at Flight Levels. Pilots should be aware that the difference could potentially be over 1,000ft.

Speed Control

Aircraft inbound to Tehran should maintain 280 kts IAS or less when at or below FL200 and a maximum of 220 kts IAS within 25 nm of airports, when at or below FL140.

ADIZ Procedures

All aircraft entering Iranian airspace shall be at FL150 or above; if unable to comply, prior permission is required. Crews should ensure that FIR estimates are to within a tolerance of five minutes. All foreign aircraft must use established ATC routes; failure to comply could lead to interception.

Before entering Tehran FIR all flights are required to contact either TABRIZ Radar or MASHHAD Radar, on 127.800 or 135.100 Mhz, 10 minutes prior to entry for the purpose of military identification. In addition, the appropriate Tehran ACC must be contacted. Where range prevents two-way communication with air defence Tehran ACC will relay.

RVSM procedures adopted.

Prohibited area P10 (60 nm north of Esfahan VOR) centred on a highly sensitive nuclear enrichment plant. Vertical extent of area must be considered without upper limit.

Caution advised particularly on airway UT211. Avoidance of P10 is assured on airway – any ATC vectors or weather avoidance off airway in vicinity of P10 must be considered carefully and challenged if necessary.

ISRAELI AIRSPACE

Tel Aviv Air Defence Radar must be contacted (box2/3) not later than BGN180d. when arriving from the West Nicosia FIR, or 10 minutes before passing Sharm El-Sheikh when arriving from the South Cairo FIR (freq 124.3 or 132.05). This is stated on Lido AOI pages for Tel Aviv (TLV/LLBG).

If entering via SOLIN contact Tel Aviv no later than 180 nm from BGN, Com 123.05 or 124.3.

From Amman FIR (TALMI) contact Tel Aviv CTRL 121.4 or 132.05 as soon as practical after take-off from Amman and no later than 10 nm East of position TALMI.

Overflight Israeli Airspace into Amman expect early descent for crossing at 11,000ft. Departing Amman maintain 12,000ft on departure.

FLIGHTS OVERFLYING OR ARRIVING TO ISRAEL FIR**Advance Cabin Landing Preparation**

All passengers must be seated and belts fastened, at least 30 minutes before landing in Israel and until landing.

Overflights

Flights to Jordan: All passengers must be seated and belts fastened, at least 30 minutes before landing in Jordan and until landing.

Flights from Jordan: All passengers must be seated and belts fastened, at least 15 minutes after takeoff from Jordan.

BAHRAIN

Aircraft bound to/from Israeli aerodromes are prohibited from Bahrain airspace.

GULF OF OMAN – INDIA**GENERAL**

The area contains its share of politically sensitive borders. This gives rise to restrictions near the India/Pakistan borders which are under military control. Air Defence Clearance Numbers may be allocated. Adherence to promulgated routes and procedures (e.g. obtaining onward clearance) is essential. Failure to do so will risk interception by military aircraft. There are a number of advisory routes and ATC co-ordination over India and Pakistan is poor. Lack of radar coverage means only procedural service is offered in many areas, with its accompanying limitations. Aircraft are frequently held down and occasionally en-route holding is necessary.

Communications are a mix of VHF and HF. Reports are often passed to ATC via en-route airport VHF installations as highlighted on OFP plans and charts. HF is often extremely difficult due to inadequate equipment and poor RT standards; frequencies are very cluttered. This has the effect of making SELCAL less useful than normal.

FIR BOUNDARIES

Contact 10 minutes before arrival at FIR boundaries is usually required (15 minutes before Karachi and Lahore FIRs) and is highlighted on OFP plans and charts.

LISTENING WATCH

A listening watch on 121.5 Mhz should be maintained.

BLIND BROADCAST PROCEDURE

This procedure is detailed in the Africa Area brief and should be used over the Indian Ocean in FIRs Antananarivo, Beira, Dar es Salaam, Mauritius, Mogadishu and Nairobi.

INDIA

Cruising Levels Up to: FL140 – QUADRANTAL RULES APPLY.

FL150 AND ABOVE – SEMI-CIRCULAR RULES APPLY.

PAKISTAN

Flights operating into or over Pakistan must contact Karachi ACC 15 mins prior OPKR FIR to request Air Defence clearance number. Flights departing Pakistan must obtain Air defence clearance number before departure. There is significant mountainous terrain towards the western and northern borders of Pakistan.

Areas of High MSAs

Airways and airway segments affected by Driftdown and De-pressurisation procedures are contained below.

Note the high Safety Altitudes in the area of Almaty (24,000ft) and Kabul (over 19,000ft). This is of significance in case of a pressurisation failure.

AFGHANISTAN

Overflight of Afghanistan may be restricted due to hostilities.

When Westbound from Lahore FIR in to Kabul, at least 10 mins prior to FIR BDY, contact Kabul on VHF 128.5 or HF 10018, 5658 and 3467.

Failing contact on VHF or HF, attempt relay with other aircraft. In the event that contact cannot be established with Kabul, continue on Flt Plan route as Lahore will have provided Kabul with an estimate for the FIR crossing point and Kabul will be expecting you. Continue to try and establish two-way contact with Kabul.

MSAs – for navigationally well equipped aircraft (e.g. 747-400/777/787) the MSA calculation may sometimes be based on 10 nm either side of track as opposed to 20 nm. This is to allow operation at FL280 and will have been approved by the CAA. (The 10 nm dimension is the basic EASA OPS requirement).

All flights at or above FL210 operate under IFR. En-route procedural service is provided by Kabul ACC, upper and lower airways network.

An advisory service is provided within 75 nm of Kabul.

For ATC reasons changes of flight level over Afghanistan should, if possible, be avoided.

Over Afghanistan communication is carried out on HF, but VHF frequencies for terminal areas are available and can be used en-route when flying within their range. Communication problems are common in the Afghanistan area, especially with Kabul. There is often sufficient traffic to make relays on VHF feasible. In case of difficulty try HF Lahore, Karachi, or Delhi and relay.

In Kabul and Lahore FIRs maintain a listening watch on Kabul and Lahore ACC control VHF frequencies for intercept of other traffic.

Kabul ACC 128.5, backup 126.325.

BOBCAT Trial – Slot Requirements

There is to be a operational trial of ATFM (air traffic flow management) from Asia to Europe for flights via Afghanistan.

This starts on 20 July 2006; no end date for this trial has been given.

It applies to all westbound flights transiting the Kabul FIR between 2000-2359 UTC on Afghan airways A466, N644, L750 and G792.

Pilots Responsibility

Pilots should be aware of the Allocated Wheels Up Time (slot), route and gateways and their estimated time and flight level at these points.

The Allocated Wheels Up Time (slot) shall be included in the initial ATC clearance request.

There is a 5 minute buffer to the slot, if unable to meet this time please request a new slot from ATC, or via the dispatcher if a long delay is anticipated.

Afghan airways and associated gateways as follows:

A466 – SITAX

N644 – PAVLO

L750 – ROSIE

G792 – ASLUM.

DRIFTDOWN AND DEPRESSURISATION PROCEDURES

Driftdown/Oxygen Procedures for routes from India to LHR via N636 (Westbound)

B777-200ER GE90-85B

India to LHR via N636 Westbound

Minimum Flight Level for Crossing

Flight plans will be issued with minimum recommended flight levels of FL310.

FL310 is the minimum acceptable level. Should levels below FL310 be offered, all efforts must be made to negotiate higher to avoid a turn back. Delaying, en-route holding, negotiating with other aircraft in the vicinity are options. A re-route is required if clearance to FL310 or above is not obtained.

If the FMC engine out performance indicates that the aircraft would have sufficient terrain clearance, no critical point and escape route are required.

Critical Points

BURTA (N32 37.5 E064 26.5)

Actions Following In Flight Shutdown

Dependent on position as follows:

1. **Before BURTA:** turn back and initially proceed 6 nm offset along the airway and divert to suitable airfield. Return to airway centre line when cleared by ATC.
2. **After BURTA:** continue with an initial 6 nm offset along the airway toward MASHHAD and divert to suitable airfield. Return to airway centre line when cleared by ATC.

Actions Following Depressurisation

No action required – continue on route as planned.

MSAs and Turns

Turns are permitted in either direction.

Fuel Jettison

The analysis has shown that the terrain will be cleared without using fuel jettison. However, it is recommended that fuel jettison is selected as soon as workload permits. 30,000 kg fuel remaining will be sufficient fuel for diversion to all likely alternates. Further fuel jettison may be necessary to reduce weight below MLW.

Driftdown/Oxygen Procedures for routes from India to LHR via N644 (Westbound)

B777-200ER GE90-85B
India to LHR via N644 Westbound

Minimum Flight Level for Crossing

Flight plans will be issued with minimum recommended flight levels of FL310.

However FL280 is the minimum acceptable level to meet driftdown criteria. Should levels below FL280 be offered, all efforts must be made to negotiate higher to avoid a turn back. Delaying, en-route holding, negotiating with other aircraft in the vicinity are options. A re-route is required if clearance to FL280 or above is not obtained.

If the FMC engine out performance indicates that the aircraft would have sufficient terrain clearance, no critical point and escape route are required.

Critical Points

VUVEN (N34.328 E066.558)

Actions Following In Flight Shutdown

Dependent on position as follows:

1. **Before VUVEN:** turn back and initially proceed 6 nm offset right along the airway toward Delhi. Return to airway centreline when cleared by ATC.
2. **After VUVEN:** continue with an initial 6 nm left offset along the airway toward suitable diversion airfield (e.g. OIMM/UTAA/UBBB). Return to airway centre line when cleared by ATC.

Actions Following Depressurisation

No action required – continue on route as planned.

MSAs and Turns

The above turns will take the aircraft to the west side of the airway.

Fuel Jettison

The analysis has shown that the terrain will be cleared without using fuel jettison. However, it is recommended that fuel jettison is selected as soon as workload permits. 30,000 kg fuel remaining will be sufficient fuel for diversion to all likely alternates. Further fuel jettison may be necessary to reduce weight below MLW.

Driftdown/Oxygen Procedures for routes on Airway M875 (East/Westbound)

B777-200ER GE90-85B

**Route KHOLM M875 SITAX / SITAX M875
KHOLM**

Minimum Flight Level for Crossing

Flight plans will be issued with minimum recommended flight levels of FL330.

FL330 is the minimum acceptable level to meet driftdown criteria. Should levels below FL330 be offered, all efforts must be made to negotiate higher to avoid a turn back. Delaying, en-route holding, negotiating with other aircraft in the vicinity are options. A re-route is required if clearance to FL330 or above is not obtained.

If the FMC engine out performance indicates that the aircraft would have sufficient terrain clearance, no critical point and escape route are required.

Critical Points

TAPIS

Actions Following In Flight Shutdown

Dependent on position as follows:

1. **East of TAPIS:** 6nm offset to North along OFP route towards Delhi (DEL).
2. **West of TAPIS:** 6nm offset to South along OFP route towards Termez (TRZ).

Actions Following Depressurisation

No action required – continue on route as planned.

MSAs and Turns

No restrictions

Fuel Jettison

The analysis has shown that the terrain will be cleared without using fuel jettison. However, it is recommended that fuel jettison is selected as soon as workload permits. 30,000 kg fuel remaining will be sufficient fuel for diversion to all likely alternates. Further fuel jettison may be necessary to reduce weight below MLW.

Driftdown/Oxygen Procedures for routes on Airway M875-L509 (East/Westbound)

B777-200ER GE90-85B

**Route KHOLM M875 TAPIS L509 HANGU /
HANGU L509 TAPIS M875 KHOLM**

Minimum Flight Level for Crossing

Flight plans will be issued with minimum recommended flight levels of FL330.

FL330 is the minimum acceptable level to meet driftdown criteria. Should levels below FL330 be offered, all efforts must be made to negotiate higher to avoid a turn back. Delaying, en-route holding, negotiating with other aircraft in the vicinity are options. A re-route is required if clearance to FL330 or above is not obtained.

If the FMC engine out performance indicates that the aircraft would have sufficient terrain clearance, no critical point and escape route are required.

Critical Points

TAPIS

Actions Following In Flight Shutdown

Dependent on position as follows:

1. **East of TAPIS:** 6nm offset to North along OFP route towards Delhi (DEL).
2. **West of TAPIS:** 6nm offset to South along OFP route towards Termez (TRZ).

Actions Following Depressurisation

No action required – continue on route as planned.

MSAs and Turns

No restrictions

Fuel Jettison

The analysis has shown that the terrain will be cleared without using fuel jettison. However, it is recommended that fuel jettison is selected as soon as workload permits. 30,000 kg fuel remaining will be sufficient fuel for diversion to all likely alternates. Further fuel jettison may be necessary to reduce weight below MLW.

Driftdown/Oxygen Procedures for routes on Airway UL125/R660/UW704 (Westbound)

B777-200ER GE90-85B	Route IKA-CRM
Minimum Flight Level for Crossing	
N/A If the FMC engine out performance indicates that the aircraft would have sufficient terrain clearance, no critical point and escape route are required.	
Critical Points	
DASIS	
Actions Following In Flight Shutdown	
Dependent on position as follows:	
<ol style="list-style-type: none"> 1. Before DASIS: Turn back DCT previous waypoint. To OITT, OIIE or other suitable diversion airfield. 2. After DASIS: Continue on planned route. Divert as per fuel state. 	
Actions Following Depressurisation	
Initial descent to 16,000ft then per MTCA.	
MSAs and Turns	
No restrictions	
Fuel Jettison	
The analysis has shown that the terrain will be cleared without using fuel jettison. However, it is recommended that fuel jettison is selected as soon as workload permits. 30,000 kg fuel remaining will be sufficient fuel for diversion to all likely alternates. Further fuel jettison may be necessary to reduce weight below MLW.	

Driftdown/Oxygen Procedures for routes on Airway R659 through Iran (Northbound)

B777-200ER GE90-85B
B777-200 GE90-76B

**AUH/BAH/DXB – LHR via UL123 (R659)
northbound (SHIRAZ)**

Minimum Flight Level for Crossing

Flight plans will be issued with minimum recommended flight levels of FL260.

FL260 is the minimum acceptable level to meet driftdown criteria. Should levels below FL260 be offered, all efforts must be made to negotiate higher to avoid a turn back. Delaying, en-route holding, negotiating with other aircraft in the vicinity are options. A re-route is required if clearance to FL260 or above is not obtained.

If the FMC engine out performance indicates that the aircraft would have sufficient terrain clearance, no critical point and escape route are required.

Critical Points

CP123 (N31.459 E052.039)

Insert in FMS at a time of low workload. This critical point is coincident with waypoint GESIP (Route R659 only).

Actions Following In Flight Shutdown

Dependent on position as follows:

1. **Before CP123:** turn back (right) and initially proceed L6 offset along the airway toward the South. Return to airway centre line when cleared by ATC.
2. **After CP123:** continue with an initial R6 offset along the airway toward the North. Return to airway centre line when cleared by ATC.

Actions Following Depressurisation

The same routings, including the published escape route, will apply in the event of a de-pressurisation. The initial level off height will be 15,600 ft. Further descent as permitted by MSA.

MSAs and Turns

The above turns will take the aircraft to the East side of the airway.

Fuel Jettison

The analysis has shown that the terrain will be cleared without using fuel jettison. However, it is recommended that fuel jettison is selected as soon as workload permits. 30,000 kg fuel remaining will be sufficient fuel for diversion to all likely alternates. Further fuel jettison may be necessary to reduce weight below MLW.

Driftdown/Oxygen Procedures for routes on Airway UP975/UT36/G208/R661 (Eastbound)

B777-200ER GE90-85B	Route UNVUS-OIIE
Minimum Flight Level for Crossing	
N/A	
If the FMC engine out performance indicates that the aircraft would have sufficient terrain clearance, no critical point and escape route are required.	
Critical Points	
ULTED	
Actions Following In Flight Shutdown	
Dependent on position as follows:	
<ol style="list-style-type: none"> 1. Before ULTED: Turn back direct previous waypoint and route to suitable diversion airfield. 2. After ULTED: Continue on planned route. Divert as per fuel state. 	
Actions Following Depressurisation	
Initial descent to 15,300ft then per MTCA	
MSAs and Turns	
No restrictions	
Fuel Jettison	
The analysis has shown that the terrain will be cleared without using fuel jettison. However, it is recommended that fuel jettison is selected as soon as workload permits. 30,000 kg fuel remaining will be sufficient fuel for diversion to all likely alternates. Further fuel jettison may be necessary to reduce weight below MLW.	

Driftdown/Oxygen Procedures for routes from Kuala Lumpur via REGET (Westbound)

B787-9 Trent J	KUL-LHR via Route REGET N644 LEMOD
Critical Points	
NEVIV (N33 5.84 E067 47.0) for engine failure	
Actions Following In Flight Shutdown	
<ol style="list-style-type: none"> 1. Before NEVIV: Turn back with 3nm offset and divert to Lahore (OPLA) or Delhi (DEL) or nearest suitable alternate advising ATC as early as possible. 2. After NEVIV: Divert to Mashhad (OIMM) or Ashgabat (UTAA) or nearest suitable alternate advising ATC as early as possible. 	
Actions Following Depressurisation	

Initial descent altitude: 19,000ft

Note: Operations from UK to KUL on N644 via LEMOD are unrestricted for decompression and driftdown considerations due to the reversal of the terrain profile and lower gross weight over the high terrain.

INDIA – HONG KONG

Routes to Malaysia, Indonesia, Bangkok, Hong Kong, China and The Philippines.

GENERAL

Generally en-route communications are good, using VHF with HF back-up.

Over Large areas of Eastern Russia and China VHF frequencies for Datalink are locked out (more expensive than Satcom) and datalink services are routed via Satcom. If Satcom datalink fails then Company Comms and D-ATIS are unavailable until approaching HKG.

Part of Calcutta FIR lies E of Dhaka and just N of Chittagong. If this is entered without permission from Calcutta ATC, due weather avoidance etc, a violation may be filed.

Hong Kong Control on 127.1 MHz has an extended range of 350 nm beamed to the SW (with SELCAL).

When communicating with Chinese controllers it is essential that standard phraseology is strictly adhered to. They have a very pronounced accent but otherwise communications are good. Initial contact is on HF well before the border.

Reporting points are normally referred to by the navaid ident. e.g. KILO MIKE GOLF for Kunming.

When routing to Hong Kong across China, Hong Kong ATC should be contacted as soon as possible on HF and the forward estimate monitored.

On the route via Kunming (KMG) they can normally be reached by Lashio (LSO) over Myanmar (formerly Burma). See Central Asia or Far East Flight Progress Chart.

En-route Radar coverage is sparse.

Approaching Hong Kong, communications will be transferred to VHF and Hong Kong will provide Radar monitoring and issue an onward clearance.

VOLCANIC ACTIVITY

GALUNGGUNG, 90 nm SE of Jakarta. A BA 747, flying downwind of this volcano, at normal cruising levels, suffered failure of all 4 engines.

PINATUBO, 50 nm NW of Manila. Volcanic ash was reported to 45,000ft and Manila Airport was closed.

MAYON, 170 nm SE of Manila. Significant eruption Feb 2000.

DRIFTDOWN AND DEPRESSURISATION PROCEDURES

Driftdown/Oxygen Procedures for Operation on Airways A368/B215 through China en-route to Hong Kong (Eastbound)

B747-400
LHR-HKG via A368/B215

Critical Points

YABRAI (YBL) (N39 25.7 E102 46.3) for engine failure.

OXY1 (N43 38.1 E090 25.1) 152 nm North of HMI, 110 nm South of FKG for decompression.

OXY2 (N34 30.3 E104 13.4) 69 nm North of OMBON, 162 nm South of JTA for decompression.

Actions Following In Flight Shutdown

Dependent on position as follows:

Once established at driftdown altitude, establish Two engine inoperative level-off height. Compare with MSAs on route ahead, and if adequate clearance is not available, divert as appropriate.

1. **Before YABRAI (YBL):** Proceed to YBL and route via A596 or B330 to ZBAA or ZBHH dependant on fuel.
2. **After YABRAI (YBL):** Proceed to destination.

Actions Following Depressurisation

1. **Before OXY1 (after Fukang):** Return to Urumqi area. Either land at Urumqi or divert back to CIS on A368 via SARIN.
2. **Between OXY1 (after Fukang) and OXY 2 (after JTA):** Proceed/return to Yabrai (YBL) as appropriate and route A596 to Beijing or destination dependant on fuel.
3. **After OXY 2 (after JTA):** Proceed to destination.

Note: Sufficient oxygen capacity is available to cover a decompression at OXY1 and divert to Urumqi or if this is not available, diversion by A368 via SARIN to the CIS. If routing via A368 – SARIN no special oxygen handling procedures are required. (MSAs to the West of SARIN are low enough that oxygen is not required.)

Escape Route

Escape route available via A596 towards Beijing ZBAA or Hohhot ZBHH dependant on fuel.

MSAs and Turns

Turns are permitted in either direction.

Driftdown/Oxygen Procedure for Operation on Airways B215/A368 through China en-route from Hong Kong (Westbound)

B747-400
HKG-LHR via B215/A368

Critical Points

OXY1 (N43 38.1 E090 25.1) 152 nm North of HMI, 110 nm South of FKG for decompression.

Actions Following In Flight Shutdown

Dependent on position as follows:

Once established at driftdown altitude, establish Two engine inoperative level off height. Compare with MSAs on route ahead, and if adequate clearance is not available, divert as appropriate.

Actions Following Depressurisation

1. **Before OXY1 (between Hami HMI and Fukang FKG):** Proceed/return to Yabrai (YBL) as appropriate and route A596 towards Beijing ZBAA or Hohhot ZBHH dependant on fuel.
2. **After OXY1:** Route to CIS or divert to Urumqi.

Note: Sufficient oxygen capacity is available to cover a decompression at OXY1 and divert to Urumqi or if this is not available, diversion by A368 via SARIN to the CIS. If routing via A368 – SARIN no special oxygen handling procedures are required. (MSAs to the West of SARIN are low enough that oxygen is not required.)

Escape Route

Escape route available via A596 towards Beijing ZBAA or Hohhot ZBHH dependant on fuel.

MSAs and Turns

Turns are permitted in either direction.

Driftdown/Oxygen Procedure for Operation on Airway B330 through China en-route to HKG (Eastbound)

B747-400
LHR-HKG via B330 MORIT

Critical Points

OXY2 (N34 30.3 E104 13.4) 69 nm North of OMBON, 162 nm South of JTA for decompression.

Actions Following In Flight Shutdown

Dependent on position as follows:

Once established at driftdown altitude, establish Two engine inoperative level off height. Compare with MSAs on route ahead, and if adequate clearance is not available, divert as appropriate.

Actions Following Depressurisation

1. **Before OXY2:** Proceed on airway A596 towards Beijing ZBAA or Hohhot ZBHH dependant on fuel or turnback and proceed to Novosibirsk (UNNT/ OVB) on airway B330.
Continuation past OXY2 on routing or a return to Urumqi/Kazakhstan past OXY1 is not permitted due to terrain critical oxygen requirements.
2. **After OXY2:** Continue to HKG.

Escape Route

Escape route available via A596 towards Beijing ZBAA or Hohhot ZBHH dependant on fuel.

MSAs and Turns

Turns are permitted in either direction.

B787-8 Trent AE
LHR-CTU via B330 MORIT
Critical Points

TEKOR (N45 4.36 E099 16.31) for decompression

OMBON (N33 21.24 E104 16.18) for decompression

Actions Following In Flight Shutdown

Dependent on position as follows:

Once established at driftdown altitude, establish Two engine inoperative level off height. Compare with MSAs on route ahead, and if adequate clearance is not available, divert as appropriate.

Actions Following Depressurisation

Initial descent altitude: 20,000ft

1. **Before TEKOR:** Turn back with 3 nm offset and divert to nearest suitable alternate advising ATC as early as possible.
2. **Between TEKOR and OMBON:** Divert to Lanzhou (ZLLL) or nearest suitable alternate.
3. **After OMBON:** Continuation to CTU is permitted or nearest suitable alternate.

MSAs and Turns

Turnbacks are not permitted in West bound direction due to significant terrain.

Restricted airspace up to FL 270 exists 10 nm to the East and for a distance of 70 nm North from DOREX.

Driftdown/Oxygen Procedure for Operation on Airway B330 through China en-route from Hong Kong (Westbound)
B747-400
HKG-LHR via B330 MORIT
Critical Points

OXY2 (N34 30.3 E104 13.4) 69 nm North of OMBON, 162 nm South of JTA for decompression.

Actions Following In Flight Shutdown

Dependent on position as follows:

Once established at driftdown altitude, establish Two engine inoperative level off height. Compare with MSAs on route ahead, and if adequate clearance is not available, divert as appropriate.

Actions Following Depressurisation

1. **Before OXY2:** Turn back and return to HKG
2. **After OXY2:** Continue to Novosibirsk (UNNT/OVB) on airway B330 or proceed on airway A596 towards Beijing ZBAA or Hohhot ZBHH dependant on fuel.

Escape Route

Escape route available via A596 towards Beijing ZBAA or Hohhot ZBHH dependant on fuel.

MSAs and Turns

Turns are permitted in either direction.

B787-8 Trent AE
CTU-LHR via B330 MORIT
Critical Points

DOREX (N31 8.48 E104 22.5) for engine failure

OMBON (N33 21.24 E104 16.18) for engine failure

OMBON (N33 21.24 E104 16.18) for decompression

TEKOR (N45 4.36 E099 16.31) for decompression

Actions Following In Flight Shutdown

1. **Before DOREX:** Turn back and return to CTU
2. **Between DOREX and OMBON:** Turn back to CTU must be made to the East. Restricted airspace exists 10 nm East of the airway between DOREX and 70 nm North from DOREX. In the event of an airborne return advise ATC immediately. ATC have indicated that the restricted area can be entered during the turn. However, every effort should be made to reduce the time within it and regain a 3 nm West offset of the airway centreline expeditiously.
3. **After OMBON:** Continue or turn back with 3 nm offset on airway B330 to Lanzhou ZLLL or nearest suitable alternate and advice ATC as early as possible.

Actions Following Depressurisation

Initial descent altitude: 20,000ft

1. **Before OMBON:** Turn back to CTU must be made to the East. Restricted airspace exists 10 nm East of the airway between DOREX and 70 nm North from DOREX. In the event of an airborne return advise ATC immediately. ATC have indicated that the restricted area can be entered during the turn. However, every effort should be made to reduce the time within it and regain a 3 nm West offset of the airway centreline expeditiously.
2. **Between OMBON and TEKOR:** Continue or turn back to Lanzhou ZLLL with 3 nm offset or to nearest suitable alternate advising ATC as early as possible.
3. **After TEKOR:** Continue with 3 nm offset and divert to nearest suitable alternate advising ATC as early as possible.

MSAs and Turns

Turnbacks are not permitted in West bound direction due to significant terrain.

Restricted airspace up to FL 270 exists 10 nm to the East and for a distance of 70 nm North from DOREX.

The following MSAs can be used instead of CIRRUS MSAs for this portion of the flight:

From	To	MSA
DOREX	OMBON	15,600
OMBON	JTA	16,500
JTA	YBL	11,300
YBL	MORIT	8,100
MORIT	TEKOR	11,000
TEKOR	DILAT	11,900

CHINA

Within China, air-routes vary in width between 8-20 km. Deviation from the specified air routes is prohibited. Crews should note that the civil controllers only have responsibility for aircraft within the 20 km width of the airway. Airspace outside of the airway is controlled by the military. Crews requiring

deviation for weather should only request vectors within the airway width. Crews having to deviate outside the airway will be under military control and may be instructed to land at a nearby military airfield. In such cases consideration of returning to airport of origin or diversion must be considered. If necessary a PAN call should be made.

Diversion

Provided that the original destination is Chinese, the CAAC (who are responsible for all aircraft handling in China) additionally consider themselves responsible for handling at the alternate. Thus ground handling and fuel will be available on diversion to a mainland Chinese alternate.

Border Crossing

This is only allowed within a specified air corridor or over a specified entry/exit point. ATC must be contacted 15-20 mins prior to the border giving call sign, ETA for border and FL.

Border crossing clearance should then be issued. The border must not be crossed without ATC permission. A position report must be made when crossing the border. These rules apply for both entry and exit.

Forced to Return

If it becomes necessary, an aircraft is permitted to return by its original route, air corridor or entry/exit point. ATC should be informed of the following:

1. Call sign.
 2. Reason for forced return.
 3. Time when beginning return.
 4. Altitude.
 5. Aerodrome of intended landing.

If no instructions are received from ATC, the return flight over China shall be at a Flight Level immediately below that originally flown. If this is below the MSA then the Flight Level above that originally flown shall be used.

Altimetry

All altimeter clearances are given in metres, QNH.

China uses RVSM at cruising altitudes. Check correct feet setting in MCP versus cleared metric flight levels.

Dimensional Units

Horizontal distances in km. Speeds and Upper Wind km per hr. Surface winds metres per sec.

Approx conversions: (km/hr)/2 = knots

(m/sec) $\times 2 =$ knots

Routes from C.I.S across China

MSAs are high over much of northern China; over 21,000ft at Urumqi and over 22,000ft N of Chengdu. This necessitates careful planning for engine failure and decompression.

HONG KONG

Routing from LHR to HKG:

Routing from ERM to HRC:
Routing does not vary significantly and is to the south of Helsinki then via the Baltic states to the North of Moscow across Siberia where it turns south east over Mongolia and into China

There is high terrain in Sichuan province in China along airway B330 (Lanzhou and Kunming FIRs) which is subject to decompression escape routes provided above. Escape routes MUST be programmed in the FMS prior to transit.

Russian and Chinese airspace is RVSM. Russia operates to ICAO FL rules. China/Mongolia operates in metric levels and the equivalent semi-circular cruising levels are subtly different, so FL330 becomes FL10100 m which is flown as 33,100 feet. This requires a small altitude change at the boundary which must be flown otherwise Chinese controllers will challenge your level.

Hong Kong is standard ICAO levels.

CPDLC is not yet available in Russia in the FIRs we fly through.

Mongolia (Ulanbaatar) has a trial CPDLC service with ADS-B.

The Chinese will often assign offsets for significant distances through their airspace which you are required to fly. Some crews apply their own offset in Russian airspace, ATC may query any such offset especially if more than 1 nm.

Hong Kong – Notification of Arrival Delay

Effective from August 2013 – A delay notification message will be included in the arrival ATIS when an arrival delay is expected to exceed 30 mins. ATC will supplement this information as required on first contact. UNLESS informed by pilots ATC will consider flights that decide to continue inbound to HKG will have the required holding fuel to absorb the notified delay. If further delay develops pilots will be informed accordingly.

VIETNAM

Aircraft operating over Vietnam may require an over flight Clearance Number.

HONG KONG – TOKYO

In this area there is good ATC and co-ordination.

TAIWAN

Aircraft must contact Taipei Control prior to crossing the FIR boundary for clearance. BAV services to TAIPEI – to satisfy political sensitivities, at no time should the aircraft be landed in MAINLAND CHINA.

JAPAN

Japanese controllers have a pronounced accent and a tendency to talk quickly making it difficult at times to understand clearances. It pays to be prepared in advance for clearances, listening out to other aircraft going the same way can be very useful.

Be prepared for a full clearance as far as the first major airway. Only after this will the term “flight planned route” be given. Beacons will usually be referred to by their “name” rather than callsign.

Pressure settings provided by ATC are usually in ‘inches of Hg’ but may be provided in ‘Hpa’. Exercise caution as a combination of these two settings may also be used at the same time.

Transition Altitude 14,000ft.

250 kts Max at or below 10,000ft within approach control areas.

Volcanic activity is a continuing hazard over Japan.

All Japanese airfields have markings on the runway indicating its midpoint. The markings consist of 3 parallel white stripes running across the runway.

Airfields which are likely to see heavy snow fall in the winter months have orange runway markings instead of white ones to improve recognition.

Minimum Fuel Advisory

Advise ATC when fuel has reached a state where any undue delay at destination is unacceptable. This call does not declare an emergency and does not imply a need for traffic priority. On initial contact the term "MINIMUM FUEL ADVISORY" should be used after your callsign. IF TRAFFIC PRIORITY IS REQUIRED YOU MUST DECLARE AN EMERGENCY, reporting fuel remaining in minutes.

Radar Advisory Service

This network exists primarily for air defence around Japan but will provide assistance on request. This assistance may be withdrawn without prior notice.

When using the service it is the pilots responsibility for obtaining changes in ATC clearances prior to contact with radar stations, but ground stations will assist in obtaining clearances if necessary.

Departure Clearances

Departure clearances from Japan ATC may include, for example, A110. This is a clearance to an altitude of 11,000ft. This clearance does not, in itself, override the need to comply with the altitude constraints on the SID.

FAR EAST – AUSTRALIA

Communications and ATC are good with a mixture of VHF and HF.

OFP highlights the requirement for the sending of Met reports which is quite extensive.

REFER TO AUSTRALASIA AREA BRIEFING for details of Australian operations.

INDONESIA

250 kts Max at or below FL100 in Jakarta, Palembang, Surabaya or Bali controlled airspace.

SINGAPORE – JAKARTA

There are special level assignments for aircraft flying between these FIRs.

PHILIPPINES

Aircraft entering Manila FIR from the south are to report at 2°N giving FL and estimate for 4°N.

Speed Control – 250 kts Max within 30 nm of Manila below FL100.

YANGON FIR

IFBP should be followed in the Yangon FIR. See details in the Africa Area brief.

NORTH AMERICA AREA

NORTH ATLANTIC

OCEANIC CONTROL AREA

Gander, Shanwick, New York, Santa Maria, Reykjavik. FL55 – Unlimited.

Minimum Navigation Performance Specification – North Atlantic

The MNPS airspace over the North Atlantic is that airspace:

- FL285 – FL420.
- The Southern portion of the Santa Maria Oceanic, thence from 27°N – The North Pole.
- Bounded in the E by the E boundaries of CTAs Santa Maria Oceanic, Shanwick Oceanic and Reykjavik.
- Bounded in the W by the W boundaries of CTAs Reykjavik, Gander Oceanic, New York Oceanic and Santa Maria Oceanic, excluding the area W of 60°W and S of 38° 30'N within New York Oceanic.

The area N of 54°N NW of Ireland is designated the NORTHERN OCEANIC TRANSITION AREA (NOTA) and is part of the MNPS airspace.

Control in this area is provided by Shannon ATC centre.

The area S of 51°N to the SW of Ireland is designated as the SHANNON OCEANIC TRANSITION AREA (SOTA) and is part of the MNPS airspace. Control in this area is provided by Shannon ATC Centre along standard published routes.

South of this area between 08°W and 08°45W is the BREST OCEANIC TRANSITION AREA (BOTA) which is also part of MNPS airspace. Control is provided by Brest ACC, callsign 'Brest Control'.

Aircraft operating within the MNPS airspace are required to have a minimum navigation performance capability. This requirement is in principle two navigation systems in Nav mode – but see relevant manual for aircraft type.

Aircraft with reduced navigational capability may utilise special routes between NE Canada and Europe via Greenland and Iceland (Blue Spruce Route), and between the Azores and the Portuguese mainland.

Reduced Vertical Separation Minimum (RVSM)

Within MNPS airspace Reduced Vertical Separation Minimum (RVSM) is used. There is a minimum equipment requirement and an associated altimeter check before flight into RVSM airspace – see relevant manual for aircraft type. "W" is entered in Item 10 of the Flight Plan to indicate an aircraft is equipped and approved to operate in RVSM airspace.

If failure results in the aircraft having less than the minimum equipment required to enter RVSM airspace, ATC must be informed immediately. Loss of all autopilots means non-compliance with RVSM equipment minima.

The New York Oceanic FIR (WATRS area) West of 60W and South of 3830N FL 290 and 410 (inclusive) is designated as RVSM airspace.

Strategic Lateral Offset Procedure

The Strategic Lateral Offset Procedure is now implemented within North Atlantic Region Airspace including the New York Oceanic FIR (WATRS area) West of 60W and South of 3830N.

The procedure provides for the application of lateral offsets within the following guidelines:

- Strategic lateral offsets and those executed to avoid wake turbulence are to be made to the right of a route or track, never to the left;
- In relation to a route or track, there are three positions that an aircraft may fly: centreline, one or 2 NM right; and,
- Offsets are not to exceed 2 NM right of centreline.

The intent of this procedure is to reduce risk (increase the safety margin) by distributing aircraft laterally and equally across the three available positions. In this connection, pilots must take account of the following:

- Aircraft without automatic offset programming capability must fly the centreline;
- Aircraft capable of being programmed with automatic offsets may fly the centreline or offset one or 2 NM right of centreline to obtain lateral spacing from nearby aircraft;
- Pilots should use whatever means are available (e.g. TCAS, communications, visual acquisition, GPWS) to determine the best flight path to fly;
- Any aircraft overtaking another aircraft is to offset within the confines of this procedure, if capable, so as to create the least amount of wake turbulence for the aircraft being overtaken;
- For wake turbulence purposes, pilots are also to fly one of the three positions at 2 above and never offset to the left of centreline nor offset more than 2 NM right of centreline;

Note: It is recognized that the pilot will use his/her judgement to determine the action most appropriate to any given situation and has the final authority and responsibility for the safe operation of the aeroplane. The air-to-air channel, 123.45 may be used to co-ordinate the best wake turbulence offset option.

- Pilots may apply an offset outbound at the oceanic entry point but must return to centreline at the oceanic exit point;
- Aircraft transiting radar-controlled airspace, e.g. Bermuda, are to remain on their established offset positions;
- Pilots should use a random method to decide whether to offset 1 NM right, 2 NM right or fly the centreline, taking in to account the circumstances above;
- There is no ATC clearance required for this procedure and it is not necessary that ATC be advised; and,
- Position reports are to be based on the current ATC clearance and not the exact co-ordinates of the offset position. An example of a report when passing 54N 20W while being offset from track is “*Shanwick, Speedbird 175, position 54N 020W, 1222, estimate...etc*”.

Standard Lateral Separation

120 nm but with the following exceptions:

- 60 nm between aircraft complying with the requirements of MNPS in MNPS airspace.
- 90 nm between aircraft operating outside MNPS airspace.
 - Between the USA or Canada and Bermuda.
 - Between the USA, Canada or Bermuda and the Caribbean.
 - Between the Iberian Peninsula and the Azores.
 - Between Iceland and Scandinavia or the UK.

Standard Longitudinal Separation

Basically 10 mins for jet aircraft, provided the aircraft meet MNPS requirements, operate wholly or partly in MNPS airspace, use the Mach No Technique and have reported over the same entry point into the OCA and follow the same track or diverging tracks, or the required separation may be assured using ATC Radar. The separation may be reduced to 5 minutes if the preceding aircraft arriving at the OCEANIC entry point is flying at speed of Mach .06 greater than following aircraft.

Requirements when using the Mach No Technique:

- i. The planned True Mach Number for each portion of the route within the NAT shall be specified in item 15 of the Flight Plan.
- ii. The Mach number approved by ATC shall be adhered to as accurately as possible and approval shall be requested before making any change. If immediate temporary change is essential (e.g. due to turbulence), notify ATC as soon as possible and advise adjacent aircraft using 121.5. Clearance for a prolonged reduction in Mach number may not be possible if the 10 minute separation is compromised.
- iii. Advise ATC of any change in Mach number after leaving Oceanic airspace.

ATC Use of 5 Minutes GNSS Climb/Descent Through Procedure

Some NAT ATC units utilise a procedure which permits ATC to clear an aircraft to climb or descend through the level of another aircraft, with as little as 5 minutes longitudinal separation, provided that both aircraft are using GNSS (GPS) for position determination and reporting. The rule allowing ATC to use this procedure includes a caveat that the climb or descent needs to be undertaken within 10 minutes of the time that the second aircraft in the pair has passed a common reporting point.

Importance of Accurate Time

Preflight procedures for any NAT MNPS flight must include a UTC time check of the aircraft master clock(s).

Organised Track System (OTS)

As a result of passenger demands, time zone differences and airport noise restrictions, much of the North Atlantic air traffic contributes to one of two flows; a W-bound flow departing Europe in the morning, and an E-bound flow departing North America in the evening.

In order to provide the best service to the bulk of traffic, a system of organised tracks is constructed every 12 hours to accommodate as many aircraft as possible on or close to their minimum cost path.

The Oceanic Centre supervisor obtains from the principal operators, the “best time” routes for the day. For peak traffic periods, ATC select a primary, and three or more other tracks which parallel the primary at not less than 60 nm separation.

Shanwick is responsible for nominating tracks for the period 1130 - 1900Z when they are predominantly W-bound and these will be alphabetically identified ‘A’, ‘B’, ‘C’, etc from N to S. ATC will only publish those flight levels required to meet anticipated demand. However, other levels can be made available if requested. From 0100 - 0800Z when most of the traffic flow is E-bound the responsibility for track nomination lies with Gander who will identify tracks as ‘Z’, ‘Y’, ‘X’, etc from S to N. The time periods are times at 30°W and are those normally used. In all cases the hours of validity will be specified on the NAT Track Message.

These tracks are then notified to all main operators in the form of a Track Message. Since the Track structure changes daily, it is important to ensure that the Track Message relates to the correct date. Track Messages should be taken on all flights operating in Oceanic airspace during the relevant periods. The fact that a specific FL is not published for a particular Track does not necessarily mean that it cannot be made available on request. The Track Message is supplied on Simbrief and PFPX CIRRUS OFPs and can be separately obtained via <https://www.notams.faa.gov/common/nat.html>.

Prior to the organised track system coming into operation, E’ly and W’ly traffic can operate in RVSM; thus opposite direction traffic at only 1,000ft separation is a possibility.

Outside the organised track periods random routes are planned.

Organised Track System (OTS) Transition Periods

It is recommended that random flights, planning to cross 30°W E-bound within the hour preceding the onset of the day track system or planning to cross 30°W W-bound within the hour preceding the onset of the night track system, flight plan to join a track of the OTS at or beyond 30°W in accordance with the flight levels published in the NAT Track Message, or flight plan to remain clear of the OTS.

Flight Planning

During the period of OTS operation flights will normally be planned to follow a NAT. Note that this is not mandatory, a random track may still be filed, but ATC may reclear the flight along a NAT.

Flights South of 70°N, and predominantly East/West should normally flight plan so that specific ten° of longitude (20°W, 30°W, etc.) are crossed at whole° of latitude, and generally N-bound or S-bound aircraft should normally flight plan so that specific parallels of latitude spaced at five degree intervals (65°N, 60°N, etc.) are crossed at whole° of longitude.

If the flight is planned to operate along the whole length of one of the organised tracks, the intended organised track should be defined in Item 15 of the flight plan using the abbreviation “NAT” followed by the relevant code letter. The accumulated estimated elapsed time (EET) from take-off to either the OCA entry point for W-bound flights, or the commencement point of the Track for E-bound flights will be given in Item 18 of the Flight Plan.

For flights wishing to join or leave an organised track at some intermediate point, full track details are specified in the Flight Plan. (A route constructed using only part of a N Atlantic Track is a random route. “Abbreviated Read-back of Clearances”, described below, does not apply).

For flights conducted wholly or partly outside the OTS, accumulated estimated elapsed times from take-off to significant points on route should be specified in Item 18 of the flight plan.

For all flights intending to operate within MNPS airspace for any portion of their flight, the letter “X” should be inserted immediately after the letter “S” in Item 10 of the flight plan, indicating that the flight is certified as being in compliance with the MNPS.

For turbojet aircraft, the Mach No planned to be used for each portion of the flight in the NAT region should be specified in Item 15 of the flight plan.

UK – N America

BAV's North American services to/from the eastern seaboard and mid-west are usually planned to operate within the organised track structure. Routes will be analysed and determined on a best time/cost basis.

West Coast Operations follow a best time track, which may or may not encompass part or whole of the N. Atlantic Organised Track System.

Bermuda

Bermuda is in the New York OCA.

New York provides ATC for Bermuda Approach; VHF and Radar cover are by remote facilities. Squawk 2100 while transiting the BDA TCA.

Clearances

Initial clearance will be domestic only to the Oceanic entry point.

Pilots should request Oceanic clearances from the ATS unit responsible for the first Oceanic area within which they wish to operate not more than 90 mins and not less than 30 mins flying time from the Oceanic boundary when flying Westbound. Such clearances are applicable only from the Oceanic boundary/entry point. A full readback of an oceanic clearance, including track co-ordinates, is the standard requirement and is always required if the clearance is received on HF.

Note that on VATSIM it is normal practice during routine (non-event) operations for a single controller to cover both Shanwick and Gander OCAs. This controller may be logged on as either EGGX_FSS or CZQX_FSS and will normally handle Oceanic clearances from both sides of the Atlantic.

The clearance may give an expected FL (e.g. EXPECT F350) for the oceanic crossing; climb to this level will be subject to clearance to climb by the domestic controller. If the received clearance necessitates a revised domestic routing this too must be negotiated with the domestic controller.

Westbound Clearances

Early information of ETA and flight level at the Oceanic boundary is of extreme importance to ATC for planning purposes. Therefore UK departures not using an ACARS clearance request should call for Clearance from Shanwick on VHF as soon as possible after take-off, keeping in mind the 90-30 minute rule mentioned earlier. If unable to contact Shanwick on VHF, clearance should be requested on HF.

It sometimes happens that aircraft are routed from LHR/LGW over France for their N Atlantic crossing. To obtain the Oceanic Clearance from Shanwick on VHF it is necessary to make the call as soon as possible, once again keeping in mind the 90-30 minute rule. Any delay will take the aircraft out of VHF range and HF will need to be used.

Westbound Oceanic Clearance through Shanwick and Gander to New York ACC – this does NOT apply to flts through Santa Maria ACC to New York ACC.

Shanwick will clear flights to the first NAMED fix in the New York ACC then say VIA FLIGHT PLANNED ROUTE TO DESTINATION. If the flight-planned route goes South and East of 20N60W Shanwick will clear the acft to the last set of coordinates filed that are North and East of 20N60W and then say VIA FLIGHT PLANNED ROUTE TO DESTINATION. If ATC change the original planned route they will issue a routing to put the acft back on the original planned route then say VIA FLIGHT PLANNED ROUTE TO DESTINATION. The named fixes or coordinates that Shanwick clear acft to

are NOT clearance limits. After those points the acft should proceed VIA FLIGHT PLANNED ROUTE TO DESTINATION.

Eastbound Clearances

Gander clearance delivery procedures between 2330 and 0730 (DST 2230Z – 0630Z) require flights (in addition to monitoring the appropriate control sector frequency) to contact “Gander Clearance Delivery” not more than 90 mins and not less than 30 mins flying time from the Oceanic boundary for their Oceanic clearance.

Clearance delivery frequencies and locations are published daily in the eastbound Track Message. To reduce VHF radio transmissions during these hours the domestic control sector will not normally issue instructions for pilots to contact oceanic clearance delivery (nor is there a requirement for pilots to notify the domestic control sector that oceanic clearance has been received).

As in Westbound clearances above, remember that during routine operations a single controller logged on as EGGX or CZQX is likely to be covering the combined Shanwick/Gander OCA and will normally issue clearances for flights on both sides of the Atlantic.

Santa Maria Oceanic

Ensure that the request for oceanic clearance is made at least 40mins prior to estimated arrival at the Santa Maria Oceanic boundary.

New York Oceanic

The procedures used to issue Oceanic Clearances to eastbound traffic entering the New York Oceanic FIR from a FAA facility (eg Miami FIR) were modified effective January 2013. The last assigned route clearance, or that received at the departure aerodrome if not updated, is considered to be the route portion of the oceanic clearance with assignment of Altitude and Speed only occurring once airborne prior to entry into the New York Oceanic FIR.

Oceanic Clearance Request

- i. Callsign.
- ii. Co-ordinates of OCA entry point (or first point of an organised track).
- iii. Most accurate possible estimate for OCA entry point.
- iv. Desired FL for Oceanic crossing.
- v. Desired Mach. No. for Oceanic crossing.
- vi. OCA entry point max possible Flight Level.
- vii. Next best Track and Flight Level.
- viii. Any change to flight plan affecting OCA.

E.g.: “Shanwick, Speedbird 175, request JFK via NAT BRAVO, estimate PIKIL time 1227Z, FL340 Mach .85. Maximum at PIKIL FL360, next best NAT CHARLIE FL350.”

To minimise R/T, initially GIVE ONLY THE CALLSIGN WHEN CALLING SHANWICK ON VHF WESTBOUND; they will tell you the information they require. Note that “entry points” occur at Longitudes 10W, 15W exiting Scottish and Shannon, named points on the Brest Oceanic Transition Area (BOTA) boundary at 0845W, named points on the Shanwick Oceanic boundary, e.g. MASIT and named points on the Shannon Oceanic Transition Area (SOTA) boundary, e.g. OMOKO.

After receiving the clearance, the forward estimate for the Oceanic entry point must be monitored, and any revised ETA passed to ATC. This is very important as longitudinal spacing is based on these estimates. Advise ATC if the ETA changes by 3 minutes or more.

If the aircraft is cleared on a North Atlantic Track not as flight planned the easiest way to provide the Oceanic Boundary ETA that will be immediately called for by ATC is to request, from the Domestic Controller, a direct routeing to the new Oceanic Boundary point.

Non-receipt of Clearance

If pilots have not received their Oceanic Clearance prior to reaching the Shanwick OCA boundary, they must contact Domestic ATC and request instructions to enable them to remain clear of Oceanic Airspace whilst awaiting such Clearance. This is not the case for other NAT OCAs into any of which flights may enter whilst pilots are awaiting receipt of a delayed Oceanic Clearance. Pilots should always endeavour to obtain Oceanic Clearance prior to entering these other NAT OCAs; however, if any difficulty is encountered the pilot should not hold while awaiting Clearance unless so directed by ATC.

Core NAT Tracks

Changes are in effect for aircraft operating on selected NAT tracks at selected levels. This is known as ADS C and CPDLC mandated OTS. The remarks section of the track message will include ADS C and CPDLC tracks and levels. These NAT tracks require all acft to be carrying serviceable FANS/CPDLC equipment. In trail spacing will be correspondingly reduced.

Refuse incompatible clearances if you are not FANS/CPDLC equipped. All BAV aircraft currently operating on the North Atlantic can be assumed to be suitably equipped if fully serviceable.

“When Able Higher” (WAH) Reports

Must be provided by all flights entering New York (MNPSA) and Santa Maria OCAs,

e.g. “*Global Air 543, 40N 40W 1010, FL350, 40N 50W 110, 40N 60W next, able FL360 at 1035, able FL370 at 1145, able FL390 at 1300*”.

ATC will interpret this message as an *ability* to climb, not a request.

Reykjavik Control Area (BIRD)

Oceanic Clearance, when required, should be requested from Iceland Radio VHF 127.85 (BICC_FSS) not more than 30 mins and not less than 10 mins prior to the Oceanic boundary. If crews are unable to get their clearance prior to entry they are expected to enter Reykjavik OCA at the flight level cleared by Scottish and contact Reykjavik Control on assigned frequency.

Abbreviated Read-back of Clearances

A full co-ordinate read back is required unless a Track Message, complete with Track Message Identification (TMI) number, is held on the Flight Deck. In which case, if following the whole of a N Atlantic Track (NAT), read-back should only include TRACK LETTER, FL, MACH NO. and TRACK MESSAGE IDENTIFICATION.

“*Speedbird 175, cleared to JFK via NAT BRAVO, FL340 Mach .85, TMI is 273.*”

IF NOT FOLLOWING THE WHOLE LENGTH OF A NAT, FULL READ-BACK OF THE TRACK CO-ORDINATES IS REQUIRED INSTEAD OF THE TRACK MESSAGE IDENTIFICATION. The Track Message Identification number will have a suffix letter if the Track Message has been revised (e.g. 365A); this letter forms part of the identification number and must be quoted.

Automatic Climb Clearances

These may be issued by Gander, Moncton or Montreal. The instruction will specify a time to leave the initial flight level and a time to reach the final level. No further clearance is required to commence the climb. If a possibility exists that the aircraft will be unable to comply then the clearance must be rejected.

Track Changes

It often happens that the Oceanic Clearance will be for a Track other than that flight planned. For instance a westbound aircraft may have been flight planned to use Track A but when the clearance is received it is for Track B. This track change will necessitate loading the co-ordinates of Track B into the on-board navigation systems.

North American Domestic Routes (NAR)

The NAR system comprises a series of pre-planned routes over existing airway/route systems from/to coastal fixes serving North Atlantic traffic.

Most routes are divided into two portions:

- i. Common Portion – That portion of the route between the coastal fix and a specified Inland Navigation Facility.
- ii. Non-Common Portion – That portion of the route between the specified Inland Navigation Facility and the relevant system airfield.

The routes are numbered and prefixed by "N". Odd route numbers have E-bound applications, and even route numbers have W-bound applications. The NAR numbers have letter suffixes to indicate revisions to the route, e.g. NAR N102A becomes N102B with the first change and N102C with the second change and so on.

All aircraft that enter/exit the North Atlantic via the identified coastal fixes should use the NAR system if their domestic route requirements are compatible – those relevant to the particular entry/exit point are given on the Track Message.

Westbound traffic entering Canadian domestic airspace will not routinely receive onward en route clearance if proceeding as per flight plan. Flights that have been re-routed and enter Canadian domestic airspace within 120 nm of the flight planned Oceanic Exit Point can expect to be re-cleared to regain their flight planned route by the Inland Navigation Fix.

Other re-routed flights will be tactically re-routed by ATC. Re-clearance may be a specified route in full or expressed as a North American Route (NAR) comprising Common and Non Common Portions.

Met Reports

Occasionally aircraft may be nominated by ATC to make met reports. This is done by ATC when delivering clearance, adding the phrase "send met reports". Met reports should also be sent by any aircraft which encounters abnormal weather conditions or not following one of the organised tracks.

If you are asked to send met reports, add the temperature and spot wind for both the current position **and** the mid-point of the leg just flown to the end of a position report. For example:

"Speedbird 175, position 57N 20W time 1228Z, FL350 Mach .85. Estimate 57N 30W time 1341Z, next 56N 40W. Minus 56 220/55, Minus 60 270/80 5630N 15W."

Adherence to Track and ETA

It is essential to check that the aircraft is setting off towards the correct next way point at each turning point. Ten minutes after each turning point check that the aircraft is on track. Waypoints uplinked may

be interrogated by line selecting the waypoint and checking the co-ordinates in the Scratchpad, or on the Nav Data page of the FMS.

Reclearance

A change in your filed clearance (i.e. different from the oceanic route requested with the flight plan) is the most probable cause of Gross Navigation Error. Crews must be particularly cautious when receiving a reclearance. Strict adherence to fleet SOPs in this situation will mitigate the risk of GNE and concomitant risk of mid-air collision.

Step Climbs in North Atlantic MNPS Airspace

Planned Step Climbs

Due to current ATC restrictions, flights operating on North Atlantic Organised Track Structure cannot file flight plans containing step climbs within the NAT segment. This restriction is also contained in the Lido Flight planning system and as a result, OFPs will not display step climbs within the NAT segment even if it is economic to do so.

En-route Step Climbs

Within the NAT system, the OCA controller will endeavour to allow flight climbs on a tactical basis. To make the most of this service crews should review FMC performance predictions to determine optimum cruise levels. Climb requests should then be made via HF radio or CPDLC to the appropriate OCA.

Communications

As HF is not simulated in MSFS/P3D etc, VATSIM uses VHF frequencies in the Oceanic Control Area.

In normal operations, the positions covering the MNPS area are:

Position Designation	RTF Callsign	Frequency
EGGX_FSS	SHANWICK RADIO	131.800
CZQX_FSS	GANDER RADIO	131.700
NY_JBC_FSS	NEW YORK RADIO	125.925
LPPO_FSS	SANTA MARIA RADIO	127.900
BICC_FSS	ICELAND RADIO	127.850

During large events such as Cross The Pond additional frequencies will be opened, often split via NAT Track and/or level.

121.5 should be monitored continuously on long over-water flights.

Although Shanwick is responsible for the area west of 30W and Gander is responsible for the area east of 30W, it is routine for one controller to cover the whole combined Shanwick/Gander area during normal operations. The controller may be logged on as EGGX_FSS or CZQX_FSS and should be contacted for Oceanic clearance in the usual way (i.e. prior to the Oceanic Entry Point) whether you are heading westbound or eastbound.

When approaching the Canadian coast, the Oceanic Controller, on HF or VHF will give a frequency on which to call the appropriate centre, for onward airways clearance. Remember that on HF you are talking to a radio operator so there may be a delay for requests to be actioned. The aircraft SELCAL code is included in Item 18 of the Flight Plan and can be found for each aircraft in the fleet in the Flight Operations section of the BAV Forums.

Transponders

While in the North Atlantic/NAT/Flight Information Region, and unless otherwise directed by ATC, select A2000. However, the last assigned code should be retained for a period of **30 mins** after entry into NAT Airspace. However, for all SSR equipped aircraft operating on routes T9 and T213 the last assigned code shall be retained for a maximum of **ten minutes** after entry into NAT Airspace.

Flight Planning Minima for Alternate Aerodromes

When flight planning certain aerodromes as the nominated alternate, the forecast weather at the alternate must be above specified limits which are much higher than those for use of the aerodrome as a destination.

En Route Diversion Aerodromes

- KEFLAVIK (Iceland) H24.
 - If a KEF SNOWTAM is reporting 40 m wide cleared runway, a wider width can be provided within a short time period (10–20 mins) if reqd. Contact KEF tower as soon as possible to request 45 m cleared width.
- IQALUIT (Baffin Is) H24.
- GANDER (Newfoundland) H24.
- SANTA MARIA (Azores) H24.
- SHANNON (Ireland) H24.
- THULE (Greenland) Limited Hours.
- KANGERLUSSUAQ (Greenland) Limited Hours.
 - However Kangerlussuaq will be available within 60 mins (usually less) in an emergency and may be used H24 for Non ETOPS planning purposes, e.g. ferry flights of two engined aircraft.
- GOOSE BAY (Labrador) H24.
- HALIFAX (Nova Scotia) H24.
- LAJES (Azores) H24.

Weather Deviation Procedures

The following procedures are intended to provide guidance for deviations around thunderstorms. All possible circumstances cannot be covered and therefore the pilot's judgment shall ultimately determine the sequence of actions taken.

If the aircraft is required to deviate from track to avoid weather and prior clearance cannot be obtained, an air traffic control clearance shall be obtained at the earliest possible time.

When the pilot initiates communications with ATC, rapid response may be obtained by stating "WEATHER DEVIATION REQUIRED" to indicate that priority is desired on the frequency and for ATC response.

If a revised air traffic control clearance cannot be obtained and deviation from track is required to avoid weather, the pilot should take the following actions:

1. If possible, deviate away from an organized track or route system.
2. Establish communication with and alert nearby aircraft by broadcasting, at suitable intervals: identification, flight level, aircraft position (including the ATS route designator or the track code) and intentions (including the magnitude of the deviation expected) on the frequency in use, as well as on UNICOM frequency 122.800 MHz (or, as a back-up, the VHF inter-pilot air-to-air frequency 123.45).
3. Watch for conflicting traffic both visually and by reference to TCAS.
4. Turn on all aircraft exterior lights (commensurate with appropriate operating limitations).
5. For deviations of less than 10 nm, aircraft should remain at the level assigned by ATC.
6. For deviations of greater than 10 nm, when the aircraft is approximately 10 nm from track, initiate a level change based on the following criteria:

Route Centreline Track	Deviation >10M	Level Change
EAST (000-179 magnetic)	LEFT	DESCEND 300ft
	RIGHT	CLIMB 300ft
WEST (180-359 magnetic)	LEFT	CLIMB 300ft
	RIGHT	DESCEND 300ft

Simple rule of thumb: if deviating North of Track Descend 300ft, South of Track Climb 300ft.

7. If contact was not established prior to deviating, continue to attempt to contact ATC to obtain a clearance. If contact was established, continue to keep ATC advised of intentions and obtain essential traffic information.
8. When returning to track, be at its assigned flight level, when the aircraft is within approximately 10 nm of centre line.

Note: 2 and 3 above call for the pilot to: broadcast aircraft position and pilot's intentions, identify conflicting traffic and communicate air-to-air with near-by aircraft. If the pilot determines that there is another aircraft at or near the same FL with which his aircraft might conflict, then the pilot is expected to adjust the path of the aircraft, as necessary, to avoid conflict.

IN-FLIGHT CONTINGENCIES

The following procedures are intended for aircraft unable to maintain assigned level due to:

- a) Weather (for example severe turbulence);
- b) Aircraft performance problems; or
- c) Pressurisation failure.

They are applicable primarily when rapid descent, turn-back, or diversion to an alternate aerodrome is required. The pilot's judgement will determine the specific sequence of actions taken, having regard to the prevailing circumstances.

An aircraft unable to continue flight in accordance with ATC clearance

should obtain a revised clearance prior to initiating any action USING THE DISTRESS (MAYDAY) OR URGENCY (PAN) PREFIX as appropriate.

General Procedures

If prior clearance cannot be obtained, an ATC clearance should be obtained at the earliest possible time and, in the meantime, the aircraft should broadcast its position (including the ATS Route designator or the Track Code as appropriate) and its intentions, at frequent intervals on 122.8 MHz (with 123.45 MHz as a back-up frequency). It must be recognised that due to the types of communications used in North Atlantic operations (e.g. CPDLC, station-to-station SATCOM Voice and SELCAL with HF), pilots' situation awareness, of other potentially conflicting traffic, may be non-existent or incomplete. If, however, the aircraft is in an area where ATC communications are being conducted on VHF, pending receipt of any re-clearance, the position and intentions should be broadcast on the current control frequency, rather than 122.8 or 123.45 MHz.

In general terms, the aircraft should be flown at a flight level and/or on a track where other aircraft are least likely to be encountered. Maximum use of aircraft lighting should be made and a good lookout maintained. If ACAS/TCAS is carried, the displayed information should be used to assist in sighting proximate traffic.

Specific Procedures

The general concept of these Oceanic in-flight contingency procedures is, whenever operationally feasible, to offset from the assigned route by 15 NM and climb or descend to a level which differs from those normally used by 500ft if below FL410 or by 1000ft if above FL410.

The aircraft should leave its assigned route or track by initially turning at least 45° to the right or left whenever this is feasible. The direction of the turn should, where appropriate, be determined by the position of the aircraft relative to any organised route or track system (e.g. whether the aircraft is outside, at the edge of, or within the system). Other factors which may affect the direction of turn are: direction to an alternate airport, terrain clearance, levels allocated on adjacent routes or tracks and any known SLOP offsets adopted by other nearby traffic.

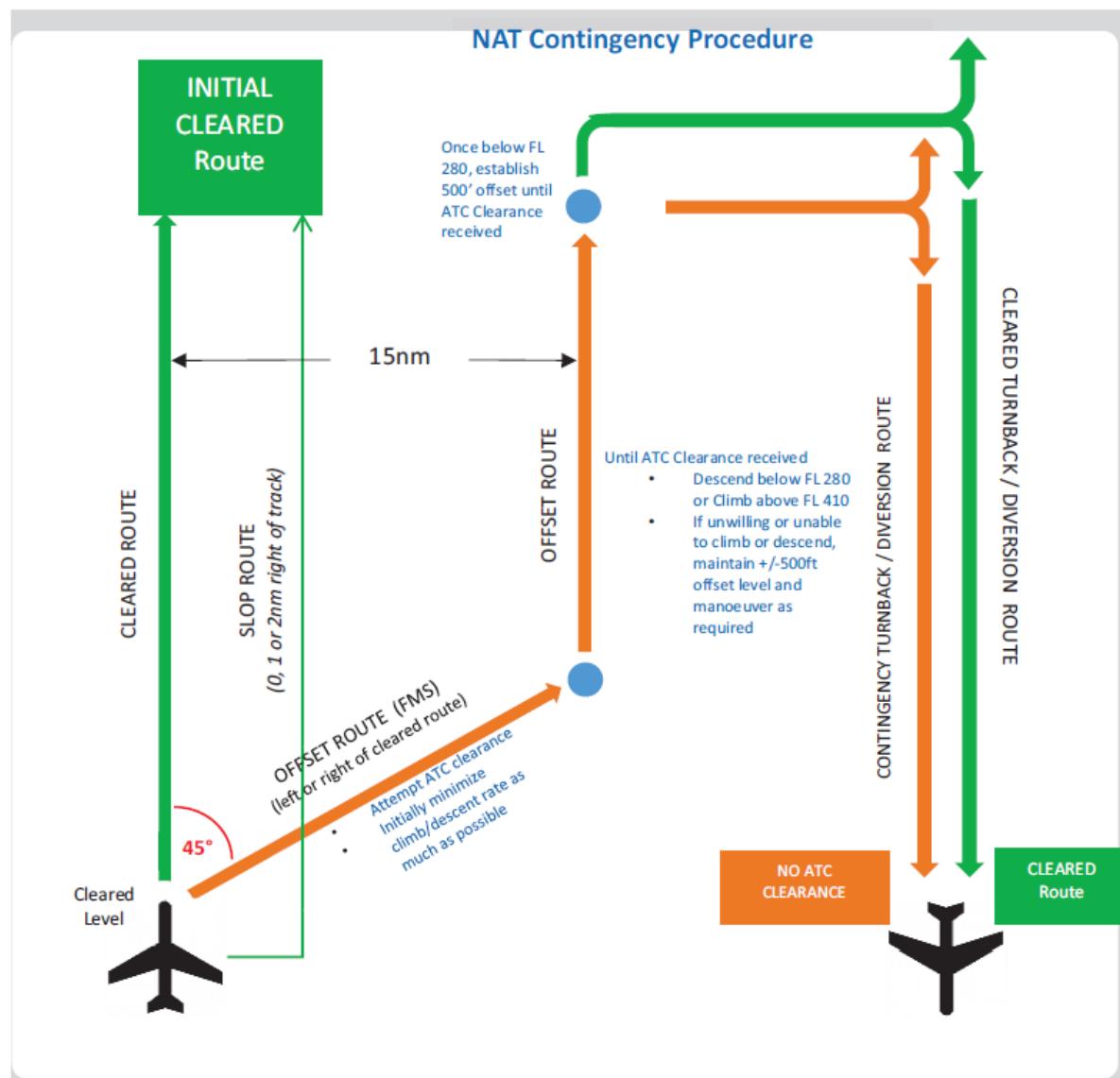
An aircraft that is unable to maintain its assigned flight level (e.g. due to power loss, pressurization problems, freezing fuel, etc.) should, whenever possible, initially minimise its rate of descent when leaving its original track centreline and then when expected to be clear of any possible traffic following the same track at lower levels and while subsequently maintaining a same direction 15 NM offset track, descend to an operationally feasible flight level, which differs from those normally used by 500ft if below FL410 (or by 1000ft if above FL410).

Before commencing any diversion across the flow of adjacent traffic, or before initiating any turn-back (180°), aircraft should, whilst subsequently maintaining a same direction 15 NM offset track, expedite climb above or descent below the vast majority of NAT traffic (i.e. to a level above FL410 or below FL280), and then maintain a flight level which differs from those normally used: by 1000ft if above FL410, or by 500ft if below FL410.

However, if the pilot is unable or unwilling to carry out a major climb or descent, then any diversion or turn-back manoeuvre should be carried out at a level 500ft different from those in use within the NAT HLA, until a new ATC clearance is obtained.

TWIN-ENGINE AIRCRAFT – Using these procedures as a result of engine shutdown or primary system failure should advise ATC as soon as possible giving aircraft type and requesting expeditious handling.

The graphic overleaf illustrates the procedure:



Navigation Equipment Failure

A minimum number of navigation systems depending on aircraft type (e.g. 2 INS) must be serviceable to enter MNPS airspace. If failure reduces the number below the minimum ATC must be informed. If total navigation system failure occurs, ATC must be informed. If no instructions from ATC consider climbing/descending 500ft, broadcast action on frequency 121.5, and advise ATC as soon as possible.

NORTHERN ORGANISED TRACK SYSTEM (NOROTS)

NOR OTS consists of a number of daily flexi tracks from the Reykjavik/Edmonton boundary at 60° West to the West coast of Canada/Northern USA.

Valid from 1300–2300 UTC at 60° West.

Affects westbound traffic from Europe to Western Canada/USA.

Tracks will be designated NOR1 through to NOR9.

Like the North Atlantic OTS, the TDM (track definition message) will have a TMI (track message identifier) number, which is to be included in any abbreviated route clearance readback to ATC.

The TDM and associated TMI number will be included in the briefing given by Network Operations Flight Planning (NOFP).

Tracks will be described using named fixes, Navaids and whole° of latitude and longitude, which should be used in position reports when required.

REDUCED LATERAL SEPARATION MINIMA (RLATSM)

Commencing in November 2015, Reduced Lateral Separation (RLatSM) will be offered in the NAT OTS between FL350 and FL390 inclusive (co-incident with airspace subject to the NAT Region Datalink Mandate).

All aircraft operating on the published RLatSM tracks will be subject to the trial, other published OTS flight levels and tracks are not part of the trial.

There are no additional crew requirements associated with trial participation.

For further information, pilots should view the NATS briefing video about RLatSM available at <https://www.nats.aero/rlat/>

Eligibility

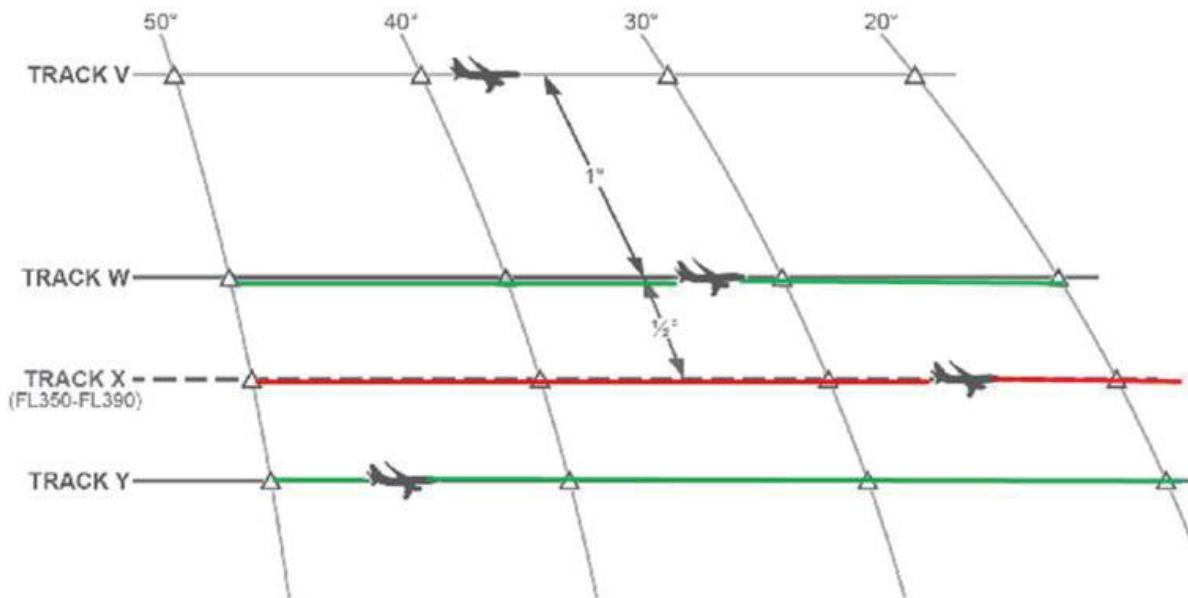
BAVirtual aircraft are eligible to operate on RLatSM tracks providing they are:

- Approved for RNP 4; and
- Equipped with Automatic Dependent Surveillance-Contract (ADS-C); and
- Equipped with Controller-Pilot Data Link Communications (CPDLC).

The required Communications, Navigation and Surveillance (CNS) systems must be operational, and flight crew must report any failure or malfunction of GPS, ADS-C, or CPDLC equipment to Air Traffic Control as soon as it becomes apparent.

In order to be able to utilise a track defined by half-degree waypoints, the flight crew must have uplinked the relevant route into the FMS, either via CPDLC (when the Oceanic Control Centres are appropriately equipped) or from Simbrief/PFPX etc as part of flight preparation. **Manual entry into the FMS of a track defined by half-degree waypoints is not permitted.**

Flight Planning



Only those operators/aircraft eligible for RLATSM operations will be allowed to operate on designated RLATSM tracks between FL 350-390 (inclusive). All RLATSM tracks will be underlined in the OTS Track Message, with RLATSM tracks and FLs uniquely identified in Remark 3. In the above graphic, tracks W, X and Y are all RLATSM tracks.

The following ICAO Flight Plan annotations in Items 10 and 18 indicate that required RLATSM CNS systems are operational for the flight.

- Item 10a (Radio communication, navigation and approach-aid equipment and capabilities): 'J5' indicates Inmarsat CPDLC SATCOM and 'J7' indicates CPDLC Iridium SATCOM data link equipage and operation;
- Item 10b (Surveillance equipment and capabilities): 'D1' indicates ADS-C equipage and operation;
- Item 18 (Other information): 'PBN/' followed by 'L1' indicates RNP 4 authorisation.

Clearance onto an RLATSM Track

Initially, aircraft will only be issued a clearance onto the RLATSM track which uses half-degree latitude waypoints if that track has been requested in the flight plan, and uplinked direct in to the FMS via Company Route request/ACARS etc.

If a flight is planned on a half-degree track, but the flight crew are unable to uplink the route during flight preparation, they should request a re-route onto a whole-degree track, or a non-RLATSM track. **Manual entry into the FMS of a track defined by half-degree waypoints is not permitted.**

In the graphic example above:

- Only flights which had been flight-planned onto Track X would be given a clearance onto that track; however, they could be re-routed onto Tracks W or Y
- A flight which had been flight-planned onto Track W could not be re-routed onto Track X, but could be re-routed onto Track Y

When CPDLC uplink of routes (in the appropriate ARINC format) is available to ATC, aircraft may be cleared onto an RLATSM track, defined by half-degree waypoints, other than that which was flight-planned. As a precaution against possible waypoint-insertion errors, rerouting of flights onto RLATSM identified tracks containing half-degree coordinates will only be permitted via CPDLC route-uplink from the relevant Oceanic Control Centre.

Aircraft will not be cleared to join an RLATSM track after the OCA boundary, but may be cleared to leave such a track before OCA exit.

Waypoints and Navigation Errors

Existing navigation displays truncate waypoints consisting of latitude/longitude to a maximum of seven characters; minutes of latitude are not displayed. To mitigate the possibility of gross navigational errors resulting from incorrect waypoint insertion, it is imperative that established procedures are followed for route insertion and checking.

Flight crew are further advised that, should they be notified by ATC that systems indicate the aircraft is not flying the cleared route, they should immediately display the full° and minutes loaded in to the FMC for the NEXT and NEXT+1 waypoints, and verify against the cleared route before responding.

ATC Notifications of possible track deviation will be in the following format:

Voice message example: 'SHANWICK CONFIRMS YOUR POSITION REPORT INDICATES INCORRECT ROUTING. CHECK FULL° AND MINUTES LOADED INTO FMC. YOUR CLEARED ROUTE IS [route]'

CPDLC message example: 'YOUR POSITION REPORT INDICATES INCORRECT ROUTING. CHECK FULL° AND MINUTES LOADED INTO FMC. YOUR CLEARED ROUTE IS [route]'

TCAS

Operative TCAS is required at dispatch for flight in RLATSM airspace. If the TCAS fails after dispatch, the flight can continue as planned.

Failure of Communication, Navigation or Surveillance Systems

If a flight experiences a failure of a CNS system required for RLATSM PRIOR TO DEPARTURE, the flight should be planned so as to remain clear of NAT RLATSM tracks between FL 350-390 (inclusive).

If a flight experiences a failure of a CNS system required for RLATSM AFTER DEPARTURE BUT PRIOR TO ENTERING RLATSM AIRSPACE, the flight crew should contact ATC and request a revised clearance which will keep the flight clear of NAT RLATSM tracks between FL 350- 390 (inclusive).

If a flight experiences a failure of a CNS system required for RLATSM WHILE OPERATING IN RLATSM AIRSPACE, ATC must be advised immediately. Such flights may be re-cleared to exit RLATSM airspace, but consideration will be given to allowing the flight to remain in the airspace, based on tactical considerations.

Contingency Procedures

Contingency procedures for NAT operations (see [In Flight Contingencies](#) above), including procedures for SLOP and weather deviation, are unchanged during operations in RLATSM airspace. However, flight crew should be particularly vigilant if flying 15 nm offset, because of the potential proximity of other traffic.

If a flight experiences an Urgency situation or an Emergency whilst flying in datalink airspace, it is recommended that flight crew set the CPDLC to Emergency mode. Doing so will alert the controller to the flight's situation in the shortest time.

Moreover, if the Commander determines that a diversion across the Organised Track System, or a turn-back, is required, it is highly advisable to contact ATC first (if practicable) to determine a suitable level at which to fly. If it is not possible to contact ATC, it is strongly recommended to exit the OTS by climbing above FL410 or descending below FL285 before crossing the OTS or turning back.

CANADA
AIRSPACE DESCRIPTION
High Level Airspace

- Within Southern Control Area Controlled Airspace – At and above 18,000ft.
- Within Northern Control Area Controlled Airspace – At and above FL230.
- Within Arctic Control Area Controlled Airspace – At and above FL270.

Airways referred to as Jet Routes.

Low Level Airspace

- Low Level Airways up to but not including 18,000ft.

Airways referred to as Victor Routes.

RVSM (Reduced Vertical Separation Minimum)

Canadian Airspace between FL290–410 is now designated as RVSM; vertical separation is reduced from 2,000ft to 1,000ft. There is a minimum equipment requirement and an associated altimeter check before flight into RVSM airspace – see relevant manual for aircraft type.

Northern Track System

A Northern Track System in the Northern Control Area interacts with the established Airway System in the Southern Control Area. This system consists of Primary Tracks and a number of secondary Laterals. For flights operating within the NCA Track System, position reports are to be indicated by the compulsory reporting point designator. In cases where these points have not been named, pilots should use the published coordinates for that point.

Example: For a flight on NCA Track BRAVO where it crosses 80°W—“*SIX SEVEN THREE ZERO NORTH, ZERO EIGHT ZERO WEST AT (time)*”.

Southern Control Area Track System – Winnipeg/Montreal FIRs

To expedite traffic flow, a system of commonly used routes has been designated from 18,000ft asl and above, for use by traffic between the Mid-West/Western USA and Europe. Each route has been assigned a code letter.

VORs in Northern Canada

Many VORs are orientated on True North. These are generally in the magnetic compass unusable or erratic areas. The charts are marked to indicate this.

PROCEDURES
Altimeter Setting Procedures

Canadian airspace is divided into two regions for altimeter settings:

1. Altimeter Setting Region – QNH up to 18,000ft. Aircraft use the altimeter setting of the nearest station along the route of flight.

Above 18,000ft altimeter is set to 29.92 inches (1013.2 mbs).
2. **Standard Pressure Region** - Aircraft in **uncontrolled** airspace within the Standard Pressure Region set Standard Pressure, except for take-off and landing. The Standard Pressure

Region is the sparsely-populated area of Canada where pressure data is generally not available.

Altimeter settings are given in inches.

Runway Heading

When cleared to "fly or maintain runway heading", pilots are expected to FLY THE RUNWAY HEADING WITH NO DRIFT CORRECTION applied.

Cruising Levels

Pilots may request flight levels not appropriate to the airway or direction of flight but should make the reason for the request known to ATC, e.g. icing, turbulence or fuel considerations.

Mach No

Advising ATC prior to any change of Mach No is particularly important in Canadian Domestic Airspace; this includes the change to economy Mach No after a N Atlantic crossing at a fixed Mach No.

Cruising Levels in the Northern Control Area

In this airspace, TRUE track is used to determine cruising altitude for direction of flight.

Temperature Correction to Minimum Operating Altitude

See [Cold Temperature Corrections](#) section of this manual.

The AIPs of Canada and the USA suggest that in cold conditions pilots should operate at least 1000ft above the published minimum en-route altitude.

Heavy Aircraft

Pilots of heavy aircraft are required to use the word "HEAVY" on initial contact with each ATC unit. After communication has been established and when there is no likelihood of confusion, the word "HEAVY" may be omitted in Canada.

Note: There is no such alleviation in the USA, although custom and practice is similar.

Reduced Position Reporting

In areas of Radar coverage, position reports may be discontinued when authorised by ATC. Pilots will be informed when to resume normal reporting procedures.

Flight Planning

For flights planning to operate on a Northern Track or Lateral, the route is defined in the Flight Plan by the abbreviation NCA followed by the letter(s) and/or number(s) of the Tracks requested, e.g.:

Lateral 3 = NCA3

Northern Track Bravo = NCAB

For flights planning to operate on a "Southern Control Area Track" in the Winnipeg/Montreal FIRs, the route should be defined in the Flight Plan by the abbreviation SCA followed by the letter of the Track requested, e.g.:

Southern Track Juliet = SCAJ

Aerodrome Operating Minima (AOM) in Canada and the USA

Special rules apply. See table below.

Canada Takeoff Minima	
Facilities	Ceiling/Visibility/RVR
High Intensity Runway Lights or Runway Centreline lights or Runway Centreline Markings	Nil/0.25SM or RVR 1200ft
High Intensity Runway lights and Runway Centreline lights and Runway Centreline Markings and Touchdown and Mid-point RVR reporting systems (both of which are required and controlling)	Nil/RVR 600ft

Denial of ATC Clearance in Canada

In Canada, ATC may deny take-off or landing clearance to crew if arrivals and departures on the active runway are suspended or restricted following implementation of a Reduced or Low Visibility Operating Plan.

Example phraseology:

"ATC: XYZ123, LVOP in effect, state your intentions."

If the pilot persists with the intention to land or take-off, ATC will inform the pilot that a landing/take-off clearance cannot be issued and provide required information, which may include traffic, hazards, obstructions, runway exit or wind.

Example phraseology:

"ATC: Since landing/take-off clearance cannot be issued, you are landing/taking off on your own responsibility."

Pilots should clarify any ambiguity with ATC.

Communications

Over Canada monitor 121.5 without Selcal.

VHF is used whenever possible supplemented by HF facilities.

Arctic Radio/Baffin Radio

Arctic Radio, centred near Cambridge Bay and Baffin Radio, centred near Iqaluit, are VHF networks supplementing the international HF network.

They accept IFR position reports and relay ATC clearances. They also provide weather and NOTAM information.

Initial contact is on 126.7.

Holding

Right hand turns are standard, adjusted to achieve 1 min at or below 14,000ft or 1½ min above 14,000ft inbound to the fix. Speeds are:

Up to 14,000ft	230 kt or less
Above 14,000ft	265 kt or less

Speed Control

Aircraft flying in controlled airspace and below 10,000ft asl are limited to maximum speed of 250 kts. Below 3,000ft agl and within 10 nm of an airport speed is limited to 200 kts for jets. Aircraft unable to manoeuvre safely at these speeds should operate at minimum safe speed.

Aircraft may operate at more than 250 kts below 10,000ft on departure.

Other Traffic Information

Radar Control advise aircraft of unidentified traffic in the near vicinity; they will also, on request, provide vectors to avoid this traffic.

Visual Approach

A “visual approach” is an approach by an IFR flight in which all or part of the instrument approach is not completed. Whenever the cloud ceiling is at least 500ft above the maximum radar vectoring altitude and the visibility at least 5 statute miles, IFR aircraft may be vectored to the airport traffic circuit and asked to complete a visual approach provided:

- The pilot has the airport in sight.
- The pilot reports sighting preceding IFR or VFR traffic.

Radar service is terminated when the pilot is told to contact Tower.

LAHSO

BAV are not authorised to operate LAHSO in Canada, see under USA for Land and Hold Short Operations (LAHSO) details.

Weather Reports

In N America/Canada visibility and RVR are recorded using statute miles and feet.

Flight Service Station (FSS)

A network of Flight Service Stations exists in Canada to provide weather and NOTAM information. It is particularly useful after a North Atlantic crossing for updates to weather information. Relay of IFR position reports and ATC clearances is also available. Initial contact is on 126.7 VHF, 5680 HF; the request can then be directed to the station coming in with the greatest clarity. The call should be something like:

“Any Flight Service Station this is Speedbird 185” and then in the case of Stephenville FSS responding first and with greatest clarity, the subsequent transmission would be:

“Stephenville Flight Service, Speedbird 185 requesting.....”

FSSs usually operate H24 but may be difficult to raise during the 10 mins before each hour – at this time the operator is probably outside taking weather observations and then typing them into the network computer.

ATIS

Wind direction, as usual, will be °M.

Note: Magnetic variation in Canada can be in excess of 30°.

Canadian Runway Friction Index (CRFI)

Canadian aerodromes may report a Canadian Runway Friction Index (CRFI) value when reporting the state of contaminated runways.

The CRFI does not reflect the stopping performance of BAVirtual aircraft and therefore should not be used to compute take-off/landing performance. The Runway Condition Code (RWYCC), contaminant type and depth, and/or braking action should be provided alongside the CRFI and used instead for the computation of take-off/landing performance.

En Route Diversion Aerodromes in N Canada

The following are well equipped airfields N of about 50°N:

YYR	Goose	53 19N 60 25W
YFB	Iqaluit	63 45N 68 33W
YYQ	Churchill	58 44N 94 04W
YWG	Winnipeg	49 55N 97 14W
YZF	Yellowknife (Limited Hrs)	62 28N 114 27W
YXE	Saskatoon	52 10N 106 42W
YEG	Edmonton	53 19N 113 35W
YYC	Calgary	51 06N 114 01W

USA**AIRSPACE DESCRIPTION****Aeronautical Information Manual (AIM)**

Published by the FAA; it is a pilot's guide to procedures in the USA. AIM references below are paragraph numbers or pilot/controller glossary (PCG) page numbers. Available here:

http://www.faa.gov/air_traffic/publications

Airways/Route Systems

US airspace is divided into a two-level structure:

- a) Federal Airways – (Victor Routes) up to, but not including 18,000ft.
- b) Jet Route – From 18,000ft to FL450 inclusive.

Clearances are often given direct from present position over long distances.

National Route Program (NRP) enables more flexible use of US airspace. At the flight planning stage, the number of reporting points is reduced to a minimum over long distances using published guidelines; the abbreviation NRP is added to Item 18 of the ATC Flight Plan.

Uncontrolled VFR Traffic operating below 18,000ft is a problem for IFR flights in US airspace. The aircraft are not necessarily Transponder equipped and traffic information from ATC may be very late. **AIM 4-4-11.**

(Transponders are not mandatory below 10,000ft outside TMAs).

RVSM (Reduced Vertical Separation Minimum)

US airspace, including Alaska, Houston and Miami Oceanic and San Juan FIR between FL290–410 is now designated as RVSM. There is the standard minimum equipment requirement and an associated altimeter check before flight into RVSM airspace – see relevant manual for aircraft type. "W" is entered in Item 10 of the Flight Plan to indicate an aircraft is equipped to operate in RVSM airspace.

ATCAA – ATC Assigned Airspace

Is temporarily reserved airspace for military activity, which is not published internationally by NOTAM but is controlled by ATC. As these temporary areas are not published, flight planning cannot take account of them so 'on the day tactical' re-routes may be required, which will be managed by the ARTCC controlling the area. Deviations should be minor with some level capping or vectors provided.

VATSIM 'Contact Me' Notifications

Many VATSIM ATC units in the USA will **not** automatically send 'Contact Me' requests to aircraft entering their airspace or to aircraft in their airspace when they log in. Instead the pilot is expected to monitor regularly for ATC presence or be aware of when they are crossing a boundary from UNICOM in to a controlled sector and contact the controller on their own initiative. **VATSIM CoC B3.**

PROCEDURES**VFR Traffic in TMAs**

Expect such traffic to be separated from your aircraft by as little as 500ft vertically and 1½ miles laterally (and, as a result, expect relatively frequent TCAS warnings). **AIM 3-2-3.**

Traffic Advisories – below 18,000ft and outside TMAs ATC will give information on VFR traffic but will not necessarily give radar vectors around the traffic unless requested. **AIM 5-5-10.**

During an arrival an aircraft may be vectored outside the TMA for spacing. ATC should (but might not) advise the aircraft that it is leaving Class B airspace; the inference is that vectors should probably be requested following a Traffic Advisory.

Altimeter Setting Procedures

Altimeter settings are given in inches mercury.

- a) For cruise below 18,000ft – Altimeter to be set according to the reported altimeter setting of a station along the route (QNH). **ENSURE DESTINATION QNH IS SET ONCE IN CONTACT WITH APPROACH CONTROL**; they may not issue a specific instruction to do so.
- b) For cruise at or above 18,000ft – Altimeter to be set to 29.92 ins/1013.2 mbs.

Vacating Altitudes/FLs

Vacating any previously assigned altitude/FL for a newly assigned altitude/FL must be reported to ATC. Reaching an assigned altitude/FL is not subject to a report. **AIM 5-3-3**.

Speed Control

In accordance with Federal Aviation regulations:

- a) Aircraft speed shall not exceed 250 kts IAS during flight below 10,000ft asl, unless otherwise authorised.

Note: That maintaining a speed above 250 kts, level at 10,000ft, is acceptable. The practice of (a) maintaining high speed on arrival or (b) increasing speed above 250 kts on departure, while the aircraft is below 10,000ft and more than 12 nm off the coast (e.g. JFK) MUST be co-ordinated with ATC.

- b) Airport Traffic Area (4.34 nm radius of an airport, ground level to, but not including 3,000ft). Aircraft speed shall not exceed 200 kts.
- c) If the minimum airspeed for safe manoeuvrability is greater than the above, the aircraft may be operated at that speed (controllers advise that this should be co-ordinated with ATC). Notify ATC if flying more than 10 kts LESS than planned speed.

CLEARANCES

“MAINTAIN” – The altitude/FL instructions in an ATC clearance will normally require that a pilot “MAINTAIN” an altitude/FL. When ATC has not used the term “AT PILOT’S DISCRETION” nor imposed any climb or descent restrictions, pilots should initiate climb or descent promptly on acknowledgement of the clearance.

Descend or climb at an optimum rate consistent with the operating characteristics of the aircraft to 1,000 feet above or below the assigned altitude, and then attempt to descend or climb at a rate of between 500 and 1,500 fpm until the assigned altitude is reached. Optimum rate can be interpreted as the best rate commensurate with a fuel efficiency. If ATC require a different rate, they will tell you. If you cannot achieve a rate of at least 500 feet a minute, advise ATC.

If it is necessary to level off at an intermediate altitude during climb or descent, advise ATC, except when leveling off at 10,000 feet MSL on descent, or 2,500 feet above airport elevation (prior to entering a Class C or Class D surface area), when required for speed reduction. **AIM 4-4-10**

“DESCEND VIA” Clearance – Authorises pilots to vertically and laterally navigate in accordance with a depicted procedure, e.g. “Descend via the Civit One Arrival.” **AIM 5-4-1**.

“CRUISE” Clearance – The term CRUISE may be used for a cruise climb or descent. The pilot may level off at any intermediate level between the minimum IFR level and the altitude specified in the clearance. Climb/descent within the block is to be made at the discretion of the pilot. However, once the pilot starts descent and verbally reports leaving an altitude in the block, he may not return to that altitude without additional ATC clearance. **AIM 4-4-3.**

At times controllers will ask pilots to verify that they are at a particular altitude. The phraseology used will be: “VERIFY AT (altitude).” In climbing or descending situations, controllers may ask pilots to “VERIFY ASSIGNED ALTITUDE AS (altitude).” Pilots should confirm that they are at the altitude stated by the controller or that the assigned altitude is correct as stated. If this is not the case, they should inform the controller of the actual altitude being maintained or the different assigned altitude. **AIM 5-3-1.**

Heavy Aircraft

Pilots of heavy aircraft in the USA should always suffix their callsign with the word “HEAVY”. Note that there is no alleviation to limiting this to first contact. **AIM 7-3-8.**

Callsigns

Are spoken using group form for the numbers:

BAW05	Heavy is transmitted as SPEEDBIRD FIVE HEAVY (not Zero Five)
BAW11	Heavy is transmitted as SPEEDBIRD ELEVEN HEAVY (not One One)
BAW178	Heavy is transmitted as SPEEDBIRD ONE SEVENTY EIGHT HEAVY (not One Seven Eight)
BAW1423	Heavy is transmitted as SPEEDBIRD FOURTEEN TWENTY THREE HEAVY (not One Four Two Three). AIM 4-2-4.

Reduced Position Reports

When informed by ATC that their aircraft is in “RADAR CONTACT”, pilots will discontinue position reports over compulsory reporting points. Pilots must report when vacating any previously assigned altitude/flight level for a newly assigned altitude/flight level.

Pilots must resume normal position reporting when ATC advise “RADAR CONTACT LOST” or “RADAR SERVICE TERMINATED”. **AIM 5-3-2.**

Holding

Right hand turns standard, adjusted to achieve 1 min at or below 14,000ft or 1½ min above 14,000ft inbound to the fix. Speeds are:

Above 6,001ft to 14,000ft	230kt or less 210kt or less when published as an exception
Above 14,000ft	265kt or less

An ATC clearance requiring an aircraft to hold at a fix where the pattern is not charted will include the following information:

1. Direction of holding from the fix in terms of the eight cardinal compass points (i.e., N, NE, E, SE, etc.).
2. Holding fix (the fix may be omitted if included at the beginning of the transmission as the clearance limit).

3. Radial, course, bearing, airway or route on which the aircraft is to hold.
4. Leg length in miles if DME or RNAV is to be used (leg length will be specified in minutes on pilot request or if the controller considers it necessary).
5. Direction of turn if left turns are to be made, the pilot requests, or the controller considers it necessary.
6. Time to expect further clearance and any pertinent additional delay information. **AIM 5-3-8.**

Minimum Fuel Advisory

Advise ATC when fuel has reached a state where any undue delay at destination is unacceptable. This call does not declare an emergency and does not imply a need for traffic priority. On initial contact the term "MINIMUM FUEL" should be used after your callsign, e.g. "*Philadelphia Approach, Speedbird 219, Minimum Fuel, ----.*" IF TRAFFIC PRIORITY IS REQUIRED YOU MUST DECLARE AN EMERGENCY, reporting fuel remaining in minutes. **AIM 5-5-15.**

Speed Control

Aircraft operating between F280 and 10,000 feet must maintain a minimum of 250 Kts. Arriving turbojet aircraft operating below 10,000 feet must maintain:

- a) A speed not less than 210 knots, except;
- b) Within 20 flying miles of the airport of intended landing, a speed not less than 170 knots. **AIM 4-4-12.**

ILS Critical Area Protection

At or above ceiling 800ft and/or visibility 2 sm:

1. No critical area protective action is provided under these conditions.
2. A flight crew under these conditions should advise the tower that it will conduct an AUTOLAND or COUPLED approach to ensure that the ILS critical areas are protected when the aircraft is inside the ILS MM. **AIM 1-1-9.**

Pilots are cautioned that vehicular traffic not subject to ATC may cause momentary deviation to ILS course or glide slope signals. **AIM 1-1-9.**

Crews should be cautious of localiser and glidepath signals during an ILS approach in weather conditions of ceiling 800ft and/or 2 sm or better. In conditions below this, the localiser is protected inside the middle marker.

Parallel ILS Approaches

Airports having parallel runways separated by at least 2,500ft may operate parallel ILS approaches to both runways. Aircraft will be given staggered separation from aircraft on the adjacent localiser. **AIM 5-4-13.**

Simultaneous Parallel ILS Approaches

Airports having parallel runways separated by at least 4,300ft may operate a system of simultaneous ILS approaches to both runways. The 4,300ft limit may be reduced with increased ATC monitoring of aircraft on final approach; the term ILS Precision Runway Monitor (ILS PRM) may be used. SIMULTANEOUS CLOSE PARALLEL APPROACH is the term used to describe this reduced separation. **AIM 5-4-15.**

ILS PRM – Simultaneous Converging Approaches

When the ATIS broadcast advises ILS PRM approaches are in progress (or ILS PRM and LDA PRM approaches in the case of SOIA), pilots should brief to fly the ILS PRM. Pilots will be informed on initial contact or via the ATIS. It is worth briefing the communications and breakout procedures associated with these approaches. **AIM 5-4-16.**

Radar Vectors

Be aware that the Airport Surveillance Radar can be referred to as 'ASR'. By implication an 'ASR to ILS' would be radar vectors to ILS.

DME ARC Procedures

The procedure is to fly at the DME range as specified on the chart or as given by ATC to intercept the relevant approach, e.g. "SPEEDBIRD 175 Arc 10 to Rwy 07R". The requirement is to fly a constant DME range of 10 nm until intercepting the final approach to Rwy 07R.

Side-step Manoeuvre

ATC may authorise an approach procedure which serves either one of parallel runways that are separated by 1,200ft or less followed by a straight-in landing on the adjacent runway, e.g. "Cleared for ILS runway 07 left approach, side-step to runway 07 right". Pilots are expected to commence the side-step manoeuvre as soon as possible after visual contact. **AIM 5-4-19.**

Land and Hold Short Operations (LAHSO)

Landing and holding short of an intersecting runway, taxiway or designated point on a runway. Yellow, parallel hold-short lines will be painted across the runway and in-pavement lighting may be included. **AIM 4-3-11.**

BAV (along with other international operators) policy is NOT TO PARTICIPATE in LAHSO for landing or departure, neither actively (cleared to land and hold short), nor passively (other aircraft cleared to land and hold short). If ATIS advises LAHSO in use, advise ATC "UNABLE TO PARTICIPATE" on first contact. Crews should refuse any LAHSO offered by ATC.

If in doubt confirm with ATC that other aircraft will not carry out LAHSO on any intersecting runway that may be in use for your arrival or departure.

It should be born in mind that if LAHSO are underway at an airport, an aircraft landing on another runway may fail to 'hold short'.

Even though not taking part in LAHSO lighting for such operations, white strobes at intersecting runways, may be left on during your approach.

Visual Separation

Acceptance of instructions to follow another aircraft or to maintain visual separation from it is an acknowledgement that the pilot will avoid the other aircraft or maintain in-trail separation and accept responsibility for wake turbulence separation. **AIM 5-5-12.** (Visual separation instructions are used at night. During a climb out from Phoenix at night a BA aircraft was given visual separation instructions; a TCAS incident resulted).

Visual Reference Lost while Circling from an Instrument Approach

Same as the rest of the world. The missed approach for the instrument let down just flown should be carried out. To establish on the missed approach course, make a climbing turn towards the landing runway and then continue the turn until established on the missed approach course. This ensures that the aircraft remains within the circling area while climbing to a safe altitude. **AIM 5-4-21.**

Visual Approach

May be conducted on an IFR Flight Plan and authorises a pilot to proceed visually to the airport, often reducing track miles to landing. The pilot must have either the airport or the preceding aircraft in sight. If the pilot has the airport in sight but cannot see the aircraft to be followed, declare this.

ATC may clear your aircraft for a visual approach; however, ATC retains both separation and wake vortex separation responsibility. When visually following a preceding aircraft, acceptance of the visual approach clearance constitutes pilot acceptance of separation and wake vortex separation responsibility. Be aware that if radar service is being received, it may be automatically terminated when told to contact the tower. **AIM 5-5-3.**

If not familiar with an airfield, be certain the correct airfield is identified before accepting a visual clearance, and be aware of the consequences of doing so.

Visual Approach Go Around

A visual approach has no missed approach segment. If a Go Around is necessary, instructions from ATC should be given. However, IF ATC FAIL TO GIVE INSTRUCTIONS THEN THEY MUST BE IMMEDIATELY REQUESTED.

Go Arounds

A clearance for an instrument approach procedure includes a clearance to fly the published missed approach procedure, unless otherwise instructed by ATC. The published missed approach procedure provides obstacle clearance only when the missed approach is conducted on the missed approach segment from or above the missed approach point, and assumes a climb rate of 200 feet/NM or higher.

In the event a balked (rejected) landing occurs at a position other than the published missed approach point, the pilot should contact ATC as soon as possible to obtain an amended clearance. If unable to contact ATC for any reason, the pilot should attempt to re-intercept a published segment of the missed approach and comply with route and altitude instructions. If unable to contact ATC, and in the pilot's judgment it is no longer appropriate to fly the published missed approach procedure, then consider maintaining visual conditions. **AIM 5-4-21.**

Landing Clearance

Expect to receive landing clearances with one or more aircraft still ahead of your aircraft. The clearance you are receiving is to land in sequence if it is safe to do so. This sort of landing clearance requires special vigilance at night.

Gate Number

Obtain parking gate number on the company frequency before landing.

Taxiing after Landing

Taxi clear of the runway unless otherwise directed by ATC. An aircraft is considered clear of the runway when all parts of the aircraft are past the runway edge and there are no restrictions to its continued movement beyond the runway holding position markings. In the absence of ATC instructions, the pilot is expected to taxi clear of the landing runway by taxiing beyond the runway holding position markings associated with the landing runway, even if that requires the aircraft to protrude into or cross another taxiway or ramp area. Once all parts of the aircraft have crossed the runway holding position markings, the pilot must hold unless further instructions have been issued by ATC. **AIM 4-3-20.**

Ground Movement

Taxi Clearances

After an incident involving a BAV aircraft, the UK CAA, prompted by the FAA, give the following warning:

Crews are reminded of the importance of strictly adhering to all taxi clearances at US airports. All runway hold short instructions should be read back to ATC when requested. The FAA will levy substantial fines on pilots violating taxi clearances especially any runway incursion. Extra care must be taken during periods of reduced visibility such as fog, heavy rain or snow. If in doubt about any taxi clearance stop and request clarification from ATC.

IFR Clearances

If using R/T, call clearance delivery or ground control not more than 10 minutes before proposed taxi time. **AIM 5-2-1.**

Expect Departure Clearance Time (EDCT).

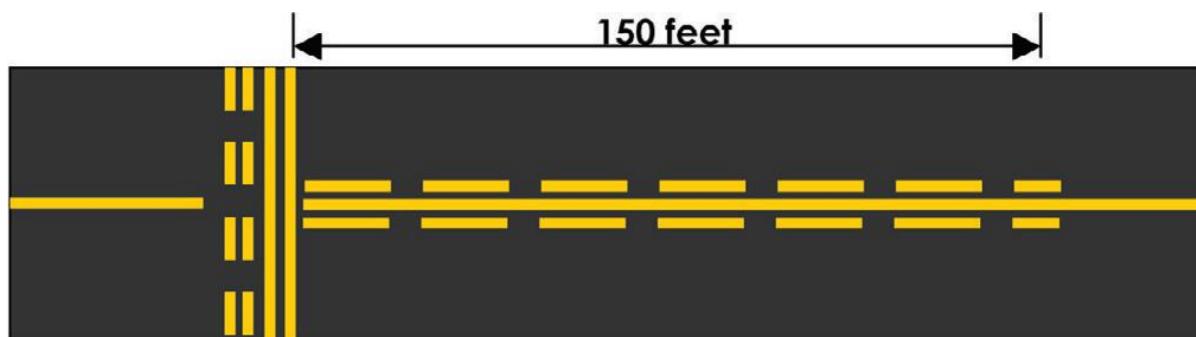
The EDCT is the runway release time assigned to an aircraft included in traffic management programs. Aircraft are expected to depart no earlier than 5 minutes before, and no later than 5 minutes after the EDCT. Similar to TSAT in Europe. **AIM 5-2-6.**

TAXI TO Clearance

When issuing taxi instructions to any point other than an assigned take-off runway, ATC will specify the point to taxi to, issue taxi instructions, and state any hold short instructions or runway crossing clearances if the taxi route will cross a runway. **AIM 4-3-18.**

Taxiway Centreline Markings

Standard Taxiway centreline markings are being progressively changed at US airports to provide a visual clue to pilots that they are approaching a runway holding position. Dashed yellow lines are placed on both sides of the taxiway centreline starting 150ft prior to the holding point.



ILS Critical Area Holding Signs

'ILS' in white on a red sign confirms the hold markings on the taxiway, indicating the proximity of the ILS critical area. **AIM 2-3-28.**

Runway Centreline Lighting System (RCLS)

Installed on some precision approach runways. Lights are spaced at 50ft (15.24 m) intervals.

AIM 2-1-5.

Changing to Tower Frequency before Take-off

Unless otherwise instructed, remain on ground control frequency until ready to request take-off, then change to tower frequency. Pilots are encouraged to monitor the local tower frequency as soon as practical consistent with other ATC requirements. **AIM 4-3-14.**

Use of Landing Lights Prior to and for Take-off

Pilots are encouraged to turn on their landing lights when taxiing on, across, or holding in position on any runway and either after take-off clearance has been received or when beginning the take-off roll. **AIM 4-3-23.**

Wake Turbulence Separation

Timed OR radar distance separation is applied between departing aircraft. **AIM 7-3-9.**

If a timed separation is to be insisted upon rather than accepting radar distance separation, ATC must be informed before the aircraft enters the runway for take-off.

Departure Control

When cleared to "fly or maintain runway heading", pilots are expected to FLY THE RUNWAY HEADING WITH NO DRIFT CORRECTION applied. When a departure is to be vectored immediately following take-off, the pilot will be advised prior to take-off of the initial heading to be flown but may not be advised of the purpose of the heading. **AIM 5-2-7.**

Omission of Departure Control Frequency

Controllers may (and normally do) omit the departure control frequency if an assigned departure procedure has a published frequency. **AIM 5-2-7.**

Runway Distance Remaining Signs

A white numeral on a black sign indicates the number of thousands of FEET remaining to the end of the runway, e.g. 3 indicates 3,000ft remaining. These signs may be installed along one or both sides of the runway. **AIM 2-3-13.**

Abbreviation of Frequencies

Ground frequencies may be abbreviated to the decimal number, e.g. 121.7 becomes "point seven". **AIM 4-3-14.**

Delay/ATC Flight Plan

To ensure that a flight plan remains active pilots, whose actual departure time will be delayed by more than 1 hour, should inform ATC of the new ETD. **AIM 5-1-11.**

Airways Clearance Read-back

At most USA airfields it is not necessary to read back the full airways clearance IF the route is as flight planned. Read back only the assigned transponder code.

EFC (Expect Further Clearance) Time

The time a pilot can expect to receive clearance beyond a clearance limit.

At an approach holding point this is equivalent to an EAT.

Departure Clearance

Clearances may be given without a transition being assigned from ATC. ATC assume you will fly to the transition given as the first point on the flight plan (e.g. MERIT out of JFK). If the SID has changed from what was expected on the OFP then the crew may miss this and join the legs to a point further down route.

Departure Procedure

There are two types of DP: Obstacle Departure Procedures (ODPs), printed either textually or graphically, and Standard Instrument Departures (SIDs), always printed graphically. All DPs, either textual or graphic, may be designed using either conventional or RNAV criteria.

ODPs are only used for obstruction clearance and do not include ATC related climb requirements. SIDs may contain ATC climb requirements and are either pilot nav or vector SIDs. Pilot nav SIDs may be either RNAV-based or using conventional navigation aids. **AIM 5-2-8.**

Transition

A point at which a DP (Departure Procedure) is left and a STAR joined.

Aerodrome Operating Minima (AOM) in the USA and Canada

Special rules apply. See table below.

USA Takeoff Minima	
Facilities	Ceiling/Visibility/RVR
High Intensity Runway lights or Runway Centreline lights or Runway Centreline Markings or (if daylight) the runway is marked such that the pilot can maintain adequate visual reference throughout the take-off run	Nil/Visibility 0.25SM or 1600ft RVR (Note 1)
Runway Centreline lights and two RVR reporting systems (both are required and are controlling)	Nil/RVR 1200ft (Stop-end RVR 1000M) (Note 2)
Runway Centreline lights and Runway Centreline markings and two or three RVR reporting systems (all are required and are controlling)	Nil/Touchdown Zone 600ft, Mid Point and Stop-end RVR 600ft (Note 3)

Note 1: The Touchdown zone RVR Report if available is controlling

Note 2: Mid-point RVR may be substituted for Touchdown Zone RVR or Stop-end RVR if either is available

Note 3: Where only 2 RVR systems are installed the touchdown zone and rollout RVRs are required and controlling.

Diversions from New York

ATC advise that it takes 10–15 minutes to process a diversion clearance.

Aircraft should therefore make their request early so that clearance is readily available should it be required.

Windsor Locks (Bradley Intl) KBDL

A well-equipped airfield situated midway between New York and Boston. Useful to know about during periods of wide spread poor weather along the eastern seaboard.

Wind Shear

Pilots are requested to volunteer reports to controllers of WINDSHEAR conditions they encounter. Avoid the use of “negative” or “positive” WINDSHEAR. Report loss/gain of airspeed and the altitude(s) at which it was encountered, e.g. *“Kennedy Tower, Speedbird 193 Heavy encountered WINDSHEAR, loss of 20 kts at 400ft”*. **AIM 7-1-21**.

Weather

ATC are mandated to vector you clear of severe weather. PIREPs contribute to the effectiveness of the US “Flight Watch” service. This service is designed to provide aircraft with timely weather advisories pertinent to the type of flight intended, route of flight, and altitude.

Automated Weather Observing

The onset of automation in N America has added new groups to forecasts and actuals. The important data remains in the recognisable format. **AIM 7-1-10**.

LLWS (Low Level Wind Shear Alert System)

Through ATC, provides pilots with details of hazardous WINDSHEAR and microburst activity near the airport. **AIM 7-1-23**.

Experience has shown that it may be necessary to ask ATC for information they have available on Cb and microburst activity, for instance while assessing conditions for a take-off.

SCATANA

See under Canada.

Braking Action Advisories

BA ADVYS on ATIS is abbreviation for BRAKING ACTION ADVISORIES and is associated with degraded braking action or runway surface contamination. Crew must contact the TWR for confirmation of actual braking action or runway surface contamination when ATIS includes BA ADVYS.

NEAR MID-AIR COLLISION (NMAC)

An NMAC in the USA is defined as an incident associated with the operation of an aircraft in which a possibility of a collision occurs as a result of proximity of less than 500ft to another aircraft or the crew member feels that a collision hazard existed between two or more aircraft (e.g. ~IFR/VFR conflict).

Crews should report such incidents immediately on the frequency in use, using the term “near mid-air collision”. **AIM 7-6-3.**

SWAP (SEVERE WEATHER AVOIDANCE PLAN)

These are formalised plans in areas that are particularly susceptible to severe weather. They are developed, co-ordinated and implemented to reduce ATC restrictions associated with rerouting aircraft around areas of severe weather.

If SWAP is annotated on the METAR delays can be expected on arrival into the TMA due to extended track miles and/or reroutes. On departure ground delays may be experienced.

CONSTRUCTION ATIS RECORDINGS

For runways that are undergoing construction or have recently completed construction, operators and pilots can expect to hear the following messages via the ATIS recording. In situations where the runway has been shortened, operators will hear “WARNING” and “SHORTENED”.

- For example: “WARNING, RUNWAY (number) has been SHORTENED, (length in feet) FEET AVAILABLE.”

In addition, it states that, “SHORTENED” will be used as part of the take-off (or line up and wait) and landing clearance...

- For example: “RUNWAY (number) SHORTENED, CLEARED FOR TAKE-OFF.”

Note: These procedures will apply for the duration of works or until a permanent shortening of the runway is reflected accordingly in aeronautical publications. **FAA Info notice 11015.**

POLAR AREA INCLUDING NORTH PACIFIC

UK-ALASKA

ROUTING

The western routes from UK to Japan typically take the aircraft N of Iceland, over the N of Greenland and into the latitudes N of Anchorage, Alaska.

AIRSPACE DESCRIPTION

Atlantic Oceanic Control Area

From FL 55 – Unlimited, except the Domestic Sector of Reykjavik Oceanic CTA.

Note: That Sondrestrom only exercises control in the Greenland area in their FIR below FL195. Above this level is Reykjavik CTA to the N and Gander CTA to the S.

Canada

Canadian airspace is divided into 3 basic areas:

- **Arctic Control Area** – From FL 270 upwards.
- **Northern Control Area** – From FL 230 upwards.
- **Southern Control Area** – From 18,000ft upwards.

MINIMUM NAVIGATION PERFORMANCE SPECIFICATION AIRSPACE

Aircraft operating within MNPS Airspace are required to have a minimum navigational performance capability to allow reduced separation between aircraft.

Exact equipment requirements are detailed in the fleet specific MEL.

Atlantic

The MNPS airspace over the North Atlantic is that airspace:

- a) FL 285 – FL 420.
- b) The Southern Portion of the Santa Maria Oceanic, thence from 27°N – North Pole.
- c) Bounded in the E by the E boundaries of CTAs Santa Maria Oceanic, Shanwick Oceanic and Reykjavik.
- d) Bounded in the W by the W boundaries of CTAs Reykjavik, Gander Oceanic, New York Oceanic and Santa Maria Oceanic, excluding the area W of 60°W and S of 38° 30'N within New York Oceanic.

Canada

Canada has implemented RVSM/MNPS Airspace.

AIR TRAFFIC CONTROL**Atlantic**

Aircraft Crossing 61°N at 10°W or East of 10°W – This is the boundary between Scottish and Reykjavik. Hand over is under radar. Oceanic Clearance should be requested from Scottish not more than 30 mins and not less than 10 mins prior to the Oceanic boundary.

Iceland

All flights routing through Reykjavik airspace onto North Canadian Arctic tracks (NCA) A, B or C shall make position reports and estimates for 60°W in latitude and longitude. All flights routing along the Polar Track Structure whilst in Reykjavik airspace shall make FULL position reports indicating both latitude and longitude. (For any 'named' points use associated name).

Polar Tracks

In order to facilitate the flow of traffic between Europe and Alaska a Polar Track structure has been established. These Polar Tracks are fixed tracks; they are located N of the airspace used by the Atlantic Organised Track System.

Note that the tracks may be defined as Magnetic or True.

Flight Plan – Flights operating on the Polar Tracks define their tracks by the appropriate Polar Track number or letter prefixed by PTS.

ATC Clearance – When the whole of a Polar Track is being followed, an abbreviated clearance may be issued which will include:

- i. Track specified by the track code.
- ii. FL.
- iii. Mach No.

On receipt of an abbreviated clearance, the pilot shall read back the contents of the clearance message, and in addition, the full details of the Track if the clearance has been received from Reykjavik.

When W-bound a clearance along a Polar Track will normally be received through Scottish ATCC while still in Scottish airspace, and the abbreviated clearance should be read back as given.

Position Reports – Unless otherwise requested, position reports should be made at the significant points depicted on the relevant Polar Track.

When operating on a Polar Track position reports may be abbreviated, except in Reykjavik FIR, by replacing the normal latitude co-ordinate with the Track identifier, e.g.: "Speedbird 005, Polar Q 20W 1537, FL 310, Polar Q 40W 1620, "Alert" next".

Track and ETA – As with other North Atlantic routes, separation is procedural and based on Mach No Technique. Hence maintaining the cleared Track and Mach No is important.

Canada**Altimeter Setting Procedure**

Canadian Airspace is divided into two regions:

- i. Standard Pressure Region – Use standard pressure setting (29.92") except in controlled airspace below 18,000ft asl.

- ii. Altimeter Setting Region – Use QNH below 18,000ft asl. Altimeter settings given in inches.

Northern Track System – This System consists of primary Tracks and a number of secondary Laterals. TRUE track is used as opposed to magnetic track.

ATC Clearances – When aircraft are cleared via a Northern Track the ATC clearance and pilots read back will be in the following format:

“ATC CLEARS (Identification) TO (Destination) VIA NORTHERN TRACK (Code); (flight plan route or route details); TO MAINTAIN (flight level); MACH NO.; (Mach No.); (other instructions or information)”.

Position Reports

- i. Identification.
- ii. Reporting Point and Time.
- iii. Altitude/FL.
- iv. Next Reporting Point and Time (GMT).
- v. Subsequent Reporting Point.

When operating along a Northern Track and making a position report, the position will be expressed by the code name of the Track and the reporting line meridian; e.g. “Speedbird 005, Bravo 80W 1700, FL 310, Bravo 90W 1740, Bravo 100W next”.

Adherence to Mach No, Track and ETA – In the N of Canada, as in Oceanic Airspace, ATC is procedural. Hence adherence to track, ETA and Mach No is essential.

Flight Planning

For flights planning to operate on one of the established Tracks, the route should be defined in the Flight Plan by the abbreviation NCA followed by the letter(s) and/or number(s) of the Tracks requested, e.g.:

Lateral 3 (i.e. lateral track within the Northern Track system) – NCA3.

Northern Track Bravo – NCAB.

Alaska

The route across Alaska is controlled entirely through remote VHF from Anchorage. There is complete Radar coverage.

There is good coordination between Canadian and Alaskan ATC. On approaching Alaska from the E, flights are given a detailed clearance by Anchorage followed by direct routeings once in their FIR.

In the Anchorage area there is much low level light traffic, a significant proportion of which ignores ATC.

Within the Anchorage FIR use the MNPS position report format including ‘NEXT’ position.

ABNORMALLY HIGH BAROMETRIC PRESSURE

Extremely high pressures over Alaska during Winter 88/89 resulted in off scale altimeter settings. At Anchorage the maximum reached was 31.53 inches and at Fairbanks 31.85 inches.

FAA regulations require that when the Barometric Pressure exceeds 31.00 inches all aircraft set 31.00 inches for en route operations below 18,000ft altitude until beyond the affected area.

At the beginning of the final approach segment the current altimeter setting will be set if possible. If not possible 31.00 inches will remain set throughout the approach. Aircraft on departure or missed approach will set 31.00 inches prior to reaching any mandatory/crossing altitude or 1,500ft agl whichever is lower.

For aircraft with the capability of setting the current altimeter setting no additional procedures apply.

For aircraft operating IFR and unable to set the current altimeter setting the following procedures apply:

1. To determine the suitability of destination and alternate airports increase the ceiling requirements by 100ft and visibility requirements by $\frac{1}{4}$ sm for each 1/10 inch (or portion thereof) of Hg over 31.00 inches.
2. On approach 31.00 inches will remain set. Decision Ht/Alt shall be deemed to have been reached when the published minimum height/altitude is displayed on the altimeter (the aircraft will be higher than displayed).
3. These procedures do not apply to CAT II or CAT III ILS operations (i.e. using radio altimeters) nor do they apply to QFE altimetry systems.

ALTIMETERS – LOW TEMPERATURE ERRORS

Very low temperature causes an altimeter to over-read.

The AIPs of Canada and Alaska suggest that in cold conditions pilots should operate at least 1,000ft above the published minimum en-route altitude.

See also the [Cold Temperature Corrections](#) section of this manual.

FUEL – LOW EN ROUTE TEMPERATURES

At the flight planning stage consideration should be given to the forecast en route temperatures and the freeze point of fuel in tanks. Consult the FCOM for your aircraft type bearing in mind that extra fuel may be required to carry out the recommended procedures to keep fuel temperatures above limits.

COMMUNICATIONS

Generally straight forward with onward clearance being given in good time, or a frequency change to get clearance automatically given.

Reykjavik CTA is controlled through Iceland Radio.

Polar Track Structure

Clearance W bound – This should be obtained from Reykjavik by Scottish ATC, while the aircraft is still in the Scottish FIR/UIR, and relayed to the aircraft. About 100 nm before Stornaway, Scottish will ask for an estimate for the Reykjavik OCA Entry Point and the requested level and some time later will call back with the clearance.

If routeing via 61N 10W there is no need to contact Shanwick OCA even though the position 61N 10W is on the boundary between Shanwick and Reykjavik OCAs.

Clearance E bound – Either before the Reykjavik CTA boundary or on first contact, obtain clearance for the Polar Track, reading back the full coordinates. Flights will normally be handed over from Cambridge Bay to obtain clearance, or it will have been coordinated beforehand.

Maintain a listening watch at all times on 121.5 MHz, and, if necessary, transmit blind on this frequency.

Canada

Monitor 121.5 MHz.

Canadian Domestic Clearance W bound – The Polar Tracks enter Canadian airspace via Edmonton FIR. When making the 40°W position report with Iceland it is common for Cambridge Bay to acknowledge and give the onward clearance.

Arctic Radio/Baffin Radio

Arctic Radio, centred near Cambridge Bay and Baffin Radio, centred near Iqaluit are VHF networks supplementing the international HF network.

They accept IFR position reports and relay ATC clearances. They also provide weather and NOTAM information.

Initial contact is on 126.7.

Alaska

Normal ATC, as USA. There is good coordination between Edmonton ACC and Anchorage ACC.

NAVIGATION

The B747 FCOM contains POLAR FMS/IRS/CDU FAILURE PROCEDURES which define two Decision Points.

DECISION PT 1 is where the track crosses into the Magnetic Compass Unreliable Area.

DECISION PT 2 is where the track crosses into the Magnetic Compass Useless Area.

The procedures define minimum navigational equipment which must be serviceable at each Decision Point. If the minimum cannot be satisfied the aircraft may be required to return to departure point or re-route to within reception range of radio aids capable of fixing the aircraft's position at intervals not exceeding one hour. Re-routeing detail is included in the FCOM procedures.

Canada General Navigation Information

The enroute MF beacons provide 24 hour coverage. Most, such as Eureka and Mould Bay, may be received at ranges in excess of 250 nm.

ADF needles will always indicate the correct relative bearing and are the simplest form of navigation in case of compass failure.

No VORs are expected to be received in the "Compass Unuseable" area, but for information, VOR needles always read correctly against the compass card to show the QDM/radial, while the relative bearing will only be correct if the compass is aligned to the Magnetic meridian – or True meridian depending on the alignment of the VOR station.

Ground Radar coverage along the route is good. It is mainly military, and stations can be contacted routinely on 126.7 and in emergency on 121.5.

Thule, an enroute diversion aerodrome, is in the Magnetic Compass Unreliable Area.

En Route Diversion Aerodromes

The only en-route diversionary aerodromes available and suitable for large jets are:

KEFLAVIK
THULE
KANGERLUSSUAQ
IQALUIT
FAIRBANKS

There are also other, smaller aerodromes in the Arctic region which serve the needs of isolated weather or military stations, they have limited facilities. The one exception is RESOLUTE which has a Rwy 17(T)/35(T), VOR/DME, ILS and NDB but is unpaved.

Note: Thule publishes headings in °T and °G with Kangerlussuaq publishing both °T and °M. RESOLUTE VOR radiates True bearings.

Radar

Over Canada military Radar coverage is good especially in the ADIZ area. To obtain assistance call "Radar Assistance" on 122.2, 121.5 or 126.7.

Over Alaska aircraft receive a Radar service from Anchorage.

The USAF Radar Advisory Service will give assistance to civil aircraft in distress or emergency. Aircraft should establish contact on 121.5 calling "Radar Advisory Service".

ALASKA – JAPAN**ROUTEING**

The route lies along the North Pacific Composite Route System. This is a system of routes linking North America with Japan. See below. Southern Alaska and the Aleutian Islands have numerous active volcanoes. Eruptions have seen volcanic dust clouds well over 30,000ft.

AIRSPACE DESCRIPTION

The route across the Pacific lies in:

- Anchorage OCA FL 55 – UNLTD.
- Tokyo OCA FL 55 – UNLTD.

The changeover point is approximately half-way across.

AIR TRAFFIC CONTROL**North Pacific (NOPAC) Routes – Composite Route System**

To facilitate the movement of traffic, there is an organised route system between Anchorage and Tokyo, on which composite lateral/vertical separation is authorised at and above FL 280.

Oceanic Transition Routes (OTRs)

These routes are used to transition aircraft to/from the Composite Route System. OTRs are used in/out of Japan.

Separation

In the Composite Route System, separation is a combination of 50 nm laterally and 1,000ft vertically between aircraft on immediately adjacent routes. Aircraft at the same altitude will be laterally separated by at least 100 nm. Aircraft on the same route will be separated by 2,000ft vertically or 15 mins longitudinally.

Note that separation is procedural. Hence adherence to cleared track and Mach No. is essential.

Flight Plan

The Composite Route will be depicted in the following order: entry point, route designator, exit point. e.g. COMFE G344 CURVS. The planned Mach No shall be specified in Item 15 of the Flight Plan, and the TAS equivalent in the Remarks Section of Item 18.

Clearance

To effect more efficient use of airspace ATC may assign a Mach No as the last item of the clearance issued on departure or before entering the ATS route. In which case the Mach number should be included in Position Reports.

Clearances should be read back as given. A full read back of the coordinates of the route is not required.

Direct routeings are often possible. Variation of Mach No may well be available if needed for economy or time keeping.

There are considerable coordination problems over the ocean, as aircraft join the NOPAC routes mid-ocean having been airborne for many hours. Thus the situation may have changed considerably since they received their clearance. This may cause departure delays.

At the Anchorage/Tokyo OCA boundary control will be transferred. Coordination between the ATCCs is good.

Cruise Climbs

Cruise climbs are often available in the Anchorage OCA; a block of airspace from your present level to another level – usually 2,000ft higher – will be assigned with a request for an estimate of when you expect to be level.

Communications

E from Shemya communication with Anchorage is by remote VHF stations situated on the Aleutian Islands. Aircraft on R220 will be out of VHF range around 180° E/W for a short while, but an HF frequency is not normally assigned.

When W-bound abeam Shemya (Eareckson AS) control is transferred to Anchorage Oceanic who should be contacted through Honolulu Radio on HF. Anchorage may not assign an HF frequency to call Honolulu. On being released by Anchorage on VHF crews should immediately call Honolulu Radio and establish a SELCAL or listening watch on HF.

On making the position report at the Anchorage/Tokyo OCA boundary, control will be transferred and the onward primary and secondary HF frequencies given.

HF – As over the Atlantic, communication with Oceanic ATC is on HF via a “communicator” with no air traffic control authority. Hence there will be delays in the handling of routine aircraft requests. This should be taken into account when requesting stepped climbs, re-routes, or other requests requiring ATC action.

121.5 MHz should be monitored.

Position Reports

Position reports should be made at all designated reporting points, as this is the basis for separation. Use the MNPS position report format including "NEXT" position.

The prefix POSITION should be used for position reports.

Additional Reports – When reporting abeam Shemya (Eareckson AS) on the N.Pacific Routes, give DME distance and radial from Shemya VORTAC.

Radar – FAA Radar is available up to 150 nm W of Anchorage. A small portion of the track system is under FAA Radar cover from a site on St Pauls Island.

EN ROUTE AERODROMES

There are no diversion aerodromes W of Eareckson AS (Shemya) until Chitose in Japan.

Eareckson AS (Shemya)	Well equipped military aerodrome, 1,200nm from Anchorage. Radar, ILS etc.
Cold Bay	600 nm from Anchorage and S of the Composite Route Structure. Civil aerodrome with ILS.
Chitose	Civil aerodrome with Radar and ILS.

SOUTH AMERICA AND CARIBBEAN AREA

The basic North Atlantic procedures are given in the N. America Area Briefing.

EUROPE – CARIBBEAN

ROUTING

S-bound, the first Oceanic CTA entered is Shanwick, followed by Santa Maria at 45°N and New York at 40°W. Minimum Navigation Performance Specification (MNPS) airspace is left at 27°N.

Alternatively aircraft are routed via Brest, Madrid and Lisbon FIRs with Oceanic Clearance from Santa Maria.

ATC PROCEDURES

SW bound – Oceanic clearance is requested from Shanwick Oceanic on VHF soon after take-off. A full read-back of an oceanic clearance, including track co-ordinates, is the standard requirement and is always required if the clearance is received on HF.

Some of the tracks used to the Caribbean cross up to three Oceanic CTA boundaries in quick succession.

Note: That Adams Radar on Barbados provide a Radar service and should be contacted.

NE bound – Oceanic clearance is normally given on the ground. However, there will often be level restrictions until Piarco is contacted.

The Oceanic clearance may differ from that given on OFP when the routeing is likely to conflict with the OTS for that day. Sometimes level restrictions will be given to enable the flight to pass under the OTS.

COMMUNICATIONS

Communications can sometimes be difficult in Piarco CTA and San Juan Oceanic CTA, even though the latter is an ARINC (USA) manned Unit.

Met Reports – These are required on all routes to the Caribbean. It is basically adding temperature and spot wind to the end of each position report.

Transponders – Standard Oceanic procedure. Squawk A2000 30 mins after entry into an Oceanic CTA.

Cuban Airspace – Caribbean arrivals from the N will involve over-flying Cuba. If needed HF communication with Havana is through “BOYEROS RADIO”, CAR HF/RT NETWORK.

VOLCANOES

Mexico – (Popocatepetl) 35 nm SE of Mexico City – See AIS for any cautions on ash emissions.

Montserrat – (16°44'N 62°11'W). See AIS for any cautions on ash emissions.

BRIEFING CONSIDERATIONS FOR CARIBBEAN APPROACHES

SESMA data and ASRs confirm the experience of, and ongoing threat from, high energy and unstable approaches during operation into Caribbean airfields.

To enable appropriate threat identification in the Descent Brief, use the Flight Ops Safety Plan and review the following guidance, to ensure that compliance with the Safe Landing Policy, including the Stable Approach Criteria is achieved.

Avoid

At the briefing stage consider:

- What are you going to fly?

Expect change – develop a strategy for a change of runway or approach type; particularly when changing to a visual approach or to reduced track miles.

Agree the profile to be monitored in order to achieve the Stable Approach Criteria (SAC) by 1000ft auto callout and, of particular importance, how compliance with the profile will be confirmed.

Set gates and bottom lines to ensure SAC are achieved by 1000ft auto callout and maintained to touchdown.

- How you are going to fly it?

Use of AFDS modes for non-ILS and visual approaches.

Monitor the gates you have set and brief what you will do if gates are not met with a plan for early intervention.

Although the 1000ft auto callout is the bottom line for achieving the SAC, success relies on achieving the planned profile throughout the approach to touchdown.

- Brief and plan the go-around.

Trap

- Identify the threats associated with any changes to your plan; verbalise and resolve the threats.
- Review the agreed profile, monitor the profile and intervene if the profile is not being flown.

Mitigate

- Effective intervention is difficult during high workload due to runway or approach changes in unfamiliar environments.
- Anticipate the 1000ft auto callout with a review of the vertical profile, aircraft configuration and approach speed.
- If SAC not achieved by 1000ft auto callout and maintained to touchdown, flight crew must initiate go-around.

High Energy approaches can lead to runway end excursions and Controlled Flight into Terrain.

EUROPE – RECIFE (BRAZIL)**ROUTING**

The route to Rio de Janeiro and the E coast of South America lies across Portugal, then out over Madeira or the Canary Islands making landfall on South America near Recife.

REDUCED VERTICAL SEPARATION MINIMUM (RVSM)

RVSM airspace is now established between Europe and South America in the EUR/SAM Corridor.

Vertical separation will be reduced to 1,000ft between flight levels 290 and 410 inclusive. "W" will be entered in item 10 of flight plans to indicate an aircraft is equipped to operate in RVSM airspace. In addition entry and exit points and requested flight level within the corridor are to be included in item 15 of the flight plan.

Longitudinal Separation – The application of 10 minutes longitudinal separation using the Mach No Technique will be applied to aircraft operating at or above FL250 within the Canaries, Dakar Oceanic, Recife and SAL Oceanic FIRS (EUR/SAM Corridor). This may be reduced to 5 minutes if the preceding aircraft arriving at the OCEANIC entry point is flying at speed of Mach.06 greater than following aircraft.

Requirements when using the Mach No Technique:

- i. The planned True Mach Number for each portion of the route shall be specified in item 15 of the Flight Plan.
- ii. The Mach number approved by ATC shall be adhered to and approval shall be requested before making any change. If immediate temporary change essential (e.g. due to turbulence), notify ATC as soon as possible and advise adjacent aircraft using 121.5. Clearance for a prolonged reduction in Mach number may not be possible if the 10 minute separation is compromised.

ATC PROCEDURES

When crossing FIR/Oceanic CTA boundaries S of 30°N, except those between domestic FIRs, contact the onward ATC Unit 15-20 mins before entry into their airspace and request onward clearance.

Canaries Control has extended range VHF and Radar with a range of 300-400 nm from Las Palmas.

Sal should be contacted 15 mins prior to entry, normally on VHF, but this is not always possible. Sometimes Flight Plan details will not have been received.

After Sal FIR, Dakar Control should be contacted, normally on HF. Recife Radio and Dakar Control share the same family of frequencies, SAT. On approaching the South American coast, the flight will be handed over to Recife Centre on VHF.

SOUTH AMERICA**OPERATIONAL**

The South American continent covers a vast area. For example, Brazil is bigger than Australia. Study of an elementary atlas of this area is useful.

Aids

The facilities at major aerodromes are quite good, although Radar assistance is somewhat hampered by the language problem.

Serviceability of navaids may not be correctly NOTAMed.

Safety Altitudes

The safety altitude in the area of most of the BAVirtual destinations is high.

Any departure from the designated holding areas, or specified procedures can lead to a rapid degradation of terrain clearance. Safety altitudes need to be carefully monitored when diverting, especially in the event of an engine failure.

There have been numerous instances of flights being cleared by ATC to an altitude below the MSA. In a non Radar environment, the controllers assume that the crew know their position, and when they can descend. Hence, prior to descent, check the MSA, and keep track of position.

When Radar is not available, a published or assigned altitude will be given which must be reached before continuing past a specified fix. It may be necessary to enter a hold to climb or descend as necessary to achieve this.

AIR TRAFFIC CONTROL

South American ATC controllers in general understand the term "direct" to mean to proceed without delay along the flight planned route. Pilots receiving a "direct" clearance in S.America should verify the intended meaning checking MSA if necessary.

A call to ground control prior to start is expected at most aerodromes. ATC clearance is not normally given until the aircraft is taxiing.

Due to traffic and terrain, many SIDs involve multiple turns and altitude requirements. Do not rely on Radar monitoring to pick up any errors.

ATC coordination is not always efficient, so re-confirm clearances when given a frequency change.

VFR traffic will be controlled in local language and traffic information may be poor; a good look out is required. Such traffic may be encountered at fairly high altitude (10,000ft) due to the high terrain. Most Latin American airlines turn their landing lights on in the aerodrome area.

COMMUNICATIONS

Language is a major problem in South America; English comes a very poor second to Portuguese or Spanish. Hence do not be surprised if you cannot understand a controller, or him you. Allow plenty of time to negotiate, use standard phraseology, speak slowly and distinctly and be patient and alert at all times.

Do not use slang or such terms as "Boundary" or "FIR", use the correct phonetic designator. Use the word "decimal" rather than "point" for frequencies, etc.

Listen carefully; transmissions are sometimes weak and garbled. If a controllers response to a message is a simple "Roger", be careful as he may not have understood.

Blanking of signals by high ground is a problem.

Use the correct name for the ATC unit especially when calling an aerodrome. The latter may not be the same as the aerodrome name.

TAKE-OFF

Due to terrain, and numerous crossing restrictions, SIDs must be followed carefully. Basically the most prudent philosophy is to climb as quickly as possible.

PUBLIC ADDRESS ANNOUNCEMENTS

- The term "Latin America" is preferred to "South America".
- Use the name of the destination aerodrome, and not just the city name, e.g. "El Dorado International Airport, Bogota".
- Generally:
 - Temperature – Centigrade.
 - Altitude – Metres.
 - Speed – Km/hr.

BRAZIL

Air traffic control in the upper airspace is by Recife and Brasilia centres, and is generally good. Brasilia will identify the flight on initial contact and then pass the message "under Radar surveillance". This indicates that position reports may be omitted.

ATC will occasionally confirm that the flight is passing a reporting point to indicate that surveillance is maintained.

Most of the population live along the coast, and hence most aerodromes and air traffic is in this area. Brazilian territory extends 200 nm from the coast.

Large BALLOONS, balloon type objects and Kites may be encountered over Brazil. They are a religious tradition; the activity reaches a peak from mid Jun to Aug. Aircraft have, in the past, been forced to take avoiding action; ATC are unlikely to warn the aircraft.

UNICOM

Brazil uses a non-standard Unicom frequency of 123.45 as 122.8 clashes with a number of ATC facilities. It is recommended that 122.8 is monitored on Box 2 as non-local pilots may not be aware.

DESCENT

The Brazil AIP warns that ATC may clear aircraft to set the QNH and descend to an altitude which is above the Transition Level. This procedure is used when a continuous approach is anticipated without long periods of level flight following initial descent from cruising level. This procedure is used at Rio.

Magnetic variation in N and E Brazil is in excess of 20°W.

EMERGENCY

When an aircraft is in an emergency condition within the Brazilian FIR ATC shall be informed using the following classifications:

WHITE ALERT – Possibility of an accident are remote but there are signs of danger that may require a warning to ATC. **Example:** Aircraft in emergency due to low fuel status.

YELLOW ALERT – There is a good chance of an aeronautical accident, and the rescue services are required to attend.

RED ALERT – An aeronautical accident is unavoidable or it has already happened.

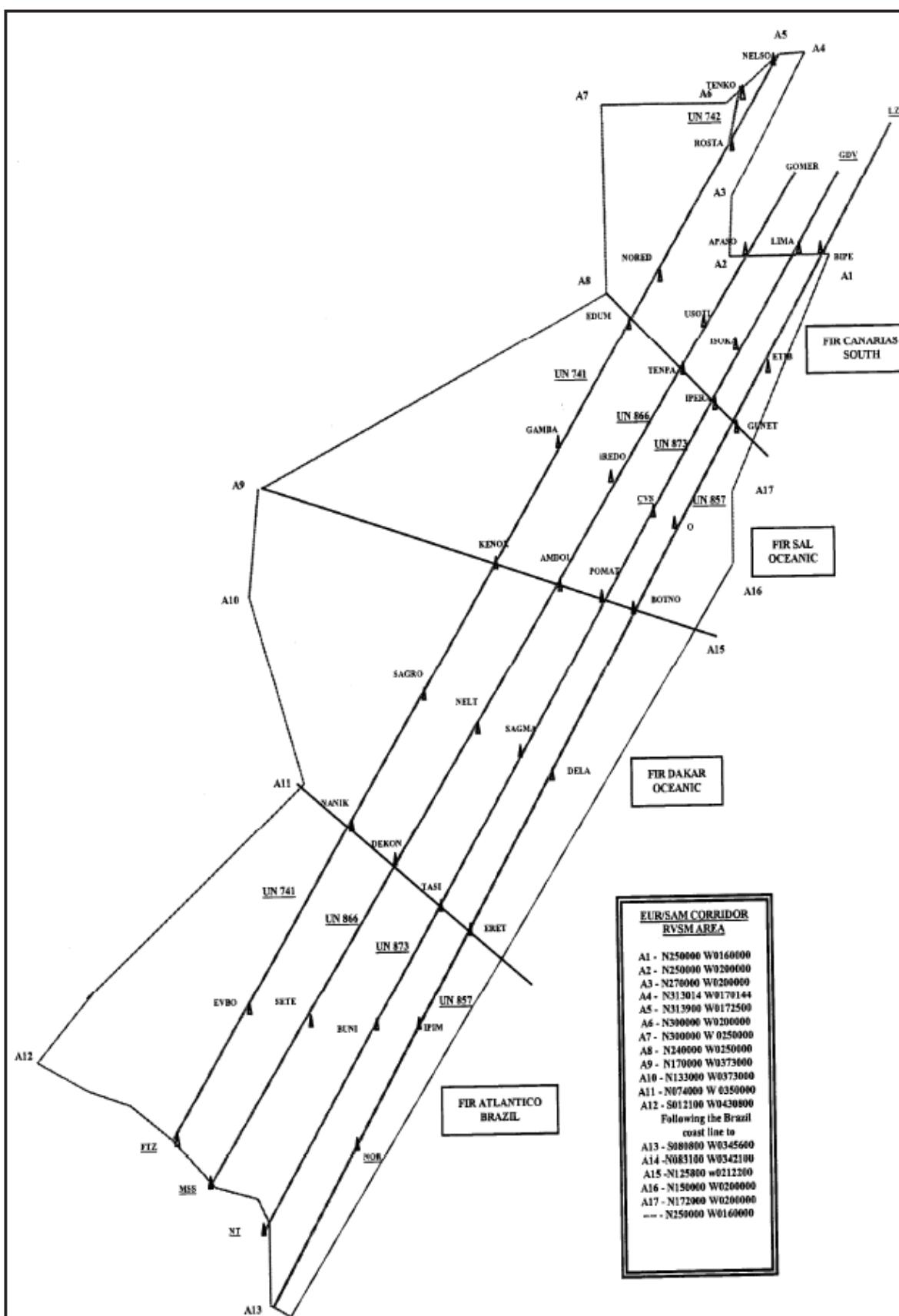
All emergency messages will be preceded by MAYDAY, MAYDAY, MAYDAY or PAN, PAN, PAN in case of urgency.

VENEZUELA

Apart from Caracas, few aerodromes have good facilities.

Traffic between Maiquetia ACC and Piarco ACC is co-ordinated.

EUR/SAM CORRIDOR RVSM AIRSPACE



COLD TEMPERATURE CORRECTIONS

Pressure altimeters are calibrated to indicate true altitude under ISA conditions. Any deviation from ISA will result in an erroneous reading on the altimeter. In a case when the temperature is higher than the ISA, the true altitude will be higher than the figure indicated by the altimeter, and the true altitude will be lower when the temperature is lower than the ISA. The altimeter error may be significant, and becomes extremely important when considering obstacle clearances in very cold temperatures.

In conditions of extreme cold weather, PSX users with the appropriate option selected should add the values derived from the Altitude Correction Chart to the published procedure altitudes, including minimum sector altitudes and DME arcs, to ensure adequate obstacle clearance. Unless otherwise specified, the destination aerodrome elevation is used as the elevation of the altimeter source.

For aerodromes up to 1,000ft use aerodrome temperature and for aerodromes above 1,000ft use ISA deviation for altitude corrections. (The temperature at ISA is +15°C minus 2°C per 1,000ft above sea level. The ISA deviation is the ambient temperature minus the temperature at ISA. E.g. an airfield 2,500ft above sea level at -30°C has an ISA deviation of -30-10 = -40.)

With respect to altitude corrections, the following procedures apply:

- IFR assigned altitudes may be either accepted or refused. Refusal in this case is based upon the pilot's assessment of temperature effect on obstruction clearance.
- IFR assigned altitudes accepted by a pilot shall not be adjusted to compensate for cold temperatures, i.e. If a pilot accepts "maintain 3,000", and altitude correction shall not be applied to 3,000 feet.
- Radar vectoring altitudes assigned by ATC are temperature compensated and require no corrective action by pilots.
- When altitude corrections are applied to a published final approach fix crossing altitude, procedure turn or missed approach altitude, pilots should advise ATC how much of a correction is to be applied.

Note that the effect of temperature on altitude is not modelled in MSFS based sims and therefore no correction is required by users on these platforms.

ALTITUDE CORRECTION CHART

Height Above the Elevation of the Altimeter Source (feet)

Aero-drome Temp °C	Aero-drome ISA deviation °C	200	300	400	500	600	700	800	900	1000	1500	2000	3000	4000	5000
0°	-15	20	20	30	30	40	40	50	50	60	90	120	170	230	290
-10°	-25	20	30	40	50	60	70	80	90	100	150	200	290	390	490
-20°	-35	30	50	60	70	90	100	120	130	140	210	280	430	570	710
-30°	-45	40	60	80	100	120	140	150	170	190	280	380	570	760	950
-40°	-55	50	80	100	120	150	170	190	220	240	360	480	720	970	1210
-50°	-65	60	90	120	150	180	210	240	270	300	450	600	890	1190	1500

Note: Values should be added to published altitudes.

'HOT AND HIGH' OPERATIONS

INTRODUCTION

Air density is a fundamental variable when considering aircraft performance. Air density is a function of temperature and pressure. There is no flight deck instrument indicating density, but temperature and pressure (from sea level pressure and altitude) are readily available. It is therefore more natural for the pilot to think of performance using these variables, hence the term 'hot and high'. Density altitude makes the concept easier to visualise.

To calculate the density altitude the rule of thumb is:

Density Altitude = Airfield Pressure Altitude + 1000ft per 8°C above ISA.

e.g. Johannesburg, elevation 5500ft amsl. With an OAT of 32°C (ISA + 28) and standard pressure the density altitude is 9000ft.

AWARENESS OF THE DENSITY ALTITUDE

'Hot and high' conditions can be anticipated and therefore covered in the approach briefing. Most of the problems arise because the TAS increases with increasing density altitude (refer to appendix). Therefore a comparison of IAS and TAS will give a good indication of the problems ahead.

HORIZONTAL PROFILE

The turning radius will increase as the TAS increases. It may be necessary to reduce speed by the increment in TAS (due to high density altitude) to achieve the horizontal profile. Using the Johannesburg example, an initial approach speed of 220 kt IAS at 3000ft aal will give a TAS of 260 kt. Modifying the FMC speed to 180 kt, for example, will produce a TAS of 215 kt and will restore the aircraft's turning radius to the sea level equivalent.

VERTICAL PROFILE

When flying a 3° profile the rule of thumb is:

Rate of descent = $5 \times$ groundspeed.

Therefore if the TAS is higher it follows that the V/S will be higher by an equivalent amount. In the above example, 220 kt IAS gives 260 kt TAS and (in still air) a V/S of 1300ft/min. This should be anticipated, especially for a non precision approach.

ENERGY MANAGEMENT

An aircraft will glide equally well at sea level or at altitude, and therefore density altitude has no effect on the ability of the aircraft to follow a 3° profile. This is despite the increased vertical speed and therefore, perhaps, contrary to initial expectations. The descent profile will be achievable with normal configurations and thrust settings.

This is a potential trap, because everything appears normal it may be (incorrectly) assumed that slowing up will be equally straightforward. This will not be the case. Again the high TAS is the clue, and it has two effects.

- Acceleration (and deceleration) is a rate of change of speed. That is to say it takes a certain time to slow up. However, our approaches are normally based on 'gates' that are a fixed distance (or height, it amounts to the same thing) from touchdown. With a higher TAS this distance will be covered a lot more quickly, leaving less time to slow up. Using the Johannesburg example, 180 kt IAS equates to 215 kt TAS, which is 20% faster.
- Reducing speed from 180 kt IAS to 140 kt IAS appears to be a reduction of 40 kt. In our example this would equate to 215 kt TAS and 167 kt TAS respectively. In other words this is actually a reduction of 48 kt – again a 20% difference.

These factors are compounded, and the increase in distance required to slow down may be considerable. In the Johannesburg example $1.2 \times 1.2 = 1.44$, so it will take 44% longer to decelerate. Therefore the deceleration 'gate' must be moved to a more appropriate position earlier in the approach. Allowing a minimum of 50% extra distance would seem to be a good rule of thumb, however it could be more for very high density altitudes. This should be increased further if other factors (e.g. tailwind, non-normal configuration, high approach speeds due to weight, etc.) are also present.

BRAKING

The kinetic energy will be higher on touchdown and this has to be dissipated by the brakes. The use of reverse thrust and an appropriate runway turn-off will keep brake temperatures down.

SUMMARY

- 'Hot and high' conditions should be anticipated and briefed. Comparing IAS to TAS will give a good indication of likely problems.
- Turning radius will increase. A speed reduction may be necessary to achieve the horizontal profile.
- The ability of the aircraft to follow a descent profile is not necessarily an indication of how well it will slow down.
- It could take up to 50% further to decelerate (more if the density altitude is very high or if other factors are present). The 'gates' should be moved back to a more appropriate position to allow more time and distance to slow up.
- Touchdown speeds will be higher. Choose appropriate braking.