iniBuilds

A310-300 MANUAL

Microsoft Flight Simulator

Support

How we can support you

We provide two forms of support for the iniBuilds A310-300.

1. Ticket System/Email: Visit inibuilds.com/contact for information on how to contact us through email and submit a support ticket. Our team aims to respond as soon as possible, however please allow up to 48 hours for your ticket to be answered.

2. The iniBuilds Forum: Visit forum.inibuilds.com to gain access our community forum. Here you can interact with both iniBuilds' team members, along with other users of the product to obtain support. Utilizing the iniBuilds Forum may allow for a quicker form of support compared to opening a support ticket.

Important Notes

- When first loading the A310-300 aircraft into the simulator you will experience a delay whilst the files build. This is perfectly normal and only occurs on the first loading, please be patient. Subsequent loading is faster.
- In the MSFS Graphics Settings menu, please ensure Shadows Maps are set to 2048 to avoid flickering shadows.
- It is recommended that you set the Reverse Thrust setting in MSFS to Axis. Please note that when you make a change to this setting in the EFB menu, you will need to reload for the setting to take effect.
- Our version of the A310 sadly has a few limited GPWS callouts, including "too low flaps" and "too low terrain". This is due to the A310 having to use the in-sim terrain data. This data is limited in accessibility and therefore prevents us from adding these callouts.
- For the most accurate performance calculations, you should complete your calculation whilst parked at your departure airfield.

Standard Operating Procedures

Preface

FOR SIMULATION USE ONLY - DESIGNED FOR SINGLE-PILOT OPERATIONS

This guide is designed to help provide a straightforward set of instructions to aid in operating the iniBuilds A310-300. It has been produced using multiple real-world A300 and A310 Operator manuals from various dates and airlines, with modifications to various procedures to make them more manageable under single-pilot operations as well as in multi-crew scenarios.

PHOTOSENTIVE SEIZURE WARNING

A very small percentage of people may experience a seizure when exposed to certain visual images, including flashing lights or patterns that may appear in video games. Even people who have no history of seizures or epilepsy may have an undiagnosed condition that can cause these "photosensitive epileptic seizures" while playing video games.

Immediately stop playing and consult a doctor if you experience any symptoms.

These seizures may have a variety of symptoms, including light-headedness, altered vision, eye or face twitching, jerking, or shaking of arms or legs, disorientation, confusion, or momentary loss of awareness. Seizures may also cause loss of consciousness or convulsions that can lead to injury from falling down or striking nearby objects.

Parents should watch for or ask their children about the above symptoms. Children and teenagers are more likely than adults to experience these seizures.

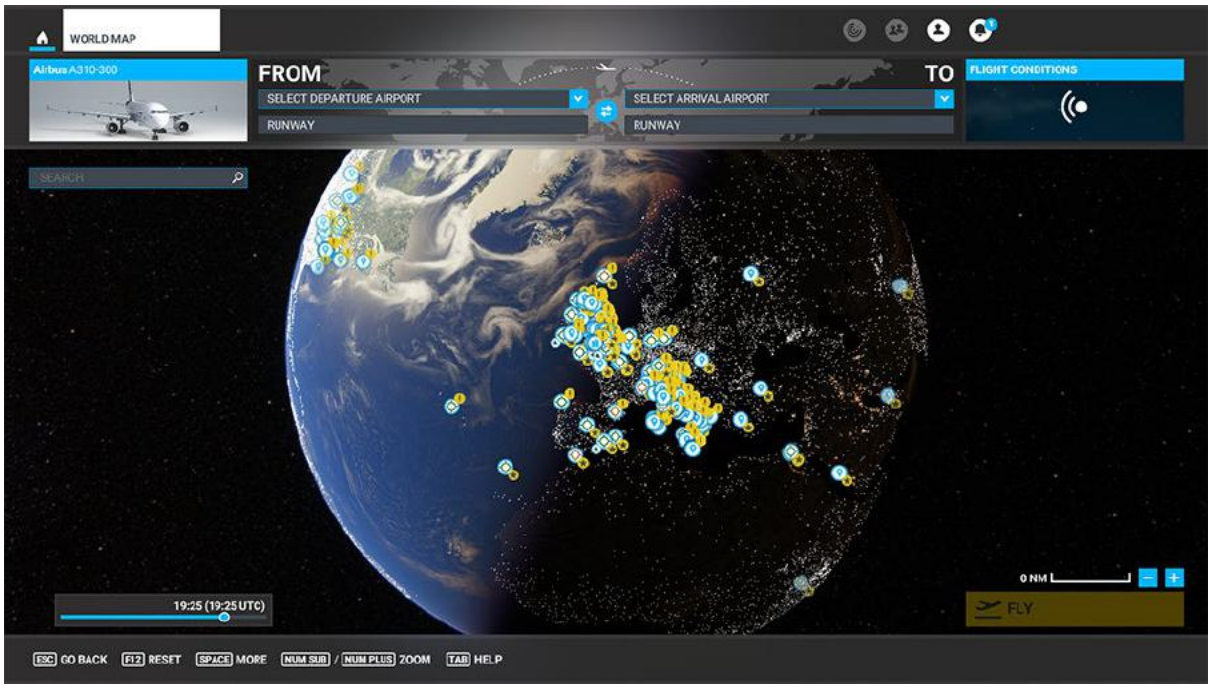
You may reduce risk of photosensitive epileptic seizures by taking the following precautions:

- Play in a well-lit room.
- Do not play if you are drowsy or fatigued.

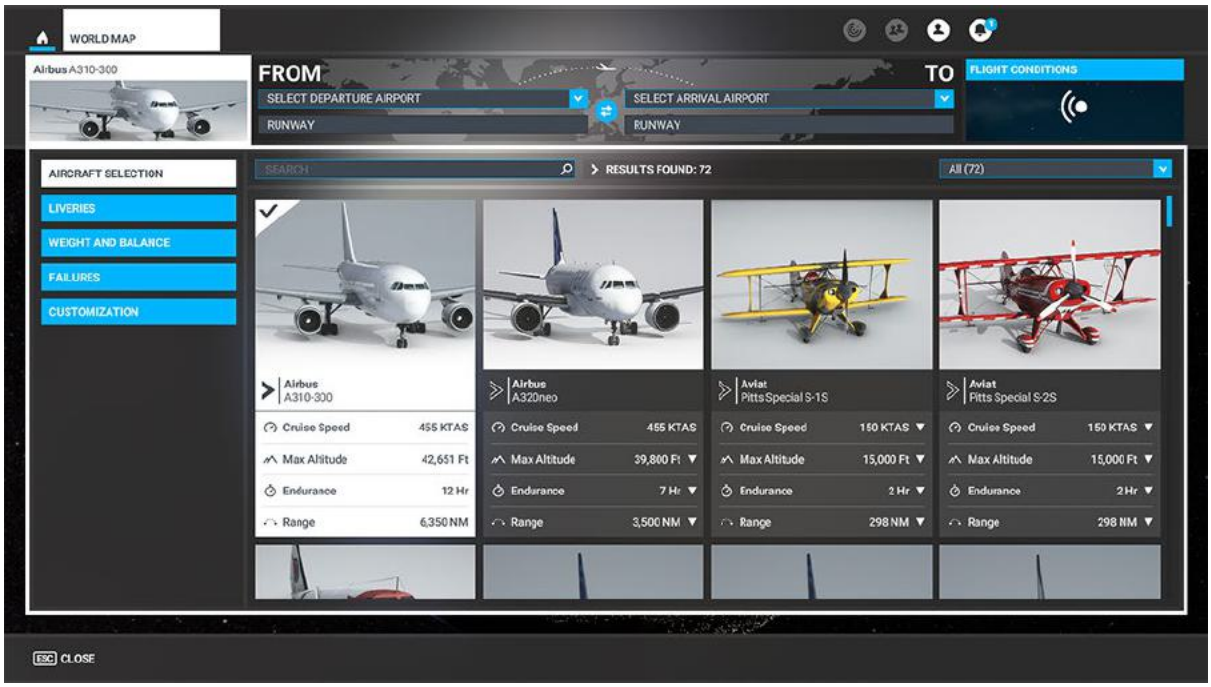
If you or any of your relatives have a history of seizures or epilepsy, consult a doctor before playing video games.

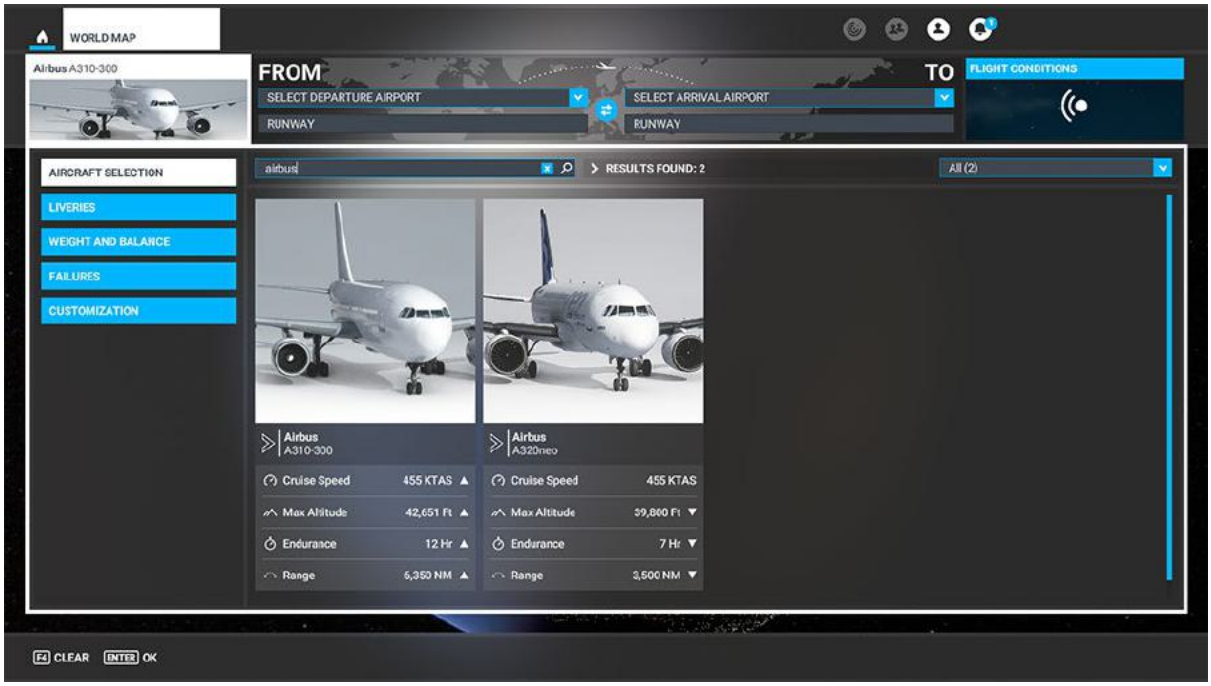
Aircraft Selection and Liveries

To fly the Airbus A310-300 you need to select it from the Aircraft Selection menu.
Click on World Map from the Main Menu and click the Aircraft selection icon in the top left.

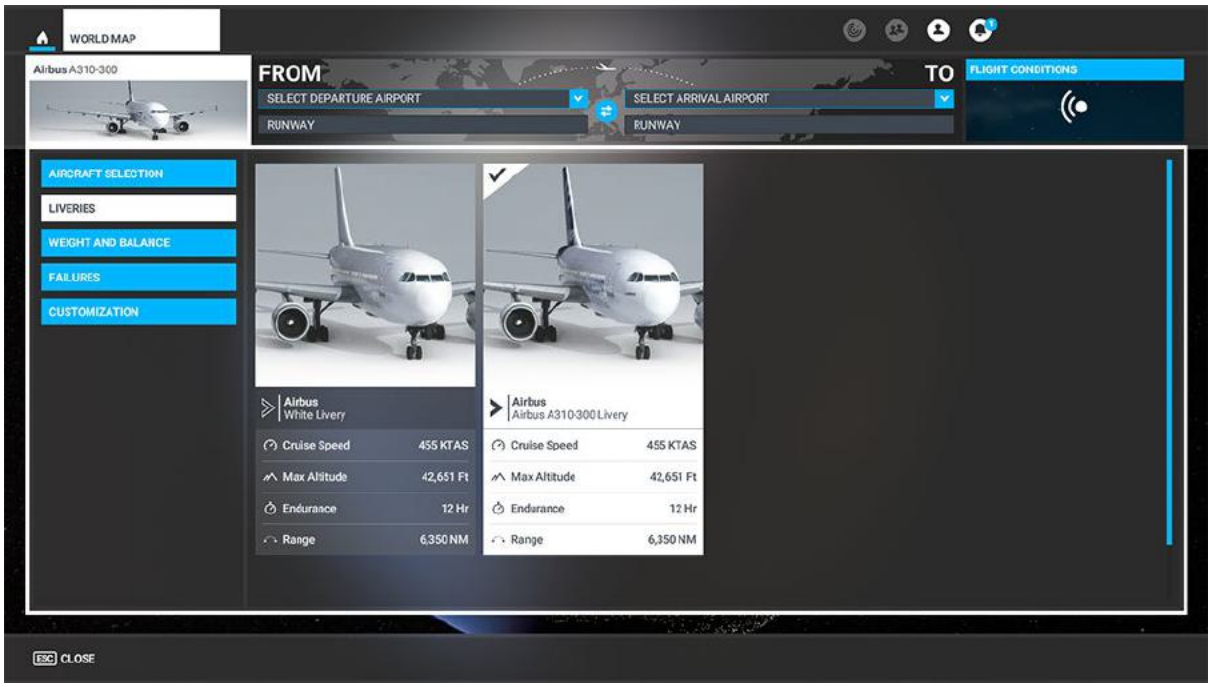


Scroll until you see the airbus A310-300 or type in the search bar “Airbus” or “A310” and the aircraft will show.





Once you have selected the aircraft you can change the livery selection by clicking LIVERIES.



You will see the default liveries and any extra liveries that you have put into your Community folder.

Cockpit Interaction

Some knobs within the cockpit have interaction where you can push, pull, or scroll them for certain functions.

On the PC, left click the knob and push the mouse for “push” interaction and pull the mouse for “pull” interaction whilst holding the mouse button down. Some functions also may have middle-mouse button “scroll” or right-mouse click “set” functions.

On the Xbox, press **A** to interact with the knob and use **A** to “push”, **X** to “pull” Right Stick to “scroll” and **B** to finish the interaction.

EFB and Checklists

There is an Electronic Flight Bag (EFB) located on either side of the cockpit (Captain and First Officer) which is intrinsically linked to the aircraft Flight Management System (FMS). It is also linked to some core simulator functions like requesting the jetway, requesting ground power, setting default aircraft spawn states, etc. Simply click the Menu buttons on the left to navigate the pages.

Whilst this guide offers comprehensive procedures and checklists, there are handy procedures checklists built within the simulator which can be found from the top-of-screen drop down menu and selecting the Checklist option.

Some items within the in-sim checklist have a drop down for sub functions, simply click the blue down arrow to open them.

Clicking the blue eye icon to the right of the checklist item will switch your view to the correct panel where the button/switch/dial/gauge is located.
You can use the TICK ITEM option to tick off the item from the checklist as handy reference.

Limitations

Weight Limits

Airframe Limits

Limitation	KG	Lbs
Maximum Takeoff Weight (MTOW)	153 000	337 307
Maximum Landing Weight	124 000	273 373
Maximum Zero Fuel Weight (MZFW)	114 000	251 326
Operating Empty Weight (OEW / DOW)	80 000	176 370

Under exceptional conditions, an immediate landing is permitted at any weight below MTOW provided the overweight landing procedure is adhered to. NOTE: Autoland above MLW has not been demonstrated.

Payload Limits

Limitation	KG	Lbs
Maximum Fuel Quantity	60 300	132 940
Maximum Total Payload Weight (Cabin + Holds)	35 440	78 131
Maximum Passenger Weight (238 pax)	19 040	41 976
Maximum Cargo Hold Weight	16 400	36 155

Speeds & Performance Limits

Minimum Control Speeds

Minimum Control Speed on Ground (VMCG)	113 KTS IAS
Minimum Control Speed in Air (VMCA)	117 KTS IAS

Maximum Slats/Flaps Speeds (VFE)

Suitable Flight Phase	Slats	Flaps	Max Speed (IAS)
Takeoff	15	0	245 KTS / M 0.54
Takeoff and Approach	15	15	210 KTS
Takeoff, Approach and Landing	20	20	195 KTS
Landing	30	40	180 KTS

If Krueger flaps cannot be retracted, do not exceed 300 KTS / M 0.65.

Gear Operating Speeds

Maximum Gear Operation Speed (extension or retraction) VLO	270 KT	M 0.59
Maximum Gear Locked Down Speed VLE	270 KT	M 0.65

Miscellaneous Speeds

Maximum Tire Ground Speed	195.5 KTS (225 MPH)
Maximum Windshield Wiper Operation Speed	230 KTS
Maximum Open Cockpit Window Speed	225 KTS

Flight Manoeuvring g-Load Limits

Clean Configuration	+2.5 g	-1 g
Slats Extended Configuration	+2 g	0g

Airport Operation Limitations

Mean Runway Slope	± 2 %
Maximum Runway Altitude	8 500 ft AMSL

Wind Speed Limitations

Maximum Tailwind Component (Takeoff and Landing)	10 KTS
Maximum Demonstrated Crosswind (Dry Runway)	28 KTS
Computed Crosswind Capability (Dry and Wet Runways)	37 KTS
Maximum Wind for Passenger and Cargo Door Operation	60 KTS

Autoland Limitations

Maximum Headwind Component	20 KTS
Maximum Crosswind Component	15 KTS
Maximum Tailwind Component	5 KTS

Autoland is not approved for single-engine operations.

Operations and Techniques

This Section outlines the procedures and techniques required to operate the A310 safely and efficiently through all phases of flight and in select abnormal or emergency situations.
The sections are divided up as follows:

Normal Checklist: To be used to *Confirm* procedures have been completed correctly in prior flows. Used inflight.

Simplified Procedures: Condensed description of flows for quick reference. Normally actions are committed to memory, with this guide as a quick revision tool.

Expanded Procedures: Full explanation of procedures, flows, and techniques, for total understanding of aircraft operations. Normally memorised with simplified procedures used to revise.

Supplementary Procedures: Additional procedures and techniques which may be used in day-to-day operation of the aircraft but may not be required for every flight. Will usually be briefed from full procedure description when required.

Emergency/Abnormal Procedures: A selection of procedures to ensure safe management of certain emergency or abnormal situations that may arise. Section to be used in conjunction with ECAM, QRH etc.

BEFORE START

COCKPIT PREP	COMPLETED
SIGNS	ON/AUTO
FUEL QUANTITY	<<KG/LB>>
NAVIGATION	CHECKED/SET
LDG ELEV	___SET
ALTIMETERS	___SET (BOTH)
BRK-A/SKID	NORM/ON
WINDOWS/DOORS	CLOSED (BOTH)
BEACON	ON
PARKING BRAKE	ON

AFTER START

PITCH TRIM	_SET
RUDDER TRIM	ZERO
SPOILERS	ARMED
SLATS/FLAPS	___/___
ECAM STATUS	CHECKED
ANTI ICE	AS RQRD
HAND SIGNAL	RECEIVED

BEFORE TAKEOFF

FLIGHT CONTROLS	CHECKED (BOTH)
BRIEFING	CONFIRMED
SLATS/FLAPS	_/_ (BOTH)
PERFORMANCE/FMAS	CHECK/READ
T.O. CONFIG	CHECKED
TRANSPONDER	SET
CABIN	SECURE
TCAS	TA/RA
PACKS	AS RQRD
IGNITION	AS RQRD
ANTI-ICE	AS RQRD

AFTER TAKEOFF / CLIMB

SLATS/FLAPS	RETRACTED
LDG GEAR	UP/NEUTRAL
PACKS	ON
ALTIMITERS	_SET (BOTH)

APPROACH

SIGNS	SET
BRIEFING	CONFIRMED
ECAM STATUS	CHECKED
ALTIMITERS	___SET (BOTH)
MINIMUMS	___SET (BOTH)
IGNITION	AS RQRD
LDG ELEV	___SET

LANDING

LANDING GEAR	DOWN
AUTOBRAKE	AS RQRD
ANTI SKID	CHECKED
SLATS/FLAPS	___/___
SPOILERS	ARMED

AFTER LANDING

SLATS/FLAPS	RETRACTED
TRANSPONDER	AS RQRD
WX RADAR	OFF
SPOILERS	DISARMED
APU	STARTED

PARKING

APU BLEED	AS RQRD
ENGINES	OFF
ΔP (DIFF PRESS)	CHECK ZERO
LIGHTS/SIGNS	AS RQRD
FUEL PUMPS	OFF
WINDOW and PROBE HEAT	OFF
PARKING BRK and CHOCKS	AS RQRD

SECURING AIRCRAFT

NAV SYSTEMS	OFF
OXYGEN	OFF
APU BLEED	OFF
EMER EXIT LT	DISARMED
APU AND BAT	OFF

Simplified Procedures

Preliminary Cockpit Preparation	
Batteries	Auto
Hydraulic Panel	Check
Wiper Switches	Off
Gear Lever	Down
Slats-Flaps Handle	In Agreement
Reverser Levers	Down
Fuel Levers	Off
Weather Radar	Off
External Power (If Avail)	Establish
APU Fire System	Test
APU	As Required
IRS Mode Selectors	Nav
ISDU	Set
Oxygen LO PR SUPPLY Switches	On
ANN Light	Test
VHF Radios	As Required

Flight Deck Preparation	
FMC	Initialise
No Smoking	Auto
Seat Belts	On
HYD PWR Panel	Set/Check
SERVO CTL Panel	Check
FLT RCDR GND CTL	On
EXT Lights	Set
ATS Lever	On
Pitch Trim & Yaw Damper Levers	On (IRS Must be aligned)
ELEC PWR panel	Check
ENG 1 FIRE Panel	Check/Test
Elec IND panel	Check
ENG panel	Check
FUEL panel	Set
APU FIRE	Check/test (if not performed already)
CABIN PRESS panel	Check
WINDOW HEATER Switches	On
PROBE HEAT Switches	On
CARGO COMPT SMOKE DET	Check/Test
MAIN DECK CARGO SMOKE DET	Check/Test
ENG 2 FIRE Panel	Check/Test
VENT Panel	Check
EMER EXIT LT	Arm
AIR BLEED Panel	Check
COND TEMP Panel	Set/Check

PACK TEMP Panel	Check
OXYGEN Panel	Check
EFIS Control Panel	Check
FCP	Check
CAPT SW Panel	Check
Standby Airspeed Indicator	Check
RMI	Check
PFD	Check
ND	Check
Altimeter	Check
IVSI	Check
ADF RMI	Check
EGPWS Button	Push-Test
Clock	Set/Check
Standby Horizon	Check
Standby Altimeter	Set/Check
Slat-Flap Position Indicator (SFPI)	Check
Brakes Pressure Gauge	Check
Alternate Braking System	Check
Parking Brake	Set
AUTO BRK Switches	Extinguished
REV & REV UNLK Lights	Extinguished
Engine Instruments & Lights	Extinguished
Landing Elevation	Set
LDG GEAR WARN	Test
BRK FAN	As Required
Speed Brake Handle	Retracted & Disarmed

Takeoff Warning	Check
Fuel Levers	Off
WARNING SYS & EMER CANCEL Switches	Safetied
ATC Transponder / TCAS	Set
ADFs	Check
RUD TRIM	Zero (0)
Weather Radar	Test
FMS Route	Program
Performance Data	Calculate
TRP	Set
Complete BEFORE START CHECKLIST	

Engine Start (GE)	
Area clear to start	Confirm
Ignition Selector	A or B
Engine 2 Start Switch	Press
Fuel Lever	On at 20% N2
Once blue OPEN light extinguishes, repeat for Engine 1.	

After Start Flow	
Ignition	As Required
APU Bleed	As Required
APU Master	As Required
ANTI ICE	As Required
Speedbrake	Arm
Rudder Trim	Reset, Check 0
Slats-Flaps	Set for Takeoff
Trim	Set for Takeoff
Complete AFTER START CHECKLIST.	

Taxi-Out	
Taxi Clearance	Obtain
NOSE Light	TAXI
Brakes	Release
Once both engines running:	
Flight Controls	Check
FCU / Glareshield	As Required
Autobrake	MAX
Transponder	Set
Weather Radar	On
Takeoff Config	Test
Complete BEFORE TAKEOFF CHECKLIST TO THE LINE.	

Line-Up Actions	
Line-up or Takeoff Clearance	Obtain
Brake Fans	Off
Lights	Set
Ignition	As Required
PACKS	As Required
TCAS	TA/RA
Complete BEFORE TAKEOFF CHECKLIST BELOW THE LINE.	

Take-Off Actions	
“Takeoff”	Announce
Clock	Start
Throttles	Advance to at least 40% N1
Brakes	Release
Go-Levers	Trigger
FMA Indications	Announce
Airspeed & Engine Instruments	Scan
Speeds	Announce 100kts, V1, Rotate
Rotation	Perform
Landing Gear	Order Up
Autopilot	As Required
Thrust Reduction	Perform
Slats/Flaps	Retract

After Take-Off	
Spoilers	Disarm
Landing Gear	Off
Packs	On
Lights	Set
Anti Ice	As Required
Ignition	As Required
APU	Off
Complete AFTER TAKEOFF CHECKLIST.	

Above 10,000’	
Altimeters	Set
Landing Lights	Retract / Off
Seat Belts	As Required

Top Of Climb / Cruise	
TRP	Check
ECAM MEMO / STATUS Pages	Review
ECAM SYS Pages	Review
Flight Progress	Check

Descent Preparation	
ECAM MEMO	Check
Weather and Landing Information	Obtain
Landing Elevation	Set
Fuel	Check
FMS	Program
DH	Set on FCU
Autobrake	As Required
GPWS FLAPS/SLATS switch	As Required
Approach Briefing	Perform

Descent	
Descent	Initiate
Anti Ice	As Required
Altimeters	Set
Before reaching 10,000ft	
Seat Belts	On
At / Below 10,000ft	
Exterior Lights	As Required
Ignition	As Required
Complete APPROACH CHECKLIST.	

Standard ILS Approach	
No later than 3nmi before FAF:	
Slats	Select 15/0
Speed	Reduce to S Speed
Once cleared for the approach:	
FCU LAND pb	Press
LOC Capture	Monitor
G/S Capture	Monitor
At 2000ft AGL minimum:	
Flaps	Select 15/15
Speed	Reduce 160-180 or F Speed, WEL.
Speed Brakes	Check Retracted
At latest 5 miles to touchdown:	
Gear	Order DOWN
Ground Spoilers	Arm
Nose Light	T.O.
When Gear down:	
“Gear Down”	Announce
Flaps	Select 15/20
Once Flaps 20:	
Flaps	Select 30/40
Complete LANDING CHECKLIST.	

Non-Precision Approach using PROFILE FMS Guidance	
Cockpit Configuration	Check
No later than 5nmi before FAF:	
Slats	Select 15/0
Speed	Reduce to S Speed
Flaps	Select 15/15
Speed	Reduce to F Speed
Speed Brakes	Check Retracted
Gear	Order DOWN
Ground Spoilers	Arm
Nose Light	T.O.
When Gear down:	
“Gear Down”	Announce
Flaps	Select 15/20
Once Flaps 20:	
Flaps	Select 30/40
Once FAF is next sequenced waypoint, aircraft is level in ALT HOLD and NAV modes:	
Final X.XX	Select on MCDU
PROFILE	Select on MCDU
APPROACH	Monitor
Complete LANDING CHECKLIST.	

Go-Around	
“Go Around Flaps”	Announce
Go Levers	Trigger
Throttle Levers	Advance to Go Around thrust
Rotation	Perform
Flaps	Retract one step
FMA	Announce
“Positive Climb”	Announce
Gear	Order Up
Nav or Heading mode	Select (as required)
At thrust reduction altitude:	
Throttles	Check symmetrical retard
At acceleration altitude:	
LVL/CH	Select
Retract flaps/slats on schedule	
Follow missed approach procedure	

After Landing	
Lights	Set
Anti Ice	Off / As Required
Ignition	Off
APU	Start
Ground Spoilers	Retracted / Disarmed
Transponder / TCAS	STBY / OFF
Radar	Off
Pitch Trim	Set 1° Nose Up
Slats/Flaps	Retract to 0/0
Brake Temperature	Monitor
Complete AFTER LANDING CHECKLIST	

Parking	
Nose Light	Off (approaching stand)
Parking Brake	On
APU Bleed	On
Engine Fuel Levers	Off
Elapsed Time	Stop
Beacon	Off (N2 < 20%)
Cabin Pressure	Check
Seat Belt Signs	Off
Park Brake	As Required
Fuel Pumps	Off
Probe Heat	Off
IRS	Check / As Required
Brake Fans	As Required
Complete PARKING CHECKLIST.	

Securing Aircraft	
IRS	Off
Crew Oxygen	Off
Exterior Lights	All Off
CRTs	All Off
APU Bleed	Off
External Power	As Required
APU	Off
Emergency Exit Lights	Disarm
Batteries	Off
Complete SECURING AIRCRAFT CHECKLIST.	

Expanded Procedures

Preliminary Cockpit Preparation

Batteries **Auto**
Check all BAT OFF lights extinguished.

Hydraulic Panel **Check**
Check ELEC PUMPS Switch OFF
DO NOT pressurise Green Hydraulic System without ground clearance.

Wiper Switches **Off**

Gear Lever **Down**

Slats-Flaps Handle **In Agreement**
Ensure Slats-Flaps handle matches the physical position of the slats/flaps.

Reverser Levers **Down**

Fuel Levers **Off**

Weather Radar **Off**

APU FIRE **Test**
Press SQUIB TEST.
AGENT SQUIB light illuminates.
Press LOOP TEST.
LOOP A light Illuminates
ECAM, MASTER CAUTION and Single Chime activates.
LOOP B Light illuminates after a few seconds.
APU FIRE light in the APU Fire Handle illuminates.
ECAM, MASTER WARN, and Continuous Repetitive Chime activate.
Release LOOP TEST.
Fire Warnings Cancel.

External Power (If Avail) **Establish**

Check EXT PWR AVAIL light illuminated.
Select EXT PWR switch ON.
    AVAIL light extinguishes.
    ON light illuminates.

APU **As Required**

INNER TK PUMP 2 Switch ON.
APU MASTER Switch ON.
FUEL PUMP LO PR light illuminates, then extinguishes.
START Switch ON:
    ACCEL Light Illuminates.
Once APU AVAIL illuminates:
    APU GEN ON.

IRS Mode Selectors **NAV**

Rotate IRS mode selectors (1, 2, 3) to NAV.
Check BAT OPER lights illuminate for 5 seconds then extinguish.
ALIGN MODE lights illuminate.

Inertial System Display Unit **Check ON**

DYSP SEL to PPOS
SYS DYSPL to 1

OXYGEN LO PR SUPPLY Switches **ON**

ANN LT **TEST**

VHF Radios **As Required**

Flight Deck Preparation

FMC **Initialise**

STATUS Page:
- Confirm Active Database Currency

INIT A:
- Enter FROM / TO Airports
- Verify LAT / LONG Position
- ALIGN IRS

Ensure All White Lights Passed During Flow Are Extinguished

NO SMOKING Switch **Auto**

Seat Belts Switch **On**

HYD PWR Panel **Set/Check**

Check Fluid Quantity within upper green arc

ENG PUMPS Auto
- HYD PUMPS LO PR lights ILLUMINATED AMBER

SERVO CTL Panel **Check**

LO PR lights ILLUMINATED

FLT RCDR GND CTL **On**

GND CTL Selection ON

EXT LT Panel **Set**

NOSE Switch: OFF
LAND Switches: RETRACT
WING Switch: OFF
STROBE Switch: AUTO
BEACON Switch: OFF
RWY TURN OFF (L & R): OFF
NAV & LOGO: 1

ATS lever **On**

Pitch Trim & Yaw Damper levers **On**

IRS MUST be aligned.

DO NOT engage yaw dampers until IRS ALIGN Mode lights are extinguished.

ELEC PWR panel **Check**

IDG Disconnect Switches: SAFETIED
GEN 1 & 2 FAULT lights: ILLUMINATED
BAT Switches: Check AUTO

ENG 1 FIRE panel **Check/Test**

FIRE HANDLE: IN, GUARDED & SAFETIED
SQUIB TEST Switch: PRESS
    Check both AGENT SQUIB lights illuminate
LOOP TEST Switch: PRESS & HOLD
    LOOP A Light illuminates
    ECAM, MASTER CAUTION Lights and Single Chime activate.
    LOOP B Light illuminates after a few seconds.
    ENG FIRE light in the ENG FIRE Handle illuminates.
    ECAM, MASTER WARN, and Continuous Repetitive Chime activate.
Release LOOP TEST.
    Fire Warnings Cancel.
    LOOP B Light remains illuminated
    ECAM, MASTER CAUTION Lights and Single Chime activate.
    LOOP B Light illuminates after a few seconds.
    Fire Warnings Cancel.

ELEC IND panel **Check**

Select EMER and ESS

ENG panel **Check**

IGNITION selector: OFF

FUEL panel **Set**

If fuelling in Progress:
    DO NOT change fuel pump configuration
When fuelling complete:
    Compare total with Planned.
    All TK PUMPS: ON
    ISOL VALVES Flow Bars: ILLUMINATED
    X-FEED Flow Bar: Vertical
    ENG 1, 2 & APU LP VALVE Flow Bars: ILLUMINATED

APU FIRE panel **Check (If not performed already)**

Refer to Preliminary Cockpit Preparation for procedure.

CABIN PRESS Panel **Check**

MAN PRESS amber ARROW: EXTINGUISHED
SYS 1 or SYS 2 Select Switch: ILLUMINATED GREEN
Check CAB ALT, DIFF PRESS and CABIN V/S for appropriate indications
    CAB ALT matches ambient
    V/S and DIFF PRESS approximately 0.

RATE LIMIT knob: NORM
Outflow Valve Indicators display O (Open)

WINDOW HEATER Switches **ON**
PROBE HEAT Switches **ON**

CARGO COMPT SMOKE DET **Check/Test**
Check SMOKE & DISCH Lights extinguished.
Check switch covers safetied.
LOOP TEST Switch: PRESS
Check LOOP and SMOKE lights illuminate.
Check ECAM, CRC and MASTER WARNING activate, ISOL VALVE FAULT.
Bulk Cargo ISOL VALVE closed.
Reset Bulk Cargo ISOL VALVE.

MAIN DECK CARGO SMOKE DET **Check/Test**
LOOP TEST Switch: PRESS
Check LOOP and SMOKE lights illuminate.
Check CRC and MASTER WARNING activate, Main Deck Cargo FAULT, Bulk Cargo FAULT, and Hot Air Supply Valve OVHT, PACK VALVE 2 (if both packs operating) FAULT lights illuminate.
On ECAM COND page, check:
Bulk Cargo ISOL Valve closed.
HOT AIR SUPPLY Valve closed.
“ISOL” (green) displays above MID and AFT duct symbols.

ENG 2 FIRE panel **Check/Test**

FIRE HANDLE: IN, GUARDED & SAFETIED
SQUIB TEST Switch: PRESS
    Check both AGENT SQUIB lights illuminate
LOOP TEST Switch: PRESS & HOLD
    LOOP A Light illuminates
    ECAM, MASTER CAUTION Lights and Single Chime activate.
    LOOP B Light illuminates after a few seconds.
    ENG FIRE light in the ENG FIRE Handle illuminates.
    ECAM, MASTER WARN, and Continuous Repetitive Chime activate.
Release LOOP TEST.
    Fire Warnings Cancel.
    LOOP B Light remains illuminated
    ECAM, MASTER CAUTION Lights and Single Chime activate.
    LOOP B Light illuminates after a few seconds.
    Fire Warnings Cancel.

VENT Panel **Check**

OVBD VALVE Flow Bar: ILLUMINATED

EMER EXIT LT **Arm**

AIR BLEED Panel **Check**

If APU BLEED Switch is OFF, check X FEED Flow Bar Vertical.
If APU BLEED Air available and Switch is ON, check:
    APU BLEED Flow Bar illuminated.
    X FEED Flow Bar Horizontal.
    ENG BLEED flow bars extinguished.

COND TEMP Panel **Set/Check**

ECON FLOW: ON
If PRESS indication is normal (APU ON), check:
    PACK VALVE Flow Bars illuminated.
If PRESS indication is low, check:
    Pack VALVE FAULT Lights illuminated.
HOT AIR SUPPLY Valve: RESET.
All Rotary Switches: AS REQ'D.
COMPT Selector to CRT.
Bulk Cargo ISOL VALVE: RESET

PACK TEMP Panel **Check**

Check MODE SEL Switches in AUTO

OXYGEN Panel **Check**

MAN OVRD Switch: SAFETIED
LP Indicators: GREEN ARC
LP SUPPLY OFF Lights: EXTINGUISHED
CYL Gauges: CHECK
    Check O2 quantities sufficient for flight.

EFIS Control Panel **Check**

Set PFD and ND Brightness
PD / FPV Switch: ON
    FMA displays FD1 in White
    Command Bars in View
VOR / NAV / ILS Switch: NAV
Set DH: -05

FCP **Check**

HDG SEL Outer Switch: NORM
All Green Barred Switches EXTINGUISHED
FCP ON with PITCH TRIM Switches

CAPT SW Panel **Check**

Extinguish Any Lights Illuminated

Standby Airspeed Indicator **Check**
Ensure Airspeed Pointer at 0.

RMI **Check**
Ensure No Flags Displayed
Ensure ND and RMI Compasses on the same side agree within 1°.

PFD **Check**
Normal - No Warnings / Messages
Check FMA Display

ND **Check**
Check Selected Display Normal

Altimeter **Check**
Ensure No Flag
Check indicated altitude within 50ft of F/O Altimeter and 70ft of Standby Altimeter
Set Bug to field elevation OR Accel Alt
NOTE Max deviation between primary altimeter and field elevation is 70ft.

IVSI **Check**

ADF RMI **Check**
No Flags
ND and RMI Compasses on the same side agree within 1°

EGPWS Button **Push-Test**

Clock **Set/Check**

Metric Altimeter **Set**
NOTE Max deviation between primary altimeter and field elevation is 23m (70ft).

Standby Horizon **Check**
Check No Flag and Erect

Standby Altimeter **Set / Check**
No Flag
Check indicated altitude within 70ft of Capt and FO altimeters.

Slat-Flap Position Indicator **Check**
SFPI agrees with the selected position.
Lights extinguished
Brakes Pressure Gauge **Check**
Check ACCU PRESS in green band.

If not in green band, press PARKING BRAKE ACCU PRESS Switch

Alternate Braking System **Check**

BRK A / SKID Selector: ALTN / ON.
Parking Brake: RELEASE.
Brake Pedals: PRESS.
Apply maximum pressure on both pedals.
Brake Pressure: CHECK.
Brake pressure must increase symmetrically without delay on both sides.
With full pedal deflection, pressure must be between 2000 and 2700 psi.
Brake Pedals: RELEASE.
BRK A / SKID Selector: NORM & ON.

Parking Brake **Set**

Set Parking Brake
Check ACCU PRESS in green band.
If not in green band, press PARKING BRAKE ACCU PRESS Switch.
Check Brake Pressure 1500PSI minimum.

AUTO BRK Switches **Extinguished**

REV & REV UNLK Lights **Extinguished**

Engine Instruments & Lights **Check**

Check Maximum Indicators for exceedance.
Ensure N1 Limit Index selectors pressed in.
Ensure Oil quantity and set reference bugs (16qts minimum).
Ensure Engine annunciator lights extinguished.

Landing Elevation **Set**

Set destination field elevation.

LDG GEAR WARN **Test**

Check:
Down arrow illuminates
CRC, MASTER WARNING and ECAM activate
POS DET Switch
SYS 1 if Capt PF, Sys 2 if FO PF

BRK FAN **As Required**

Speed Brake Handle **Retracted & Disarmed**

Takeoff Warning **Check**

Advance No. 1 throttle to mechanical stop.
Check CRC, MASTER WARNING, and ECAM activate.
Return No. 1 throttle to idle.
Clear ECAM.
Repeat with No. 2 throttle.

Fuel Levers **Off**

WARNING SYS and EMER CANCEL Switch **Safetied**

ATC Transponder / TCAS **Set**

ADFs **Check**
Check TONE ON and ADF / ANT selected to ADF.

RUD TRIM **Zero**

Wx Radar **Test**
Select TEST mode and confirm weather display on ND.
Return to WX mode

FMS Entry

Route **Program**

INIT A:

ALTN, COST INDEX, CRZ FL, FLT ID, WEATHER

F-PLN:

SID, AIRWAYS, STAR

NOTE: Ensure runway selected BEFORE procedure for SID/STARs.

SEC F-PLN:

As Required

Performance Data **Calculate**

Complete EFB Loadsheet

Enter data in FMS INIT B page

Complete EFB T.O PERF

Enter data in FMS TO/APPR page

Set V2 on FCU

TRP **SET**

Enter FLEX TO TEMP if required

Select AUTO for TO with profile

Before Start Checklist (Expanded)

Cockpit Prep **Completed**
No white switch-lights illuminated
Ext Power Disconnected - no AVAIL light
Confirm YAW DAMPER Levers ON

Signs **On/Auto**
Seat Belts Switch ON.
No Smoking Switch AUTO.

Fuel Quantity **_____kg/lb, Checked**
Check fuel total on MEMO screen matches planned load.
Confirm fuel balanced and available on ECAM FUEL Page.

Navigation (FMS, Radios) **Checked, Set**
FMS Data entry completed.
PF FMS on TAKEOFF Page.
PM FMS on F-PLN Page.
Required NAVAIDS tuned and set.
FCU Set.

LDG Elevation **____Set**
Confirm landing elevation correctly set for destination airport

Altimeters **_____Set, _____ft**
Confirm all altimeters are set and crosschecked to correct pressure setting.
Confirm all altimeters read within 50ft of each other (70ft for standby).

Takeoff Warning **Checked**
Confirm Takeoff Warning system checked.

Brakes / Anti-Skid **On**

“To The Line”

- -

- -

Once Pushback Clearance Granted: *“Below The Line”*

Windows / Doors **Closed/Armed**

Check ECAM DOOR Page indicates all doors closed (display green).
Doors are armed when SLIDES (displayed in white) in view for all doors.
Confirm Cockpit Door locked and light extinguished (OHP).

Beacon **On**

Parking Brake **On**

Pushback Flow

Elapsed Time **Start**

Note Pushback / Start time.

Transponder **XPDR**

Ensures visibility for ground-based radar at equipped airports.

Engine Start (GE)

Area Clear to start **Confirm**

Ignition Selector **A / B**
Select A if Captain PF, B if FO PF.
Confirm ARM lights illuminate.
Check PACK VALVE Flow Bars extinguish.

Start No.2 Engine FIRST to ensure all brake availability

Engine 1 / 2 Start Switch **Press**
Observe blue OPEN light

At 20% N2 **Fuel Lever ON**
At 45% N2, blue OPEN light extinguishes.
N1 rotation must be obtained within 30 seconds of reaching N2 idle speed.

Repeat previous two steps for other engine

After Start Flow

Ignition **As Required**
OFF in normal operations, on in heavy precipitation or contaminated taxiway.

APU BLEED **As Required**
Off if both engines running.
Leave ON if single-engine.

APU Master **As Required**
Off if both engines running.
Leave ON if single-engine.

ANTI ICE **As Required**
ON in visible moisture below 10°C.
OFF otherwise.

Speedbrake **Arm**

Rudder Trim **Reset, Check 0**

Slats-Flaps **Set for Takeoff**
Set to position calculated for takeoff performance.

Trim **Set for Takeoff**
Set position appropriate for CG calculated on loadsheet.

Call for “AFTER START CHECKLIST” once actions complete

Taxi-Out

TAXI CLEARANCE **Obtain**

NOSE Light **TAXI**

Brakes **Release**
Check toe brake function as soon as practicable with gentle application and release.

Complete the following only with both engines running:

Flight Controls **Check**
Select F/CTL on ECAM panel.
Confirm Yoke movement full and free in all directions (left, right, forward, back) and confirm corresponding control movement into full scale boxes on System Display.
Confirm Rudder movement full and free in both directions while holding tiller neutral, and confirm corresponding control movement into full scale boxes on System Display.

FCU / Glareshield **As Required**
Set PRE SEL speed to 250 KTS.
Select required AP modes (Standard Takeoff - PROF and NAV).
Confirm Flight Directors ON.
Check FMAs match expected modes.

Autobrake **MAX**

Speedbrake **ARMED**

Transponder **Set**
Confirm XPDR mode set, correct squawk entered

Weather Radar **On**
Use SYS 1 / 2 on odd / even days.
WX display selected

Takeoff Config **Test**

Call for “BEFORE TAKEOFF CHECKLIST TO THE LINE” once actions complete

Line-Up Actions

Line-Up or Takeoff Clearance **Obtain**

Ensure cleared to enter expected runway.
Use external references (taxi signs, runway numbers, heading indicator etc) to confirm on correct runway.
Check approach path clear before entering runway.

Brake Fans **Off**

Ensure Brake Temperatures suitable for departure:

If Brake Fans ON and temperature > 150°C, DELAY TAKEOFF
If Brake Fans OFF and temperature > 300°C, DELAY TAKEOFF

With Brake Fans ON, a temperature of 150°C is equivalent to 300°C with Fans OFF.

LIGHTS **Set**

Use all available lighting to maximise “see and avoid” for other traffic and to minimise bird strike risk.
STROBE ON, BEACON ON, RWY TURN OFF ON, NAV 1 / 2, NOSE TO, LAND ON, WING A/R.

Ignition **As Required**

CONT RELIGHT is advised on runways with standing water, heavy rain, or expected heavy rain or turbulence after takeoff.

PACKS **As Required**

If required for take-off performance, select pack valves to OFF.

TCAS **TA/RA**

Call for “BEFORE TAKEOFF CHECKLIST BELOW THE LINE” once actions complete

Take Off Actions

ANNOUNCE **“Takeoff”**

Clock **Start**

Throttles **Advance**
Slowly advance throttles until both engines reach at least 40% N1 (GE).
Once stabilised, advance throttles to takeoff position.

Brakes **Release**
Rolling takeoff is recommended where possible.

Go-Levers **Trigger**
SIMULATION: The ATC COMM button can be used to activate go-levers.

Directional Control **Use Rudder Pedals**
Rudder Pedals should be used for directional control during the entire takeoff run.
Hold Control Column forward of neutral and release progressively to achieve neutral position by 100kts. This ensures maximum authority at low speed.

ANNOUNCE **FMA Indications**
Confirm FMAs displayed match expected/selected modes.

Airspeed and Engine Instruments **SCAN**
Scan instruments throughout the takeoff roll.
At 100kts, PF announces “ONE HUNDRED KNOTS”.
PM cross-checks their own speed readout and replies “CHECKED”.

V-Speeds **Announce**
At V1, announce “V1”
At VR, announce “ROTATE”.

Rotation **Perform**
At VR, rotate the aircraft smoothly towards 12.5°, then the pitch attitude indicated by the SRS pitch command bar. The pitch command bar will command to maintain V2+10kts.

Landing Gear **Order Up**
PM announces “POSITIVE CLIMB” when VSI indicates positive.
PF orders “GEAR UP”
PM Selects gear lever to UP.

Autopilot **As Required**
AP 1 or 2 to be engaged corresponding to which pilot is PF.

Thrust Reduction **Perform**

At thrust reduction altitude, confirm TRP LIM mode indicates CL in AUTO setting.
If TRP is not in AUTO, set AUTO or CL.
Confirm throttle levers reduce for climb thrust.
Announce FMA indication.

Slats/Flaps **Retract**

Once above Acceleration altitude, retract Flaps/Slats in stages to allow aircraft to accelerate towards CLB speed.
At F speed *minimum*, PF orders “FLAPS ZERO”. PF Selects Flaps 0 and confirms on indicator.
At S speed *minimum*, PF orders “SLATS ZERO”. PF Selects Slats 0 and confirms on indicator.

After Takeoff

Spoilers **Disarm**

Landing Gear **Off**

Packs **On**

Set packs on in sequence, with a 10s pause between Pack 1 and Pack 2 to ensure occupant comfort.
Check flow bars inline.

Lights **Set**

Nose and Rwy Turnoff lights OFF.
Landing Lights may be left ON until 10,000ft.

Anti Ice **As Required**

Engine Anti-Ice must be on in icing conditions (visible moisture and TAT < 10°C).

Ignition **As Required**

Set to CONT RELIGHT only if severe turbulence, heavy icing or heavy rain are encountered. Otherwise, set OFF.

APU **Off**

If APU used for departure, turn APU BLEED switch off then APU MASTER to Off.

Call for “AFTER TAKEOFF CHECKLIST” once actions complete

Above 10,000ft / Transition Altitude

Altimeters **Set**
At transition altitude, set standard (1013hPa / 29.92inHg) on all altimeters, and cross-check.

Landing Lights **Retract / Off**

Seat Belts **As Required**
Seat Belt signs may be turned off above 10,000ft.

Cruise

Thrust Rating Panel **Check**
Check LIM MODE indicates CR (Set Manually if not in PROFILE).

ECAM MEMO / STATUS Pages **Review**

ECAM SYS Pages **Review**
Periodically review system pages to ensure all systems nominal.

Flight Progress **Check**
When overflying waypoints, check track and distance to next waypoint.
Check fuel (FOB and FMS Fuel Pred) against computed flight plan.

Descent Preparation

Descent preparation should begin approximately 10 minutes, or 80-100nmi before ToD.

ECAM MEMO **Check**

Check STATUS and note any landing capability downgrades or aspects affecting approach and/or landing.

Weather and Landing Information **Obtain**

Check weather at destination and alternate, noting runway in use and baro settings.

Landing Elevation **Set**

Note: If QFE is used, set 0 on LANDING ELEV counter.

Fuel **Check**

FMS **Program**

Enter expected arrival and approach into F-PLN page

Ensure DEP/ARR Runway selected BEFORE SID/STAR.

Check speeds on FMS APPR page.

If landing in 15/20 config, select 15/20 on FMS APPR page and using pedestal GPWS selector.

Enter MDA on FMS APPR page.

Enter Descent Wind on DES FORECAST page.

Check/Modify THR RED ALT and ACC ALT on GO AROUND page.

Modify SEC F-PLN as necessary.

DH **Set on FCU**

DH should be set only for precision approaches with a DH (I.e. CATII and CATIII ILS).

For approaches using MDA, DH should be set to -5 and deselected.

Autobrake **As Required**

On a normal runway length, LO mode is recommended.

When landing on short or contaminated runways, or in low visibility conditions, MID mode should be used.

On very long runways where little braking is needed, autobrake is unnecessary.

If uncertain, use EFB LDG PERF to calculate.

GPWS SLATS/FLAPS switch **As Required**

If landing is to be performed with slats/flaps set to 20/20, select GPWS LANDING SLATS/FLAPS switch to 20/20.

Landing with flaps 20 is recommended in windshear conditions.

Approach Briefing **Perform**

Use FMS pages and ND as a guide for briefing. Should cover:

- Weather - Minima, Wind Speed and Direction.
- Terminal area topography - Transition level, MSA.
- NAVAIDS - Frequencies, Idents, Courses.
- F-PLN page - STAR, Approach, Transition, Missed Approach.
- APPR page - Config, Speeds, MDA.
- FUEL PRED - holding, diversion fuel available.
- Runway - condition, lighting, dimensions.
- Deceleration - Spoiler, Reverse, Autobrake selections.
- Go-Around Procedure.

Descent

Descent **Initiate**

For PROFILE Descent:
FCU ALT Knob - TURN to select cleared altitude and PULL.
FMAs - check P.THR/P.DES ARMED.

Anti Ice **As Required**

During descent, anti-ice should be on in icing conditions (visible moisture below 10°C TAT).
Ignition should be selected to CONT RELIGHT prior to ENG ANTI ICE selection.

Altimeters **Set**

Set QNH (QFE if required) when cleared to an altitude (Not Flight Level), below Transition Level.
Cross-check baro settings and altitude readings..

Before reaching 10,000ft:

Seat Belts **On**

At/Below 10,000ft.

Exterior Lights **As Required**

Set RWY TURN OFF ON at FL100/10,000ft.
Use LAND Lights as needed below 10,00ft.

Ignition **As Required**

Select IGNITION to CONT RELIGHT if required.
CONT RELIGHT should be selected if expecting icing conditions, heavy rain, or turbulence on approach.

Call for “APPROACH CHECKLIST” once actions complete.

Standard ILS Approach

No later than 3nmi before FAF (Final Approach Fix):

Slats **Select 15/0**
Check Airspeed below VFE.
PF Orders “SLATS 15”.
PM Actions Slat/Flap lever.
PM Announces “SLATS 15” when indicated deployed.

Speed **Reduce**
Target “S” speed in the absence of any ATC speed restrictions.

Once cleared for approach:

FCU LAND pb **Press**
This enables LOC and G/S capture modes.
Aircraft heading must be within 30° of LOC course to intercept smoothly.
Aircraft must be on or below glideslope to intercept.

LOC Capture **Monitor**
Monitor Localiser indications on PFD and ensure FMAs indicate LOC* once alive.
At LOC capture, NAV or HDG is disengaged automatically.

G/S Capture **Monitor**
Monitor Glide Slope indications on PFD and ensure FMAs indicate G/S* before intercepting G/S.

At 2000ft AGL, or one dot below G/S:

Flaps **Select 15/15**
Check Airspeed below VFE.
PF Orders “FLAPS 15”.
PM Actions Slat/Flap lever.
PM Announces “FLAPS 15” when indicated deployed.

Speed **Reduce**
Target 160-180kts or F speed (as required) unless instructed otherwise by ATC.

Speed Brakes **Check Retracted**
Speed brakes not to be used with flaps 15/15 or greater.

At latest 5 miles to touchdown:

Gear **Order DOWN**
PM Selects landing gear lever down.

Ground Spoilers **Arm**

Nose Light **T.O.**

When Gear Down:

“Gear Down” **Announce**
Check “3 greens” on both landing gear indication panels.

Flaps **Select 15/20**
Check Airspeed below VFE.
PF Orders “FLAPS 20”.
PM Actions Slat/Flap lever.
PM Announces “FLAPS 20” when indicated deployed.

Once Flaps 20:

Flaps **Select 30/40**
Check Airspeed below VFE.
PF Orders “FLAPS 40”.
PM Actions Slat/Flap lever.
PM Announces “FLAPS 40” when indicated deployed.

Ensure fully configured by 1000’ AGL, else GO AROUND.

Call for “LANDING CHECKLIST” once configuration complete.

Ensure approach stable by 500’ AGL and below, else GO AROUND.

If in visual conditions, landing with AP and ATHR disengaged recommended.

Non-Precision Approach using PROFILE FMS Guidance

To fly a Non-Precision Approach using PROFILE, the following conditions must be met by the Final Approach Fix (FAF):

- MDA entered in TO/ARR APPROACH page in MCDU
- Aircraft in NAV mode on FCU with FAF next sequenced waypoint
- Aircraft level at platform altitude for approach in ALT HOLD
- FINAL X.XX (nominally 3.00) selected in TO/ARR APPROACH page in MCDU
- Fully configured with landing flap and gear down.

Cockpit Configuration **Check**
Confirm NAVAIDs tuned and selected, MDA entered in TO/ARR APPROACH PAGE.

Start configuration in sequence no later than 5nmi before FAF.

Slats **Select 15/0**
Check Airspeed below VFE.
PF Orders “SLATS 15”.
PM Actions Slat/Flap lever.
PM Announces “SLATS 15” when indicated deployed.

Speed **Reduce**
Target “S” speed in the absence of any ATC speed restrictions.

Flaps **Select 15/15**
Check Airspeed below VFE.
PF Orders “FLAPS 15”.
PM Actions Slat/Flap lever.
PM Announces “FLAPS 15” when indicated deployed.

Speed **Reduce**
Target F speed unless instructed otherwise by ATC.

Speed Brakes **Check Retracted**
Speed brakes not to be used with flaps 15/15 or greater.

Gear **Order DOWN**
PM selects landing gear lever down.

Ground Spoilers **Arm**

Nose Light **T.O.**
When Gear Down:

“Gear Down” **Announce**
Check “3 greens” on both landing gear indication panels.

Flaps **Select 15/20**
Check Airspeed below VFE.
PF Orders “FLAPS 20”.
PM Actions Slat/Flap lever.
PM Announces “FLAPS 20” when indicated deployed.

Once Flaps 20:

Flaps **Select 30/40**
Check Airspeed below VFE.
PF Orders “FLAPS 40”.
PM Actions Slat/Flap lever.
PM Announces “FLAPS 40” when indicated deployed.

Once FAF is next sequenced waypoint, aircraft is level in ALT HOLD and NAV modes:

FINAL X.XX **Select on MCDU**
Select FINAL X.XX on MCDU TO/ARR APPROACH page (LSK 6R).
Aircraft must be in NAV mode with MDA entered to activate.

PROFILE **Select on FCU**
Engage PROFILE mode on FCU.
Aircraft must be level in ALT HOLD to engage.
P.DES will be armed in blue on FMA.

Approach **Monitor**
Check P.DES activates at FAF and initiates descent.
Check actual descent rate and altitude vs. distance against expected values from charts.
Confirm speed target is Vapp.

Call for “LANDING CHECKLIST” once established on approach.

Ensure fully configured by 1000’ AGL, else GO AROUND.

Ensure approach stable by 500’ AGL and below, else GO AROUND.

AP and ATHR must be disconnected to land.

Landing Technique

At 50ft, look towards far end of runway for optimal landing rate perception.

At 20-30 ft, simultaneously:

FLARE **Perform**
Raise nose gently 1-2° to arrest descent rate for smooth touchdown.
CAUTION tail strike will occur at +11° pitch

Throttles **Idle**
If A/THR engaged, monitor automatic reduction of throttle levers to idle.
If A/THR not engaged, retard throttles to idle.

At touchdown:

Reverse Levers **Pull**
Immediately after touchdown, pull reverse levers to at least idle stop.
Confirm REV UNLOCK light illuminates.
Maximum reverse thrust is recommended, unless airport restrictions apply.

Ground Spoilers **Check Extension**
Check ground spoilers deploy on ECAM system display.
If ground spoilers not armed, they will extend when reverse selected.

Brakes **As Required**
Monitor Autobrake if selected.
Apply manual brakes as required.

“80 Knots” **Announce**

Reverse **Idle/Stow**
Ensure reverse idle selected at 80kts to reduce FOD ingestion risk.
Stow reversers approaching taxi speed.
Do not use reverse to control taxi speed.

Go Around

To initiate go-around, simultaneously:

“Go Around Flaps” **Announce**

Go Lever **Trigger**
SIMULATION: bottom-left screw on FCU can be used to activate go-levers.

Throttle Levers **Advance to Go Around thrust**
Follow through on levers if ATHR is armed.

Rotation **Perform**
Smoothly rotate the aircraft to achieve a positive rate of climb and establish the required pitch attitude as directed by the SRS command bar.

Flaps **Retract one step**
PM retracts flaps one step up and announces new position.

FMA **Announce**
Check THR, GO AROUND modes

“Positive Climb” **Announce**
PF requests gear up.
PM moves gear lever to UP position and announces “GEAR UP”
When possible, PM moves gear lever to neutral position.

NAV or HDG mode **Select**

At thrust reduction altitude:

Throttles **Check symmetrical retard movement**
Check throttles reduce symmetrically.
Check CL indicated on TRP.

At acceleration altitude:

LVL/CH **Select**
Confirm appropriate speed selection.

Retract flaps/slats on schedule.
Follow missed approach procedure

After Landing

Lights **Set**
Strobe lights to AUTO.
Nose lights to TAXI.
Landing lights retract and OFF.
Wing lights OFF.
RWY TURN OFF lights OFF.

Anti Ice **Off/As Required**
Wing anti ice should be turned OFF on ground.
Engine anti ice may be left ON for taxi.

Ignition **Off**

APU **Start**

Ground Spoilers **Disarm**

Transponder/TCAS **STBY/OFF**

Radar **Off**

Pitch Trim **1° Nose Up**

Slats/Flaps **Retract to 0/0**
Recommended to retract flaps in stages to minimise jamming possibility.
If approach was made in icing conditions or runway contaminated in slush or snow, do not retract flaps until after engine shutdown when ground crew confirm clear of ice.

Brake temperature **Monitor**
Check brake temperature on ECAM wheel page for high temperatures.
Set brake fans ON if cooling required (hot brakes).

Call for “AFTER LANDING CHECKLIST” once actions complete.

Parking

Nose Light **OFF**
Turn nose light OFF before turning towards parking stand.

Once stationary on stand:

Parking Brake **On**

APU Bleed **On**

Engine Fuel Levers **Off**

Elapsed time **Stop**

Beacon **Off**
Switch beacon off once all engines have spooled down.

Cabin Pressure **Check**
Check differential pressure 0 and inform crew that doors may be opened.

Seat Belt Signs **Off**

Parking Brake **As Required**
Parking brake should be released if chocks in place to allow better brake cooling.

Fuel Pumps **Off**
All fuel pumps OFF except L INNER TANK Pump 2 if APU running with fuel remaining in inner tank.

Probe Heat **Off**

IRS **Check/As Required**
Record IRS position and error.
Reset IRS for realignment if necessary.
If last flight of day, set IRS units OFF.

Brake Fans **As Required**
Brake fans may be turned off when brake temperature is below 100°C or to reduce ramp noise.

Call for “PARKING CHECKLIST” once actions complete.

Securing Aircraft

To be completed when vacating aircraft with no immediate crew replacement.
Use SECURING AIRCRAFT checklist as an aide memoire to ensure all systems shut down.

IRS **Off**
Set IRS units to OFF position.
After switching OFF, wait at least 10 seconds before switching off electrical supply to ensure last position data is memorised.

Crew Oxygen **Off**

Exterior Lights **All Off**

CRTs **All Off**

APU Bleed **Off**

External Power **As Required**
Recommended to use External power until APU shutdown is complete.

APU **Off**
Set master switch to Off.
Set L INNER TANK PUMP 2 OFF.

Emergency Exit Lights **Disarm**

Batteries **Off**

Supplementary Procedures and Techniques

Engine Start With Ground Air Start Unit

APU GEN or EXT PWR **Establish**
Ensure there is sufficient electrical output for engine start via either APU or External Power sources.

Before connecting Air Start Unit:

Pack Valves 1+2 **OFF**

Before Starting Engines:

ENG BLEED VALVES 1+2 **OFF**
Closure of both the engine bleed valves eliminates reverse flow leakage.

Air X-FEED **MAN/IN LINE**
Select AIR X-FEED pb to MAN
Press flow bar pb so that bar is horizontal, in line with cockpit diagram (x-feed valve open).

Once cleared to start, proceed with normal engine start procedure.

~ ~ ~

If Crossbleed Engine Start considered after first engine start:

Ground Air Start Unit **Remove**

Pack Valves 1+2 **ON**

CROSSBLEED ENGINE START Procedure **Apply**
See below for procedure.

~ ~ ~

If both engines are started on external air, proceed as normal for second engine, then:

AIR X-FEED **AUTO/CROSS LINE**
Select AIR X-FEED pb to AUTO (off)
Flow bar line moves to vertical (cross line) showing valve closed.

ENG BLEED VALVES 1&2 **AUTO**

PACK VALVES 1+2 **ON**

Cross Bleed Engine Start

CAUTION: Engine bleed supply and external air must not be used simultaneously.

APU BLEED VALVE **OFF**

BLEED VALVE (Receiving Engine) **OFF**

AIR X-FEED **MAN/IN LINE**

Select AIR X-FEED pb to MAN

Press flow bar pb so that bar is horizontal, in line with cockpit diagram (x-feed valve open).

BLEED VALVE (Supplying Engine) **AUTO**

Proceed with normal engine start procedure.
Maintain Minimum Required Starter Air Pressure using throttles.

Altitude (ft)	Temperature (°C)	Min. Pressure Required (PSI)
0	-40	35
0	15	30
0	55	25
8000	-40	25
8000	0	25
8000	40	25

NOTE: It is recommended not to exceed flight idle (~70% N2) when maintaining start air pressure.

After Engine Start:

X-FEED **AUTO/CROSS-LINE**

Select AIR X-FEED pb to AUTO (off)

Flow bar line moves to vertical (cross line) showing valve closed.

BLEED VALVE (Receiving engine) **AUTO**

Single Engine Taxi Departure

Engine 2 **Start as normal**

AIR X-FEED **MAN/IN LINE**
Select AIR X-FEED pb to MAN
Press flow bar pb so that bar is horizontal, in line with cockpit diagram (x-feed valve open).
Supplies both packs from engine 2 during taxi.

APU BLEED **OFF**

AFTER START Procs **APPLY with exceptions**
Keep APU running while operating on one engine to ensure suitable electrical and bleed air availability for second engine start.
Engine anti-ice should remain OFF for non-running engine.

Taxi flow should not be completed until engine 1 is started.

To start engine 1:

APU BLEED **ON**

Engine 1 **Start as normal**

APU **As Required**

AIR X-FEED **AUTO**

Engine Anti Ice **As Required**

ECAM Status **Check**

Resume normal taxi procedures with flight control check.

Single Engine Taxi Arrival

APU **Start**
APU should be started at the soonest convenient time after landing.

Engine 1 **Shut Down**
Engine 1 should be shut down using the fuel lever no sooner than 3 minutes after reverse thrust operation.

180 Turn on Runway Technique

A standard runway is 45m wide. This procedure is recommended as the most efficient way to achieve a turn within the runway width.

Captain's side:

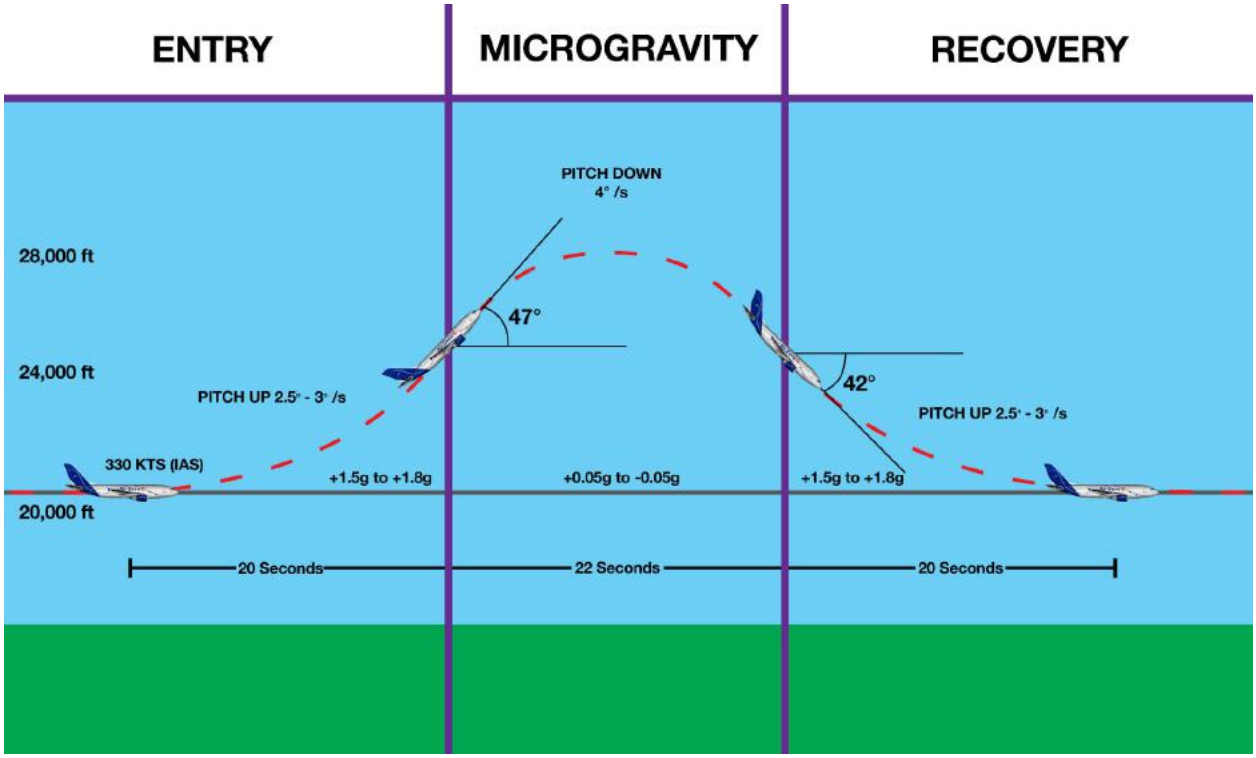
- Taxi on the right-hand side of the runway until about 150m from the end.
- Turn left approximately 25° from the runway centreline
- When the captain's seat is physically over the runway edge, quickly apply full right nose wheel deflection, and introduce some thrust on engine 1 (up to 50% N1).
- Maintain the turn until facing the intended direction. The nose wheel will remain about 2m from the runway edge, and the main gear 3m from the edge. There will be about a 7m clearance to the other edge of the runway.

Copilot's side:

- Taxi on the left-hand side of the runway until about 150m from the end.
- Turn right approximately 25° from the runway centreline
- When the captain's seat is physically over the runway edge, quickly apply full left nose wheel deflection, and introduce some thrust on engine 2 (up to 50% N1).
- Maintain the turn until facing the intended direction. The nose wheel will remain about 2m from the runway edge, and the main gear 3m from the edge. There will be about a 7m clearance to the other edge of the runway.

Zero-g Parabola Technique

The aim of this maneouvre is to fly a parabolic arc, throughout which there will be a period of microgravity (zero g). In performing this manoeuvre, the aircraft will be pushed close to its limits, but proper execution will ensure safe operation within bounds.
It is recommended to fly the zero-g parabola in visual conditions and directly into the wind.



Before initiating the zero-g parabola, the aircraft should be straight and level at 20,000ft, VMO-10 KTS (approx. 330 KTS), in clean configuration. It is recommended to have the flight directors in ALT HLD and HDG modes, and ATHR on throughout. Engine start selector should be in CONT RELIGHT.

To enter the parabola, disconnect AP (if engaged) and begin a smooth pitch-up action of approximately 2.5° - 3° per second, or between +1.5g and +1.8g. Continue until the pitch attitude is approximately 47°.

Upon reaching maximum pitch, smoothly reverse the pitch trend and begin to pitch down at approximately 4° per second, maintaining +/- 0.05g. This is the section of the manoeuvre in which the aircraft is on a parabolic trajectory and experiencing microgravity.

After 22 seconds, or when the pitch attitude is about 42° below the horizon, begin to recover the aircraft and exit the parabola, Again maintaining between +1.5g and +1.8g or 2.5° - 3° per second, pitch up slowly back to level flight. Approaching normal flight, follow flight directors to return to initial conditions.

Emergency/Abnormal Procedures

Rejected Takeoff

Speed plays a significant part in determining whether to reject a takeoff in a given circumstance.

Below 100 kts, takeoff may be rejected for any reason, and should be seriously considered if any ECAM caution or warning is activated.

Above 100kts and below V1, rejecting takeoff is a more serious matter and should only be taken for very few serious causes such as an indication of fire or significant damage, a sudden loss of engine thrust, ECAM warnings that are not inhibited, or any other condition in which it is unclear whether the aircraft can fly safely.

Above V1, takeoff must be continued as it may be impossible to stop the aircraft safely within the remaining runway length.

When stopping, consider positioning the aircraft according to wind so that any fire is blown away from the fuselage.

ANNOUNCE **"STOP"**

Simultaneously:

THRUST LEVERS **IDLE**

A/THR **DISCONNECT**

REVERSE THRUST **MAX AVAIL**

PM monitors braking and confirms reverser deployment.

Inform ATC "STOPPING" as soon as possible. Once Stopped:

Parking Brake **Apply**

ECAM ACTIONS **Complete**

EVACUATION AS REQUIRED **INITIATE**

Determine if failure requires immediate evacuation.
No attempt to vacate the runway should be made until it is absolutely certain that evacuation is not required and that it is safe to do so.
If evacuation is required, see 'On Ground Emergency Evacuation'.

On Ground Emergency Evacuation

AIRCRAFT/PARKING BRK **STOP/SET**

ATC (VHF 1) **NOTIFY**
Inform ATC that you intend to evacuate.

BOTH FUEL LEVERS **OFF**

CABIN CREW PA **NOTIFY**
Clearly call “ATTENTION. CABIN CREW AT STATIONS”.

EMER EXIT LIGHTS **ON**

FIRE HANDLES (ENG and APU) **PULL**

FUEL ISOL VALVES **OFF**

AGENTS (ENG and APU) **AS REQUIRED**

RAM AIR **ON**

If CAB MAN PRESS selected… **V/S CTL MAINTAIN UP**

If Evacuation Required:

EVACUATION PA **INITIATE**
Clearly call “EVACUATE. UNFASTEN YOUR SEAT BELTS AND GET OUT.”

BAT (ALL) **OFF**

If Evacuation Not Required:

Cabin Crew & Passengers (PA) **Notify**
Inform crew and passengers to remain seated.

Emergency Descent

Crew Oxy Masks **ON**
SIM: Not simulated

HEADING **TURN and HDG SEL**
Turn FCU heading selector away from current route and press HDG SEL.

ALTITUDE **TURN and LVL/CH**
Wind FCU altitude selector down and select LVL/CH to initiate descent.

SPD/MACH **SELECT SPEED**
Select SPEED mode using FCU SPD/MACH pb.

THROTTLES **IDLE**

SPD BRK **FULL**

SPEED **ADJUST AS REQUIRED**
Descend at maximum appropriate speed. If structural damage suspected, reduce speed.

SEAT BELTS **ON**

NO SMOKING **ON**

IGNITION **CONT. RELIGHT**

ATC **NOTIFY**

TRANSPONDER **7700**

FCU ALT **MEA/MORA**

LDG ALT **SET**

OXYGEN PASSENGER **MAN OVRD (CAB ALT ABOVE 14000 FT)**

L/G LEVER DOWN **CONSIDER**
L/G may be lowered when below 20 000 ft and below 270 KTS IAS to increase descent.

GPWS Alerts

During night or IMC conditions, the following procedures must always be considered genuine, and must be applied immediately without delay.
During daylight VMC conditions, with terrain and obstacles in sight, alerts may be considered cautionary. Positive corrective action should still be taken until the alert ceases or a safe trajectory is installed.

"SINK RATE"
Adjust pitch attitude and thrust to reduce sink rate and silence the warning.

"DON'T SINK" then "TOO LOW" or "DON'T SINK GEAR" then "TOO LOW"
Adjust pitch attitude and thrust to maintain level or climbing flight.

"TOO LOW GEAR" or "TOO LOW FLAPS"
Perform a go-around.

"GLIDE SLOPE"
Re-establish the aircraft on the glide slope. Consider a go around if unstable.

Severe Turbulence

Whenever experiencing or anticipating moderate or severe turbulence, the following readiness actions should be performed:

SEAT BELTS **ON**

NO SMOKING SIGN **ON**

IGNITION **CONT RELIGHT**

AP **KEEP IN CMD**

SPEED/MACH Setting Knob **PULL/Adjust**

Pulling the SPEED/MACH Setting Knob results in a reversion from PROFILE to LVL/CHG or ALT HLD. This provides more autopilot authority to cope with turbulence.

A/THR **KEEP ENGAGED**

Target Speed and Thrust **READ AND NOTE**

Turbulence Penetration data can be found in the *Speeds and Performance Limits* section of this manual.

SPD/MACH **SET TARGET SPEED**

ALTITUDE **CONSIDER DESCENT**

When flying in severe turbulence at the turbulence penetration speed, consider flying at or below optimum altitude to provide greater buffet margin.

TRIM TANK MODE **FWD**

Setting TRIM TANK MODE FWD will move the CG forward at a rate of ~1% CG per minute. This increases aircraft stability and response to turbulence.

If encountering severe turbulence:

A/THR **DISCONNECT**

THRUST **SET TARGET THRUST**
In severe turbulence, minimising thrust changes and allowing airspeed excursions within operating and buffet margin limits is optimal.

ALTITUDE **DESCEND BELOW OPTIMUM**
Flying at or below optimum altitude ensures at least 1.4g buffet margin at turbulence penetration speed.

If Autopilot does not perform as desired:

AP **DISCONNECT**

PITCH ATTITUDE/WINGS LEVEL **MAINTAIN**
Use moderate control inputs.
Do not change pitch trim setting once established.
Prioritise pitch attitude over altitude.

Once out of turbulence:

AP **CONSIDER RE-ENGAGEMENT**
AP should be re-engaged once turbulence is over or upset recovered.
Confirm flight directors and FMAs provide indicate desired modes before engaging.

A/THR **RE-ENGAGE**

TRIM TANK MODE **AUTO**

IGNITION **OFF**

SIGNS **AS RQRD**

TARGET SPEED AND THRUST SETTINGS IN SEVERE TURBULENCE

FLIGHT LEVEL	TARGET SPEED MACH / IAS (KTS)	GROSS WEIGHT (x1000 kg)						
		100	110	120	130	140	150	160
		TARGET N1 % (Grey = above optimum altitude)						
410	.78	91	94					
390	.78	89	91	94				
370	.78	87	89	91	93			
350	.78	86	87	89	90	92		
330	.78	86	87	88	89	91	93	95
310	.78	86	86	87	88	90	91	92
290	290	85	85	86	87	88	89	91
270	290	83	84	85	86	87	88	89
250	295	82	83	84	85	86	87	88
200	295	79	79	80	81	82	83	84
150	295	75	76	77	77	78	79	80
100	295	72	72	73	73	74	75	76
50	295	68	68	69	70	70	71	72

Unreliable Airspeed

ALL AIRSPEED INDICATIONS **DISREGARD**

AP/FD and ATHR **DISCONNECT**

TO CLIMB:

SET PITCH: WITH SLATS EXTENDED: **12.5° NOSE UP**
WITH SLATS RETRACTED - BELOW FL 100: **7.5° NOSE UP**
ABOVE FL 100: **5° NOSE UP**

SET THRUST: **100 % N1**

TO LEVEL OFF / MAINTAIN LEVEL FLIGHT

SET PITCH: **2° NOSE UP**

SET THRUST: BELOW FL 100: **70 % N1**
FL 100 - FL 250: **80 % N1**
ABOVE FL 100: **90 % N1**

TO DESCEND:

SET PITCH **1.5° NOSE DOWN**

SET THRUST **IDLE**

IF STICK SHAKER / STALL WARNING ACTIVATED **APPLY STALL RECOVERY**

Stick Shaker and Stall Warning are based off the Angle Of Attack and must be trusted.

Procedure continues on next page...

PROBE HEAT **CHECK ON**

CONFIGURATION **CHECK / AS REQUIRED**
Confirm Gear, Slats/Flaps, Speed brakes are all set to intended positions.

PITCH ATTITUDE AND N1 **CHECK TABLE / ADJUST**
Use tables below to determine pitch/power settings for continued flight.

USE OF FPV **CONSIDER**
FPV is based on AoA and may provide useful performance indications.

GROUND SPEED **MONITOR**
Ground speed output is based on INS data and will be accurate. May provide useful indication of speed.

AIR SPEED INDICATIONS **CHECK FOR MOST RELIABLE INDICATION**
Compare air speed indicators and attempt to identify which, if any, may be reliable.

ADC INSTRUMENT SWITCHING **CONSIDER**
If a reliable instrument is identified, ADC instrument switching may be used to recover accurate airspeed indications on some or all instruments.

PITCH TARGET / N1 TARGET TABLE

TO OBTAIN / MAINTAIN	SET PITCH °	SET N1 %	ANGLE OF ATTACK °
Takeoff:			
V2+10 kts (2 engine)	15	TOGA	8
V2 (1 engine out)	12.5	TOGA	8
Acceleration / Clean-up:			
F speed	10 (start chrono)	100 %	5
S speed (30s after flaps retraction)	10	100%	5
Climb:			
Below FL100	10	100% N1	2
Above FL100	5	100% N1	2
Cruise:	+2	Refer to TARGET SPEED AND THRUST SETTINGS IN SEVERE TURBULENCE table	2
Descent:	-1.5	Idle	2

TARGET PITCH/N1 TO MAINTAIN MANOEUVERING/FINAL APPROACH SPEEDS

IN CONFIG	TO MAINTAIN	SET PITCH	FPA	AOA	100	120	140	160
CLEAN	Green Dot	4	0	4	53	58	62	66
15/0	S Speed	7	0	7	56	61	66	71
15/15	F + 20	7	0	7	58	63	67	71
20/20	F Speed	7	0	7	63	68	73	78
30/40	VREF +10	4	-3°	7	55	60	66	70

CORRECTIONS ON TARGET N1

Single engine operation +20 % N1

Radome damage +10 % N1

Airfield elevation + 0.8 % N1 per 1000 ft above sea level

Temperature +/- 1 % N1 per 10°C above/below ISA

Wind component +/- 1 % N1 per 10 kt head/tail wind

Glide slope angle +/- 0.5 % N1 per 0.1° below/above 3°

Overweight Landing

LANDING CONFIGURATION **DETERMINE**

LANDING DISTANCE **CHECK**

Use EFB LANDING PERF calculator to determine landing distance required.

PACK VALVE 1+2 **OFF or ON APU**

Selecting packs off (or supplying packs from APU) will increase the maximum thrust available from the engines in case of a go-around.

CTR TK PUMPS (L+R) **OFF (if below 1000kg / 2200 lbs)**

VERTICAL SPEED AT TOUCHDOWN **MINIMISE**

Maximum vertical speed on touchdown is 360 ft/min when overweight.

Loss of Braking

If AUTOBRAKE selected:

BRAKE PEDALS	**PRESS**

If no braking available:

MAX REVERSE	**APPLY**
BRAKE PEDALS	**RELEASE**
BRK/ANTI SKID	**ALTN/OFF**
BRAKE PEDALS	**PRESS**
MAX BRK PRESS	**1000 PSI**

If still NO BRAKING:

PARKING BRAKE	**USE**