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# Wake Turbulence

[EOMA 8.3.9]

## Final Approach

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

Type	Separation
A380	3 mins
Heavy	2 mins

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

## Contaminated Runway Operations

Takeoff or landing is not permitted with: [EOMB 2.1]

- 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/Ldg Dispatch condition assessment matrix .... EFB “More” pages

Landing condition assessment matrix ..... QRH PER-A

Ldg Dispatch, wet ice and layered contaminants [EOMB 2.1] .. 2 alternates reqd

Minimum cleared width [EOMB 2.1] . 30m (check snowbanks: EOMB 4.6.8)<sup>1</sup>

“Slippery when wet”

Takeoff ..... EOMB 4.5.6

Landing ..... EOMB 4.14.5

<sup>1</sup>Cleared width ≤45m does not need to be treated as a narrow runway for V<sub>1</sub> etc.

# Takeoff and Landing Wind Limits

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

[FCOM LIM.AG.OPS]

Max Headwind ..... No limit

Max Tailwind ..... 15kt (landing: Conf Full if  $>10\text{kt}$ )

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>	NEO 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

## Autoland without automatic rollout

[FCOM LIM.AFS.20]

Headwind	
A321 .....	15kt
A319 OEI .....	15kt
A319 AEO .....	20kt
Otherwise .....	30kt
Tailwind	
A319 CONF3 .....	5kt
Otherwise .....	10kt
Crosswind	
A321 .....	10kt
A319 OEI .....	10kt
Otherwise .....	20kt
Crosswind must not be greater than that for manual landing.	

## Autoland with automatic rollout

[FCOM LIM.AFS.20]

Headwind	
A321 .....	15kt
A319 OEI .....	15kt
A319 AEO .....	20kt
Otherwise .....	30kt
Tailwind	
A319 CONF3 .....	5kt
Otherwise .....	10kt
Crosswind	
A321 .....	10kt
A319 OEI .....	10kt
A320 CEO with sharklets .....	15kt
A320 NEO with inop thrust reverser .....	15kt
	(idle reverse used on remaining reverser)
Otherwise .....	20kt

## Takeoff or Manual Landing, Runway Width <45m, ≥30m

[FCOM PRO.SPO.60]

Max Headwind ..... No limit  
 Max Tailwind ..... 15kt (Conf Full if >10kt)

Runway Condition	Max Crosswind (including gust)
• Dry	NEO Takeoff ..... 35kt Otherwise ..... 38kt
• Wet (≤3mm water)	33kt
• Contaminated (not icy)	10kt

## Other Autoland limitations

[FCOM LIM.AFS.20]

Alert height ..... 100ft  
 Approved configurations  
     A320CEO OEI ..... CONF FULL only  
     Otherwise ..... CONF 3, CONF Full  
 Rwy conditions for automatic rollout ..... Dry, Wet  
 Glideslope ..... CEO:2.5° to 3.15°; NEO: 2.5° to 3.25°  
 Max airport elevation  
     A320CEO ..... 2500ft  
     A319, A320NEO, A321NEO ..... 9200ft  
 Min pressure altitude ..... NEO:-2000ft; CEO:-1000ft  
 Auto rollout with one reverser inop ..... Idle reverse only<sup>2</sup>  
 A319 Max weight (emergency only) ..... 69000kg  
 Min weight  
     A320 NEO ..... 44000kg  
     A321 NEO ..... 52500kg

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<sup>2</sup>no limitation for A320CEO without sharklets

## Other wind limits

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

## First Officer limits

[EOMB 2.1]

3* FO	No planned tailwind, no flap 3 landing
Max crosswind	20kt
Takeoff minimum	400m RVR
Circling minima	5000m
Min runway width, no specific training	45m
No contaminated, slippery, windshear or autoland	

## Airport limitations

Max slope [FCOM LIM.AG.OPS]	±2%
Max runway altitude [FCOM LIM.AG.OPS]	9200ft
Nominal runway width [FCOM LIM.AG.OPS]	45m
Minimum runway width [FCOM LIM.AG.OPS]	30m
Min planning fire fighting category [EOMA 8.1.2.1]	
Departure/Destination	A321:7, A319/A320: 6 <sup>3</sup>
Alternates	UK: 5; Non-UK: 4

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<sup>3</sup>Up to 2 categories less is OK with caveats – see EOM-A

# Aircraft Dimensions

[FCOM DSC.20.20]

	A319	A320 (no sharklets)	A320 (sharklets)	A321
Wingspan	34.1m		35.8m	
Length	33.84m	37.57m		44.6m
180° turn	20.5m	22.8m		28.3m
Widest sweep	Wing tip			Tail

# Weight Limits

[FCOM LIM.AG.WGHT, GHM E.4]

Weight	A319	A320CEO	A320NEO	A321
Max Takeoff	68000kg	77000kg	79000kg	89000kg
Max Taxi	68400kg	77400kg	79400kg	89400kg
Max Landing	61000kg	66000kg	66300kg	77300kg
Max Zero Fuel	57000kg	62500kg	62800kg	73300kg
Minimum	35400kg	37230kg	40600kg	46600kg

	A319	A320	A321
Compartment 1	2268kg	Compartment 1 3402kg	2202kg
		Compartment 2	3468kg
Section 41	1326kg	Compartment 3	2426kg 3187kg
Section 42	1695kg	Compartment 4	2110kg 1683kg
Compartment 5	1497kg	Compartment 5	500kg 500kg

# Passenger zones

[EOMB 7.3.2]

	A	B	C
A319	1-9	10-18	19-26
A320	1-10	11-20	21-31
A321	1-13	14-28	29-40

Zone counts must be accurate to within ±3 passengers.



# Loading

**A319 Protocol:**[\[GHM 5.4.1.2\]](#)

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

**A320 Protocol:**[\[GHM 5.4.1.2\]](#)

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

**A321 Protocol:**[\[GHM 5.4.1.2\]](#)

First 100 bags in Compartment 3  
Next 50 bags in Compartment 4  
Overspill in Compartment 2

LMCs [\[EOMB.7.4\]](#)

$\Delta\text{Weight} \leq +250\text{kg}$  **and**  $|\Delta\text{CG}| \leq 2\%$  ..... No action required  
 $\Delta\text{Weight} > +250\text{kg}$  **or**  $|\Delta\text{CG}| > 2\%$  ..... Recalculate performance  
New paperwork required for -20/+10 passengers

A320 Forward CG [\[EOMB 4.9.1.1\]](#) .....  $\text{CG} < 27\%\text{MAC}$

## Turbulence speeds

[FCOM PRO.ABN.MISC]

A319/A320CEO	
<FL200 .....	250kt
≥FL200 .....	275kt
≥FL320 .....	M0.76
A320NEO	
<FL200 .....	260kt
≥FL200 .....	280kt
≥FL310 .....	M0.76
A321NEO	
<FL200 .....	275kt
≥FL200 .....	305kt
≥FL270 .....	M0.76

## General speeds

[FCOM LIM.AG.SPD]

$V_{MO}$ .....	350kt
$M_{MO}$ .....	0.82M
Max Tire speed .....	195kt
Max speed for wipers .....	230kt
Max speed cockpit window open .....	200kt
$V_{MCA}$ (rounded up)	
A319 .....	0ft:108kt; 2000ft:106kt
A320CEO .....	0ft:110kt; 2000ft:108kt
A320NEO .....	0ft:114kt; 2000ft:114kt
A321NEO .....	0ft:110kt; 2000ft:107kt
$V_{MCG}$ CONF 1+F (rounded up)	
A319 .....	0ft:105kt; 2000ft:103kt
A320CEO .....	0ft:111kt; 2000ft:109kt
A320NEO .....	0ft:116kt; 2000ft:116kt
A321NEO .....	0ft:118kt; 2000ft:115kt

# Engine

[FCOM LIM.ENG]

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 2.3.4.8]	9.5qt+0.5qt/hr
LEAP-1A min quantity[EOMB 2.3.4.8]	8.9+0.45qt/hr; minimum 10.6qt <sup>4</sup>
Max cont temp	140°C
Max trans temp	155°C
Min start temp	-40°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 <sup>5</sup>	
No running engagement when N2>20%	
Pause between cycles	20 sec
Cooling period after 4 failed cycles	15min
LEAP-1A Starter <sup>5</sup>	
No running engagement when N2>63%	
Pause between cycles	60 sec
Cooling period after 3 failed cycles	15min
Max reverse	>70kt

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<sup>4</sup>If engines have been shut down for >60min, decrease requirement by 3qt

<sup>5</sup>An automatic start that includes up to three start attempts is considered one cycle

# Fuel Limitations

[FCOM LIM.FUEL]

Min qty for takeoff ..... 1500kg

## Temperature

Jet A1, minimum ..... -43°C

Jet A1, maximum ..... CEO:54°C; NEO:55°C

## A319/A320 fuel imbalance

### Takeoff

Outer tanks balanced ..... 500kg<sup>6</sup>

Inner tanks balanced ..... 370kg

### In-flight, outer tanks balanced

One inner tank full ..... 1500kg

Fuller inner tank 4300kg ..... 1600kg

Fuller inner tank < 2250kg ..... No Limitation

In-flight, max outer tank imbalance OK if sides are balanced<sup>7</sup>

## A321 fuel imbalance

Takeoff ..... 400kg<sup>8</sup>

### In-flight

One wing tank full ..... 1320kg

Fuller wing tank 4000kg ..... 1450kg

Fuller wing tank ≤2350kg ..... No limitation

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<sup>6</sup>This is the figure for the heavier inner tank being full, which is the worst case. Check the FCOM if this is too limiting.

<sup>7</sup>Also OK if lighter outer tank, and the heavier inner tank are on the same side, with the difference between the inner tanks ≤3000kg.

<sup>8</sup>This is the figure for the worst case scenario where the heavier wing tank has ≥3000kg. Check the FCOM if this is too limiting.

## Fuel Capacity

[FCOM DSC.28.10.20]

A319/A320 (approximate – varies slightly between airframes)	
Outer tanks .....	2 x 700kg
Inner tanks .....	2 x 5500kg
Center tank .....	6500kg
Total .....	18900kg
A321	
Wing tanks .....	2 x 6000kg
Center tank .....	6500kg
Total .....	18500kg

## Hydraulics

[FCOM DSC.29.10]

Normal pressure .....	3000psi
RAT only pressure .....	2500psi
Green/Yellow differential for PTU activation .....	500psi

## Electrical

Prelim prep min battery voltage [EOMB 2.3.4.2] .....	>25.5V
Battery check [EOMB 2.3.6.2] .....	charge current<60A within 10s

## Pressurisation

[FCOM LIM.AIR]

Max pos diff .....	9.0psi
Max neg diff .....	-1psi
Safety valve .....	8.6psi
Max norm cabin alt .....	8000ft
Cab alt warning .....	9550ft±350ft
Ram air max diff [FCOM DSC.12.10.20] .....	1psi

## Air conditioning / Ventilation

[FCOM LIM.AIR, FCOM PRO.NOR.SUP.ADVWXR]

Passengers on board without Air Con ..... Max 20mins  
Do not simultaneously use packs and ground LP Air Conditioning Unit.  
Do not use HP ground unit when APU is supplying bleed air.  
Max OAT for norm avionics ventilation ..... 49°C<sup>9</sup>  
Max OAT with EXTRACT OVRD and Packs Off ..... 39°C<sup>9</sup>

## Ice protection

Ground icing conditions [EOMB 2.3.9] ... OAT ≤ 10°C + vis moist | gnd contam  
Flight icing conditions [EOMB 2.3.9] ..... TAT ≤ 10°C + vis moist  
Eng anti-ice not reqd [EOMB 2.3.13] ..... climb/cruise, SAT < -40°C, no CBs

### Accreted ice [FCOM PRO.NOR.SUP.ADVWXR]

Wing anti-ice operative

Min speed, Conf Full ..... V<sub>LS</sub> + 5kt

Min Speed, < Conf Full ..... V<sub>LS</sub> + 10kt

Check APPR COR ..... QRH PER.A

Wing anti-ice inoperative

Min speed ..... V<sub>LS</sub> + 10kt/ GREEN DOT

Anti-ice system failure landing performance ..... QRH PER.C

Avoid extended flight in icing conditions with slats extended

### Fan ice shedding [EOMB 2.3.9]

CFM56

Icing conditions, OAT ≤ 3° ..... 70%N1 for 30 secs every 30 mins

FZRN/FZDZ/FZFG/+SN ..... 70%N1 every 10 mins, no hold time

Before takeoff ..... 70%N1 for 30 secs

LEAP-1A

Icing conditions, OAT ≤ 3° | eng vib .. 50%N1 for 5 secs every 60 mins

Icing conditions on ground > 120 mins ..... Inspection reqd

Before takeoff ..... 50%N1 for 5 secs

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<sup>9</sup>Higher temperatures are allowable with a time limit – see FCOM

## Flaps/slats

[FCOM LIM.F\_CTL, FCOM LIM.AG.SPD]

Max flaps/slats altitude ..... 20000ft

### A319/A320

Conf 1 ..... 230kt  
Conf 1+F ..... 215kt  
Conf 2 ..... 200kt  
Conf 3 ..... 185kt  
Conf Full ..... 177kt

### A321

Conf 1 ..... 243kt  
Conf 1+F ..... 225kt  
Conf 2 ..... 215kt  
Conf 3 ..... 195kt  
Conf Full ..... 186kt

## Gear

Extend [LIM.AG.SPD] ..... 250kt  
Retract [LIM.AG.SPD] ..... 220kt  
Extended [LIM.AG.SPD] ..... 280kt/M.67  
Max taxi speed, single tyre deflated [LIM.LG] ..... 7kt  
Max taxi speed, both tyres deflated [LIM.LG] ..... 3kt  
Max steering angle, both tyres deflated [LIM.LG] ..... 30°  
Max brake temp for takeoff [LIM.LG] ..... 300°

# APU

[FCOM LIM.APU]

Starter duty	3 cycles then 60 mins
Maximum N	107%
Max start EGT	<35000ft: 1090°C, >35000ft 1120°C
Max running EGT	675°C
Max Altitudes	
Two packs	<15000ft
Engine start	<20000ft
One pack	<22500ft
Electrical power	<41000ft
Battery start (emerg elec config)	<25000ft
Normal start	<41000ft
Air bleed for wing anti-icing	Not permitted
Approximate fuel burn [EOMB 5.1]	2kg/min
Ops with “Low Oil Level” ECAM [FCOM.PRO.ABN.ADV]	10hrs

## Navigation

Max IRS latitudes [FCOM LIM.NAV]	73°N,60°S <sup>10</sup>
Altimeter tolerances [EOMB 2.3.6.11]	
ADR vs Airfield elevation	±75ft
ADR vs ADR	±20ft
ISIS vs ADR	±100ft
Altimeter temperature corrections	QRH SI

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<sup>10</sup>This is worst case assuming all ADIRUs have the same magnetic variation table. Some aircraft are able to fly to 82°N for some longitudes. If one ADIRU has a different table check the FCOM for more limiting maximum latitudes.



# Oxygen

[FCOM LIM.OXY]

## Minimum Dispatch Oxygen Pressure

A319/A320CEO, ref temp 40 <sup>o11</sup>	
3 crew	1024psi
2 crew	781psi
A320NEO/A321NEO ref temp 40 <sup>o11</sup>	
3 crew	CAPT:780psi, FO:550psi
2 crew	CAPT:550psi, FO:550psi

## Minimum Endurance

Emergency Descent (reg normal), 3 crew	
A319/A320CEO	13 mins
A320NEO/A321NEO	15mins
Cruise at FL100 (reg normal), 2 crew	
A319/A320CEO	107mins
A320NEO/A321NEO	105mins
Fire (reg 100%), 8000ft, all crew	15mins

# Autopilot

[LIM.AFS]

Engagement after TO	>100ft agl and >5 secs
Engagement after manual go-around	>100ft agl
Minimum approach engagement height	
Circling	500ft agl
RNAV visual approach	500ft agl
FINAL APP, V/S or FPA mode	250ft agl
PAR	250ft agl
ILS, CAT1 displayed on FMA	160ft agl
Cat II approach, manual landing [FCOM LIM.AFS.20]	80ft agl
Other phases A319/A320	500ft agl
Other phases A321	900ft agl

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<sup>11</sup>On ground, ref temp is average of OAT and cockpit temp.

# 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 > ¼ dot
  - RA > 100ft and glideslope signal lost or deviation > 1 dot
  - Difference between rad alt > 15ft
  - Long or untimely flare detected (newer aircraft only)

## Airport lighting

Runway lighting [LIDO GEN-1.3.1.6]

Red and white .....	900m
Red .....	300m

## Miscellaneous

German corner .....	KRH R270/12D
Alternate ranges [EOMB 5.1]	
Takeoff .....	320nm
Enroute .....	A319:380nm; A320/A321:400nm
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 [EOMB 2.3.10]	
Anti-ice on .....	subtract 5°C <sup>12</sup>
QNH reduction .....	subtract 1°C/2hPa <sup>12</sup>
easyJet Landing Distance Factor .....	1.15

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<sup>12</sup>Flex must remain >TREF (A319:ISA+30; A320:ISA+29; A321:ISA+15) and >OAT

## Single Engine operations

Avoid reducing below  $V_{LS}$  (including GPWS/Windshear) [FCOM PRO.ABN.ENG]

Autoland capability [FCOM LIM.AFS.20] Cat III single (A320CEO  $\Rightarrow$  Conf Full)

Available NPA Autopilot modes [FCOM LIM.AFS.10]

A320/A321 ..... All

A319 ..... LOC/VS, LOC/FPA, HDG/VS, TRK/FPA<sup>13</sup>

Do not extend full flaps until established on final descent. [FCOM PRO.ABN.ENG]

Use Conf 3 if a level off is required. [FCOM PRO.ABN.ENG]

Check QRH ABN.ENG.OEI Circling Approach if circling required

Sharklet automatic rollout [FCOM LIM.AFS] ..... Idle reverse only

## Double engine failure

[QRH ABN.19]

Target ..... 4nm, 2400AAL, S Speed, Flap 1, Gear up

Range

300kt ..... 2nm per 1000ft

Green dot ..... 2½nm per 1000ft

CONF 3, Gear Down ..... 1.2nm per 1000ft ( $\approx$ 850ft/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 2 (slats only), Gear Down (gravity extension)

Ditching . . . . . Flap 2 (slats only), Gear Up, Ditching button pushed

$V_{app}$  ..... Greater of  $V_{ref} + 25kt$ , 150kt

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<sup>13</sup>All modes are permitted Flight Director only

# Emergency calls to cabin

[EOMB 3.80.5]

Ground ops alert:

“Attention! Crew at Stations”

Notification of a potential emergency in-flight:

“Attention! Crew at Stations”

Alert cancellation :

“Cabin crew, normal operations”

Evacuation :

“Evacuate. Unfasten your seatbelts and get out”

NITS on flight deck :

“Senior cabin crew member to the flight deck”

NITS via interphone :

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

Unplanned emergency landing :

“Attention, Crew! Brace, Brace!”

Rapid decompression [EOMB 3.80.2]:

Auto announcement – no Flight Crew PA required.

Planned emergency landing :

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

500ft ..... “Brace, Brace”

Severe turbulence :

“Cabin crew and passengers be seated immediately”

# Procedures

## Takeoff with tailwind or crosswind > 20kt

[EOMB 2.3.12]

- Set 50% N1
- Release brakes
- Set 70% N1
- When GS>15kt increase thrust to reach TO thrust by 40kt GS.
- Stick full forward until 80kt, neutral by 100kt

## General

Procedure turn [LIDO GEN.1.5.5.6.1.2] ..... 75 seconds from start of 45° turn

## Holding

[LIDO GEN.1.5.5.7]

### 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 ..... 1½ minutes

Max holding speeds (Normal(Turbulent))

≤14000 ..... 230kt(280kt)

>14000, ≤20000 ..... 240kt(280kt/0.8M)

>20000, ≤34000 ..... 265kt(280kt/0.8M)

>34000 ..... 0.83M

## PRNAV (RNP 1) SID/STAR

[FCOM PRO.SPO.51]

- **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 or 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
  - FMS1/FMS2 POS DIFF message
  - CHECK IRS 1(2)(3)/FM POSITION (on MCDU)
  - CHECK A/C POSITION
  - FM/GPS POS DISAGREE ECAM
- Request reclearance if:
  - NAV ACCUR DOWNGRAD on both sides
  - Additional restriction (e.g. Dual FMC, GPS) no longer met

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<sup>1</sup>Radius to Fix

## Visual Approach

[EOMB 2.3.18.3.7]

- Minimas: [EOMA 8.1.3.6]
  - Visibility ..... 5km
  - Cloud ceiling ..... 2500ft aal
- 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 2.3.18.3.5]

- If OEI, check weight (QRH ABN.19)
- Protected circling radius [LIDO GEN.1.5.5.6.2.5] ..... 4.2nm from all RWY THR
- Landing runway in secondary flight plan
- Initial approach: Conf 3, gear down, F speed
- Select TRK/FPA
- Push V/S at least 100ft above circling minima
- Turn 45°
- 30 secs from wings level turn downwind (gives runway offset  $\approx$ 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 2.3.18.3.4]

- Fly a stabilised approach
- 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

[EOMB 2.3.18.3.2/4]

- **Minimum required equipment:**
  - 1 FMS; 1 GPS; 2 IRS; 1 MCDU; 1 FD; 1 PFD (on PF side); 2 ND (temporary display OK); 2 FCU channels. [PRO.SPO.51]
- Max acceptable difference between altimeters ..... 100ft
- RNP(AR)<sup>14</sup> approaches are not yet authorised. [EOMA 8.3.2.6]
- A minimum procedure temperature will be promulgated on the approach chart:
  - Above this temp ..... fully managed, uncorrected VNAV DA
  - Below this temp ..... corrected gp, NAV/FPA, corrected LNAV DA
- 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.
- Chart vs. database:
  - Max vertical path difference (fully managed only) ..... 0.1°
- For 3D approaches only, flight directors may remain on for landing if the glidepath is correctly coded to the threshold.
- APPR must be armed at least 2nm prior to final descent waypoint. It should be armed in the segment between the final descent waypoint and previous waypoint unless this segment is too short, in which case arm when level at final descent altitude.
- **RNAV approach:** Go around for:
  - >¾ index fly up or down (fully managed 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.

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<sup>14</sup>LIDO chart update is in progress. May be titled RNAV(RNP) until completed.



## ILS approach

Standard coverage [\[LIDO GEN.1.6.2.1\]](#):

Localiser $\pm 10^\circ$ .....	25nm (FAA 18nm)
Localiser $\pm 35^\circ$ .....	17nm (FAA 10nm)
Glideslope $\pm 8^\circ$ .....	10nm

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

Absolute minimas (DH/TDZ RVR) [\[EOMA 8.1.3.3.1\]](#):

Cat I .....	200ft/550m
LTS Cat I .....	200ft/400m
Cat II .....	100ft/300m
Cat IIIA .....	<100ft/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

FALS/IALS/BALS/NALS ..... LIDO GEN 1.5.7.10.6

# LVO takeoff

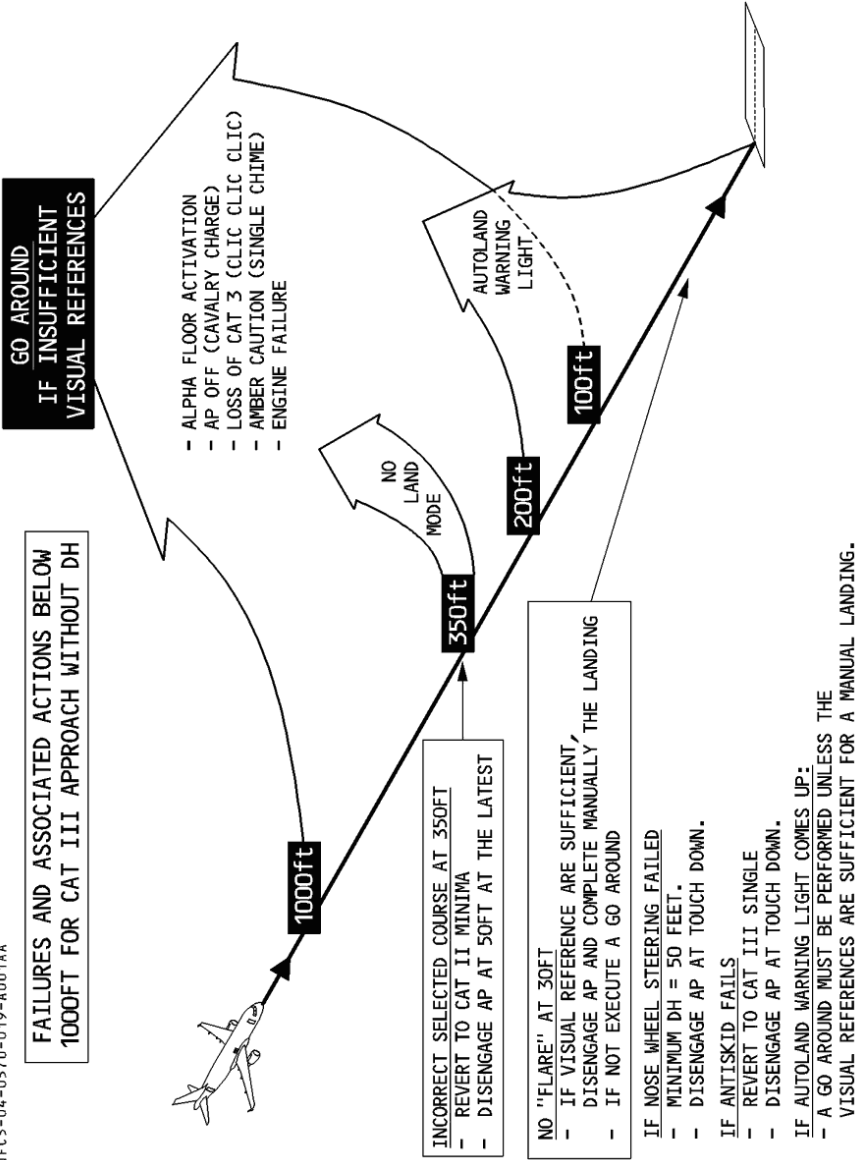
[EOMA 8.1.3.3]

- 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 8.3.21]

# LVO landing

[EOMB 2.3.18.3.1, QRH SI.20]

- All passenger PEDS must be turned off [EOMA 8.3.21]
- Check NOTAMS for airport facility downgrades (see LIDO 1.5.7.9.2)
- Check LVPs in force
- Check crew qualification
- Check aircraft capability (Status page, ADDs, QRH Operational Data)
- Check minimas and approach ban (see page 23 and LIDO approach chart)
- Check autoland wind limits (see page 3)
- Check runway condition limits (see page 4)
- Review failure strategies (see page 25)
- Extra calls:
  - 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



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