A310 NORMAL PROCEDURES AND DO ITEMS

Last Updated: **18th July 2012**

TheAirlinePilots.com

- Safety Exterior Inspection

Nose Wheel Chocks	Check in Place
L/G Doors	Check Position
APU Area	Check Clear

- Interior Inspection

<table>
<tr><td rowspan="2">A/C Status</td><td colspan="2">Technical Log Book</td></tr>
<tr><td colspan="2">Aircraft Documents</td></tr>
<tr><td rowspan="14">A/C Library</td><td rowspan="5">Routine</td><td>Normal Checklist</td></tr>
<tr><td>JEPPESEN</td></tr>
<tr><td>RTOLW Analysis</td></tr>
<tr><td>Flight Log</td></tr>
<tr><td>Debrief</td></tr>
<tr><td rowspan="8">Non Routine</td><td>QRH</td></tr>
<tr><td>MEL</td></tr>
<tr><td>OPS Procedures</td></tr>
<tr><td>FCOM Vol.1</td></tr>
<tr><td>FCOM Vol.2</td></tr>
<tr><td>OETB</td></tr>
<tr><td>OEIB</td></tr>
<tr><td>FOM</td></tr>
<tr><td rowspan="2">Other</td><td>Mass & Balance</td></tr>
<tr><td>DGR</td></tr>
</table>

- Maintenance Bus Switch – ON

- Preliminary Cockpit Preparation

Safety First	Cockpit Safety Checks	Ignition Off	
		Wipers Off	
		Throttle Lever Idle	
		Reverse Levers Stowed	
		Fuel HP Valves Off	
		L/G Lever Down	
		C/B Panels Rear & Overhead Check	
Check Power Sources	Battery	OFF	Voltage Check
		AUTO	Flow Bars in line
			Dome Light On
			DC ESS ON BAT Light
			AC EMER ON INV Light
			Inverter Voltage & Frequency
	APU	Fire Protection System Check	
Activate Power	External Power / APU*	Standby Generator Check**	
Illuminate Cockpit	Lights ON	Standby Compass	
		Dome Light	
		Panel Lights	
Scan and Check	Overhead Panel	Electrical – No Amber Lights Except GEN	
		Fuel – Left Inner Pump 2 ON for APU	
		Probe / Window Heat – Off	
		VENT – Lights Off, OVBD Flow Bar Inline	
		Light Test – Perform	
		APU Bleed – As req	
		Pack Valves – ON	
		Compartment Temperature – As req	
	Pedestal	Alternate Brake***	
		Speed Brake Handle	
		Parking Brake****	
		Slats / Flaps Handle	
	Lateral / Maintenance Panel	ANN LT selector – Off	
		No Light illuminated	
		PA volume knob at 12’O Clock	
Emergency Equipment	**G**	Goggles	
	E	Evacuation Handles	
	L	Landing Gear Extension Handle	
	F	Fire Extinguisher	
	L	Life Jackets	
	A	Axe	
	G	Gloves	
	S	Smoke Hood	

* Check oil quantity before starting.
** Check if required for ETOPS operation. (Ref: SOP 2.03.04 Page 2)
*** Check for the first flight of the day. (Ref: SOP 2.03.04 Page 3)
**** Brake Fans ON if Temp > 200^{o} C (Ref: Procedure and Techniques 2.02.14 Page 2)

- Exterior Inspection (NAV Lights ON – Gear pins and Covers removed)

Cockpit Preparation

- IRS on NAV
- ATIS
- Panel Scan Flow

  Min Oil Qty 10 QT + Estimated Consumption (0.1-0.3, Max 0.5 qts/hr)
- T/O Data Card

Note: After checking A/C Status from the REF page:
- Secondary Flight Plan – Clear
- Eng Out Page – Clear
- Defined Waypoints – Delete

- Checks After Cockpit Preparation

IRS	Position on ISDU and Fault on FMS Sensor Status Page
Heading	ND, RMI and Standby Compass
Altimeter	Altimeter 1, 2 & Standby – Note readings for RVSM flights
Clocks	Time and Date
FMS	Forecast Wind, Flight Plan Check & Copy Active
Fuel	Indent Form, Quantity, Distribution, FQI Low Accuracy

- Takeoff Briefing

This will be a left / right hand seat takeoff.

If any malfunction occurs before V1, I will call STOP or GO (A lack of any response to a malfunction could be considered a subtle incapacitation). If the call is STOP, I will select maximum reversers and bring the aircraft to a stop on the runway, bearing in mind the wind direction if there is a fire.

You will monitor deceleration and notify ATC.

When the aircraft comes to a complete stop and parking brakes are set, you will carry out the necessary ECAM actions on my command.

If the malfunction occurs after V1, we will continue the takeoff. No action other than application of TOGA and silencing any aural warnings will be taken until the aircraft is safely established in a climb and above 400 feet AAL.

At that point, carry out ECAM actions on my command, up to the second agent discharge, if necessary, for an engine fire.

Note:
- Incase of engine over limits or engine stall, carry out the appropriate ECAM actions / QRH procedures at 400 feet AAL.

- Time permitting – Cleanup; checklist and ECAM Procedures after engine failure may also be covered during briefing.

- Airfield Departure Briefing

    1. Weather.
    2. VHF Communication Frequencies to be used.
    3. Start up Procedures:
        - ATC Procedures (Push and start procedures)
        - A/C Procedures (Start sequence, engine limitations etc)
    4. Taxi routing to the runway in use.
    5. Take off Setting:
        - TC: **T**hrust – **C**onfiguration
        - PIA: **P**ack – **I**gnition – **A**nti-ice
    6. Runway Information.
        - **D** – Dimensions (Length, Width, Stopway)
        - **S** – Surface Condition
        - **L** - Lighting
    7. SID Procedure:
        - Navigation Frequencies to be used.
        - Routing and Constraints
        - Transition Altitude
        - MSA
    8. Thrust Reduction and Acceleration Heights:
        - Standard thrust reduction height (1500 ft AAL).
        - Single engine acceleration (1500 ft AAL).
        - Standard two engine acceleration (1500 / 3000 ft AAL).
    9. Miscellaneous:
        - Communication Failure Procedure
        - Noise Abatement Procedure
        - Any special conditions affecting departure

BEFORE START

Procedures:

<table>
<tr><td colspan="2"></td><td>CM1</td><td colspan="2">CM 2</td></tr>
<tr><td rowspan="3">Trim Sheet Data*</td><td>Block Fuel</td><td rowspan="3">Insert</td><td colspan="2" rowspan="3">Announce</td></tr>
<tr><td>ZFW **</td></tr>
<tr><td>ZFW CG</td></tr>
<tr><td rowspan="2">Weight & Balance</td><td>TOGW (FMS)</td><td rowspan="2">Announce</td><td rowspan="2">Check</td><td>Max Diff 1 Ton ***</td></tr>
<tr><td>TO CG (ECAM)</td><td>Max Diff 1.5% ****</td></tr>
<tr><td>T/O Data Card</td><td></td><td></td><td colspan="2">Complete</td></tr>
<tr><td rowspan="6">Speeds & Bugs</td><td rowspan="2">FMS</td><td>V1</td><td colspan="2" rowspan="2"></td></tr>
<tr><td>VR</td></tr>
<tr><td rowspan="2">FCU</td><td>V2</td><td colspan="2" rowspan="2"></td></tr>
<tr><td>Preset *****</td></tr>
<tr><td rowspan="2">ASI</td><td>V2</td><td colspan="2">V2</td></tr>
<tr><td>Green Dot</td><td colspan="2">Green Dot</td></tr>
<tr><td>TRP</td><td></td><td colspan="2">Flex Temp & Rating</td></tr>
<tr><td rowspan="2">FMS</td><td>F-PLN Page</td><td>PNF</td><td colspan="2"></td></tr>
<tr><td>TO Page</td><td></td><td colspan="2">PF</td></tr>
<tr><td>Checklist</td><td colspan="4">Before Start Checklist To The Line</td></tr>
</table>

* Last Minute Change (LMC). No change in CG is required if Pax or weight changes (Loading / Off Loading) are restricted to: 7 Pax with baggage anywhere or 700 Kg load in any lower hold. Only ZFW, TOGW and total souls on board figures have to be revised. (Ref: Weight and Balance Manual 06-60-02)

** If AZFW is 5 tons above EZFW then new Flight Plan and Trim Sheet required (Ref: OETB A310-09-08)

*** Procedures and Techniques (Fuel) 2.02.11 Page 2

**** CGCC Inop Procedure (Ref: Fuel OETB Dec 1 1999)

***** Greater of 250 or Green Dot + 20

Do Items:

CM 1		CM 2	
A	**A**lignment completed (IRS)	**A**	**A**TC (Clearance)
			Announcement (Cabin Crew)
B	**B**rakes (Set)	**B**	**B**eacon ON
C	**C**learance (Ground)	**C**	**C**B (CDLS)
D	**D**oors and Windows (Closed)	**D**	**D**oors and Windows (Closed)
		E	**E**xternal Power OFF
Before Start Checklist Below The Line			

ENGINE START

CM 1	CM 2
Select Ignition Call “Start Eng 2 (1)”	Open Start Valve Call “Valve Open”
“N2”	“Oil Pressure”
“Fuel ON” – Time Check	Time Check
“Fuel Flow ”	
“EGT” – Time Reset	Time Reset (GE Only)
“N1”	
“N2 45%”	“Valve Closed”
“All Parameters Correct”	Cross Check

Engine Start	GE	PW
Fuel ON	N2 >15%	N2 > 20% *
Fuel ON to Light up	25 Sec	20 Sec
EGT ^{o}C	750 – Unlimited	535 – Ground **
	750 – 870 for 40 Sec	625 – In flight
Fuel ON to Idle N2	---	120 Sec
N1 rotation	Within 30 sec of N2 Idle	By 40% N2
Idle Parameters ISA – Sea Level	N1 24 % N2 65 % EGT 400^{o} C FF 600 Kg/h	N1 22 % N2 64 % EGT 325 – 425^{o} C FF 640 – 730 Kg/h
Starter Reengagement	N2 < 20 % ***	N2 < 30% ****
Oil Quantity After Start	< Bug or < 20 Quarts	8-10 quarts less

* If N2 < 20% then Fuel ON at Max Motoring provided Max Motoring is > 15 %.

** Normal Starting FF (250 KPH). Stabilized FF > 545 KPH within a few seconds after Fuel ON indicates an impending hot start.

*** Max 30 % – Recommended 0 %.

**** If N2 indication not available then 20 seconds after Fuel HP levers is set to OFF. Should a start be aborted above 48% N2, allow N2 to decrease below 5% prior to a restart. This will remove power from FADEC and reset FADEC overspeed protection logic.

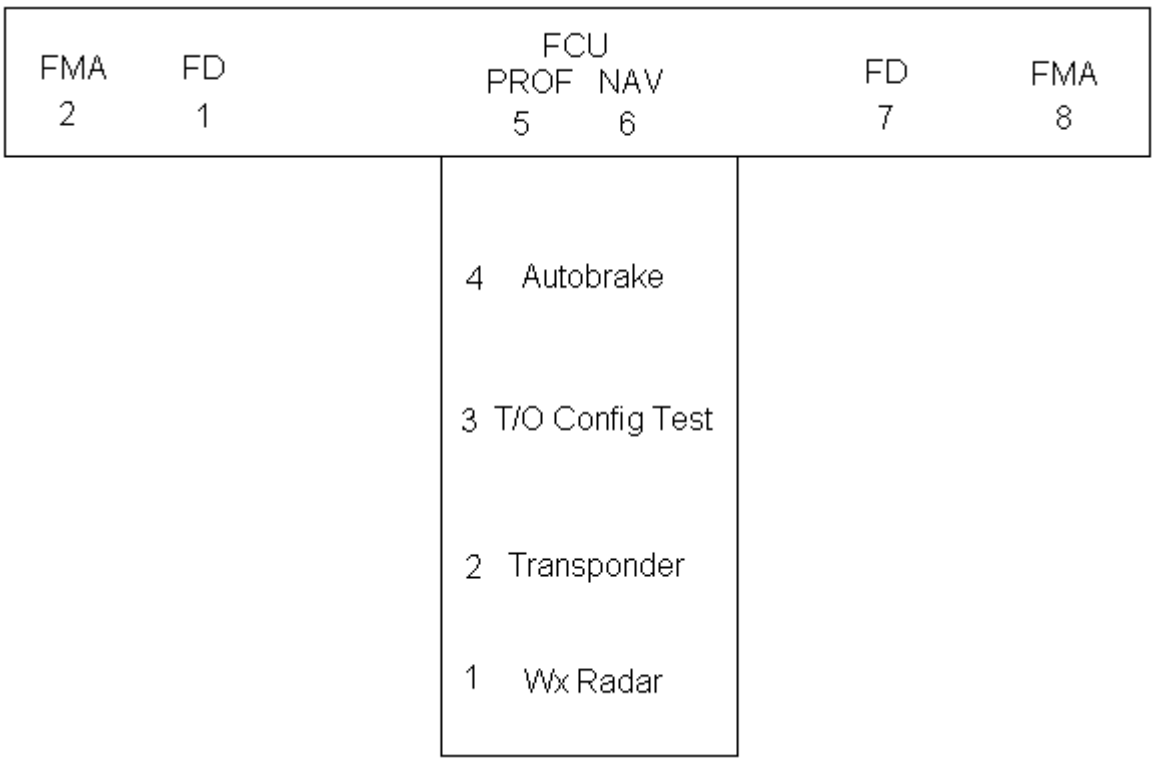
AFTER START

<table>
<tr><th colspan="2">CM1</th><th colspan="3">CM2</th></tr>
<tr><td colspan="2" rowspan="2"></td><td rowspan="3">A
After</td><td rowspan="2">APU</td><td>Bleed OFF</td></tr>
<tr><td>Master SW
as required</td></tr>
<tr><td colspan="2">Ignition OFF</td><td>Anti-Ice</td><td>Eng / Wing
As required</td></tr>
<tr><td>ECAM</td><td>Status
Door Slides</td><td rowspan="2">S
Start</td><td>Slats / Flaps</td><td>Set</td></tr>
<tr><td>Ground</td><td>Clear to Disconnect</td><td>Spoilers</td><td>Arm</td></tr>
<tr><td>Signal</td><td>Receive Hand Signal
Sight Bypass Pin</td><td>T
Things</td><td>Trim</td><td>Aileron
Rudder
Pitch</td></tr>
</table>

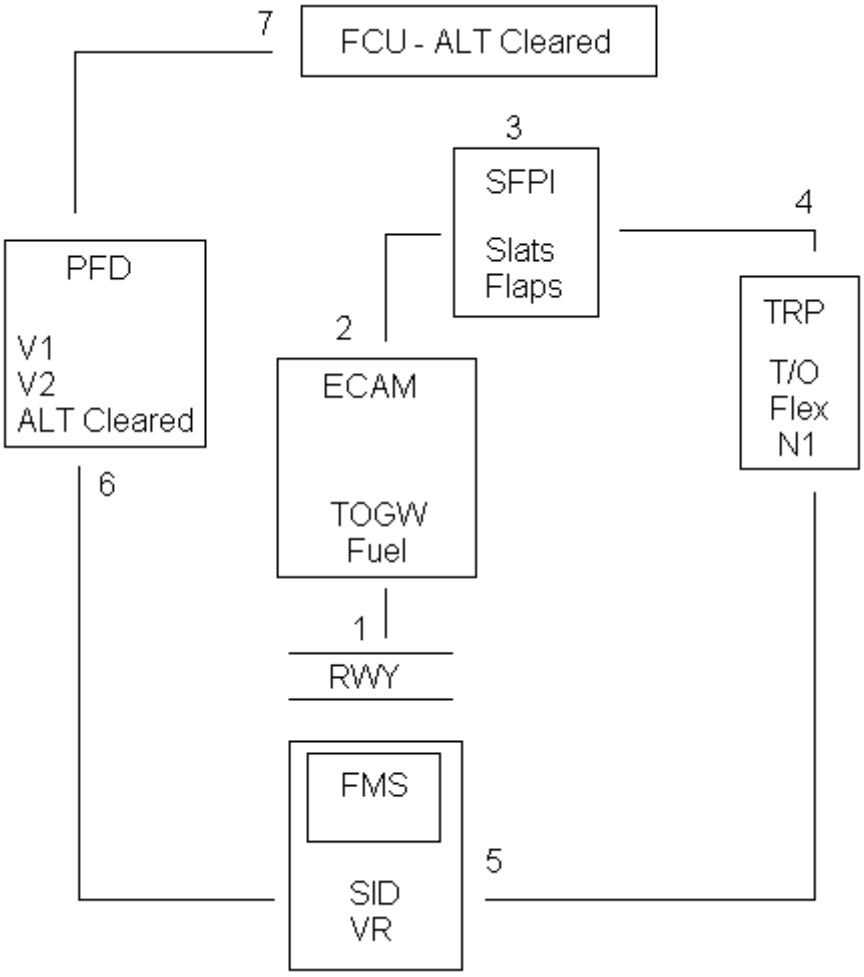
TAXI

CM1	CM2
	Taxi Clearance
Taxi Lights	
“Clear My Side Hand Signal / Bypass Pin Sighted”	“Clear My Side”
“Brake Check“	“Pressure Zero”
Heading Check	Heading Check
“Select Flight Control”	Select ECAM Flight Control Page
	Elevator + Aileron / Roll Spoilers Check
Rudder Check	
“Deselect Flight Control”	Deselect ECAM Flight Control Page
	ATC Clearance

CM2's Do Items (1-8) in a Flow Pattern **T** (for TAXI)



CM1's Briefing Pattern during TAXI



BEFORE TAKEOFF

CM1	CM2
Before T/O Checklist To The Line	
	Cabin Announcement
	Line Up Clearance
Area Clear (RWY / Approach)	
Takeoff Lights	Transponder / TCAS ON
RWY Heading Check	
Brakes – Pressure (No Residual) and Temp (below 300, Fans OFF)	
PIA – Packs, Ignition, Anti-ice as required	
Before T/O Checklist Below The Line	

TAKEOFF

CM1	CM2
Thrust GE – 40% N1 PW – 1.05 - 1.1 EPR (max diff 0.02) *	
Go Levers – Trigger ** Takeoff – Announce FMA – Read	Call “Check”
PNF	**PF**
Time Check	Time Check
“Thrust Set”	
“100 Knots”	“Check”
“V1”	
“Rotate”	Rotation
“Positive Climb” (on IVSI)	“Gear UP”
Gear Up Speed Brakes Disarm Lights OFF	
	At 1500 feet – Call “P. Thrust / P. Climb” or “Set Climb Thrust”
Verify / Set CL Thrust on TRP	
Gear Neutral	
1st Pack ON (if Off)	
“Acceleration Height”	Verify Acceleration – Call “Flaps Zero” when Speed > F “Slats Retract” when Speed > S
Retract Flaps / Slats	
2nd Pack ON (if Off)	
After T/O Checklist	
Scan Engine Parameters, especially EGT	

* With ALT Mode set 40-60% N1 (Max diff 4%).

** With any tailwind component or crosswind > 20 knots, manual T/O recommended for P&W operation. After intermediate thrust setting, promptly advance EPR to 1.25 then advance thrust progressively to be at T/O position by 50 KIAS.

CLIMB

Do Items:

T	**T**ransition Altitude
T	**T**en Thousand Feet (Seatbelt Sign & Lights)
T	**T**emperature and Pressure (cabin)
T	**T**ilt of Weather Radar
T	**T**wenty Thousand Feet (Monitor Fuel AFT Transfer)

Procedures:

Monitor	N1, N2, EGT
Speed	250 below 10,000 ft
	300 / .79 above 10,000 ft
	295 / .78 for turbulence
	Green Dot for Max Angle
EFIS	Select “ARPT”
FMS	PF – PROG
	PNF – F-PLN
Radar	Tilt Adjust

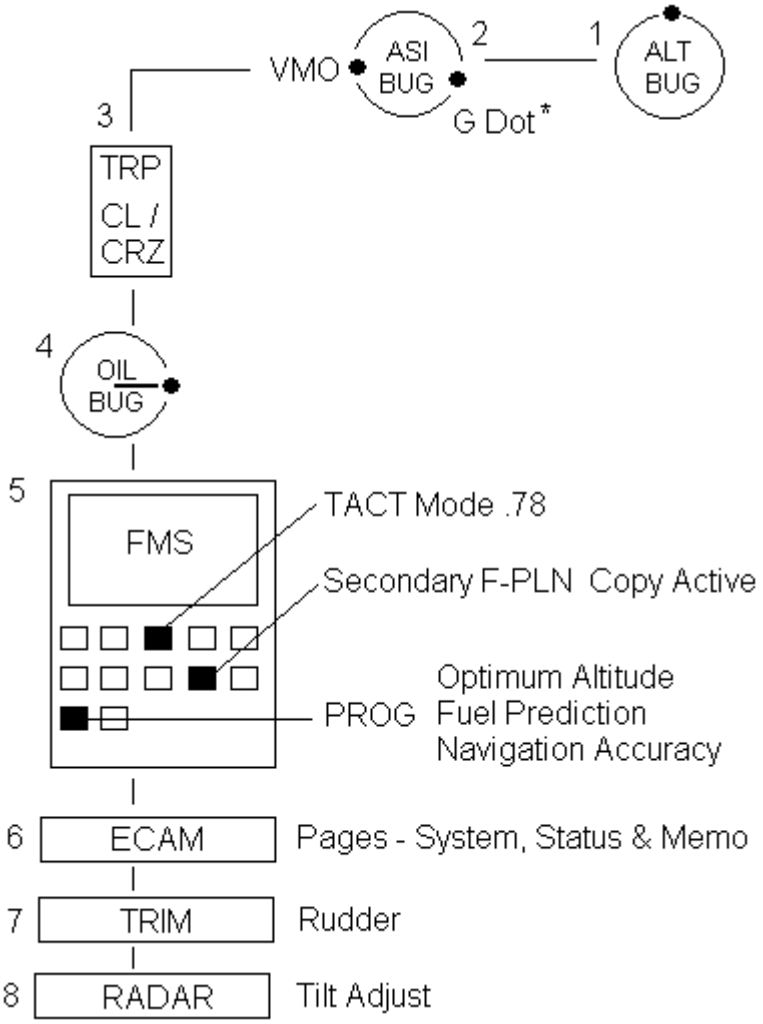
TOP of CLIMB

Approaching TOC **Approx 1500 ft** ***(For RVSM & Controlled Airspace)***	Mach .79 / .80 V/S 500-1000 ft/min (Max 1500 ft/min)*
TOC	Fuel check
	Time note

* PIA FOM **-** General Flight Rules - 6.5.1 - Level Off.

* Jeppesen - Air Traffic Control - UK Rules and Procedures – Maximum Rates of Climb and Descent.

CRUISE CHECKS



***** Green Dot Speed = Height above 20,000 ft x 2 + Gross Weight + 100.

CRUISE PROCEDURES

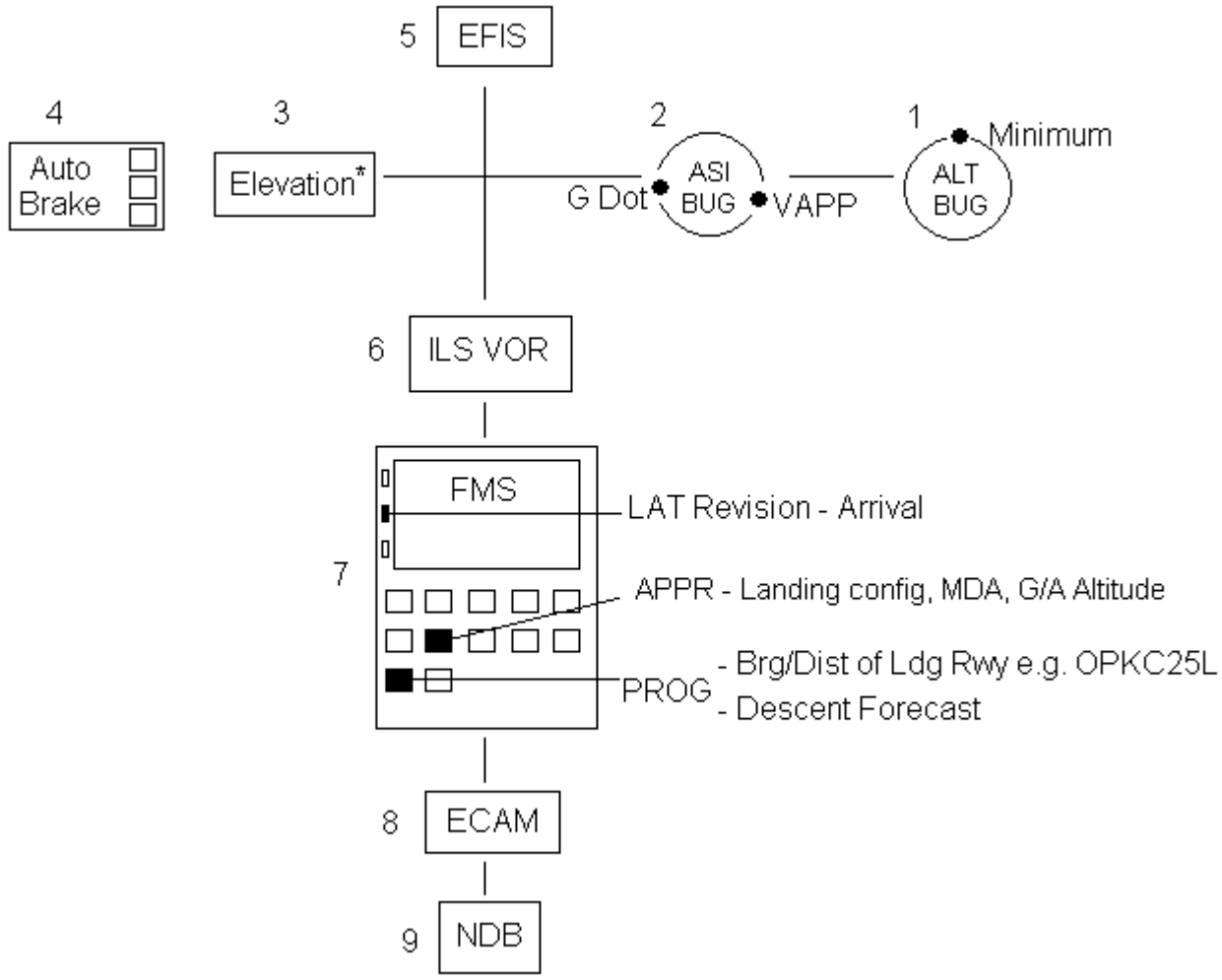
A	**A**ltimeter	Note readings for RVSM
B	**B**ooks	Flight plan, Flight Log & Debrief
C	**C**ruise Data **	For engine trend monitoring
D	**D**eparture Message	Time, Act ZFW, Spot wind & Temp
E	**E**nroute	Enroute Alternates and Weather
F	**F**IR	Entry / Exit Time and Area Procedures

** OETB A310-02-10:
Auto Thrust OFF and No throttle movement for 5 minutes.
Nacelle / Wing Anti-ice OFF and if following Data remains valid for 2 minutes:

N1 ± 0.02
N2 ± 0.01
TAT ± 0
Mach ± 0.05

Note: Repeat Cruise Checks and Procedures after every 30-45 minutes to stay updated

DESCENT PREPARATION



* Set Landing Elevation “Zero” if QFE in use

DESCENT PROCEDURES

A	**A**TIS	Destination and Alternate weather
B	**B**riefing	ECAM Status
		Fuel
		Approach Briefing
C	**C**ard	Landing Data Card
	Company Msg	Arrival Message: ETA, Fuel, A/C Status

- Approach Briefing:

1. Weather
2. STAR Procedures:
    - Navigation Frequencies to be used
    - Routing and Constraints
    - Transition Level
    - MSA
3. Approach Procedures:
    - Navigation Frequencies to be used
    - Approach and Minima
    - Transition Level
    - MSA
    - Terrain condition
    - Restricted and prohibited areas in descent and approach path
4. Go Around and Missed Approach Procedures:
    - ATC Procedures
    - A/C Procedures
5. Landing Runway Information
    - **D** – Dimensions (Length, Width, Distance beyond G/S)
    - **S** – Surface Condition
    - **L** – Lighting
6. Taxi In Routing and Procedures
7. Miscellaneous:
    - Communication Failure Procedure
    - Type of Approach – Standard, Coupled, Manual, Auto Land etc
    - Specific duties due to special conditions affecting arrival

DESCENT

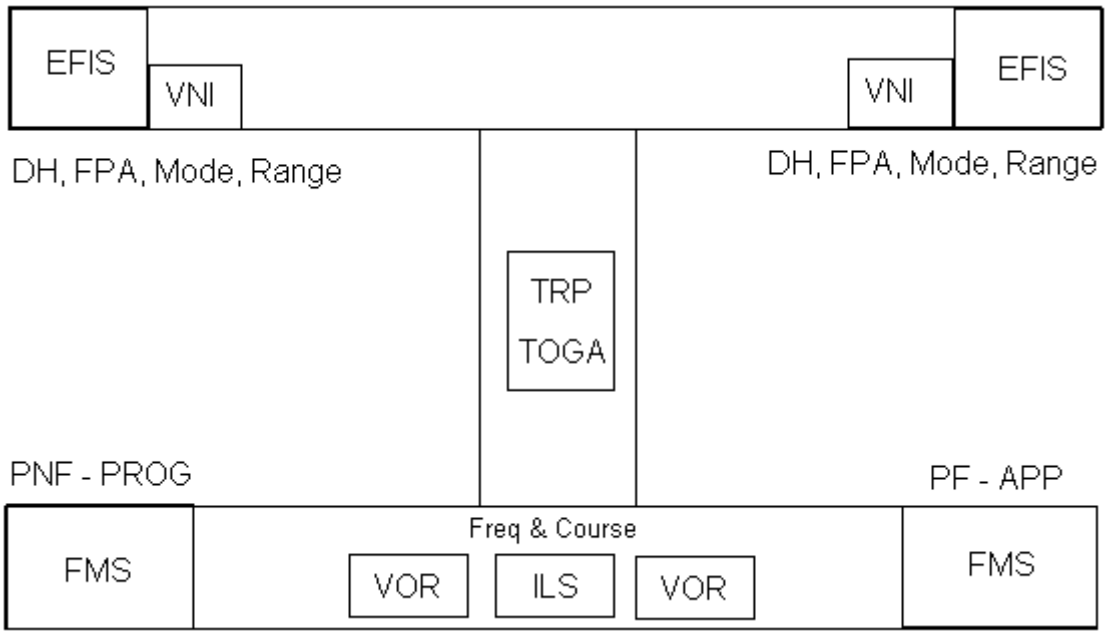
Do Items:

T	**T**ilt of Weather Radar
T	**T**emperature and Pressure (cabin)
T	**T**wenty Thousand Feet (Monitor Fuel FWD Transfer)
T	**T**en Thousand Feet (Seatbelt Sign & Lights)
T	**T**ransition Level

Procedures:

Monitor	Descent Profile
Speed	.80 / 300 till 10,000 ft
	250 below 10,000 ft
	.78 till FL310 then 295 for turbulence
EFIS	Select “CSTR”
FMS	PF – PROG
	PNF – F-PLN
Radar	Tilt Adjust

INITIAL APPROACH PREPARATION



STANDARD ILS APPROACH

20 Track Miles	Green Dot Speed
15 Track Miles	Slats Extend – “S” Speed
Cleared for Approach	VNI Switch – ILS
	LAND Arm*
	Auto Pilot – 2nd Engage
Cleared for Localizer	VNI Switch – ILS
	V/L Arm
LOC Star	RWY HDG
	LAND Arm** (if not armed earlier)
	Auto Pilot – 2nd Engage (if not engaged earlier)
GS Star	GA Altitude Set
2500 Feet	Radio Altimeter Alive
2000 Feet***	Flaps 20
	VAPP
Flaps 20	Gears Down (Spoilers Arm & Lights ON)
Gear Down	Flaps 40
Flaps 40	Landing Checklist
1000 Feet	Checked
700 Feet	Course Set
400 Feet	LAND Green
100 Above	Checked
Minimum	Landing / Go Around

* A/C with PW engines can capture glide path before localizer is captured whereas A/C with GE engines will not capture glide path unless localizer is captured.

** When cleared for the approach by ATC.

*** If glide interception is below 2000 feet (1500 ft min) then start decelerating at one dot below.

NON PRECISSION APPROACH

DH	Set 200
FPA	Set -3
Maneuvering up till Outbound Leg	15 / 0 “S” Speed
Turning to Inbound Leg	20 / 20 “F“ Speed
5 degrees to Inbound Course	Gears Down (Spoilers Arm & Lights ON)
	Flaps 40
	VAPP
Flaps 40	Landing Checklist
Descend to MDA	V/S 1000 fpm
Go Around Altitude	Set once below it
2500 Feet	Radio Altimeter Alive
1000 Feet	Checked
700 Feet	Course Set
100 Above	Checked
ALT HOLD	Select at 1/10th of V/S
Minimum	Landing / Go Around

TWO ENGINE GO AROUND

Go Levers Trigger	“Go Around Flaps” – Follow / Advance Thrust
Rotate	SRS commands or 18 degree Pitch Attitude
FMA	“THRUST – GOAROUND”
Positive Climb	Gears UP (Speed Brake Disarm, Lights OFF)
Climb	VAPP + 10
400 Feet	HDG SEL / NAV
1500 - Thrust Reduction Height	Climb Thrust
3000 - Acceleration Altitude	Speed 250 / Green dot – LVL Change
Flaps / Slats	Retract
Missed Approach Procedure	Follow
After Take Off Checklist	

CIRCLING APPROACH

Established on Finals	Flaps 20 “F” Speed
	Gears Down – Spoilers Armed
MDA	Level Off
Turn	45 degrees – 30 Seconds
Turn	For Downwind
Abeam Threshold	Time – 20 seconds for every 500 feet
Turn	For Base
Base Leg	Flaps 40 – VAPP
Finals	Min 400 ft AAL at the end of final turn

VISUAL APPROACH

Approaching Downwind	Flap 15 “S” Speed
On Downwind	Flap 20 “F” Speed
Abeam Threshold	Time 45 seconds
End of Downwind	Gears Down
End of Base Leg	Flaps 40 – VAPP

LANDING

Call	Spoilers
	Reverse Green
	Deceleration
Monitor	Auto Brakes
	N1
	EGT
	IAS
Call	80 Knots
Time	Stop – Elapsed Time
	Start – Stopwatch

AFTER LANDING

CM1	CM2	
Spoilers – Disarm		
	PEDESTAL	WX Radar – OFF / Test
		Transponder – As Required
		Slats / Flaps – UP
		Pitch Trim – 1 degree Nose UP
	EFIS	FD – OFF
		VNI – NAV
		CSTR – OFF
	OVERHEAD	APU – Start
		Ignition – OFF
		Wing Anti-ice – OFF
		Engine Anti-ice – As Required
Lights – As Required		

Delay starting the Brake Fans – 5 minutes or when about to park – whichever is earlier.
Do not delay if the temperature is likely to exceed 500 ^{o}C or turn around time is less.

PARKING

Do Items:

CM1	CM2	
Taxi Lights – OFF	APU Bleed – ON	
Parking Brake – Set		
Fuel Levers – OFF *		
Beacon – OFF		
Seatbelt Signs – OFF	Cabin Differential Pressure – Check Zero	
Chocks On – Brake Release	Cabin Announcement	
	ECAM – Slides Disarmed	
	Fuel	Pumps – OFF (L INR 2 as req.)
		Trim Tank Mode – AUTO
	Window and Probe Heat – OFF	
CRT's DIM		

***** P&W cooling period for thermal stabilization is between 90 sec to 5 minutes.

Procedures:

A	**A**PU – Packs ON	If Transit time < 1 hr 30 mins
B	**B**rake Fans – OFF	If Temp < 100°C or Ground Time > 2 Hours
C	**C**RT's – OFF	If Transit time > 2 hours
D	**D**ocumentation	IRS** Position Errors, Drift Rate, Ground Speed
		Technical Logbook
		Flight Logbook / Captain's Debrief

****** IRS OFF when transit time is greater than 2 hours or at crew change. Perform rapid alignment if residual GS is greater than 5 knots. Full alignment required for every ETOPS departure and for the first flight of the day.

Disclaimer: "A310 Normal Procedures and Do Items" are personal notes of the undersigned. These notes do not sanction any pilot to violate his/her Company's Standard Operating Procedures, Aircraft Manuals or Manufacturer's Recommendations.