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# Wake Turbulence

## Final Approach

[EOMA 8.3.10]

Type	Separation
A380	7nm
Heavy	5nm
Upper Medium (e.g. 757,707)	4nm (UK only)

**Note:** Boeing 757 and Boeing 737-800/900 are classified as heavy for the purposes of final approach in some countries.

## Departure

[EOMA 8.3.10]

Type	Separation
A380	3 mins
Heavy	2 mins

**Note:** Add **1 minute** if departure is not from the same position

## Contaminated Runway Operations

Takeoff is not recommended with:

- Wet ice
- Water on top of compacted snow
- Dry Snow or Wet Snow over Ice

Damp runway [EOMB 4.5.1/4.12.1] ..... Use Wet performance

Contamination < 25% of runway area [EOMB 4.6.2] ..... Use Wet performance

Contamination <3mm [EOMB 4.6.2] ..... Use Wet performance

Takeoff condition assessment matrix ..... EFB “More” pages

Landing condition assessment matrix ..... QRH PER-C.3

Minimum cleared width [WIH 8.2.6] ..... 30m (check snowbanks: EOMB 4.6.10)

≤45m does not need to be treated as a narrow runway for V<sub>1</sub> etc. [WIH 8.3]

“Slippery when wet”

Takeoff ..... EOMB 4.5.7

Landing ..... EOMB 4.14.5

## Takeoff and Landing Wind Limits

### Takeoff or Manual Landing, Runway Width $\geq 45\text{m}$

Max Headwind ..... No limit  
 Max Tailwind ..... 10kt

Runway Condition	Max Crosswind (including gust)
<ul style="list-style-type: none"> <li>• Dry</li> <li>• Damp</li> <li>• Wet (<math>\leq 3\text{mm}</math> water)</li> <li>• Slush (<math>\leq 3\text{mm}</math>)</li> <li>• Snow (<math>\leq 3\text{mm}</math>, dry or wet)</li> <li>• Frost</li> <li>• <math>\leq 25\%</math> contamination</li> </ul>	A320NEO Takeoff ..... 35kt Otherwise ..... 38kt
<ul style="list-style-type: none"> <li>• Compacted Snow (<math>\text{OAT} \leq -15^\circ\text{C}</math>)</li> </ul>	29kt
<ul style="list-style-type: none"> <li>• Dry Snow (<math>&gt; 3\text{mm}</math>, <math>\leq 100\text{mm}</math>)</li> <li>• Wet Snow (<math>&gt; 3\text{mm}</math>, <math>\leq 30\text{mm}</math>)</li> <li>• Compacted Snow (<math>\text{OAT} &gt; -15^\circ\text{C}</math>)</li> <li>• Dry Snow over Compacted Snow</li> <li>• Wet Snow over Compacted Snow</li> <li>• Slippery when wet</li> </ul>	25kt
<ul style="list-style-type: none"> <li>• Water (<math>&gt; 3\text{mm}</math>, <math>\leq 12.7\text{mm}</math>)</li> <li>• Slush (<math>&gt; 3\text{mm}</math>, <math>\leq 12.7\text{mm}</math>)</li> </ul>	20kt
<ul style="list-style-type: none"> <li>• Ice (cold and dry)</li> </ul>	15kt

### Takeoff or Manual Landing, Runway Width $< 45\text{m}$ , $\geq 30\text{m}$

Max Headwind ..... No limit  
 Max Tailwind ..... 10kt

Runway Condition	Max Crosswind (including gust)
<ul style="list-style-type: none"> <li>• Dry</li> </ul>	A320NEO Takeoff ..... 35kt Otherwise ..... 38kt
<ul style="list-style-type: none"> <li>• Wet (<math>\leq 3\text{mm}</math> water)</li> </ul>	33kt
<ul style="list-style-type: none"> <li>• Contaminated (not icy)</li> </ul>	10kt

## Autoland without automatic rollout

[LIM.22]

Headwind	
A319 OEI .....	15kt
A319 AEO .....	20kt
Otherwise .....	30kt
Tailwind	
A319 CONF3 .....	5kt
Otherwise .....	10kt
Crosswind	
A319 OEI .....	10kt
Otherwise .....	20kt
Crosswind must not be greater than that for manual landing.	

## Autoland with automatic rollout

[LIM.22]

Headwind	
A319 OEI .....	15kt
A319 AEO .....	20kt
Otherwise .....	30kt
Tailwind	
A319 CONF3 .....	5kt
Otherwise .....	10kt
Crosswind	
A319 OEI .....	10kt
A320 CEO with sharklets .....	15kt
A320 NEO with inop thrust reverser .....	15kt
	(idle reverse used on remaining reverser)
Otherwise .....	20kt

## Other wind limits

LEAP-1A starting max crosswind [LIM.70] .....	45kt
Passenger door operation [LIM.12] .....	65kt
Cargo door operation [LIM.12] .....	40kt (50kt w/caveats)
Cargo door closed before [LIM.12] .....	65kt

## Other Autoland limitations

[LIM.22.20]

Alert height	100ft
Approved configurations	
A320CEO OEI	CONF FULL only
Otherwise	CONF 3, CONF Full
Rwy conditions for automatic rollout	Dry, Wet
Glideslope	2.5° to 3.15°
Max airport elevation	A320NEO:5750ft, A320CEO:2500ft, A319:9200ft
Min pressure altitude	A320NEO:-2000ft; Otherwise:-1000ft
Auto rollout with one reverser inop	Idle reverse only (no limitation for A320CEO without sharklets)
A319 Max weight (emergency only)	69000kg
A320NEO Min weight	44000kg

## First Officer limits

3* FO [EOMB 2.1]	No planned tailwind
Max crosswind [EOMB 2.1]	20kt
Takeoff minimum [EOMB 2.1]	400m RVR
ILS/VOR/ADF/SRA minima [EOMB 2.1]	As published
Circling minima [EOMB 2.1]	5000m
Min runway width, no specific training [EOMB 2.1]	45m
3* FO [EOMB 2.1]	no flap 3 landing
No contamination, windshear or autoland [EOMB 2.1]	

## Airport limitations

Max slope [LIM.12]	±2%
Max runway altitude [LIM.12]	9200ft
Nominal runway width [LIM.12]	45m
Min runway width (narrow runway procedures) [PRO.SPO.60]	30m
Min planning fire fighting category [EOMA 8.1.2.1]	
Departure/Destination	6 (5 or 4 with caveats)
Alternates	UK: 5; Non-UK: 4
Runway lighting	
Red and white	900m
Red	300m

## Dimensions

[DSC.20.20]

	A319	A320 (no sharklets)	A320 (sharklets)
Wingspan	34.1m		35.8m
Length	33.84m	37.57m	
Min pavement for 180° turn	20.64m	22.9m	22.8m
Widest sweep	Wing tip		

## Weight Limits

[LIM.11, PER.LOD.CGO]

Weight	A319	A320CEO	A320NEO
Max Takeoff	68000kg	77000kg	79000kg
Max Taxi	68400kg	77400kg	79400kg
Max Landing	61000kg	66000kg	66300kg
Max Zero Fuel	57000kg	62500kg	62800kg
Minimum	35400kg	37230kg	40600kg

A319	
Max Compartment 1	2268kg
Max Section 41	1326kg
Max Section 42	1695kg
Max Compartment 5	1497kg

A320	
Max Compartment 1	3402kg
Max Compartment 3	2426kg
Max Compartment 4	2110kg
Max Compartment 5	1497kg

## Loading

### A319 Protocol:[GHM 2.4.1]

Up to 150 bags to Section 41/42;  
then up to 50 in Compartment 5;  
overspill to Compartment 1.

### A320 Protocol:[GHM 2.4.1]

Fill Compartment 1 (≈85 bags);  
remainder to Compartment 4 and if necessary, Compartment 3.  
No planned usage of Compartment 5.

### LMCs [EOMB.7.4]

Negative LMC,  $\Delta CG < 2\%$  ..... No action required  
Positive LMC  $< 250\text{kg}$ ,  $\Delta CG < 2\%$  ..... Subtract 1 from FLEX  
(FLEX must still be  $>TREF$  (A319:ISA+30; A320:ISA+29))

Other cases ..... Recalculate performance

New paperwork required for -20/+10 passengers

A320 Forward CG [EOMB 4.9.4] .....  $CG < 27\%MAC$

## General speeds

$V_{MO}$ [LIM.13]	350kt
$M_{MO}$ [LIM.13]	0.82M
Max Tire speed [LIM.13]	195kt
Max speed for wipers [LIM.13]	230kt
Max speed cockpit window open [LIM.13]	200kt
$V_{MCA}$ (rounded up)[LIM.13]	
A319	0ft:108kt; 2000ft:106kt
A320CEO	0ft:110kt; 2000ft:108kt
A320NEO	0ft:114kt; 2000ft:114kt
$V_{MCG}$ CONF 1+F (rounded up)[LIM.13]	
A319	0ft:105kt; 2000ft:103kt
A320CEO	0ft:111kt; 2000ft:109kt
A320NEO	0ft:116kt; 2000ft:116kt
CFM56 Turbulence speeds [PRO.SUP.91.10]	
<FL200	250kt
≥FL200	275kt
≥FL320	M0.76
LEAP-1A Turbulence speeds [PRO.SUP.91.10]	
<FL200	260kt
≥FL200	280kt
≥FL310	M0.76



# Engine

[LIM.70]

TOGA time ..... 5 mins (10 mins single engine)

## EGT

TOGA ..... CFM56:950°C; LEAP-1A:1060°C

MCT ..... CFM56:915°C; LEAP-1A:1025°C

CFM56 Start ..... 725°C

LEAP-1A Air Starting ..... 875°C

LEAP-1A Ground Starting ..... 750°C

## Oil

CFM56 min quantity[EOMB 2.3.4.3] ..... 9.5qt+0.5qt/hr

LEAP-1A min quantity[NEO QRG] ..... 10.6qt+0.45qt/hr

Max cont temp ..... 140°C

Max trans temp ..... 155°C

Min start temp ..... CFM56:-40°C; LEAP-1A:-29°C

Min takeoff temp ..... CFM56:-10°C; LEAP-1A:19°C

LEAP-1A Min Oil Pressure ..... 17.4psi

LEAP-1A Max Oil Pressure (oil temp < 50°C) ..... 130.5psi

LEAP-1A Max Oil Pressure (oil temp > 50°C) ..... 145psi

Max N1 ..... CFM56:104%; LEAP-1A:101%

Max N2 ..... CFM56:105%; LEAP-1A:116.5%

## CFM56 Starter

No running engagement when N2>20%

4 cycles of max 2 mins

Pause between start attempts ..... 20 sec

Cooling period after 4 attempts ..... 15min

## LEAP-1A Starter

No running engagement when N2>59%

1 auto-start cycle consists of three start attempts

Pause between cycles ..... 60 sec

Cooling period after 3 cycles ..... 15min

Max reverse ..... >70kt

## APU

Ops with “Low Oil Level” ECAM [LIM.49.10]	10hrs
Starter duty [LIM.49.10]	3 cycles then 60 mins
Maximum N [LIM.49.10]	107%
Max EGT [LIM.49.10]	675°C
Max start EGT [LIM.49.10]	<35000ft: 1090°C, >35000ft 1120°C
Max Altitudes [LIM.49.20]	
Two packs	15000ft
One pack	22500ft
Eng start	20000ft
Battery start (emerg elec config)	25000ft
Restart and operation	39000ft
Air bleed for wing anti-icing	Not permitted
Approximate fuel burn [EOMB 5.1]	2kg/min

## Hydraulics

Normal pressure [LIM.29]	3000±200psi
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## Flaps/slats

Conf 1 [LIM.13]	230kt
Conf 1+F [LIM.13]	215kt
Conf 2 [LIM.13]	200kt
Conf 3 [LIM.13]	185kt
Conf Full [LIM.13]	177kt
Max flaps/slats altitude [LIM.27]	20000ft

## Gear

Extend [LIM.13]	250kt
Retract [LIM.13]	220kt
Extended [LIM.13]	280kt/M.67
Max gear altitude [LIM.13]	25000ft
Max taxi speed, single tyre deflated [LIM.32]	7kt
Max taxi speed, both tyres deflated [LIM.32]	3kt
Max steering angle, both tyres deflated [LIM.32]	30°
Max brake temp for takeoff [LIM.32]	300°

## Pressurisation

Max pos diff [LIM.21.20] .....	9.0psi
Max neg diff [LIM.21.20] .....	-1psi
Safety valve [LIM.21.20] .....	8.6psi
Max norm cabin alt [LIM.21.20] .....	8000ft
Cab alt warning [LIM.21.20] .....	9550ft±350ft
Ram air max diff [LIM.21.10] .....	1psi

## Air conditioning / Ventilation

Max LP ground unit airflow [LIM.21.10] .....	1.2kg/s
(do not simultaneously use packs)	
Do not use HP ground unit when APU is supplying bleed air. [LIM.21.10]	
Max OAT for norm avionics ventilation [LIM.21.30] .....	49°C
(higher with time limits)	
Max OAT with EXTRACT OVRD and Packs Off [PRO.SUP.30] .....	39°C
(higher with time limits)	

## Electrical

Max generator continuous load [LIM.24] .....	100%(90 KVA)
Max TR continuous load [LIM.24] .....	200A
Min Battery Voltage [EOMB 2.3.4.1] .....	25.5V
Battery check [EOMB 2.3.6.2] .....	charge current<60A within 10s

## Fuel

Approximate Capacity (varies by airframe) [DSC.28.10.20]	
Outer tanks .....	2 x 700kg
Inner tanks .....	2 x 5500kg
Center tank .....	6500kg
Total .....	18900kg
Allowable temperature (Jet A1) [LIM.28] .....	≥-43°C, ≤54°C
Max imbalance [LIM.28]	
Fuel in fuller inner tank < 2250kg (outer tanks balanced) ...	No Limitation
Max inner tank imbalance (outer tanks balanced) .....	1500kg (more w/ caveats)
Max outer tank imbalance (sides balanced) .....	1 full, 1 empty
Max takeoff imbalance with sharklets .....	inners: 500kg, outers: 370kg (more w/ caveats)
Min qty for takeoff [LIM.28] .....	1500kg

## Oxygen

[LIM.35]

A319/A320CEO Min oxygen pressure (ref temp 40°)	
3 crew .....	1024psi
2 crew .....	781psi
A320NEO Min oxygen pressure (ref temp 40°)	
3 crew .....	CAPT:780psi, FO:550psi
2 crew .....	CAPT:550psi, FO:550psi
Minimum Endurance, emergency descent (reg normal)	
Descent, 3 crew .....	A319/A320CEO:13 mins; A320NEO:15mins
Cruise at FL100, 2 crew ...	A319/A320CEO:107mins; A320NEO:105mins
Minimum Endurance, fire (reg 100%)	
8000ft .....	15mins

## Navigation

Max IRS latitudes [LIM.34] .....	73°N,60°S
Altimeter tolerances [PRO.SUP.34]	
ADR vs Airfield elevation .....	±25ft
ADR vs ADR .....	±20ft
ISIS vs ADR .....	±100ft
Altimeter temperature corrections .....	QRH SI.10

## Ice protection

- Icing conditions [\[PRO.SUP.30\]](#) ..... OAT(grd)|TAT(ft)≤10°C  
(& visible moisture or ground contamination)
- Eng anti-ice not reqd [\[PRO.SUP.30\]](#) .... climb/cruise, SAT<-40°C, no CBs in vicinity
- Accreted ice [\[PRO.SUP.30\]](#)
  - Min speed, Conf Full ..... V<sub>LS</sub> + 5kt
  - Min Speed, < Conf Full ..... V<sub>LS</sub> + 10kt
  - Check landing performance ..... QRH PER-C
- Accreted ice, wing anti-ice inop [\[PRO.SUP.30\]](#)
  - Min speed ..... V<sub>LS</sub> + 10kt/ G DOT
  - Check landing performance ..... QRH PER-C
- Avoid extended flight in icing conditions with slats extended [\[PRO.SUP.30\]](#)
- CFM56 Fan ice shedding: [\[EOMB 2.4.91\]](#)
  - Icing conditions > 30 mins ..... 70%N1 for 30 secs every 30 mins
  - Freezing rain/dizzle/fog, heavy snow ... 70%N1 momentary every 10 mins
  - Before takeoff ..... 70%N1 for 30 secs
- LEAP-1A Fan ice shedding: [\[NEO OLL\]](#)
  - Icing conditions > 60 mins ..... 70% for at least 5 seconds
  - Ground fog icing conditions > 120 mins ..... Engineering inspection reqd

## Autopilot

- Engagement after TO [\[LIM.22.10\]](#) ..... >100ft,>5 secs
- Minimum engagement height [\[LIM.22.10/20\]](#)
  - Straight in NPA ..... DH
  - Circling ..... MDA-100ft
  - ILS, CAT2 or CAT3 not displayed on FMA ..... 160ft agl
  - Cat II approach, manual landing ..... 80ft
  - PAR ..... 250ft
  - Go-around ..... 100ft
  - Other phases ..... 500ft

# Miscellaneous

German corner .....	KRH R270/12D
Alternate ranges <a href="#">[EOMB 5.1.1]</a>	
Takeoff .....	320nm
Enroute .....	A319:380nm; A320:400nm
Approx Power settings	
Two engine approach, $V_{app}$ .....	50% N1
Single engine approach, $V_{app}$ .....	70% N1
Two engine cruise .....	(50 + Altitude/1000)% N1
Flex corrections <a href="#">[EOMB 2.3.10]</a>	
Anti-ice on .....	subtract 5°C
QNH reduction .....	subtract 1°C/2hPa
Flex must remain >TREF (A319:ISA+30; A320:ISA+29) and >OAT	
easyJet Landing Distance Factor .....	1.15

## Single Engine operations

- Avoid reducing below  $V_{LS}$  (including GPWS/Windshear) [FCOM PRO.ABN.70]
- Autoland capability [LIM.22.20] ..... Cat III single (A320: Conf Full only)
- Available NPA Autopilot modes [LIM.22.10]
  - A320 ..... All
  - A319 ..... LOC/VS, LOC/FPA, HDG/VS, TRK/FPA  
(All modes permitted FD only)
- Do not extend full flaps until established on final descent. [PRO.ABN.10]
- Use Conf 3 if a level off is required. [PRO.ABN.10]
- Check QRH ABN-80 if circling required
- Sharklet automatic rollout [LIM.22.20] ..... Idle reverse only

## Double engine failure

[QRH ABN.70]

- Target ..... 4nm, 2400AAL, S Speed, Flap 1, Gear up
- Range
  - 300kt ..... 2nm per 1000ft
  - Green dot .....  $2\frac{1}{2}$ nm per 1000ft
  - CONF 3, Gear Down ..... 1.2nm per 1000ft ( $\approx 850$ ft/nm)
- Loss of height in holding pattern (downwind leg timing)
  - 0 secs ..... 4000ft
  - 15 secs ..... 5000ft
  - 30 secs ..... 6000ft
  - 45 secs ..... 7000ft
  - 60 secs ..... 8000ft
- Landing Configuration
  - Forced Landing ..... Flap 3 (slats only), Gear Down (gravity extension)
  - Ditching ..... Flap 3 (slats only), Gear Up, Ditching button pushed
- $V_{app}$  ..... Greater of  $V_{ref}+25$ kt, 150kt

## Emergency calls to cabin

Ground ops alert [\[EOMB 2.3.90.10\]](#):

“Attention! Crew at Stations”

Notification of a potential emergency in-flight [\[EOMB 2.3.90.10\]](#):

“Attention! Crew at Stations”

Alert cancellation [\[EOMB 2.3.90.10\]](#):

“Cabin crew, normal operations”

Evacuation [\[EOMB 2.3.90.10\]](#):

“Evacuate. Unfasten your seatbelts and get out”

NITS on flight deck [\[EOMB 2.3.90.10\]](#):

“Senior cabin crew member to the flight deck”

NITS via interphone [\[EOMB 2.3.90.10\]](#):

“Senior cabin crew member to the interphone” or 3 double chimes

Unplanned emergency landing [\[EOMB 2.3.90.10\]](#):

“Attention, Crew! Brace, Brace!”

Rapid decompression [\[EOMB 3.80.2\]](#):

Auto announcement from CIDS/PRAM. No Flight Crew PA required.

Planned emergency landing [\[EOMB 2.3.90.10\]](#):

2000ft..... “Cabin crew, take up landing positions”

500ft ..... “Brace, Brace”

Severe turbulence [\[EOMB 2.3.90.10\]](#):

“Cabin crew and passengers be seated immediately”



# Procedures

## General

UK Procedure default speed limit [\[UKAIP GEN.1.7\]](#) ..... 185kt  
Procedure turn [\[LIDO RAR.5.4.1.2\]](#) ..... 75 seconds from start of 45° turn

## Takeoff with tailwind or crosswind > 20kt

A319/A320CEO[\[EOMB 2.3.12\]](#)

- Set 50% N1
- When engines stable, rapidly set 70% N1
- Select takeoff thrust by 40kt
- Stick full forward until 80kt, neutral by 100kt

A320NEO[\[NEO QRG\]](#)

- Set 50% N1
- Release brakes
- Set 70% N1
- When GS>15kt set FLX or TOGA

# PRNAV (RNP 1) SID/STAR

[PRO.SPO.51, EOMA 8.3.3.9, EOMB 2.4.51.2]

- **Minimum required equipment:**  
1 FMGC; 1 MCDU; 1 GPS or 2 DMEs; 2 IRS; 1 FD; PFD and ND on PF side; 1 EFIS display on PM side. Additional procedure specific restrictions may be published. Check RNP 1.
- If GNSS is used as primary navigation source, check RAIM availability. If GNSS is not required and GPS PRIMARY is not available, carry out a navigational reasonableness check prior to IAWP.
- Database procedure should not be changed except for the addition of missing altitude or speed constraints. ATC “direct to” instructions may be accepted when above MSA. Max allowable XTK Error on RF<sup>1</sup> leg is 0.5nm.[EJ ppt]
- If GPS PRIMARY LOST or NAV ACCUR DOWNGRAD on one ND/MCDU continue with the unaffected one.
- Use raw data to identify and continue with FMGC that provides the correct position in case of:
  - GPS PRIMARY lost on both NDs/MCDUs
  - CHECK IRS 1(2)(3)/FM POSITION (on MCDU)
  - CHECK A/C POSITION
- Request reclearance if:
  - FM/GPS POS DISAGREE ECAM<sup>2</sup>
  - FMS1/FMS2 POS DIFF message<sup>2</sup>
  - NAV ACCUR DOWNGRAD on both sides
  - Additional restriction (e.g. Dual FMC, GPS) no longer met

## Holding

[LIDO RAR.5.7]

### Joining

Turn anti-holdwise < 110° to Outbound track ..... Parallel entry  
Turn holdwise < 70° to Outbound track ..... Teardrop entry  
Otherwise ..... Direct entry

Standard ..... Right turns, parallel to airway  
≤ 14000 ..... 1 minute  
> 14000 ..... 1 ½ minutes

Max holding speeds (Normal(Turbulent))  
≤ 14000 ..... 230kt(280kt)  
> 14000, ≤ 20000 ..... 240kt(280kt/0.8M)  
> 20000, ≤ 34000 ..... 265kt(280kt/0.8M)  
> 34000 ..... 0.83M

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<sup>1</sup>Radius to Fix

<sup>2</sup>EOM-B overrides FCOM for these messages

## Visual Approach

[EOMB 2.3.18.3.6]

- Minimas: [EOMA 8.1.3.6]  
    Visibility .....5km  
    Cloud ceiling .....2500ft aal
- Maintain 1500ft aal and 500ft above terrain until established on final descent.  
    [EOMA 8.3.2.5.1]
- Downwind at Flap 1, S speed
- Base Turn 3 secs/100ft past abeam threshold; be Flap 2, F speed
- Shortly after turning base, gear down, continuous descent to landing.

## Circling

[EOMB 2.3.18.3.4]

- If OEI, check weight (QRH ABN.80)
- Protected circling radius [LIDO RAR.5.5] ..... 4.2nm from all RWY THR
- Landing runway in secondary flight plan
- Initial approach: Conf 3, gear down, F speed
- Push V/S at least 100ft above circling minima
- Turn 45°
- 30 secs from wings level turn downwind (gives runway offset ≈1.7nm)
- Activate secondary when downwind
- Descent point 3 secs per 100ft past abeam threshold
- Full flap when turning finals

## Non-Precision Approach - Selected vertical and lateral

[EOMB 2.3.18.3.3]

- Fly a stabilised approach
- If NAV ACCURACY is LOW at least one NS in ROSE LS/VOR [EOMB 2.3.18.2.1]
- 0.3nm before descent point, set and pull FPA
- 1°FPA modifies descent profile by 100ft for each nm

## RNAV or Non-Precision overlay approach

- **Minimum required equipment:**
  - 1 FMS (with GPS PRIMARY for RNAV(GNSS)); 1 MCDU; 1 FD; 1 PFD; ND on PF side; 2 FCU channels. Underlying navigation source must be available. Check RNP: 0.3nm. [EOMA 8.4.5.2, EOMB 2.3.18.3.2, PRO.SPO.51]
- RNP AR APCH (entitled RNAV(RNP)) not authorised. [EOMA 8.4.5.2]
- Check RAIM availability for ETA±15 mins. [EOMA 8.4.5.2]
- Conventional approach must be available at alternate. [EOMA 8.4.5.2]
- A minimum procedure temperature may be promulgated on the approach chart; default is -10°C. [EOMB 2.3.18.1.2, EOMA 8.4.4.2, EOMA 8.1.1.3.1]
  - Above this temp, an APV may be flown with uncorrected VNAV DA.
  - Below this temp, use corrected LNAV DA and fly corrected glidepath.
- Modifications to FMC database procedure prohibited with the exception of temperature corrections to minimum altitudes. [EOMA 8.4.5.2]
- Fly a stabilised approach if using FPA. Set and pull FPA 0.3nm before descent point. [EOMB 2.3.18.3.3]
- Chart vs. database [EOMB 2.3.18.3.2]:
  - Max vertical path difference (APV only) ..... 0.1°
  - Max lateral track difference ..... RNAV: 1°; Overlay: 3°
- **RNAV approach:** Go around for: [EOMB 2.3.18.3.2]
  - $>\frac{3}{4}$  index fly up or down (APV only)
  - XTK error > 0.3nm
  - NAV ACCUR DOWNGRAD reported by both FMGCs
  - FM/GPS POS DISAGREE ECAM
  - GPS PRIMARY LOST reported by both FMGCs.

If GPS PRIMARY LOST or NAV ACCUR DOWNGRAD is reported by a single FMGC continue with the unaffected FMGC.
- **Overlay approach:** FINAL APP may continue to be used unless raw data indicates flight path deviation.[EOMB 2.3.18.3.2]

# ILS approach

Standard coverage [\[LIDO GEN.NAV.3.2\]](#):

Localiser ±10°	25nm (FAA 18nm)
Localiser ±35°	17nm (FAA 10nm)
Glideslope ±8°	10nm

Approach Ban [\[EOMA 8.4.3\]](#) 1000ft aal or DA if greater

Absolute minimas (DH/TDZ RVR) [\[EOMA 8.1.3.9.3\]](#):

Cat I	200ft/550m
LTS Cat I	200ft/400m
Cat II	100ft/300m
Cat IIIA	50ft/200m
Cat IIIB	0ft/75m

- Multiple RVRs not required for Cat I / LTS Cat I.
- Only relevant mid-point or stop end RVRs need to be accounted for.
- Required stop end RVR is always 75m.
- Required mid point RVR is also 75m if rollout is used, else it is 125m.

LIDO “Company” minimas [\[EOMA 8.1.5.3\]](#)

Cat IIIB	No DH
Cat IIIA	50ft RA

Required visual references: [\[EOMA 8.4.6/10/11\]](#)

Cat I	Elements of ALS, PAPIS or THR/TDZ markings/lights
Cat I LTS, Cat II	3 consecutive lights plus a lateral element
Cat IIIA	3 consecutive lights
Cat IIIB with DH	1 centre-line light
Cat IIIB No DH	None

## Autoland Warning Light

[\[DSC.22.30.80.30\]](#)

- RA < 200ft and
- one or more autopilots engaged and
- LAND or FLARE annunciated and
- one or more of:
  - Both autopilots disconnect (N.B. RA NCD case)
  - RA > 15ft and localiser signal lost or deviation >  $\frac{1}{4}$  dot
  - RA > 100ft and glideslope signal lost or deviation > 1 dot
  - Difference between rad alt > 15ft
  - Long flare detected (newer aircraft only)

## LVO takeoff

[EOMA 8.1.3.3]

- Absolute minima ..... 125/125/125
- Reported RVR of initial part of Takeoff run can be replaced by pilot assessment.
- Only relevant RVRs must be considered.
- All passenger PEDS must be turned off. [EOMA 8.3.23.2]

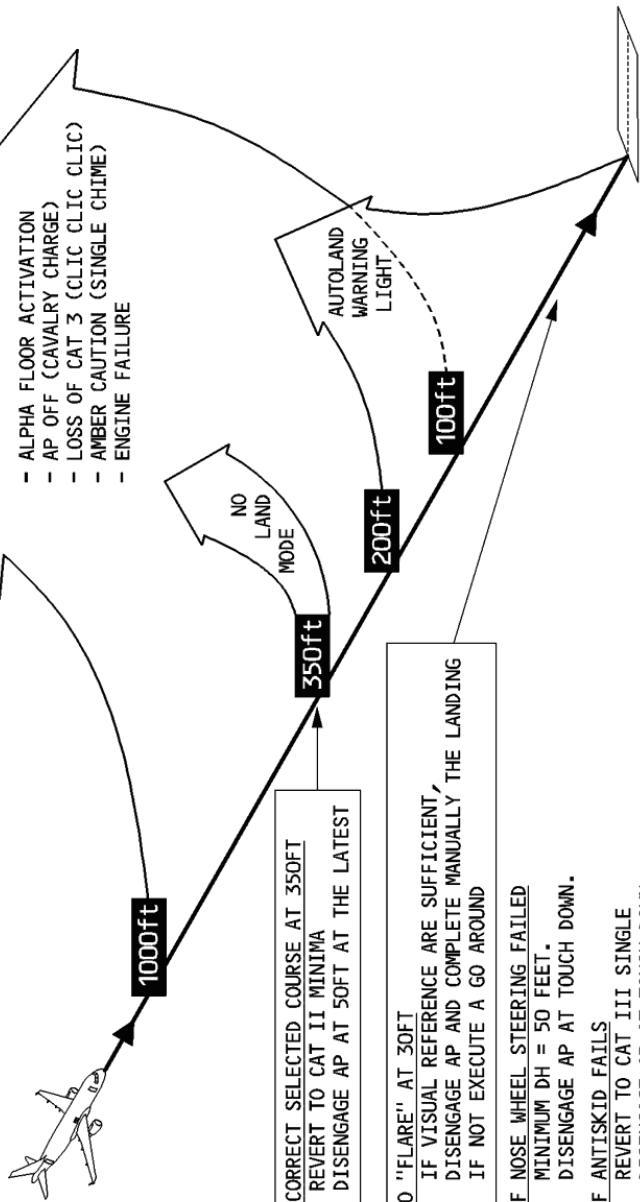
## LVO landing

[EOMB 2.3.18.3.1.1]

- All passenger PEDS must be turned off [EOMA 8.3.23.2]
- Check NOTAMS for airport facility downgrades (see EOMA-8.1.3.5)
- Check LVPs in force
- Check crew qualification
- Check aircraft capability (ECAM status page, ADDs, QRH Operational Data)
- Check minimas and approach ban (see page 19 and LIDO approach chart)
- Check autoland wind limits (see page 3)
- Check runway condition limits (see page 4)
- Review failure strategies (see page 21)
- Extra calls: [EOMB 2.3.18.3.1.2]
  - 350ft, FMA:LAND ..... PF:“Land”, PNF:“Checked”
  - 100ft (only with no DH) ..... PNF: “100”, PF: “Continue”
  - 40ft, FMA:FLARE ..... PNF:“Flare”
  - 10ft ..... Auto callout: “Retard”
  - FMA:ROLLOUT ..... PNF:“Rollout”
- Data Lock: Below 700ft RA, changes to  $V_{app}$ , Wind, course, and ILS Freq inhibited.
- No action on FCU will disengage LAND mode
- At 30ft check FLARE and THR IDLE annunciated; if not, go around.
- Select reverse at touchdown
- Disconnect autopilot at taxi speed

**FAILURES AND ASSOCIATED ACTIONS BELOW 1000FT FOR CAT III APPROACH WITHOUT DH**

**GO AROUND IF INSUFFICIENT VISUAL REFERENCES**



- ALPHA FLOOR ACTIVATION
- AP OFF (CAVALRY CHARGE)
- LOSS OF CAT 3 (CLIC CLIC CLIC)
- AMBER CAUTION (SINGLE CHIME)
- ENGINE FAILURE

**INCORRECT SELECTED COURSE AT 350FT**

- REVERT TO CAT II MINIMA
- DISENGAGE AP AT 50FT AT THE LATEST

**NO "FLARE" AT 30FT**

- IF VISUAL REFERENCE ARE SUFFICIENT, DISENGAGE AP AND COMPLETE MANUALLY THE LANDING
- IF NOT EXECUTE A GO AROUND

**IF NOSE WHEEL STEERING FAILED**

- MINIMUM DH = 50 FEET.
- DISENGAGE AP AT TOUCH DOWN.

**IF ANTISKID FAILS**

- REVERT TO CAT III SINGLE
- DISENGAGE AP AT TOUCH DOWN.

**IF AUTOLAND WARNING LIGHT COMES UP:**

- A GO AROUND MUST BE PERFORMED UNLESS THE VISUAL REFERENCES ARE SUFFICIENT FOR A MANUAL LANDING.