

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 BAV 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 confictions.
- 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

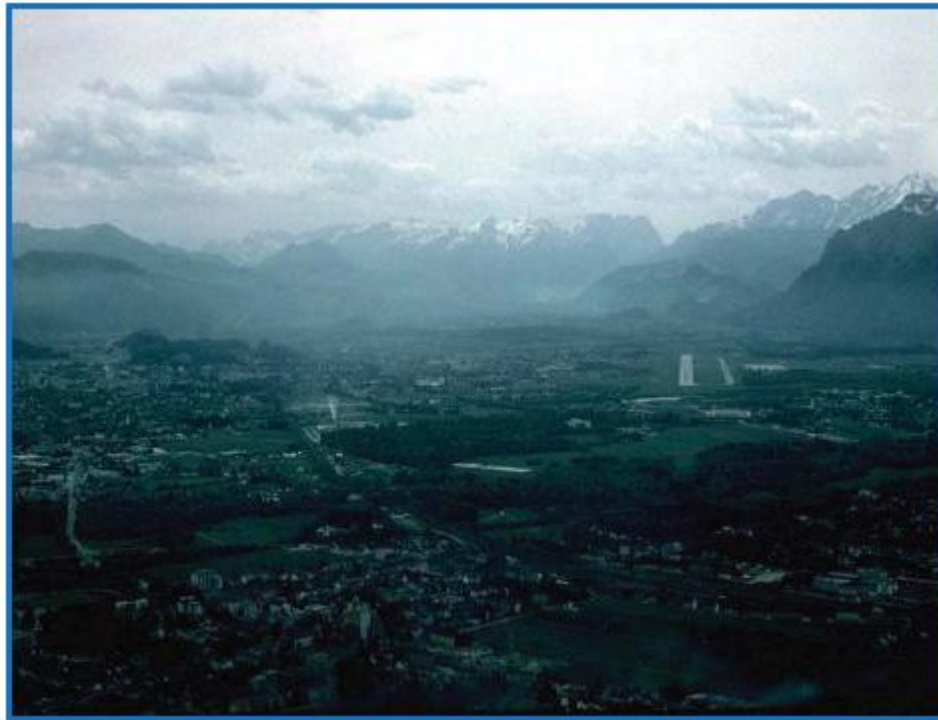
- Each approach has a different GA profile. Where a turn is described as 'As soon as operationally practicable' it should not be commenced prior to the MAP. For an ILS this is coincident with DA/DH.

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'y 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

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	Max. OAT
LOC/DME 4% (Cat C)	ON	ON	55,600 kg	45°C
		OFF	57,100 kg	50°C
LOC/DME 2.5% (Cat C)	ON	ON	57,600 kg	45°C
		OFF	59,100 kg	50°C

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

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.

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).

Lido chart AOI 2:

DA (DH) RVR	Straight MISAP one ENG out	MISAP climb in turn one ENG out	MAX IAS in turn	Average bank angle
1620ft (200ft) 550m	4.7%	3.2%	165KT	25°
1670ft (250ft) 550m	4.2%	2.7%	165KT	25°
1720ft (300ft) 650m	3.8%	2.3%	165KT	25°
1820ft (400ft) 1100m	3.2%	1.7%	165KT	25°
1920ft (500ft) 1500m	2.7%	1.2%	165KT	25°

Missed Approach Climb Gradients A319/A320:

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.

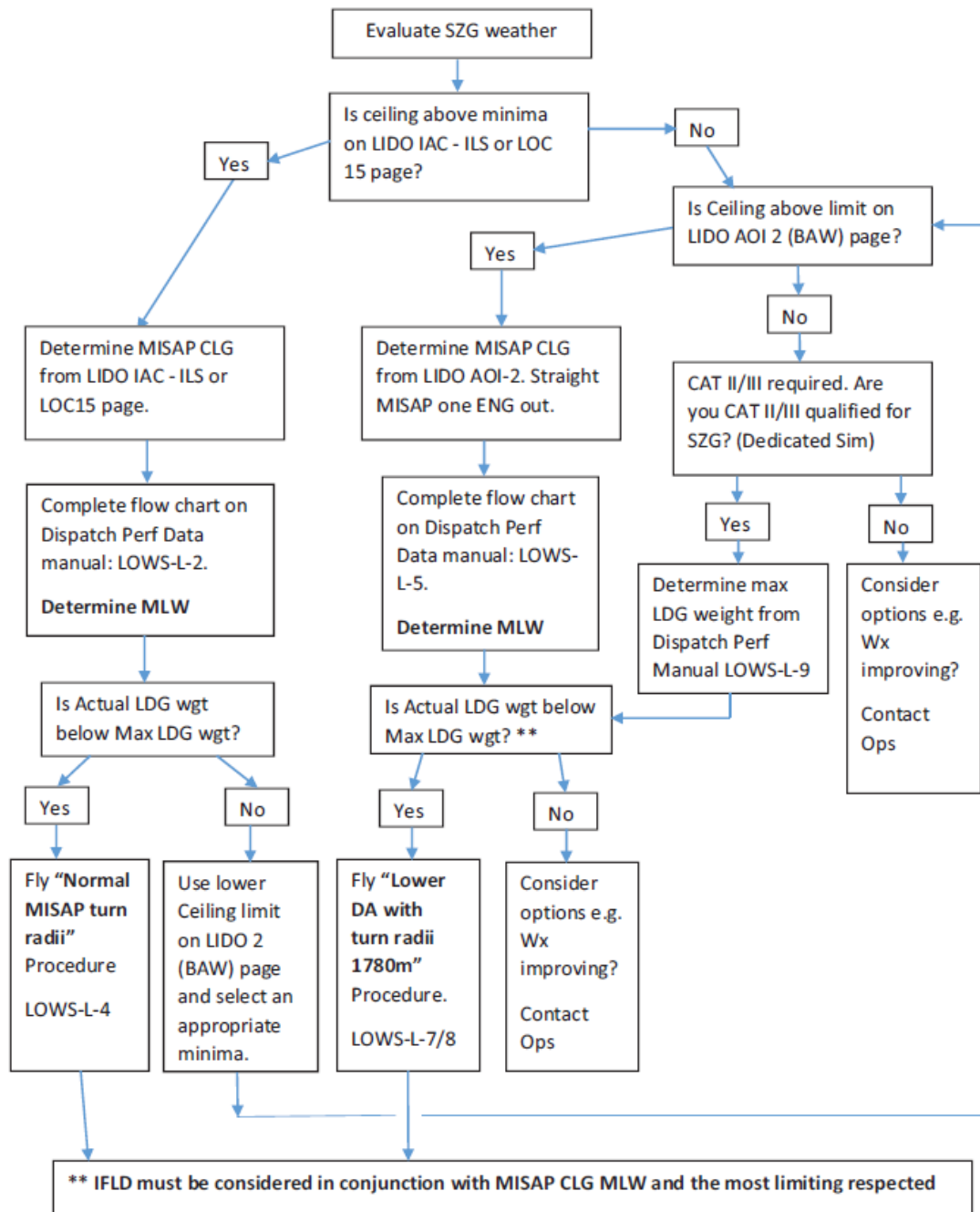
IFLD

- 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-manoeuving.
- Good look out required when self-manoeuving 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 final 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 BAV 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.