A32N FCOM

Issue Date:	8/3/2020	Origin:	Simon Kelsey
Effective:	9/3/2020	Position:	Director of Training
Number:	2/2020	Authority:	Simon Kelsey
Incorporated:	Revision 6	Position:	Director of Training

A32N FCOM Revision 6

Introduction

The BAV Airbus A320 series FCOM is updated to Revision 6 and is now available to download from BAVirtual DocStore under OM-B -> A32X. This revision adds section **LIM – LIMITATIONS** as well as a number of more minor formatting and procedural updates, in particular updated operating instructions for NEO airframes. Normal Procedures have also been updated in order to reflect that PF now handles reverse thrust.

Note that the weight limitations have been slightly modified from those promulgated in OMN 1/2020 following receipt of updated information. Note in particular the increased MZFW for CY180 aircraft from 61T to 62.5T.

At time of writing the only aircraft remaining in CY168 configuration are G-EUUA, G-EUUB, G-EUUC, G-EUUG, G-EUUK, G-EUUN, G-EUUR, G-EUYN and G-TTOE.

All other G-EU* and G-TTO* series aircraft are now in CY180 configuration.

For FSLabs A320-X users, v5.2 of the A320 Airframe Config Files available here include the updated weight limits.

Many thanks to James Niven for his assistance in preparing this update.

Weights

G-EUUA – G-EUUZ, G-EUYA – G-EUYN, G-TTOB – G-TTOE (A320 Wingtip Fence aircraft)

These aircraft are in the process of cabin densification (conversion from CY168 Pinnacle layout to CY180).

Aircraft in CY168 configuration (pre-densification) are subject to the following weights:

Maximum taxi weight	73 900 kg (162 921 lb)
Maximum takeoff weight (brake release)	73 500 kg (162 039 lb)
Maximum landing weight	64 500 kg (142 198 lb)
Maximum zero fuel weight	61 000 kg (134 481 lb)
Minimum weight	37 230 kg (82 079 lb)

Aircraft in CY180 configuration (post-densification) are subject to the new weight limitations below:

Maximum taxi weight	73 000 kg (160 937 lb)
Maximum takeoff weight (brake release)	72 600 kg (160 055 lb)
Maximum landing weight	66 000 kg (145 505 lb)
Maximum zero fuel weight	62 500 kg (137 788 lb)
Minimum weight	37 230 kg (82 079 lb)

G-EUYO – G-EUYY (A320 Sharklet aircraft)

These aircraft are subject to the following weight limitations:

Maximum taxi weight ..... 75 900 kg (167 330 lb)
Maximum takeoff weight (brake release) ..... 75 500 kg (166 448 lb)
Maximum landing weight ..... 66 000 kg (145 505 lb)
Maximum zero fuel weight ..... 62 500 kg (137 788 lb)
Minimum weight..... 37 230 kg (82 079 lb)

FCOM Revision 6 changes

Full details of the changes introduced in A32N FCOM Revision 6 follow overleaf.

FLIGHT MANOEUVRING LOAD ACCELERATION LIMITS

Applicable to: ALL

Clean configuration ..... -1 g to +2.5g

Other configurations ..... 0g to +2g

AIRPORT OPERATIONS AND WIND LIMITATIONS

Applicable to: ALL except G-GATU

RUNWAY SLOPE

Runway slope (mean) ..... ±2%

Applicable to: G-GATU

RUNWAY SLOPE

Runway slope (mean) ..... ±3%

Applicable to: G-GATH – GATS

RUNWAY ALTITUDE

Runway altitude ..... 14 100 ft

Applicable to: A318, A319, G-EUUA – EUUZ, G-EUYA – EUYY, G-MIDO – MIDY, G-MEDK, G-TTOB – G-TTOE, A321

Runway altitude ..... 9 200 ft

Applicable to: G-GATU

Runway altitude ..... 12 000 ft

Applicable to: ALL

NOMINAL RUNWAY WIDTH

Nominal runway width ..... 45 m

Minimal runway width ..... 30 m

Applicable to: A320NEO and A321NEO

WIND FOR TAKEOFF AND LANDING

Maximum certified crosswind for takeoff ..... 35 kt (gust included)

Note: *The maximum certified crosswind for takeoff is an Airplane Flight Manual (AFM) limitation: it is an engine limitation. Airbus recommends that operators should not intentionally operate in crosswinds that exceed this value.*

Maximum demonstrated crosswind for landing ..... 38 kt (gust included)

Note: *The maximum demonstrated crosswind value at landing is not an Airplane Flight Manual (AFM) limitation: it is the maximum crosswind condition experienced during the aircraft certification campaign. Airbus recommends that operators should not intentionally operate in crosswinds that exceed this value.*

Applicable to: A318

WIND FOR TAKEOFF AND LANDING

Maximum demonstrated crosswind for takeoff.....39 kt (gust included)

Maximum demonstrated crosswind for landing.....38 kt (gust included)

Note: The maximum demonstrated crosswind value at landing is not an Airplane Flight Manual (AFM) limitation: it is the maximum crosswind condition experienced during the aircraft certification campaign. Airbus recommends that operators should not intentionally operate in crosswinds that exceed this value.

Applicable to: A319, A320CEO and A321CEO

WIND FOR TAKEOFF AND LANDING

Maximum demonstrated crosswind (takeoff and landing).....38 kt (gust included)

Note: The maximum demonstrated crosswind value is not an Airplane Flight Manual (AFM) limitation: it is the maximum crosswind condition experienced during the aircraft certification campaign. Airbus recommends that operators should not intentionally operate in crosswinds that exceed this value.

Applicable to: A318, G-EUPA – EUPZ, G-EUOA – EUOI, G-EUUA – EUUZ, G-EUYA – EUYI, G-GATH – GATU, G-TTOB – TTOE, G-EUXC – EUXM, G-MEDK

TAILWIND TAKEOFF

Maximum tailwind for takeoff..... 15 kt

Applicable to: G-DBCA – DBCK, G-MIDO – MIDY, G-MEDF – MEDU, A320NEO, A321NEO

TAILWIND TAKEOFF

Maximum tailwind for takeoff..... 10 kt

Applicable to: A318, A319, G-EUUA – EUUZ, G-EUYA – EUYI, G-TTOB – TTOE, G-MIDO – MIDY, G-MEDK, A320NEO, A321

TAILWIND LANDING

Maximum tailwind for landing..... 10 kt

Note: For maximum tailwind for automatic landing and rollout, refer to Maximum Wind Conditions for ILS/MLS, CATII or CATII and for GLS (if installed) CAT I.

Applicable to: G-GATH – GATU

TAILWIND LANDING

Maximum tailwind for landing..... 15 kt

Note: For maximum tailwind for automatic landing and rollout, refer to Maximum Wind Conditions for ILS/MLS, CATII or CATII and for GLS (if installed) CAT I.

Note: For landing with a tailwind greater than 10 kt, FLAPS FULL is recommended.

Applicable to: ALL

PASSENGER AND CARGO DOORS OPERATION

The following are the wind limitations for passenger and cargo door operation:

- The maximum wind for passenger door operation is 65 kt
- The maximum wind for FWD and AFT cargo door operation is 40 kt (or 50 kt, if the aircraft nose is in to the wind, or if the FWD and AFT cargo doors are on the leeward side)
- The FWD and AFT cargo doors must be closed before the wind speed exceeds 65 kt

Applicable to: A318

MAXIMUM RECOMMENDED CROSSWIND ON WET AND CONTAMINATED RUNWAYS

Runway Surface Conditions		Maximum Crosswind for Takeoff (Gust included)	Maximum Crosswind for Landing (Gust included)
Runway State and / or Runway Contaminant	**ESF(1) or PIREP(2)**		
Damp **Wet** Up to 3 mm (1/8") of water **Slush** Up to 3 mm (1/8") **Dry snow** Up to 3 mm (1/8") **Wet snow** Up to 3 mm (1/8") **Frost**	**Good**	39 kt	38 kt
Compacted snow OAT at or below -15 °C	**Good to Medium**	29 kt	29 kt
Dry snow More than 3 mm (1/8"), up to 100 mm (4") **Wet snow** More than 3 mm (1/8"), up to 30 mm (6/5") **Compacted snow** OAT above -15 °C **Dry snow over compacted snow** **Wet snow over compacted snow** **Slippery when wet**	**Medium**	25 kt	25 kt
Water More than 3 mm (1/8") up to 13 mm (1/2") **Slush** More than 3 mm (1/8") up to 13 mm (1/2")	**Medium to Poor**	20 kt	20 kt
Ice (cold & dry)	**Poor**	15 kt	15 kt

(1) ESF: Estimated Surface Friction
(2) PIREP: Pilot Report of Braking Action

Note: The maximum crosswind values given in the above table are recommended values based on computations.

Applicable to: A320NEO and A321NEO

MAXIMUM RECOMMENDED CROSSWIND ON WET AND CONTAMINATED RUNWAYS

Runway Surface Conditions		Maximum Crosswind for Takeoff (Gust included)	Maximum Crosswind for Landing (Gust included)
Runway State and / or Runway Contaminant	**ESF(1) or PIREP(2)**		
Damp **Wet** Up to 3 mm (1/8") of water **Slush** Up to 3 mm (1/8") **Dry snow** Up to 3 mm (1/8") **Wet snow** Up to 3 mm (1/8") **Frost**	**Good**	35 kt	38 kt
Compacted snow OAT at or below -15 °C	**Good to Medium**	29 kt	29 kt
Dry snow More than 3 mm (1/8"), up to 100 mm (4") **Wet snow** More than 3 mm (1/8"), up to 30 mm (6/5") **Compacted snow** OAT above -15 °C **Dry snow over compacted snow** **Wet snow over compacted snow** **Slippery when wet**	**Medium**	25 kt	25 kt
Water More than 3 mm (1/8") up to 13 mm (1/2") **Slush** More than 3 mm (1/8") up to 13 mm (1/2")	**Medium to Poor**	20 kt	20 kt
Ice (cold & dry)	**Poor**	15 kt	15 kt

(1) ESF: Estimated Surface Friction
(2) PIREP: Pilot Report of Braking Action

Note: The maximum crosswind values given in the above table are recommended values based on computations.

Applicable to: A319, A320CEO and A321CEO

MAXIMUM RECOMMENDED CROSSWIND ON WET AND CONTAMINATED RUNWAYS

Runway Surface Conditions		Maximum Crosswind for Takeoff (Gust included)	Maximum Crosswind for Landing (Gust included)
Runway State and / or Runway Contaminant	ESF(1) or PIREP(2)		
Damp **Wet** Up to 3 mm (1/8") of water **Slush** Up to 3 mm (1/8") **Dry snow** Up to 3 mm (1/8") **Wet snow** Up to 3 mm (1/8") **Frost**	**Good**	38 kt	38 kt
Compacted snow OAT at or below -15 °C	**Good to Medium**	29 kt	29 kt
Dry snow More than 3 mm (1/8"), up to 100 mm (4") **Wet snow** More than 3 mm (1/8"), up to 30 mm (6/5") **Compacted snow** OAT above -15 °C **Dry snow over compacted snow** **Wet snow over compacted snow** **Slippery when wet**	**Medium**	25 kt	25 kt
Water More than 3 mm (1/8") up to 13 mm (1/2") **Slush** More than 3 mm (1/8") up to 13 mm (1/2")	**Medium to Poor**	20 kt	20 kt
Ice (cold & dry)	**Poor**	15 kt	15 kt

(1) ESF: Estimated Surface Friction
(2) PIREP: Pilot Report of Braking Action

Note: The maximum crosswind values given in the above table are recommended values based on computations.

Applicable to: ALL

TAKEOFF LIMITATIONS ON CONTAMINATED RUNWAYS

Takeoff is not recommended on the following runway conditions:

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

COCKPIT WINDOW OPEN MAXIMUM SPEED

Applicable to: ALL

Maximum speed..... 200 kt

MAXIMUM FLAPS/SLATS SPEEDS

Applicable to: A318, A319, A320CEO and A320NEO

Flaps Lever Position	Configuration on Slat/Flap Display	Max Speed	Flight Phase
0		VMO/MMO	CRUISE
1	1	230 kt	HOLDING
	1 + F	215 kt	TAKEOFF
2	2	200 kt	TAKEOFF/APPROACH
3	3	185 kt	TAKEOFF/APPROACH/LANDING
FULL	FULL	177 kt	LANDING

Applicable to: A321CEO

Flaps Lever Position	Configuration on Slat/Flap Display	Max Speed	Flight Phase
0		VMO/MMO	CRUISE
1	1	230 kt	HOLDING
	1 + F	215 kt	TAKEOFF
2	2	215 kt	TAKEOFF/APPROACH
3	3	195 kt	TAKEOFF/APPROACH/LANDING
FULL	FULL	190 kt	LANDING

Applicable to: A321NEO

Flaps Lever Position	Configuration on Slat/Flap Display	Max Speed	Flight Phase
0		VMO/MMO	CRUISE
1	1	243 kt	HOLDING
	1 + F	225 kt	TAKEOFF
2	2	215 kt	TAKEOFF/APPROACH
3	3	195 kt	TAKEOFF/APPROACH/LANDING
FULL	FULL	186 kt	LANDING

MAXIMUM OPERATING SPEED VMO/MMO

Applicable to: ALL

VMO ..... 350 kt
MMO ..... M 0.82

MAXIMUM SPEEDS WITH THE LANDING GEAR EXTENDED

Applicable to: ALL

Maximum speed with the landing gear extended (VLE) ..... 280 kt /M 0.67
Maximum speed at which the landing gear may be extended (VLO extension) ..... 250 kt /M 0.60
Maximum speed at which the landing gear may be retracted (VLO retraction) ..... 220 kt /M 0.54

MAXIMUM TYRE SPEED

Applicable to: ALL

Maximum ground speed ..... 195 kt

MINIMUM CONTROL SPEEDS

Applicable to: A318

MINIMUM CONTROL SPEED FOR LANDING (VMCL)

VMCL ..... 111 kt

MINIMUM CONTROL SPEEDS IN THE AIR (VMCA) AND ON THE GROUND (VMCG)

Altitude (ft)	VMCA (KT IAS)	VMCG (KT IAS)		
		CONF 1 + F	CONF 2	CONF 3
-2 000	107	107	106	107
0	107	107	106	107
2 000	107	107	106	106
4 000	105	105	104	105
6 000	104	104	103	103
8 000	101	102	101	101
10 000	99	99	99	99
12 000	96	97	97	97
14 100	93	95	94	94

Applicable to: A319

MINIMUM CONTROL SPEED FOR LANDING (VMCL)

VMCL ..... 106 kt

MINIMUM CONTROL SPEEDS IN THE AIR (VMCA) AND ON THE GROUND (VMCG)

Altitude (ft)	VMCA (KT IAS)	VMCG (KT IAS)		
		CONF 1 + F	CONF 2	CONF 3
-2 000	106	104	104	104
0	105	104	104	104
2 000	104	103	103	103
4 000	102	101	101	101
6 000	100	100	100	100
8 000	98	98	98	98
10 000	96	96	96	96
12 000	95	95	95	95
14 100	93	93	93	93

Applicable to: A320CEO

MINIMUM CONTROL SPEED FOR LANDING (VMCL)

VMCL ..... 109 kt

MINIMUM CONTROL SPEEDS IN THE AIR (VMCA) AND ON THE GROUND (VMCG)

Altitude (ft)	VMCA (KT IAS)	VMCG (KT IAS)		
		CONF 1 + F	CONF 2	CONF 3
-2 000	114	113	111	11
0	112	112	110	109
2 000	111	111	109	108
4 000	108	108	106	106
6 000	105	105	103	103
8 000	103	103	101	101
10 000	100	101	99	98
12 000	97	98	96	95
14 100	94	95	93	93

Applicable to: A320NEO

MINIMUM CONTROL SPEED FOR LANDING (VMCL)

VMCL ..... 116 kt

MINIMUM CONTROL SPEEDS IN THE AIR (VMCA) AND ON THE GROUND (VMCG)

Altitude (ft)	VMCA (KT IAS)	VMCG (KT IAS)		
		CONF 1 + F	CONF 2	CONF 3
-2 000	115	117	117	117
0	114	116	116	116
2 000	114	116	116	116
4 000	113	115	115	115
6 000	112	114	114	114
8 000	109	112	112	112
10 000	106	109	109	109
12 000	103	106	106	106
14 100	99	102	102	102
15 100	97	101	101	101

Applicable to: A321CEO

MINIMUM CONTROL SPEED FOR LANDING (VMCL)

VMCL ..... 114 kt

MINIMUM CONTROL SPEEDS IN THE AIR (VMCA) AND ON THE GROUND (VMCG)

Altitude (ft)	VMCA (KT IAS)	VMCG (KT IAS)		
		CONF 1 + F	CONF 2	CONF 3
-2 000	114	110	110	109
0	114	110	110	109
2 000	111	107	107	106
4 000	107	104	104	102
6 000	103	100	100	98
8 000	100	96	96	95
10 000	96	93	93	91
12 000	92	93	93	92
14 100	89	87	87	90

Note: Consider VMCA / VMCG defined in this table regardless of Thrust Bump used or not.

Applicable to: A321NEO

MINIMUM CONTROL SPEED FOR LANDING (VMCL)

VMCL ..... 116 kt

MINIMUM CONTROL SPEEDS IN THE AIR (VMCA) AND ON THE GROUND (VMCG)

Altitude (ft)	VMCA (KT IAS)	VMCG (KT IAS)		
		CONF 1 + F	CONF 2	CONF 3
-2 000	110	118	118	119
0	110	118	118	118
2 000	107	115	115	115
4 000	105	113	113	113
6 000	101	109	109	109
8 000	98	106	106	106
9 200	96	105	105	105
10 000	95	104	104	104
12 000	92	101	101	102
14 100	88	98	98	98
15 100	87	96	96	97

TAXI SPEED

Applicable to: A320CEO

When the taxi weight is higher than 76 000 kg (167 550 lb):

CAUTION	Do not exceed a taxi speed of 20 kt during a turn.

WIPERS MAXIMUM OPERATING SPEED

Applicable to: ALL

Maximum speed..... 230 kt

Note: This limitation is applicable when the wipers are sweeping. It is not applicable if the wipers are not sweeping for any reason.

WEIGHT LIMITATIONS

Applicable to: A318

Maximum taxi weight..... 68 400 kg (150 796 lb)
Maximum takeoff weight (brake release) ..... 68 000 kg (149 914 lb)
Maximum landing weight..... 57 500 kg (126 765 lb)
Maximum zero fuel weight ..... 54 500 kg (120 151 lb)
Minimum weight ..... 34 500 kg (76 060 lb)
In exceptional cases (in flight turn back or diversion) an immediate landing at weight above maximum landing weight is permitted, provided the pilot follows the overweight landing procedure.

Applicable to: A319

Maximum taxi weight..... 64 400 kg (141 977 lb)
Maximum takeoff weight (brake release) ..... 64 000 kg (141 095 lb)
Maximum landing weight..... 61 000 kg (134 481 lb)
Maximum zero fuel weight ..... 57 000 kg (125 663 lb)
Minimum weight ..... 35 400 kg (78 044 lb)
In exceptional cases (in flight turn back or diversion) an immediate landing at weight above maximum landing weight is permitted, provided the pilot follows the overweight landing procedure.

Applicable to: G-GATH – G-GATS, G-MEDK

Maximum taxi weight..... 77 400 kg (170 637 lb)
Maximum takeoff weight (brake release) ..... 77 000 kg (169 755 lb)
Maximum landing weight..... 64 500 kg (142 198 lb)
Maximum zero fuel weight ..... 61 000 kg (134 481 lb)
Minimum weight ..... 37 230 kg (82 079 lb)
In exceptional cases (in flight turn back or diversion) an immediate landing at weight above maximum landing weight is permitted, provided the pilot follows the overweight landing procedure.

Applicable to: G-MIDO – G-MIDY, G-GATU

Maximum taxi weight..... 73 900 kg (162 921 lb)
Maximum takeoff weight (brake release) ..... 73 500 kg (162 039 lb)
Maximum landing weight..... 64 500 kg (142 198 lb)
Maximum zero fuel weight ..... 62 500 kg (137 788 lb)
Minimum weight ..... 37 230 kg (82 079 lb)
In exceptional cases (in flight turn back or diversion) an immediate landing at weight above maximum landing weight is permitted, provided the pilot follows the overweight landing procedure.

Applicable to: G-EUUA – G-EUUZ, G-EUYA – G-EUYN, G-TTOB – G-TTOE

Pre-Densification:

Maximum taxi weight..... 73 900 kg (162 921 lb)
Maximum takeoff weight (brake release) ..... 73 500 kg (162 039 lb)
Maximum landing weight..... 64 500 kg (142 198 lb)
Maximum zero fuel weight ..... 61 000 kg (134 481 lb)
Minimum weight ..... 37 230 kg (82 079 lb)

Post-Densification:

Maximum taxi weight..... 73 000 kg (160 937 lb)
Maximum takeoff weight (brake release) ..... 72 600 kg (160 055 lb)
Maximum landing weight..... 66 000 kg (145 505 lb)
Maximum zero fuel weight ..... 62 500 kg (137 788 lb)
Minimum weight ..... 37 230 kg (82 079 lb)

In exceptional cases (in flight turn back or diversion) an immediate landing at weight above maximum landing weight is permitted, provided the pilot follows the overweight landing procedure.

Applicable to: G-EUYO – G-EUYY

Maximum taxi weight..... 75 900 kg (167 330 lb)
Maximum takeoff weight (brake release) ..... 75 500 kg (166 448 lb)
Maximum landing weight..... 66 000 kg (145 505 lb)
Maximum zero fuel weight ..... 62 500 kg (137 788 lb)
Minimum weight ..... 37 230 kg (82 079 lb)

In exceptional cases (in flight turn back or diversion) an immediate landing at weight above maximum landing weight is permitted, provided the pilot follows the overweight landing procedure.

Applicable to: A320NEO

Maximum taxi weight..... 75 400 kg (166 228 lb)
Maximum takeoff weight (brake release) ..... 75 000 kg (165 346 lb)
Maximum landing weight..... 67 400 kg (148 591 lb)
Maximum zero fuel weight ..... 64 300 kg (141 757 lb)
Minimum weight ..... 40 600 kg (89 508 lb)

In exceptional cases (in flight turn back or diversion) an immediate landing at weight above maximum landing weight is permitted, provided the pilot follows the overweight landing procedure.

Applicable to: A321NEO

Maximum taxi weight..... 89 400 kg (197 093 lb)
Maximum takeoff weight (brake release) ..... 89 000 kg (196 211 lb)
Maximum landing weight..... 77 300 kg (170 417 lb)
Maximum zero fuel weight ..... 73 300 kg (161 598 lb)
Minimum weight ..... 46 600 kg (102 736 lb)

In exceptional cases (in flight turn back or diversion) an immediate landing at weight above maximum landing weight is permitted, provided the pilot follows the overweight landing procedure.

Applicable to: G-MEDF – G-MEDJ, G-MEDU

Maximum taxi weight..... 89 400 kg (197 093 lb)
Maximum takeoff weight (brake release) ..... 89 000 kg (196 211 lb)
Maximum landing weight..... 75 500 kg (166 449 lb)
Maximum zero fuel weight ..... 71 500 kg (157 630 lb)
Minimum weight ..... 47 500 kg (104 720 lb)

In exceptional cases (in flight turn back or diversion) an immediate landing at weight above maximum landing weight is permitted, provided the pilot follows the overweight landing procedure.

Applicable to: G-EUXC – G-EUXM, G-MEDL – G-MEDN

Maximum taxi weight..... 83 400 kg (183 865 lb)
Maximum takeoff weight (brake release) ..... 83 000 kg (182 983 lb)
Maximum landing weight..... 75 500 kg (166 449 lb)
Maximum zero fuel weight ..... 71 500 kg (157 630 lb)
Minimum weight ..... 47 500 kg (104 720 lb)
In exceptional cases (in flight turn back or diversion) an immediate landing at weight above maximum landing weight is permitted, provided the pilot follows the overweight landing procedure.

GENERAL

Applicable to: ALL

With passengers on board, it is not recommended to exceed 20 min without air conditioning supply. The lack of fresh air supply will significantly reduce the cabin's air quality.

APU BLEED USE WITH HP AIR START UNIT

Applicable to: ALL

The flight crew must not use bleed air from the APU BLEED and from the HP Air Start Unit at the same time, to prevent any adverse effect on the Bleed Air System.

AVIONICS VENTILATION

Applicable to: ALL

During ground operations and depending on the Outside Air Temperature (OAT), the flight crew must limit the time that the aircraft electric power supply is used, in normal avionics ventilation system configuration, as follows:

OAT ≤ 49 °C	No limitation
49 °C < OAT ≤ 55 °C	2 h
55 °C < OAT ≤ 60 °C	1 h
60 °C < OAT ≤ 64 °C	0.5 h

CABIN PRESSURE

Applicable to: ALL

Maximum positive differential pressure ..... 9.0 PSI
Maximum negative differential pressure ..... -1.0 PSI
Safety relief valve setting ..... 8.6 PSI

PACKS USE WITH LP AIR CONDITIONING UNIT

Applicable to: ALL

The flight crew must not use conditioned air from the packs and from the LP Air Conditioning Unit at the same time, to prevent any adverse effect on the Air Conditioning system.

AUTO FLIGHT SYSTEM

AUTOPILOT FUNCTION

Applicable to: ALL

The autopilot can be used with the following minimum values:

At takeoff	100 ft AGL and at least 5 s after liftoff
In approach with F-G/S mode	200 ft AGL
In approach wtih FINAL APP, V/S or FPA mode	250 ft AGL
In circling approach	500 ft AGL for aircraft category C (600 ft AGL for aircraft category D)
ILS/MLS approach when CAT1 is displayed on the FMA	160 ft AGL
GLS approach when AUTOLAND is not displayed on the FMA	160 ft AGL
ILS/MLS approach when CAT2 or CAT3 (single or dual) is displayed on the FMA	0 ft AGL if autoland.
PAR approach (Precision Approach Radar) *Note: The use of the AP and/or FD is authorised in PAR approach, with HDG V/S or TRK FPA. PAR approaches may be subject to operational approval.*	250 ft AGL
After a manual go-around	100 ft AGL

Applicable to: A318, A319, A320CEO and A320NEO

In all other phases	500 ft AGL

Applicable to: A321

In all other phases	900 ft AGL
The AP or FD in OP DES or DES mode can be used in approach. However, its use is only permitted if the FCU selected altitude is set to, or above, the higher of the two: MDA/MDH or 900ft AGL.	

FLIGHT MANAGEMENT FUNCTION

Applicable to: ALL

FMGS lateral and vertical navigation is certified for:

- After takeoff, en route, and terminal area operations
- Navigation within RNAV/RNP airspace
- Instrument approach procedures (except ILS, LOC, LOC B/C, LDA, SDF, GLS, MLS and FLS final approaches)
- Missed approach procedures.

The FLS function is certified for:

- RNAV, RNAV (GNSS), GPS, VOR, VOR/DME, NDB, NDB/DME instrument approach procedures, using FMS navigation for lateral and vertical navigation
- LOC, ILS (GS out), or LOC B/C instrument approaches, using FMS navigation for vertical navigation, associated with LOC or LOC B/C for lateral navigation.

Approval of the FMGS is based on the assumption that the navigation database is validated for intended use.

Obstacle clearance and adherence to airspace constraints remains a flight crew responsibility.

Fuel, time predictions/performance information is provided for advisory purposes only.

NAVIGATION PERFORMANCE

The navigation accuracy depends on:

- IRS drift, or
- One of the following:
  - Radio navaid availability, or
  - Elapsed time since last computation of radio navaid position.

RNP accuracy with GPS PRIMARY is:

	With AP ON(1)	With AP OFF and FD ON(1)	With AP OFF and FD OFF
En route	1 NM	1 NM	1.1 NM
In terminal area	0.5 NM	0.51 NM	0.51 NM
In approach	0.3 NM	0.3 NM	0.3 NM with F-LOC deviation. Not authorised without F-LOC deviation.

(1) *In NAV (all phases), or in F-LOC (approach phase)*

DEGRADED SITUATION

If GPS PRIMARY LOST is displayed on the ND and MCDU, the navigation accuracy remains sufficient for RNP operations provided that, the RNP value is checked or entered on the MCDU and HIGH ACCURACY is displayed.

USE OF NAV MODE

Applicable to: ALL

AFTER TAKEOFF

NAV mode may be used after takeoff provided that:

- GPS PRIMARY is available, or
- The flight crew checked the FMGS takeoff updating.

IN TERMINAL AREA

NAV mode may be used in terminal area provided that:

- GPS PRIMARY is available, or
- the appropriate RNP is checked or entered on the MCDU, and HIGH accuracy is displayed, or
- FMS navigation is crosschecked with navaid raw data.

APPROACH BASED ON RADIO NAVAIDS

A navaids approach may be performed in NAV, APP NAV or FINAL APP, with AP or FD engaged, provided that:

- GPS PRIMARY is available

RNAV APPROACH

An RNAV (GNSS), or RNAV (RNP) approach may be performed provided that

- GPS PRIMARY is available.

Refer to Guidance Modes per Approach Types

NON-PRECISION APPROACHES WTIH ENGINE-OUT

Applicable to: A319

If one engine is inoperative, it is not permitted to use the autopilot to perform NPAs in the following modes: FINAL APP, NAV V/S, NAV/FPA.

Only FD use is permitted.

NAVIGATION DATABASE VALIDATION

Applicable to: ALL

RNAV(GNSS) APPROACHES AND APPROACHES BASED ON VOR/NDB

To fly an approach in lateral managed mode or lateral and vertical managed mode, the approach stored in the Navigation database must be either:

- Produced by an approved supplier compliant with ED76/DO200A requirements, or
- Validated and approved by the Operator.

For BAV operations, generally any procedure in Navigraph or Aerosoft navigation databases can be used, with the exception of RNP(AR) procedures. Individual unapproved approaches will be notified by Loreto/NOTAM.

Note: RNAV(GNSS) approaches lateral trajectories are geometrically based on waypoints coordinates. Thus, validating waypoints coordinate ensure no coding error on the approach and correct lateral trajectory. Observed lateral track degree of difference between MCDU F-PLN page display and charts may come from inconsistency between FMS MagVar and charted MagVar, which has no effect on lateral trajectory.

LTS CATEGORY I

Applicable to: ALL

Minimum decision altitude..... relevant DA

At least one autopilot must be engaged in APPR mode, and CAT 2, CAT 3 SINGLE or CAT 3 DUAL must be displayed on the FMA.

All other CAT II aircraft limitations apply to LTS CAT 1 operations.

ILS CATEGORY II

Applicable to: ALL

Minimum decision height..... 100 ft

At least one autopilot must be engaged in APPR mode, and CAT 2, CAT 3 SINGLE or CAT 3 DUAL must be displayed on the FMA.

OTHER THAN STANDARD CAT II (OTS CAT II)

Applicable to: ALL

Minimum decision height..... 100 ft

At least one autopilot must be engaged in APPR mode, and CAT 2, CAT 3 SINGLE or CAT 3 DUAL must be displayed on the FMA.

An automatic landing must be performed.

ILS CATEGORY III FAIL PASSIVE (SINGLE)

Applicable to: ALL

Minimum decision height..... 50 ft

A/THR must be used in selected or managed speed.

At least one autopilot must be engaged in APPR mode, and CAT 3 SINGLE or CAT 3 DUAL must be displayed on the FMA.

ILS CATEGORY III FAIL OPERATIONAL (DUAL)

Applicable to: A318, A319 and A320NEO

Alert height..... 100 ft AGL

A/THR must be used in selected or managed speed.

Both autopilots must be engaged in APPR mode, and CAT 3 DUAL must be displayed on the FMA.

- **CAT III without DH:**
  Minimum Runway Visual Range..... 75 m

Applicable to: A321NEO

Alert height..... 100 ft AGL

A/THR must be used in selected or managed speed.

Both autopilots must be engaged in APPR mode, and CAT 3 DUAL must be displayed on the FMA.

- **CAT III with DH:**
  Minimum Decision Height..... 18 ft
- **CAT II without DH:**
  Minimum Runway Visual Range..... 75 m

Applicable to: G-MIDO – G-MIDY, G-MEDK, G-GATH – G-GATU, G-TTOB – G-TTOE, G-EUUA – G-EUUZ, G-EUYA – G-EUYN

Alert height..... 100 ft AGL

A/THR must be used in selected or managed speed.

Both autopilots must be engaged in APPR mode, and CAT 3 DUAL must be displayed on the FMA.

- **CAT III with DH:**
  Minimum Decision Height..... 25 ft
- **CAT II without DH:**
  Minimum Runway Visual Range..... 75 m

Applicable to: G-EUYO – G-EUYY, G-EUXC – G-EUXM, G-MEDF – G-MEDU

Alert height..... 100 ft AGL

A/THR must be used in selected or managed speed.

Both autopilots must be engaged in APPR mode, and CAT 3 DUAL must be displayed on the FMA.

- **CAT III with DH:**
  Minimum Decision Height ..... 22 ft
- **CAT II without DH:**
  Minimum Runway Visual Range ..... 75 m

ENGINE-OUT

Applicable to: A318

CAT II and CAT III fail passive autoland are only approved in configuration 3 and FULL, and if engine-out procedures are completed before reaching 1000ft in approach. In case of a go-around below 50ft, and with one engine inoperative, disconnect the autopilot after go-around initiation, and follow the FD bars.

Applicable to: A319, A320NEO, A321CEO and A321NEO

CAT II and CAT III fail passive autoland are only approved in configuration 3 and FULL, and if engine-out procedures are completed before reaching 1000ft in approach.

Applicable to: A320CEO

CAT II and CAT III fail passive autoland are only approved in configuration FULL, and if engine-out procedures are completed before reaching 1000ft in approach.

MAXIMUM WIND CONDITIONS FOR ILS/MLS CAT II OR CAT III AND FOR GLS CAT I

Applicable to: A318, G-MIDO – G-MIDY, G-MEDK, G-GATH – G-GATU, G-TTOB – G-TTOE, G-EUUA – G-EUUZ, G-EUYA – G-EUYN

Headwind : 30 kt

Tailwind : 10 kt

Crosswind: 20 kt

Note: *Wind limitation is based on the surface wind reported by ATC. If the wind displayed on the ND exceeds the above-noted autoland limitations, but the tower reports a surface wind within the limitations, then the autopilot can remain engaged. If the tower reports a surface wind beyond limitations, only CAT I automatic approach without autoland can be performed.*

Applicable to: A319

- **CONF FULL with airport elevation at or below 5750 ft:**
  Headwind : 20 kt (15 kt with One Engine Inoperative (OEI))

  Tailwind : 10 kt

  Crosswind: 20 kt (10 kt with One Engine Inoperative (OEI))

- **CONF FULL with airport elevation above 5750 ft or CONF 3:**
  Headwind : 20 kt (15 kt with One Engine Inoperative (OEI))

  Tailwind : 5 kt

  Crosswind: 20 kt (10 kt with One Engine Inoperative (OEI))

Note: *Wind limitation is based on the surface wind reported by ATC. If the wind displayed on the ND exceeds the above-noted autoland limitations, but the tower reports a surface wind within the limitations, then the autopilot can remain engaged. If the tower reports a surface wind beyond limitations, only CAT I automatic approach without autoland can be performed.*

Applicable to: G-EUYO – G-EUYY

Headwind : 30 kt

Tailwind : 10 kt

Crosswind: 20 kt without Automatic Rollout / 15 kt with Automatic Rollout

Note: *Wind limitation is based on the surface wind reported by ATC. If the wind displayed on the ND exceeds the above-noted autoland limitations, but the tower reports a surface wind within the limitations, then the autopilot can remain engaged. If the tower reports a surface wind beyond limitations, only CAT I automatic approach without autoland can be performed.*

Applicable to: A320NEO

Headwind : 30 kt

Tailwind : 10 kt

Crosswind: 20 kt (15 kt with One Engine Inoperative (OEI) and with Automatic Rollout)

Note: Wind limitation is based on the surface wind reported by ATC. If the wind displayed on the ND exceeds the above-noted autoland limitations, but the tower reports a surface wind within the limitations, then the autopilot can remain engaged. If the tower reports a surface wind beyond limitations, only CAT I automatic approach without autoland can be performed.

Applicable to: A321CEO

Headwind : 30 kt

Tailwind : 10 kt

Crosswind: 20 kt

Note: Wind limitation is based on the surface wind reported by ATC. If the wind displayed on the ND exceeds the above-noted autoland limitations, but the tower reports a surface wind within the limitations, then the autopilot can remain engaged. If the tower reports a surface wind beyond limitations, only CAT I automatic approach without autoland can be performed.

Applicable to: A321NEO

Headwind : 15 kt

Tailwind : 10 kt

Crosswind: 10 kt

Note: Wind limitation is based on the surface wind reported by ATC. If the wind displayed on the ND exceeds the above-noted autoland limitations, but the tower reports a surface wind within the limitations, then the autopilot can remain engaged. If the tower reports a surface wind beyond limitations, only CAT I automatic approach without autoland can be performed.

AUTOMATIC LANDING

Applicable to: ALL

ILS/MLS CAT II and CAT III autoland are approved in CONF 3 and CONF FULL.

Automatic landing is demonstrated:

- With CAT II and CAT III ILS/MLS beam.

Applicable to: A318

- With aircraft weight below the maximum landing weight

Note: Depending on the situation (e.g. emergency or other) and provided that the runway is approved for automatic landing, the flight crew can decide to perform an autoland up to 67t (147710lb).

Applicable to: A319, A320CEO, A320NEO, A321CEO and A321NEO

- With aircraft weight below the maximum landing weight

Applicable to: A318, A320CEO and A321CEO

- With a glide slope angle between -2.5° and -3.15°

Applicable to: A319, A320NEO and A321NEO

- With a glide slope angle between -2.5° and -3.25°

Applicable to: A318 and A321CEO

- With an airport elevation at or below 5 750 ft

Applicable to: A319 and A320NEO

- With an airport elevation at or below 9 200 ft

Applicable to: G-EUUA – G-EUUZ, G-EUYA – G-EUYY, G-GATH – G-GATJ, G-GATN – G-GATU, G-TTOB – G-TTOE

- With an airport elevation at or below 6 500 ft

Applicable to: G-MIDO – G-MIDY, G-GATK – G-GATM

- With an airport elevation at or below 2 500 ft

Applicable to: A320NEO

- With aircraft weight at or above 44 000 kg (97 004 lb)

Applicable to: A321NEO

- With aircraft weight at or above 52 500 kg (115 743 lb)

Applicable to: A318, A319, A320CEO and A321CEO

Automatic landing is not allowed below -1 000 ft pressure altitude.

Applicable to: A320NEO and A321NEO

Automatic landing is not allowed below -2 000 ft pressure altitude.

Applicable to: A318, G-EUYO – G-EUYY, A321NEO

Automatic rollout performance is approved on dry and wet runways, but performance on snow-covered or icy runways was not demonstrated.

During automatic rollout with one engine inoperative or one thrust reverser inoperative, the flight crew can use the remaining thrust reverser, provided that:

- No more than idle thrust is used
- The wind does not exceed the maximum wind conditions for automatic rollout.

Applicable to: A319

Automatic rollout performance is approved on dry and wet runways, but performance on snow-covered or icy runways was not demonstrated. During automatic rollout with one engine inoperative or one thrust reverser inoperative, the flight crew can use the remaining thrust reverser, provided that:

AIRPORT ELEVATION AT OR BELOW 5 750 FT

- No more than idle thrust is used
- Headwind component not above 15kt
- Tailwind component not above 10kt
- Crosswind component not above 10kt.

AIRPORT ELEVATION ABOVE 5 750 FT OR CONF 3

- No more than idle thrust is used
- Headwind component not above 15kt
- Tailwind component not above 5kt
- Crosswind component not above 10kt.

Applicable to: G-EUUA – G-EUUZ, G-EUYA – G-EUYY, G-GATH – G-GATJ, G-GATN – G-GATU, G-TTOB – G-TTOE

Automatic rollout performance is approved on dry and wet runways, but performance on snow-covered or icy runways was not demonstrated.

During automatic rollout with one engine inoperative or one thrust reverser inoperative, the flight crew can use the remaining thrust reverser, provided that the wind does not exceed the maximum wind conditions for automatic rollout.

Applicable to: A320NEO

Automatic rollout performance is approved on dry and wet runways, but performance on snow-covered or icy runways was not demonstrated.

During automatic rollout with one engine inoperative or one thrust reverser inoperative, the flight crew can use the remaining thrust reverser, provided that:

- No more than idle thrust is used
- Headwind component not above 30kt
- Tailwind component not above 10kt
- Crosswind component not above 15kt.

Applicable to: ALL

Automatic landing system performance is demonstrated with CAT II or CAT III ILS/MLS airport installation. However, automatic landing in CAT I or better weather conditions is possible on CAT I ground installations or on CAT II/III ground installations when ILS/MLS sensitive areas are not protected, if the following precautions are taken:

- The airline checked that the ILS/MLS beam quality, and the effect of the terrain profile before the runway have no adverse effect on AP/FD guidance. Particularly, the effect of terrain profile within 300m before the runway threshold must be evaluated
- The flight crew is aware that LOC or G/S beam fluctuations, independent of the aircraft system, may occur. The PF is prepared to immediately disconnect the autopilot, and to take the appropriate action, should not satisfactory guidance occur
- At least CAT2 capability is displayed on the FMA and the flight crew uses CAT II/III procedures
- Visual references are obtained at an altitude appropriate for the CAT I approach. If not, a go-around must be performed.

AUTOMATIC LANDING IN JOHANNESBURG

Applicable to: A319, A320CEO, A320NEO, A321CEO and A321NEO

Automatic landing is not permitted on Johannesburg 03R/21L runways.

AUTOLAND DATABASES WITH HONEYWELL ADIRU

Applicable to: G-GATL, G-GATM

The below table provides for each concerned airport, the dates when the following limitations begin:

- AUTOLAND is not allowed
- ROLLOUT is not allowed

CAT II approaches without AUTOLAND are still allowed.

Airport Code	Airport Location	Month/Year
FAEL	EAST LONDON BEN SCHOEMAN SOUTH AFR REP	August 2018
PAFA	FAIRBANKS INTL AK USA	January 2015
PANC	ANCHORAGE INTL AK USA	October 2015
BIKF	KEFLAVIK ICELAND	January 2015
EGAA	BELFAST ALDERGROVE UNITED KINGDOM	September 2020
EGPF	GLASGOW UNITED KINGDOM	July 2020
EGPH	EDINBURGH UNITED KINGDOM	September 2020
EFRO	ROVANIEMI FINLAND	September 2019
EFOU	OULU FINLAND	August 2020

Note: This limitation is applicable until end of 2020. From 2021, without a revision of this limitation, AUTOLAND and ROLLOUT will not be allowed on any airport.

The above limitations do not apply if three new ADIRU with updated magnetic variation tables are installed and Operators ensure previous standards are not installed.

AUXILIARY POWER UNIT

GENERAL

Applicable to: ALL

APU START

After three consecutive APU start attempts, the crew must wait 60 min before a new start attempt.

ROTOR SPEED

Maximum N speed ..... 107 %

Applicable to: A318, G-EUOA – G-EUPZ, G-EUOA – G-EUOI, G-EUUA – G-EUUZ, G-GATH – G-GATJ, G-GATN – G-GATU, G-TTOB – G-TTOE, G-EUYA – G-EUYY, G-MEDK, G-EUXC – G-EUXM, G-MEDF – G-MEDU, A320NEO, A321NEO

EGT

Maximum EGT for APU start (below 35 000 ft) ..... 1 090 °C
Maximum EGT for APU start (above 35 000 ft) ..... 1 120 °C
Maximum EGT for APU running (with 5 s confirmation for shutdown) ..... 675 °C

Applicable to: G-DBCA – G-DBCK, G-MIDO – G-MIDY, G-GATK – G-GATM

EGT

Maximum EGT for APU start (below 25 000 ft) ..... 900 °C
Maximum EGT for APU start (above 25 000 ft) ..... 982 °C
Maximum EGT for APU running (with 5 s confirmation for shutdown) ..... 682 °C
Maximum EGT for APU running (for immediate shutdown) ..... 700 °C to 742 °C

APU START/SHUTDOWN DURING REFUELING/DEFUELING

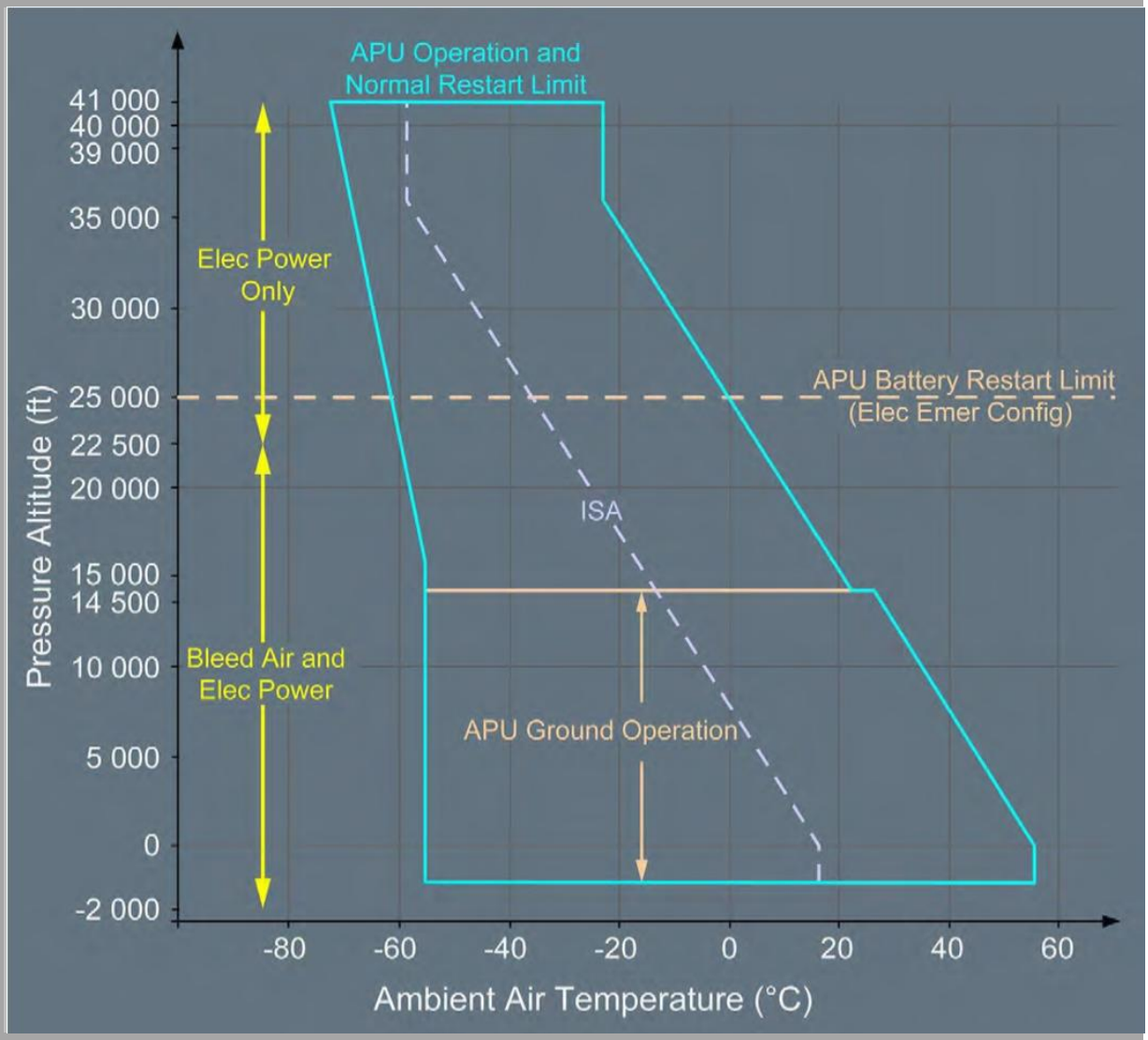
Applicable to: ALL

During refuel/defuel procedures, APU starts or shutdown are permitted with the following restrictions:

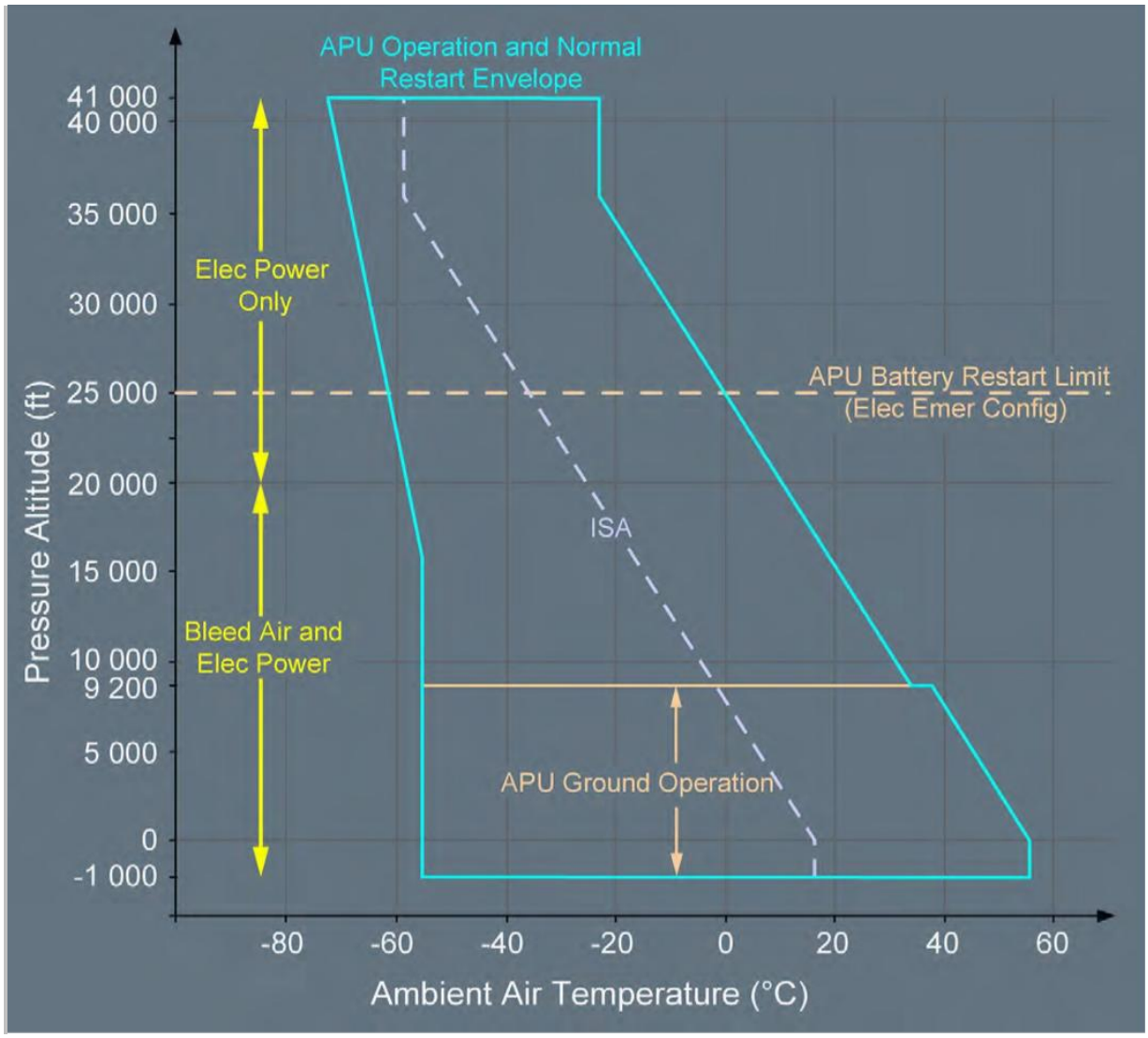
- If the APU failed to start or following an automatic APU shutdown, do not start the APU
- If a fuel spill occurs, perform a normal APU shutdown.

OPERATIONAL ENVELOPE

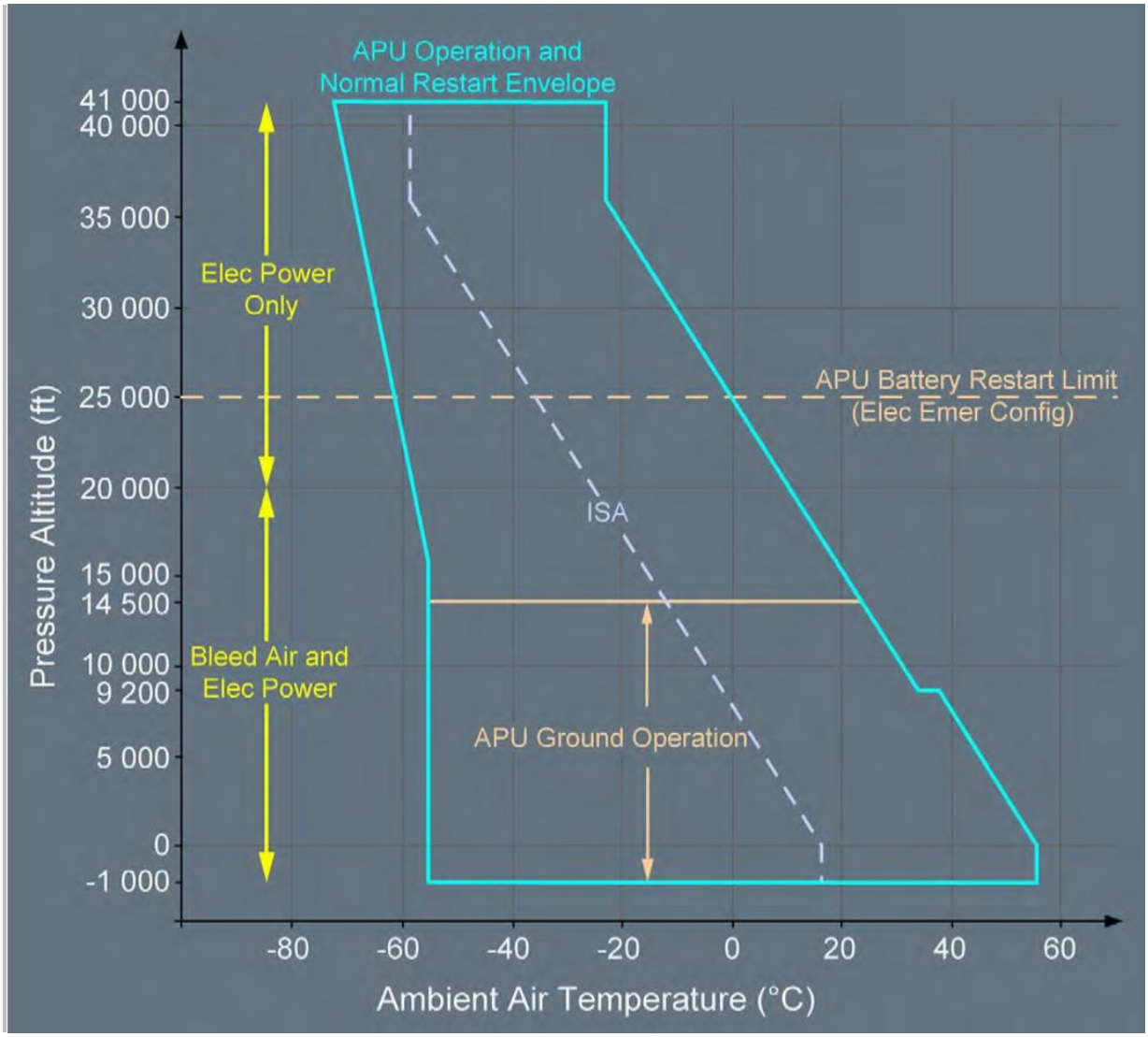
Applicable to: A318, G-EUOA – G-EUPZ, G-EUOA – G-EUOI, G-EUUA – G-EUUZ, G-GATH – G-GATJ, G-GATN – G-GATU, G-TTOB – G-TTOE, G-EUYA – G-EUYY, G-MEDK, G-EUXC – G-EUXM, G-MEDF – G-MEDU, A320NEO, A321NEO



Applicable to: G-DBCA – G-DBCK, G-MIDO – G-MIDY



Applciable to: G-GATK – G-GATM



Applicable to: A318, G-EUOA – G-EUPZ, G-EUOA – G-EUOI, G-EUUA – G-EUUZ, G-GATH – G-GATJ, G-GATN – G-GATU, G-TTOB – G-TTOE, G-EUYA – G-EUYY, G-MEDK, G-EUXC – G-EUXM, G-MEDF – G-MEDU, A320NEO, A321NEO

APU BLEED

Max altitude to assist engine start ..... 20 000 ft
Max altitude for air conditioning and pressurisation (single pack operation) ..... 22 500 ft
Max altitude for air conditioning and pressurisation (dual pack operation) ..... 15 000 ft
Use of APU bleed air for wing anti-ice is not permitted.

Applicable to: G-DBCA – G-DBCK, G-MIDO – G-MIDY, G-GATK – G-GATM

APU BLEED

Max altitude to assist engine start ..... 20 000 ft
Max altitude for air conditioning and pressurisation (single pack operation) ..... 20 000 ft
Max altitude for air conditioning and pressurisation (dual pack operation) ..... 15 000 ft
Use of APU bleed air for wing anti-ice is not permitted.

THRUST SETTING/EGT LIMITS

Applicable to: A318

Operating Conditions		Time Limit	EGT Limit
Takeoff(1) and Go-around	All engines operative	5 min	950 °C
	One engine inoperative	10 min	
Maximum Continuous Thrust (MCT)		Not limited	915 °C
Starting	On ground		725 °C
	In flight		

(1) Includes TOGA, FLEX and DERATE thrust modes.

Applicable to: A319 and A320CEO

Operating Conditions		Time Limit	EGT Limit
Takeoff(1) and Go-around	All engines operative	5 min	635 °C
	One engine inoperative	10 min	
Maximum Continuous Thrust (MCT)		Not limited	610 °C
Starting	On ground		635 °C
	In flight		

(1) Includes TOGA, FLEX and DERATE thrust modes.

Applicable to: A321CEO

Operating Conditions		Time Limit	EGT Limit
Takeoff(1) and Go-around	All engines operative	5 min	650 °C
	One engine inoperative	10 min	
Maximum Continuous Thrust (MCT)		Not limited	610 °C
Starting	On ground		635 °C
	In flight		

(1) Includes TOGA, FLEX and DERATE thrust modes.

Applicable to: A320NEO and A321NEO

Operating Conditions		Time Limit	EGT Limit
Takeoff(1) and Go-around	All engines operative	5 min	1 060 °C
	One engine inoperative	10 min	
Maximum Continuous Thrust (MCT)		Not limited	1 025 °C
Starting	On ground		750 °C
	In flight		875 °C

(1) Includes TOGA, FLEX and DERATE thrust modes.

SHAFT SPEEDS

Applicable to: A318

Maximum N1 ..... 104 %

Note: *The N1 limit depends on the ambient conditions and on the configuration of the engine air bleed. These parameters may limit N1 to a value that is less than the above-mentioned N1 value.*

Maximum N2 ..... 105 %

Applicable to: A319, A320CEO and A321CEO

Maximum N1 ..... 100 %

Note: *The N1 limit depends on the ambient conditions and on the configuration of the engine air bleed. These parameters may limit N1 to a value that is less than the above-mentioned N1 value.*

Maximum N2 ..... 116.5 %

Applicable to: A320NEO and A321NEO

Maximum N1 ..... 101 %

Note: *The N1 limit depends on the ambient conditions and on the configuration of the engine air bleed. These parameters may limit N1 to a value that is less than the above-mentioned N1 value.*

Maximum N2 ..... 100 %

OIL

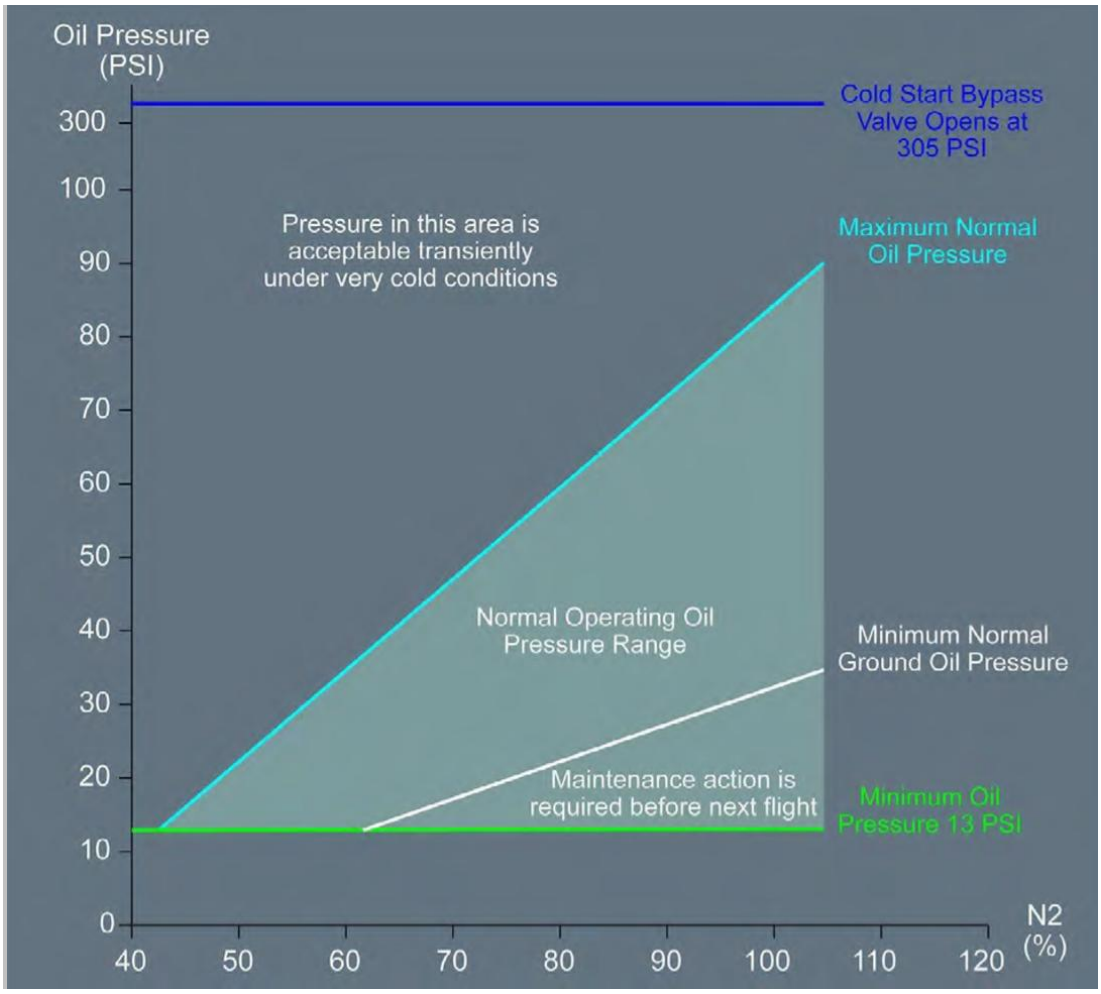
Applicable to: A318

OIL TEMPERATURE

Maximum continuous temperature ..... 140 °C
Maximum transient temperature (15 min) ..... 155 °C
Minimum starting temperature ..... -40 °C
Minimum temperature before takeoff ..... -10 °C

OIL PRESSURE

MIN/MAX Oil Pressure (ECAM Indication)



Applicable to: A319, A320CEO and A321CEO

OIL TEMPERATURE

Maximum continuous temperature	155 °C
Maximum transient temperature (15 min)	165 °C
Minimum starting temperature	-40 °C
Minimum temperature before IDLE is exceeded	-10 °C
Minimum temperature before takeoff	50 °C

MINIMUM OIL PRESSURE

Minimum oil pressure	60 PSI

Applicable to: A320NEO and A321NEO

OIL TEMPERATURE

Maximum continuous temperature ..... 140 °C
Maximum transient temperature (15 min) ..... 155 °C
Minimum starting temperature ..... -40 °C
Minimum temperature before takeoff ..... 19 °C

MINIMUM OIL PRESSURE

Minimum oil pressure ..... 60 PSI

MAXIMUM OIL PRESSURE

Maximum oil pressure (when oil temperature is above 50 °C) ..... 130.5 PSI
Maximum oil pressure (when oil temperature is below 50 °C) ..... 145 PSI

STARTER

Applicable to: A318

- A standard automatic start that includes up to three start attempts, is considered one cycle
- For ground starts (automatic or manual), a 20s pause is required between successive cycles
- A 15min cooling period is required, subsequent to four failed cycles
- The starter must not be run when N2 is above 20%.

Applicable to: A319, A320CEO and A321CEO

- A standard automatic start that includes only one start attempt, is considered one cycle
- For ground starts (automatic or manual), a 15s pause is required between successive cycles
- A 30min cooling period is required, subsequent to three failed cycles or 5min of continuous crank
- For manual start, observe a two-minute maximum cycle time
- For crank, observe a 5min maximum cycle time
- The starter must not be run when N2 is above 10% on-ground and 18% in-flight.

Applicable to: A320NEO and A321NEO

- A standard automatic start that includes up to three start attempts, is considered one cycle
- For ground starts (automatic or manual), a 60s pause is required between successive cycles
- A 15min cooling period is required, subsequent to three failed cycles
- The starter must not be run when N2 is above 63%.

REVERSE THRUST

Selection of reverse thrust is prohibited in flight.

Backing the aircraft with reverse thrust is not permitted.

Maximum reverse should not be used below 70 kt. Idle reverse is permitted down to aircraft stop.

REDUCED THRUST TAKEOFF

Applicable to: A318

FLEX TAKEOFF

Takeoff at reduced thrust, so-called as FLEX takeoff, is permitted only if the airplane meets all performance requirements at the takeoff weight, with the operating engines at the thrust available for the flexible temperature (TFLEX).

Takeoff at reduced thrust is permitted with any inoperative item affecting the performance only if the associated performance shortfall has been applied to meet the above requirements. FLEX takeoff is not permitted on contaminated runways.

TFLEX cannot be:

- Higher than TMAXFLEX, equal to ISA + 60 °C.
- Lower than the flat temperature (TREF).
- Lower than the actual OAT.

Applicable to: A319

FLEX TAKEOFF

Takeoff at reduced thrust, so-called as FLEX takeoff, is permitted only if the airplane meets all performance requirements at the takeoff weight, with the operating engines at the thrust available for the flexible temperature (TFLEX).

Takeoff at reduced thrust is permitted with any inoperative item affecting the performance only if the associated performance shortfall has been applied to meet the above requirements. FLEX takeoff is not permitted on contaminated runways.

TFLEX cannot be:

- Higher than TMAXFLEX, equal to ISA + 65 °C.
- Lower than the flat temperature (TREF).
- Lower than the actual OAT.

Applicable to: A320

FLEX TAKEOFF

Takeoff at reduced thrust, so-called as FLEX takeoff, is permitted only if the airplane meets all performance requirements at the takeoff weight, with the operating engines at the thrust available for the flexible temperature (TFLEX).

Takeoff at reduced thrust is permitted with any inoperative item affecting the performance only if the associated performance shortfall has been applied to meet the above requirements. FLEX takeoff is not permitted on contaminated runways.

TFLEX cannot be:

- Higher than TMAXFLEX, equal to ISA + 55 °C.
- Lower than the flat temperature (TREF).
- Lower than the actual OAT.

Applicable to: A321CEO

FLEX TAKEOFF

Takeoff at reduced thrust, so-called as FLEX takeoff, is permitted only if the airplane meets all performance requirements at the takeoff weight, with the operating engines at the thrust available for the flexible temperature (TFLEX).

Takeoff at reduced thrust is permitted with any inoperative item affecting the performance only if the associated performance shortfall has been applied to meet the above requirements. FLEX takeoff is not permitted on contaminated runways.

TFLEX cannot be:

- Higher than TMAXFLEX, equal to ISA + 42 °C.
- Lower than the flat temperature (TREF).
- Lower than the actual OAT.

Applicable to: A321NEO

FLEX TAKEOFF

Takeoff at reduced thrust, so-called as FLEX takeoff, is permitted only if the airplane meets all performance requirements at the takeoff weight, with the operating engines at the thrust available for the flexible temperature (TFLEX).

Takeoff at reduced thrust is permitted with any inoperative item affecting the performance only if the associated performance shortfall has been applied to meet the above requirements. FLEX takeoff is not permitted on contaminated runways.

TFLEX cannot be:

- Higher than TMAXFLEX, equal to ISA + 52 °C.
- Lower than the flat temperature (TREF).
- Lower than the actual OAT.

CROSSWIND OPERATION ON GROUND

Applicable to: A319, A320CEO and A321CEO

The engine is able to start in crosswind up to 35 kt.

Applicable to: A320NEO and A321NEO

ENGINE START

The engine is able to start in crosswind up to 45 kt.

TAKEOFF

Engine crosswind limit at takeoff.....35 kt (gust included)

SOFT GO-AROUND

Applicable to: A320NEO and A321NEO

Use of GA SOFT mode is prohibited with one engine inoperative.

MAXIMUM ALTITUDE FLATS/SLATS EXTENDED

Applicable to: ALL

Maximum operating altitude with slats and/or flaps extended ..... 20 000 ft

USE OF FLIGHT CONTROLS

Applicable to: ALL

CAUTION	Rapid and large alternating control inputs, especially in combination with large changes in pitch, roll or yaw (e.g. large sideslip angles) may result in structural failures at any speed.

FUEL TEMPERATURE

Applicable to: A318, A319 and A320CEO

	JET A1/JP8	JET A	JP5	RT	TS-1	JET B	JP4
MINI	-43 °C	-36 °C(1)	-42 °C	-45 °C	-45 °C	-46 °C	-54 °C
MAXI	54 °C					49 °C	

(1) For JET A only, if TAT reaches -34 °C, monitor the fuel temperature on the FUEL SD page, to ensure that it remains above -36 °C.

Note: The various types of fuel can be mixed in all proportions. However, in the case of fuel mixture, the minimum fuel specification values provided in the table above are no longer applicable.

Applicable to: A321CEO

	JET A1/JP8	JET A	JP5	RT	TS-1	JET B	JP4
MINI	-43 °C	-36 °C(1)	-42 °C	-45 °C	-45 °C	-46 °C	-54 °C
MAXI	54 °C						

(1) For JET A only, if TAT reaches -34 °C, monitor the fuel temperature on the FUEL SD page, to ensure that it remains above -36 °C.

Note: The various types of fuel can be mixed in all proportions. However, in the case of fuel mixture, the minimum fuel specification values provided in the table above are no longer applicable.

Applicable to: A320NEO and A321NEO

	JET A1/JP8	JET A	JP5	RT	TS-1
MINI	-43 °C	-36 °C(1)	-42 °C	-45 °C	-45 °C
MAXI	55 °C				

(1) For JET A only, if TAT reaches -34 °C, monitor the fuel temperature on the FUEL SD page, to ensure that it remains above -36 °C.

Note: The various types of fuel can be mixed in all proportions. However, in the case of fuel mixture, the minimum fuel specification values provided in the table above are no longer applicable.

MAXIMUM ALLOWED FUEL IMBALANCE

Applicable to: A318

The following tables indicate the maximum allowed wing imbalance at takeoff, in flight, and at landing.

FUEL IMBALANCE AT TAKEOFF, IN FLIGHT, AND AT LANDING

INNER TANKS (OUTER TANKS BALANCED)

Tank Fuel Quantity (Heavier Tank)	Maximum Asymmetry
Full	1 500 kg (3 306 lb)
4 300 kg (9 479 lb)	1 600 kg (3 527 lb)
2 250 kg (3 196 lb)	2 250 kg (4 960 lb)

The variation is linear between these values, and there is no limitation below 2 250 kg (4 960 lb).

OUTER TANKS

Maximum Asymmetry	690 kg (1 521 lb)(1)

(1) The maximum fuel imbalance in the outer wing fuel tanks (one full/one empty) is allowed provided that:

- *The fuel quantity of the outer and inner wing fuel tanks of one side is equal to the fuel quantity of the outer and inner wing fuel tanks on the other side, or*
- *On the side of the lighter outer tank, the fuel quantity of the inner tank is more than the fuel quantity of the opposite inner tank. The difference between the fuel quantity in the inner tanks should not be more than 3 000 kg (6 613 lb).*

Note: In exceptional conditions (i.e. fuel system failure), the above-mentioned values for maximum fuel imbalance may be exceeded without significant effect to the aircraft handling qualities. The aircraft remains fully controllable in all flight phases.

Applicable to: A319, A320CEO and A320NEO

The following tables indicate the maximum allowed wing imbalance at takeoff, in flight, and at landing.

FUEL IMBALANCE AT TAKEOFF

INNER TANKS (OUTER TANKS BALANCED)

Tank Fuel Quantity (Heavier Tank)	Maximum Asymmetry
Full	500 kg (1 102 lb)
3 000 kg (6 613 lb)	1 050 kg (2 314 lb)
1 450 kg (3 196 lb)	1 450 kg (3 196 lb)

The variation is linear between these values.

OUTER TANKS (INNER TANKS BALANCED)

Maximum Asymmetry	370 kg (815 lb)

FUEL IMBALANCE IN FLIGHT AND AT LANDING

INNER TANKS (OUTER TANKS BALANCED)

Tank Fuel Quantity (Heavier Tank)	Maximum Asymmetry
Full	1 500 kg (3 306 lb)
4 300 kg (9 479 lb)	1 600 kg (3 527 lb)
2 250 kg (3 196 lb)	2 250 kg (4 960 lb)

The variation is linear between these values, and there is no limitation below 2 250 kg (4 960 lb).

OUTER TANKS

Maximum Asymmetry	690 kg (1 521 lb)(1)

(2) The maximum fuel imbalance in the outer wing fuel tanks (one full/one empty) is allowed provided that:

- *The fuel quantity of the outer and inner wing fuel tanks of one side is equal to the fuel quantity of the outer and inner wing fuel tanks on the other side, or*
- *On the side of the lighter outer tank, the fuel quantity of the inner tank is more than the fuel quantity of the opposite inner tank. The difference between the fuel quantity in the inner tanks should not be more than 3 000 kg (6 613 lb).*

Note: In exceptional conditions (i.e. fuel system failure), the above-mentioned values for maximum fuel imbalance may be exceeded without significant effect to the aircraft handling qualities. The aircraft remains fully controllable in all flight phases.

Applicable to: A321CEO

The following tables indicate the maximum allowed wing imbalance at takeoff, in flight, and at landing.

FUEL IMBALANCE AT TAKEOFF

Tank Fuel Quantity (Heavier Tank)	Maximum Asymmetry
Full	600 kg (1 323 lb)
3 400 kg (7 496 lb)	600 kg (1 323 lb)
1 200 kg (2 646 lb)	1 200 kg (2 646 lb)

The variation is linear between these values.

FUEL IMBALANCE IN FLIGHT AND AT LANDING

Tank Fuel Quantity (Heavier Tank)	Maximum Asymmetry
Full	1 320 kg (2 910 lb)
4 000 kg (9 479 lb)	1 450 kg (3 196 lb)
2 350 kg (3 196 lb)	2 350 kg (5 180 lb)

The variation is linear between these values, and there is no limitation below 2 350 kg (5 180 lb).

Note: In exceptional conditions (i.e. fuel system failure), the above-mentioned values for maximum fuel imbalance may be exceeded without significant effect to the aircraft handling qualities. The aircraft remains fully controllable in all flight phases.

Applicable to: A321NEO

The following tables indicate the maximum allowed wing imbalance at takeoff, in flight, and at landing.

FUEL IMBALANCE AT TAKEOFF

Tank Fuel Quantity (Heavier Tank)	Maximum Asymmetry
Full	400 kg (882 lb)
3 000 kg (7 496 lb)	400 kg (882 lb)
700 kg (2 646 lb)	700 kg (1 543 lb)

The variation is linear between these values.

FUEL IMBALANCE IN FLIGHT AND AT LANDING

Tank Fuel Quantity (Heavier Tank)	Maximum Asymmetry
Full	1 320 kg (2 910 lb)
4 000 kg (9 479 lb)	1 450 kg (3 196 lb)
2 350 kg (3 196 lb)	2 350 kg (5 180 lb)

The variation is linear between these values, and there is no limitation below 2 350 kg (5 180 lb).

Note: In exceptional conditions (i.e. fuel system failure), the above-mentioned values for maximum fuel imbalance may be exceeded without significant effect to the aircraft handling qualities. The aircraft remains fully controllable in all flight phases.

MINIMUM FUEL QUANTITY FOR TAKEOFF

Applicable to: ALL

Minimum fuel quantity for takeoff ..... 1 500 kg (3 307 lb)

The ECAM alerts that are related to fuel low level in the wing tanks (FUEL WING TK LO LVL, etc.) must not appear for takeoff.

ICE AND RAIN PROTECTION

DEFINITION OF ICING CONDITIONS

Applicable to: ALL

- Icing conditions exist when the OAT (on ground or after takeoff) or the TAT (in flight) is at or below 10°C and visible moisture in any form is present (such as clouds, fog with visibility of 1sm (1600m) or less, rain, snow, sleet or ice crystals).
- Icing conditions also exist when the OAT on the ground and for takeoff is at or below 10°C and operating on ramps, taxiways or runways where surface snow, standing water or slush may be ingested by the engines, or freeze on engines, nacelles or engine sensor probes.

DEFINITION OF SEVERE ICE ACCRETION

Applicable to: ALL

Ice accretion is considered severe when the ice accumulation on the airframe reaches approximately 5mm (0.2in) thick or more.

DEFINITION OF THIN HOARFROST

Applicable to: ALL

Thin hoarfrost is typically a white crystalline deposit which usually develops uniformly on exposed surfaces on cold and cloudless nights.

It is so thin that surface features (lines or markings) can be distinguished beneath it.

RAIN REPELLENT

Applicable to: ALL

The flight crew should only use the rain repellent in the case of moderate to heavy rain.

LANDING GEAR

BRAKING SYSTEM

Applicable to: ALL

The braking system is not designed to hold the aircraft in a stationary position when a high thrust level is applied on at least one engine.

During ground procedures that require a thrust increase with braking, the flight crew must ensure that the aircraft remains stationary, and must be ready to immediately retard the thrust levers to IDLE.

BRAKE TEMPERATURE

Applicable to: ALL

Maximum brake temperature for takeoff (brake fans off) ..... 300 °C

TAXI WITH DEFLATED OR DAMAGED TYRES

Applicable to: ALL

To vacate the runway or taxi at low speed with tire(s) deflated (not damaged), all of the following limitations apply:

- If maximum one tire per gear is deflated (consider three gears)
  Maximum taxi speed during turn 7kt

- If two tires are deflated on the same main gear (maximum one main gear)
  Maximum taxi speed 3kt

- For the nosewheel steering (NWS) angle
  Maximum NWS angle ..... 30°

In addition, if tire damage is suspected, the flight crew must ask for an aircraft inspection prior to vacate the runway or taxi. If the ground crew suspects that a tire burst may damage the landing gear, maintenance action is due.

INERTIAL REFERENCE SYSTEM (IRS)

Applicable to: G-GATH – G-GATU, A320NEO, A321NEO

IR GROUND ALIGNMENT

Ground alignment of the IRS is possible in latitudes between 73° North and 73° South.

MAGNETIC (MAG) REFERENCE

- **If all ADIRUs have the same magnetic variation table:**
  In NAV mode, the IR will not provide valid magnetic heading and magnetic track angle:
  - North of 73° North, and
  - South of 60° South.

  Flying at latitudes beyond these limits is prohibited.

- **If one ADIRU has a different magnetic variation table:**
  In NAV mode, the IR will not provide valid magnetic heading and magnetic track angle:
  - North of 60° North, between 30° West and 160° West, and
  - North of 73° North, and
  - South of 55° South.

  Flying at latitudes beyond these limits is prohibited.

Applicable to: A318, A319, G-EUUA – G-EUUZ, G-EUYA – G-EUYY, G-MIDO – G-MIDY, G-MEDK, G-TTOB – G-TTOE, A321CEO

IR GROUND ALIGNMENT

Ground alignment of the IRS is possible in latitudes between 82° North and 82° South.

MAGNETIC (MAG) REFERENCE

- **If all ADIRUs have the same magnetic variation table:**
  In NAV mode, the IR will not provide valid magnetic heading and magnetic track angle:
  - North of 73° North, between 90° West and 120° West (magnetic polar region), and
  - North of 82° North
  - South of 60° South.

  Flying at latitudes beyond these limits is prohibited.

- **If one ADIRU has a different magnetic variation table:**
  In NAV mode, the IR will not provide valid magnetic heading and magnetic track angle:
  - North of 60° North, between 30° West and 160° West, and
  - North of 75° North, and
  - South of 55° South.

  Flying at latitudes beyond these limits is prohibited.

OXYGEN

MINIMUM FLIGHT CREW OXYGEN PRESSURE

Applicable to: A318, A319, A320CEO, A321 CEO

REF Temperature (1)		°C	-10	0	10	20	30	40	50
		°F	14	32	50	68	86	104	122
MIN Bottle Pressure (PSI)(2)	2 Crewmembers		468	486	504	522	540	558	576
	2 Crewmembers + 1 OBS		606	629	652	675	698	721	744
	2 Crewmembers + 2 OBS		759	788	817	846	875	904	933

(1) REF Temperature :

- *On ground : REF Temperature = (OAT + Cockpit TEMP) / 2*
- *In flight : REF Temperature = CAB TEMP (°C) - 10°C, or*
  REF Temperature = CAB TEMP (°F) - 18°F

(2) Minimum Bottle Pressure to Cover:

- *Preflight checks*
- *The use of oxygen, when only one flight crewmember is in the cockpit*
- *Unusable quantity (to ensure regulator operation with minimum pressure)*
- *Normal system leakage*
- *The most demanding case among the following:*
  - *Protection after loss of cabin pressure, with mask regulator on NORMAL (diluted oxygen):*
    - *During emergency descent for all flight crewmembers and observers for 13min*
    - *During cruise at FL100 for two flight crewmembers for 107min.*
  - *Protection against smoke with 100% oxygen for all flight crewmembers and observers during 15min at 8000ft cabin altitude.*

Note: The above times that are based on the use of a sealed mask may be shorter for bearded crew (in terms of performance, pressure, or duration).

Applicable to: A3320NEO and A321NEO

REF Temperature (1)		°C	-10	0	10	20	30	40	50
		°F	14	32	50	68	86	104	122
MIN CAPT Indication (PSI)(2)	CAPT		460	480	500	520	540	550	570
	CAPT + 3rd Occupant		650	680	700	730	750	780	800
MIN F/O Indication (PSI)(2)	F/O		460	480	500	520	540	550	570
	F/O + 4th Occupant		650	680	700	730	750	780	800

(1) REF Temperature :

- *On ground : REF Temperature = (OAT + Cockpit TEMP) / 2*
- *In flight : REF Temperature = CAB TEMP (°C) - 10°C, or*
  REF Temperature = CAB TEMP (°F) - 18°F

(2) Minimum Bottle Pressure to Cover:

- *Preflight checks*
- *The use of oxygen, when only one flight crewmember is in the cockpit*
- *Unusable quantity (to ensure regulator operation with minimum pressure)*
- *Normal system leakage*
- *The most demanding case among the following:*
  - *Protection after loss of cabin pressure, with mask regulator on NORMAL (diluted oxygen):*
    - *During emergency descent for all flight crewmembers and observers for 15min*
    - *During cruise at FL100 for two flight crewmembers for 105min.*
  - *Protection against smoke with 100% oxygen for all flight crewmembers and observers during 15min at 8000ft cabin altitude.*

Note: The above times that are based on the use of a sealed mask may be shorter for bearded crew (in terms of performance, pressure, or duration).

SURVEILLANCE

GPWS/PREDICTIVE GPWS

Applicable to: ALL

Aircraft navigation must not be based on the use of the terrain display .

The terrain display is intended to serve as a situation awareness tool only, and may not provide the accuracy on which to solely base terrain avoidance maneuvering.

The predictive GPWS functions should be inhibited (TERR pushbutton to OFF, on the GPWS panel) when the aircraft position is less than 15NM from the airfield:

- For operations from/to runways not incorporated in the predictive GPWS database.
- For specific approach or departure procedures, which have previously been identified as potentially causing expected or spurious terrain alerts.

Only aircraft with Man-made Obstacle Function can display obstacles on ND and trigger alerts, based on a dedicated database which includes artificial obstacles worldwide.

APPROACH USING LOC G/S GUIDANCE

LANDING PILOT	NON-LANDING PILOT
	INTERMEDIATE APPROACH APPR pb on FCU.....PRESS BOTH AP .....ENGAGE LOC .....CHECK ARMED G/S.....CHECK ARMED LOC CAPTURE ..... MONITOR G/S CAPTURE..... MONITOR
GO AROUND ALT ..... SET(1)	
FLT PARAMETERS..... MONITOR Announce any deviation in excess of: • LOC: ½ dot • GLIDE: ½ dot • ~~**At minimum +100ft:**~~ • **At minimum:** ~~LAND OR GO-AROUND.....ANNOUNCE~~ CONTINUE OR GO-AROUND.....ANNOUNCE	FINAL APPROACH • **At minimum +100ft:** ONE HUNDRED ABOVE.....MONITOR/ANNOUNCE MINIMUM.....MONITOR/ANNOUNCE

APPROACH USING FINAL APP GUIDANCE

LANDING PILOT	NON-LANDING PILOT
	DESCENT PREPARATION
WEATHER AND LANDING INFO ..... OBTAIN	
	F-PLN A Page ..... CHECK
	PROG Page ..... COMPLETE
	GO AROUND STRATEGY ..... REVIEW
	DESCENT
~~• At 10 000 ft:~~	• **At 10 000 ft:**
	NAV ACCURACY ..... CHECK
~~• For RNAV(GNSS)~~	• **For RNAV(GNSS)**
	~~GPS PRIMARY ..... CHECK~~
	~~BARO REF ..... SET~~
	GPS PRIMARY ..... CHECK
	BARO REF ..... SET
	INTERMEDIATE/FINAL APPROACH
	POSITION ..... MONITOR
	APPR pb on FCU ..... PRESS
	APP NAV ..... CHECK ARMED or ENGAGED
	FINAL ..... CHECK ARMED
~~• At Final Descent Point:~~	• **At Final Descent Point:**
	FINAL APP ..... CHECK ENGAGED
GO AROUND ALT ..... SET[1]	
FLT PARAMETERS ..... MONITOR	
Announce any deviation in excess of:	
• XTK > 0.1 nm	
• V/DEV > ½ dot	
~~• At minimum +100ft~~	• **At minimum +100ft**
	ONE HUNDRED ABOVE ..... MONITOR/ANNOUNCE
• **At minimum**	
~~LAND OR GO-AROUND ..... ANNOUNCE~~	MINIMUM ..... MONITOR/ANNOUNCE
~~CONTINUE OR GO-AROUND ..... ANNOUNCE~~	

APPROACH USING FPA GUIDANCE

LANDING PILOT	NON-LANDING PILOT
	DESCENT PREPARATION F-PLN A Page.....CHECK PROG Page..... COMPLETE GO AROUND STRATEGY .....REVIEW
	DESCENT
• ~~At 10 000 ft:~~	• **At 10 000 ft:**
	NAV ACCURACY .....CHECK
• ~~For RNAV(GNSS)~~	• **For RNAV(GNSS)**
	GPS PRIMARY.....CHECK
	INTERMEDIATE/FINAL APPROACH
	LATERAL GUIDANCE MODE ..SET FOR APPROACH
	• **For LOC ONLY and ILS G/S OUT**
	LOC pb-sw.....PRESS
	LOC .....CHECK ARMED
	• **For back course localizer approaches:**
	TRK FPA MODE..... USE FOR APPROACH
	LATERAL path.....INTERCEPT
	TRK FPA (Bird)..... SELECT
	FPA FOR FINAL APPROACH ..... SET
• ~~At 0.3 nm from the Final Descent Point:~~	• **At 0.3 nm from the Final Descent Point:**
	FPA pb..... PULL
	FPA.....CHECK ENGAGED
	POSITION/FLT PATH..... MONITOR / ADJUST
GO AROUND ALT ..... SET(1)	
FLT PARAMETERS..... MONITOR Announce any deviation in excess of: • Approach using NAV MODE : XTK > 0.1 nm • Approach using LOC MODE : LOC ½ dot • Approach using TRK MODE : ○ VOR: ½ dot or 2.5° ○ NDB: 5°	
	• **At minimum +100ft**
	ONE HUNDRED ABOVE.....MONITOR/ANNOUNCE
• **At minimum**	
~~LAND OR GO-AROUND.....ANNOUNCE~~ CONTINUE OR GO-AROUND.....ANNOUNCE	MINIMUM.....MONITOR/ANNOUNCE

LANDING

LANDING PILOT	NON-LANDING PILOT
• **In stabilized approach conditions, at approx. 30ft:**	
FLARE ..... PERFORM	ATTITUDE ..... MONITOR
THRUST LEVERS ..... IDLE	
• **At touchdown:**	
DEROTATION .....INITIATE	
BOTH THRUST LEVERS ..... REV MAX or REV IDLE	~~BOTH THRUST LEVERS .....REV MAX or REV IDLE~~
	GRND SPOILERS ..... CHECK/ANNOUNCE
	REVERSERS..... CHECK/ANNOUNCE
	DIRECTIONAL CONTROL ..... MONITOR
DIRECTIONAL CONTROL ..... ENSURE	
• **At 70 kt**	
REVERSE IDLE..... ORDER	70 kt.....ANNOUNCE
• **At taxi speed:**	~~BOTH THRUST LEVERS .....REV IDLE~~
REVERSERS.....STOW	~~REVERSERS..... STOW~~
• **Before 20 kt**	
AUTOBRK..... DISENGAGE	

Applicable to: A320NEO and A321NEO

- **On the DOOR SD PAGE:**

  * OXY.....CHECK PRESSURE

- **If the OXY pressure is half boxed in amber:**

  MIN FLT CREW OXY CHART.....CHECK PRESSURE
  Verify that the pressure is sufficient for the scheduled flight.

- **On the HYD SD PAGE:**

  * RESERVOIR FLUID LEVEL.....CHECK WITHIN NORMAL RANGE

  Note: The volume of the hydraulic fluid in the reservoirs may change with Outside Air Temperature. As a result, the reservoir fluid level that appears on the HYD SD page may be outside of the normal range with no HYD RSVR LO AIR PR or HYD RSVR LO LVL warning. If the fluid level is outside of the normal range, contact maintenance to determine if service is required.

- **On the ENG SD PAGE:**

  * ENG OIL QUANTITY.....CHECK NORMAL

  Check that the oil quantity is at or above 10.6 qt + estimated consumption (average estimated consumption ~ 0.45 qt/h).

  Note: If the engine oil quantity indication does not appear on the ENG SD page, set the ENG 1 and 2 FADEC GND PWR pb-sw on the overhead maintenance panel to ON. After the check of the engine oil quantity, set the ENG 1 and 2 FADEC GND PWR pb-sw to off.

OVERHEAD PANEL

[...]

ENG 1 – ENG 2 FIRE

ENG 1 FIRE pb-sw and ENG 2 FIRE pb-sw ..... CHECK IN and GUARDED
AGENT 1 light and AGENT 2 light .....CHECK OFF
ENG 1 TEST pb and ENG 2 TEST pb ..... PRESS AND MAINTAIN
The flight crew should maintain the TEST pb pressed during the time of the test.

TEST RESULT
Check that all ENG FIRE detection and extinguishing systems are operative:

- The continuous repetitive chime (CRC) sounds
- The MASTER WARN lights flash
- The ECAM displays the **ENG 1 FIRE**, **ENG 2 FIRE** alerts
- All ENG FIRE pb-sw come on red
- All **SQUIB** lights of the AGENT pb come on
- All **DISCH** lights of the AGENT pb come on
- All **FIRE** lights on the ENG MASTER panel come on.

PEDESTAL

Applicable to: ALL

ACP

INT knob .....PRESS OUT / VOLUME CHECK

For FSLabs, make sure that INT is selected on and volume is turned up to permit contact with the GSX ground crew.

FMGS CRITICAL DATA ENTRY

Applicable to: ALL

This procedure may be carried out at any time after fuel loading has been completed and the Loadsheet (provisional or final) is available.

Throughout the procedure the Loadsheet and CARD or manual performance data should be available to be viewed by both pilots and P1 should check transfer of data to his MCDU to ensure the correct figures are loaded.

* LOADSHEET.....CHECK

The Captain should thoroughly check the Load and Trim Sheet (LTS), particularly for gross errors. Make sure that the loadsheet data is correct: correct flight, correct aircraft, configuration, Fuel On Board etc. Check that the takeoff CG is within the LTS operational limits.

* TAKEOFF DATA.....PREPARE AND CHECK

~~*Use an approved takeoff performance calculator such as TOPCAT or TPC to calculate the takeoff performance.*~~

Use an approved takeoff performance calculator to calculate the takeoff performance. The PERF REQ function within the FSLabs ATSU is recommended as this is a very close simulation of the actual BA CARD system in both appearance and function.

For other models not incorporating performance tools, Wabpro is recommended.

If Late Closeout Procedures are in use, extract the takeoff performance for the provisional TOW +1 000 kg, or the RTOW for the runway in use if limiting. This will ensure that, should the TOW increase by up to 1 000 kg in the final loadsheet, the take off speeds, flap config and Flex Temperature need not be adjusted.

Both pilots must independently check the performance data for the correct information prior to entering the data in the MCDU PERF TAKE-OFF page.

BEFORE START CLEARANCE

[...]

Applicable to: AEROSOFT, TOLISS

ATC.....XPDR

Applicable to: FEELTHERE/WILCO, FSLABS, FLIGHTFACTOR

ATC.....AUTO

TCAS remains in STBY. ALT RPTG should remain ON at all times.

AUTOMATIC ENGINE START

Applicable to: A320NEO and A321NEO

Use the automatic engine start procedure in most circumstances. However, if the start aborts due to insufficient starter inlet air pressure (e.g. on high airfields, or in case of low pressure from an external pneumatic power group), it is recommended to use the manual start procedure, instead the automatic procedure.

If, during the engine start, the ground crew reports a fuel leak from the engine drain mast, run the engine at idle for 5 min. If the leak disappears during these 5 min, the aircraft can be dispatched without maintenance action. If the leak is still present after 5 min, maintenance action may be required before the flight.

ENG MODE selector ..... IGN/START

The lower ECAM displays the ENG SD PAGE.

ENGINE 2 START ..... ANNOUNCE

Engine 2 is usually started first. It powers the yellow hydraulic system, that pressurizes the parking brake.

ENG 2 MASTER sw ..... ON

- *Do not turn the ENG 2 MASTER sw ON before all amber crosses, except on N1 and N2, and messages, have disappeared on the engine parameters (upper ECAM display).*
- *Parameter callouts are not mandatory.*
- *In case the electrical power supply is interrupted during the start sequence (indicated by the loss of ECAM DUs), abort the start by switching OFF the ENG 2 MASTER sw. Then, perform a 30 s dry crank*
- *Depending on the engine thermal state, the FADEC can command an automatic dry cranking before the start of the engine. The dry cranking may last up to approximately one minute. During the dry cranking, the FADEC logic limits the maximum N2 to 30%. During the dry cranking, the vibration level increases but remains below the amber display limit in normal operating conditions.*

ON ECAM UPPER DISPLAY	***ON ECAM LOWER DISPLAY***
N2 increases	*Corresponding start valve in line.* *Bleed pressure indication green.* *Oil pressure increases.*
Above 20% N2 when the automatic dry cranking is completed: - *FF increases* *15 s (maximum) after fuel is on:* - *EGT increases* - *N2 increases*	*Indication of the active igniter (A or B).*
At 55% N2 *At 63% N2*	*Igniter indication off.* *Start valve starts closing*

- **When idle is reached (AVAIL indication is displayed):**

  ENG IDLE PARAMETERS ..... CHECK

  At ISA sea level: N1 about 19%
  N2 about 68%
  EGT about 520 °C
  FF about 290 kg/h (650 lb/h)

  Grey background on N2 indication disappears.

  ENGINE 1 START ..... ANNOUNCE
  ENG 1 MASTER sw ..... ON

  Same procedure as for engine 2.

Both pack valves reopen with 60 s delay after the second engine thrust is at or above idle.

Note: A PTU FAULT is triggered if the second engine is started within 40 s following the end of the cargo doors operation.

AFTER START

Applicable to: A318

ANTI-ICE

CAUTION	In icing conditions the flight crew must turn on the engine anti-ice and should not wait until seeing ice building up.

ENG 1 ANTI ICE pb-sw and ENG 2 ANTI ICE pb-sw .....AS RQRD

Note: Icing conditions may be expected when the OAT (on ground and for takeoff), or the TAT (in flight), is 10 °C or below, and there is visible moisture in the air (such as clouds, fog with low visibility, rain, snow, sleet, ice crystals), or when standing water, slush, ice or snow is present on the taxiways or runway.

~~*During ground operation, when in icing conditions for more than 30 min, the following procedure should be applied for ice shedding:*~~

During ground operation, when in icing conditions and the OAT is +3 °C or less, or if significant engine vibration occurs, the following procedure should be applied for ice shedding:

Note: 1. The flight crew must consider the taxi-in time from the previous flight and the taxi-out time of the current flight to determine the total taxi time

2. If a maintenance task to de-ice the conditions was performed before engine start, the taxi-in time of the previous flight must be disregarded.

3. For taxi-in time, refer to Parking – Icing Conditions.

CAUTION	*If, during thrust increase, the aircraft starts to move, immediately retard the thrust levers to IDLE.*

If ground surface conditions and the environment permit, the flight crew should accelerate the engines to approximately 70% N1 for 30 s at intervals not greater than 30 min.

In addition, this engine acceleration should also be performed just before take-off, with particular attention to engine parameters to ensure normal engine operation. If ground surface or environment do not permit to accelerate the engine to 70% N1, then power setting and dwell time should be as high as practical.

When operating in conditions of freezing rain, freezing drizzle, freezing fog or heavy snow, ice shedding may be enhanced, by additional run ups at intervals, to not exceed 10 min, advancing throttles to 70% N1 momentarily (no hold time).

Applicable to: A320NEO and A321NEO

ANTI-ICE

CAUTION	In icing conditions the flight crew must turn on the engine anti-ice and should not wait until seeing ice building up.

ENG 1 ANTI ICE pb-sw and ENG 2 ANTI ICE pb-sw .....AS RQRD

Note: Icing conditions may be expected when the OAT (on ground and for takeoff), or the TAT (in flight), is 10 °C or below, and there is visible moisture in the air (such as clouds, fog with low visibility, rain, snow, sleet, ice crystals), or when standing water, slush, ice or snow is present on the taxiways or runway.

During ground operation, when in icing conditions and the OAT is +3 °C or less, or if significant engine vibration occurs, the following procedure should be applied for ice shedding:

Note: 1. The flight crew must consider the taxi-in time from the previous flight and the taxi-out time of the current flight to determine the total taxi time

2. If a maintenance task to de-ice the conditions was performed before engine start, the taxi-in time of the previous flight must be disregarded.

3. For taxi-in time, refer to Parking – Icing Conditions.

CAUTION	*If, during thrust increase, the aircraft starts to move, immediately retard the thrust levers to IDLE.*

If ground surface conditions and the environment permit, the flight crew should accelerate the engines to approximately 50% N1 for 5 s at intervals not greater than 60 min.

In addition, this engine acceleration should also be performed just before take-off, with particular attention to engine parameters to ensure normal engine operation. If ground surface or environment do not permit to accelerate the engine to 50% N1, then power setting and dwell time should be as high as practical.

If takeoff is not initiated within 120 min in ground icing conditions, the flight crew must request the maintenance personnel to perform an engine inspection in accordance with the applicable maintenance procedure.

Applicable to: A320NEO and A321NEO

THRUST SETTING

The bellow procedure is the standard takeoff procedure. However, rolling takeoff is permitted.

THRUST LEVERS 50% N1

- **If the crosswind is at or below 20 kt and there is no tailwind:**
  To counter the nose-up effect of setting engine takeoff thrust, apply half forward sidestick until the airspeed reaches 80 kt. Release the sidestick gradually to reach neutral at 100 kt.

  BRAKES .....RELEASE
  THRUST LEVERS ..... FLX or TOGA

  Once the thrust levers are set to FLX or TOGA detent, the PF keeps his hand on the thrust levers until the aircraft reaches V1.

- **In case of tailwind, or if crosswind is greater than 20 kt:**
  The PF applies full forward sidestick.

  BRAKES .....RELEASE
  THRUST LEVERS ..... FLX or TOGA

- *The PF rapidly increases thrust to about 70% N1, then above 15 kt ground speed, progressively increases thrust to reach takeoff thrust by 40 kt ground speed, while maintaining sidestick full forward up to 80 kt. Release the sidestick gradually to reach neutral at 100 kt.*
- *Once the thrust levers are set to FLX or TOGA detent, the PF keeps his hand on the thrust levers until the aircraft reaches V1.*

Note: ENG SD PAGE replaces WHEEL SD PAGE on the ECAM lower display

DIRECTIONAL CONTROL .....USE RUDDER

At 130 kt (wheel speed), the connection between nosewheel steering and the rudder pedals is removed. Therefore, in strong crosswinds, more rudder input will be required at this point to prevent the aircraft from turning into the wind.

CHRONO ..... START
PFD/ND..... MONITOR

1. Check the FMA on the PFD. The following modes are displayed: MAN TOGA (or MAN FLX xx) / SRS/RWY (or blank) / A/THR (in blue).

Note: If an ILS that corresponds to the departure runway is tuned, RWY mode appears. If not, no lateral mode appears until the aircraft lifts off.

2. Check the FMS position on the ND (aircraft on runway centerline).

Note: If GPS PRIMARY is not available, check the FMS position update.

FMA .....ANNOUNCE

Applicable to: A318, A319, A320CEO and A320NEO

WHEN LANDING GEAR IS DOWN

FLAPS 3 ..... ORDER
FLAPS 3 ..... SELECT

- *Retract the speed brakes before selecting FLAPS 3 to prevent a pitch down when the speed brakes automatically retract.*

ECAM WHEEL SD PAGE ..... CHECK

- *WHEEL SD PAGE appears below 15 500 ft when landing gear is extended.*
- *Check for three green indications on the landing gear indicator panel. At least one green triangle on each landing gear strut on the WHEEL SD PAGE is sufficient to indicate that the landing gear is downlocked. Rely also on the "LDG GEAR DN" green LDG MEMO message to confirm that the landing gear is downlocked.*

- **If residual pressure is indicated on the triple indicator:**
  RESIDUAL BRAKING PROC ..... APPLY

- *Due to the accomplishment of the alternate braking functional test after the landing gear is downlocked, brief brake pressure indications may be observed on BRAKES PRESS.*

FLAPS FULL ..... ORDER
FLAPS FULL ..... SELECT

- *Check deceleration towards VAPP.*
- *Check correct TO waypoint on the ND.*

A/THR ..... CHECK IN SPEED MODE
WING ANTI-ICE pb-sw ..... OFF

- *Switch the WING ANTI ICE pb-sw to ON, only in severe icing conditions.*

SLIDING TABLE ..... STOW
LDG MEMO ..... CHECK NO BLUE
CABIN REPORT ..... MONITOR
LANDING CHECKLIST ..... COMPLETE
FLIGHT PARAMETERS ..... MONITOR

- *The PF announces any FMA modification.*
- *The PM calls out, if:*
  - *The speed goes lower than the speed target -5 kt , or greater than the speed target +10 kt*
  - *The pitch attitude goes lower than -2.5 °, or greater than +10° nose up*
  - *The bank angle becomes greater than 7 °*
  - *The descent rate becomes greater than 1 000 ft/min*
- *Following PM flight parameter exceedance callout, the suitable PF response will be:*
  - *Acknowledge the PM callout, for proper crew coordination purposes*
  - *Take immediate corrective action to control the exceeded parameter back into the defined stabilized conditions*
  - *Assess whether stabilized conditions will be recovered early enough prior to landing, otherwise initiate a go-around.*
  -

~~Applicable to: A318~~

Applicable to: A321

WHEN LANDING GEAR IS DOWN

FLAPS 3 ..... ORDER
FLAPS 3 ..... SELECT
ECAM WHEEL SD PAGE ..... CHECK

- *WHEEL SD PAGE appears below 15 500 ft when landing gear is extended.*
- *Check for three green indications on the landing gear indicator panel. At least one green triangle on each landing gear strut on the WHEEL SD PAGE is sufficient to indicate that the landing gear is downlocked. Rely also on the "LDG GEAR DN" green LDG MEMO message to confirm that the landing gear is downlocked.*

- **If residual pressure is indicated on the triple indicator:**
  RESIDUAL BRAKING PROC ..... APPLY

  Due to the accomplishment of the alternate braking functional test after the landing gear is downlocked, brief brake pressure indications may be observed on BRAKES PRESS.

FLAPS FULL ..... ORDER
FLAPS FULL ..... SELECT

- *Check deceleration towards VAPP.*
- *Check correct TO waypoint on the ND.*

A/THR ..... CHECK IN SPEED MODE
WING ANTI-ICE pb-sw ..... OFF

Switch the WING ANTI ICE pb-sw to ON, only in severe icing conditions.

SLIDING TABLE ..... STOW
LDG MEMO ..... CHECK NO BLUE
CABIN REPORT ..... MONITOR
LANDING CHECKLIST ..... COMPLETE
FLIGHT PARAMETERS ..... MONITOR

- *The PF announces any FMA modification.*
- *The PM calls out, if:*
  - *The speed goes lower than the speed target -5 kt , or greater than the speed target +10 kt*
  - *The pitch attitude goes lower than -2.5°, or greater than +7.5° nose up*
  - *The bank angle becomes greater than 7 °*
  - *The descent rate becomes greater than 1 000 ft/min*
- *Following PM flight parameter exceedance callout, the suitable PF response will be:*
  - *Acknowledge the PM callout, for proper crew coordination purposes*
  - *Take immediate corrective action to control the exceeded parameter back into the defined stabilized conditions*

- *Assess whether stabilized conditions will be recovered early enough prior to landing, otherwise initiate a go-around.*

APPROACH USING FINAL APP GUIDANCE

[...]

AT ENTERED MINIMUM

MINIMUM..... MONITOR OR ANNOUNCE

Below minimum, the visual references must be the primary reference until landing.

- **If visual references are sufficient:**
  LAND .....ANNOUNCE
  AP .....OFF

  - *The AP will automatically disengage at the MAP.*

  FD .....OFF

  ~~- *The PF orders the PM to set FDs OFF.*~~
  - *The PF orders the PM to set both FDs OFF.*

  TRK FPA..... SELECT
  RUNWAY TRACK .....CHECK/SET

  - *If needed, the PF orders the PM to set the runway track.*

- **If visual references are not sufficient:**
  GO AROUND.....ANNOUNCE

  - *Initiate a go around.*

AUTOLAND

Applicable to: ALL

For an autoland, the following items must be performed in addition to previous.

AT 350 FT RA

PFD.....CHECK

If the ILS/GLS➔ /MLS➔ course pointer and the runway track differ by more than 5°, autoland is not authorized.

AT 40FT RA

FLARE mode .....CHECK ENGAGED

Monitor flare by flight instrument.

If NO FLARE mode at 30ft, discontinue the approach or perform a manual landing if visual references are acquired.

AT 30FT RA

THRUST IDLE .....CHECK

Monitor thrust reduction.

AT 10FT RA

BOTH THRUST LEVERS ..... IDLE

Retard thrust levers at the "RETARD" autocallout.

LATERAL GUIDANCE ..... MONITOR

Monitor the lateral guidance by using external references.

AT TOUCHDOWN

Note: In the case of NWS or Anti-Skid failure, set the AP OFF at touchdown.

ROLL OUT mode .....CHECK ENGAGED
BOTH THRUST LEVERS .....REV MAX or REV IDLE

The flight crew must select reverse thrust immediately after main landing gear touchdown.

The flight crew must immediately select REV MAX, if any of the following occurs at any time during the landing:

- *An emergency*
- *The deceleration is not as expected*
- *A failure affects the landing performance*
- *A long flare or a long touchdown*
- *An unexpected tailwind.*

A small pitch up may occur during thrust reversers deployment before nose landing gear touchdown. However, the auto-flight system will control this pitch up.

As soon as the flight crew selects reverse thrust, they must perform a full-stop landing.

GROUND SPOILERS ..... CHECK/ANNOUNCE

Check that the WHEEL SD PAGE displays the ground spoilers extended after touchdown.

If no ground spoilers are extended:

- *Verify and confirm that both thrust levers are set to IDLE or REV detent.*
- *Set both thrust reverser levers to REV MAX, and fully press the brake pedals.*

Note: If ground spoilers are not armed, ground spoilers extend at reverser thrust selection.

REVERSERS ..... CHECK/ANNOUNCE

Check that the ECAM E/WD displays that the reverse deployment is as expected (REV green).

DIRECTIONAL CONTROL ..... MONITOR/ENSURE

- *Monitor directional control, if the rollout is automatic.*
- *Ensure directional control, if rollout is manual. Use rudder pedals for directional control.*
- *Do not use the nosewheel steering control handle before reaching taxi speed.*
- *During rollout, the flight crew should avoid sidestick inputs (either lateral or longitudinal).*
- *If directional control problems are encountered, the flight crew should reduce thrust to reverse idle until directional control is satisfactory.*

BRAKES ..... AS RQRD

- *Monitor the autobrake, if it is ON. When required, brake with the pedals*
- *Although the green hydraulic system supplies the braking system, if pedals are pressed rapidly, a brake pressure indication appears briefly on the BRAKE PRESS indicator.*
- *Braking may begin before the nosewheel has touched down, if required for performance reasons. However, when comfort is the priority, the flight crew should delay braking until the nosewheel has touched down.*

Note: If no ground spoilers are extended, the autobrake is not activated.

DECELERATION ..... CHECK/ANNOUNCE

The deceleration is felt by the flight crew, and confirmed by the speed trend on the PFD.

AT 70 KT

SEVENTY KNOTS ..... ANNOUNCE
BOTH THRUST LEVERS ..... REV IDLE

It is better to reduce thrust when passing 70 kt. However, high levels of reverse thrust may be used in order to control aircraft speed in the case of an emergency.

CAUTION	*Avoid the use of high levels of reverse thrust at low airspeed, unless required due to an emergency. The distortion of the airflow, caused by gases reentering the compressor, can cause engine stalls that may result in excessive EGT.*

BEFORE 20 KT

AUTO BRK ..... DISENGAGE

Disengage the autobrake to avoid some brake jerks at low speed.

The flight crew should use brake pedals to disengage the autobrake.

END OF ROLL OUT

BOTH THRUST LEVERS ..... FWD IDLE

- *When reaching taxi speed, and before leaving the runway, deselect the reversers.*
- *On snow-covered grounds, the reversers should be stowed when the aircraft speed reaches 25 kt.*
- *When deselecting the reversers, be careful not to apply forward thrust by moving the thrust levers beyond the FWD IDLE position.*

CAUTION	*Except in an emergency, do not use the reverse thrust to control the aircraft speed while on taxiways.*

On taxiways, the use of reversers, even when restricted to idle thrust, would have the following effects:

- *The engines may ingest fine sand and debris that may be detrimental to the engines and airframe systems.*

- *On snow–covered areas, snow will recirculate into the air inlet, and may cause an engine flameout or rollback.*

APs ..... OFF

Disengage the APs at the end of the roll out (when leaving the runway at the latest)

GO AROUND WITH FD

Applicable to: A318, A319, A320CEO and A321CEO

Apply the following three actions simultaneously:

THRUST LEVERS ..... TOGA

If TOGA thrust is not required, set the thrust levers to TOGA detent then retard the thrust levers as required. This enables to engage the GO-AROUND phase, with associated AP/FD modes.

Note: If the thrust levers are not set briefly to TOGA detent, the FMS does not engage the GO-AROUND phase, and flying over, or close to the airport will sequence the Destination waypoint in the F-PLN.

ROTATION ..... PERFORM

Initiate rotation towards 15 ° of pitch with all engines operative (approximately 12.5 ° if one engine is out) to get a positive rate of climb, then follow the SRS Flight Director pitch bars orders.

When near the ground, avoid excessive rotation rate in order to prevent a tail strike.

GO AROUND ..... ANNOUNCE
FLAPS lever ..... SELECT AS RQRD

Retract one step of flaps.

FMA ..... ANNOUNCE

The following modes are displayed: MAN TOGA / SRS / GA TRK or NAV / A/THR (in blue).

Depending on the guidance modes during approach, NAV mode is either automatically armed or automatically engaged.

POSITIVE CLIMB ..... ANNOUNCE
L/G UP ..... ORDER
L/G ..... SELECT UP
NAV or HDG mode ..... AS RQRD

Reselect NAV or HDG, as required (minimum height 100 ft).

AP ..... AS RQRD

Note: Go-around may be flown with both autopilots engaged. Whenever any other mode engages, AP 2 disengages.

Applicable to: A320NEO and A321NEO

Simultaneously apply the following three actions:

THRUST LEVERS.....TOGA THEN FLX/MCT

Set the thrust levers to the TOGA detent to ensure engagement of SRS GA mode. Then, set the thrust levers to FLX/MCT to engage the GA SOFT mode.

At any time, if TOGA thrust is desired, set the thrust levers to TOGA detent.

Note: If the thrust levers are not set briefly to TOGA detent, the FMS does not engage the GO-AROUND phase, and flying over, or close to the airport will sequence the Destination waypoint in the F-PLN.

ROTATION ..... PERFORM

Initiate rotation towards 15° of pitch with all engines operative (approximately 12.5° if one engine is out) to get a positive rate of climb, then follow the SRS Flight Director pitch bars orders. When near the ground, avoid excessive rotation rate in order to prevent a tail strike.

GO AROUND.....ANNOUNCE

FLAPS lever.....SELECT AS RQRD

Retract one step of flaps.

FMA ..... CHECK/ANNOUNCE

The following modes are displayed: MAN GA SOFT / SRS / GA TRK or NAV / A/THR (in blue).

If the FMA does not display MAN GA SOFT or MAN TOGA, immediately set the thrust levers to the TOGA detent.

Depending on the guidance modes during approach, NAV mode is either automatically armed or automatically engaged.

POSITIVE CLIMB.....ANNOUNCE

L/G UP ..... ORDER

L/G ..... SELECT UP

NAV or HDG mode.....AS RQRD

Reselect NAV or HDG, as required (minimum height 100ft).

AP .....AS RQRD

Note: Go-around may be flown with both autopilots engaged. Whenever any other mode engages, AP 2 disengages.

GENERAL

Applicable to: ALL

~~It is recommended to apply the One Engine Taxi Out procedure except in some circumstances as listed below. Benefits of One Engine taxi include greater situational awareness during taxi, reduced fuel consumption, emissions and engine wear, as well as reduced brake wear and heating, and a quicker stand departure. For extremely extended One Engine Taxi time consider the use of the fuel imbalance procedure.~~

~~Two Engine taxi is required in the following circumstances:~~

It is recommended to apply the One Engine Taxi Out procedure except in some circumstances as listed below. Benefits of One Engine taxi include greater situational awareness during taxi, reduced fuel consumption, emissions and engine wear, as well as reduced brake wear and heating, and a quicker stand departure.

Before applying this procedure, the flight crew should be aware of the following:

- Taxi with one engine shut down may require higher thrust than usual. Caution must therefore be exercised to avoid excessive jet-blast and the risk of Foreign Object Damage (FOD)
- Slow or tight turns in the direction of the operating engine may not be possible at high gross weights
- When one engine taxi is planned, pay particular attention to the fuel imbalance limitation for take-off.

One Engine Taxi is prohibited in the following circumstances:

- LVOs in force.
- There are steep uphill slopes.
- Freezing precipitation.
- The taxiway is slippery or contaminated (i.e. braking action less than GOOD) or covered with sand/dust.
- ENG 2 is inadvertently started instead of ENG 1.
- GEN 1 or IDG1 or APU or APU BLEED or APU GEN inoperative.
- Y ELEC Pump inoperative.
- Any problem requiring a manual or X BLEED Engine start.

DEPARTURE

Applicable to: A320NEO and A321NEO

BRAKE ACCU PRESS.....CHECK

If necessary, use the Y ELEC PUMP to pressurize the brake accumulator.

ENGINE 1 ..... START

Use Engine 1 for taxiing because it pressurizes the green hydraulic system, providing normal braking.

APPLY THE "AFTER START" NORMAL PROCEDURE, BUT:

- On neo aircraft it is not recommended to open the X-BLEED to suppy both packs due to a large increase in idle thrust.
- The APU can be kept running. In that case, switch the APU BLEED to OFF.
  The APU generator provides power to prevent electrical transients and enable galley and IFE operation.
  Closing the APU BLEED prevents engine exhaust gases ingestion in the air conditioning system.
- Delay the wing anti-ice setting until all engines are started.

Note: CAT3 DUAL INOP will be displayed on the STS page with only ENG 1 running.

Applicable to: A318, A319, A320, A321

~~**BEFORE PUSHBACK OR START**~~

BRAKE ACCU PRESS.....CHECK

If necessary, use the Y ELEC PUMP to pressurize the brake accumulator.

ENGINE 1 ..... START

~~After a shutdown period of more than two hours, to avoid thermal shock, the flight crew should operate the engine at or near idle for at least five minutes before advancing the thrust lever to high power. Taxi time may be included in the warm-up period.~~

~~Use Engine 1 for taxiing because it pressurizes the green hydraulic system (nosewheel steering + normal braking), without using the PTU~~

Use Engine 1 for taxiing because it pressurizes the green hydraulic system, providing normal braking.

AFTER START

X BLEED ..... AS REQD

If environmental conditions require, the X BLEED may be opened to supply both packs from Engine 1.

Apply the normal "AFTER START" procedures, but:

- Keep the APU running and switch the APU BLEED to OFF.
  The APU generator provides power to the engine fire extinguisher, prevents electrical transients and enables gally operation. Closing the APU BLEED prevents engine exhaust gases ingestion in the air conditioning system.
- Delay the wing anti-ice setting until all engines are started.

Note: *CAT 3 DUAL INOP will be displayed on the STS PAGE with only ENG 1 running.*

Applicable to: ALL

BEFORE RELEASING THE PARKING BRAKE

Y ELEC PUMP ..... ON

This pressurizes the yellow hydraulic system.

Apply the normal "TAXI" procedures, but:

- Perform the Flight Controls checks after both engines have been started.
- Do not arm the Auto Brake system before the Flight Controls checks have been completed.

Applicable to: ALL

~~ENGINE 2 START~~
BEFORE TAKEOFF

Do not start ENG 2 crossing or back tracking an active RWY.

In the event of an abnormal start or other technical malfunction it is recommended to stop the aircraft (if moving and circumstances permit), set the park brake and action ECAM.

ENGINE WARM-UP TIME BEFORE TAKEOFF (remaining engine) ..... CONSIDER

The second engine must be started soon enough before takeoff, in order to take in to account the engine start time and ensure the applicable engine warm-up time.

~~Y ELEC PUMP ..... OFF~~
~~Correct operation of the PTU will be checked during Engine 2 start.~~

- **For ENG 2 start and when taxiing in a straight line:**
  Note: *During the engine start, a slight jerk forward may occur if the brakes are applied while the aircraft is moving.*

Note: Maintain taxi in a straight line from after the selection of the Y ELEC pump to OFF until 5 s after ENG 2 master lever to ON

Note: In the event of a PTU fault N/W STRG is lost. Use differential braking to turn and stop.

Y ELEC PUMP.....OFF

The yellow electric pump must be set to OFF to enable PTU automatic test during engine 2 start.

APU BLEED.....ON
ENG 2.....START

AFTER ENG 2 START

ENG MODE SEL.....NORM
APU BLEED.....AS RQRD
X BLEED.....AUTO
ENG ANTI ICE.....AS RQRD
APU MASTER Switch.....AS RQRD
ECAM STATUS.....CHECK and ANNOUNCE

TAXI

FLIGHT CONTROL.....CHECK
AUTO BRK.....MAX

ARRIVAL

Applicable to: A320NEO and A321NEO and G-DBCA

APU.....AS RQRD

If necessary, the APU can be started while taxiing and before shutting down one engine, in order to avoid additional electrical transients and enable galley and IFE operation.

Applicable to: A318, A319, A320CEO and A321CEO except G-DBCA

APU.....START

Start the APU before shutting down the engine, in order to supply the engine fire extinguishing and avoid additional electrical transients.

Applicable to: ALL

- **After high-thrust operations:**
  ENGINE MINIMUM COOLING TIME.....CONSIDER
- **When taxiing in a straight line:**

  ENG 2.....SHUT DOWN
  Y ELEC PUMP.....ON
  This avoids running the PTU.

  Note: A slight jerk forward of the aircraft may occur, if the flight crew applies brakes during engine shutdown.
- **At parking:**
  Y ELEC PUMP.....OFF
  ENG 1.....SHUT DOWN

Applicable to: A318 and A319

TAXI-IN WITH ENGINE 1 SHUTDOWN

In exceptional cases only (e.g. if required by local authorities) it is acceptable to taxi in with engine 1 shutdown for short duration, provided the nosewheel steering remains available. This requires the green hydraulic system to be pressurised, which in turn requires the PTU to be available. It is recommended that this procedure is left as late as possible during the taxi in, whilst avoiding distraction close to the parking position.

APU..... START

Start the APU before shutting down the engine, in order to avoid additional electrical transient. Not less than 3 minutes after high thrust operations, and when taxiing in a straight line:

ENG 1 master switch ..... OFF

On command of the PF the PM will select engine 1 master switch to OFF.

PTU..... CHECK

Check on the HYD system page that the PTU pressurises the green hydraulic system. This ensures that nose wheel steering and normal braking remain available.

PF/PM DUTIES TRANSFER

Applicable to: ALL

To transfer control, flight crewmembers must use the following callouts:

- To give control: The pilot calls out "YOU HAVE CONTROL". The other pilot accepts this transfer by calling out "I HAVE CONTROL", before assuming PF duties.
- To take control: The pilot calls out "I HAVE CONTROL". The other pilot accepts this transfer by calling out "YOU HAVE CONTROL", before assuming PM duties.
-

~~The handover of control is implicit in the "LAND" call and is omitted for brevity at this critical phase of flight.~~

SUMMARY FOR EACH PHASE

TAXI		
EVENT	**PF**	**PM**
When taxi clearance obtained	CLEAR LEFT (RIGHT) SIDE	CLEAR RIGHT (LEFT) SIDE
Brake check	BRAKE CHECK	PRESSURE ZERO
Flight control check in the following sequence (the check is possible before the start of taxi)	FLIGHT CONTROL CHECK	
1. Elevators		FULL UP, FULL DOWN, NEUTRAL
2. Ailerons/Spoilers		FULL LEFT, FULL RIGHT, NEUTRAL
3. Rudder	RUDDER	FULL LEFT, FULL RIGHT, NEUTRAL
During taxi	BEFORE TAKEOFF CHECKLIST	DOWN TO THE LINE
Line up on the runway	BELOW THE LINE	BEFORE TAKEOFF CHECKLIST COMPLETE

MALFUNCTION BEFORE V1 AT TAKEOFF

EVENT	**CAPT**	**F/O**
If CONTINUE decision	CONTINUE	
If STOP decision	STOP	
	PF	**PM**
REV green on EWD		REVERSE GREEN(1)
Deceleration		DECEL(2)
~~At 70 kts~~		~~SEVENTY KNOTS~~
~~When REV MAX no longer required~~	~~REVERSE IDLE~~	

.APPROACH

EVENT	PF	PM
Activation of Approach Phase	ACTIVATE APPROACH PHASE	APPROACH PHASE ACTIVATED
Approach checklist	APPROACH CHECKLIST	DOWN TO THE LINE
When cleared to an altitude	BELOW THE LINE	APPROACH CHECKLIST COMPLETE
RA alive	~~BARO CHECK~~[1][2] POSITION CHECK	~~QNH ____ SET AND CROSSCHECKED~~[3] [Cognitively assess aircraft position and justify continued approach if appropriate][3]
At GS* or below GA altitude for NPA	SET/CHECK GA ALTITUDE	
FAF	FINAL APPROACH FIX, ALTITUDE CHECKED	FINAL APPROACH FIX, ALTITUDE CHECKED
Having performed glideslope check	GLIDESLOPE CHECKED	GLIDESLOPE CHECKED
Landing checklist	LANDING CHECKLIST	LANDING CHECKLIST COMPLETE

MANUAL LANDING

EVENT	PF	PM
Visual reference achieved		VISUAL[6]
1 000 ft RA		ONE THOUSAND[1] STABLE , or SPEED, or UNSTABLE, GO AROUND
Before 500 ft RA if stable		STABLE, MANLAND __ BARO [6]
500 ft RA not stable		FIVE HUNDRED UNSTABLE, GO AROUND
100 ft above MDA/DH	ONE HUNDRED ABOVE[2]	
MDA no visual reference	MINIMUMS[2]	GO AROUND
MDA visual reference	MINIMUMS[2]	~~LAND~~[5][7] CONTINUE, I HAVE CONTROL[5][7]
HANDOVER OF CONTROL[5]		
After touchdown Ground spoilers extended		SPOILERS[3]
REV green on EWD		REVERSE GREEN[4]
Deceleration		DECEL[8]
At 70 kts		SEVENTY KNOTS

AUTOMATIC LANDING

EVENT	PF	PM
1000 feet RA		ONE THOUSAND(1) STABLE, or SPEED, or UNSTABLE, GO AROUND
Before 500 ft RA if stable		STABLE, AUTOLAND ___ RADIO or AUTOLAND (CAT 3B no DH) I HAVE CONTROL(5)
500 ft RA not stable		FIVE HUNDRED(1) UNSTABLE, GO AROUND
100 ft above DH		ONE HUNDRED ABOVE(1)
DH visual reference	~~LAND~~ CONTINUE	MINIMUMS(1)
DH no visual reference	 GO AROUND FLAPS	MINIMUMS(1)
After touchdown Ground spoilers extended REV green on EWD		 SPOILERS(3) REVERSE GREEN(4)
Deceleration		DECEL(6)
At 70 kt		SEVENTY KNOTS