

Vol en duO



VolenduO : Groupe pratiquant le vol en cockpit partagé

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Contact : volenduo@laposte.net

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VolenduO : Group practicing shared cockpit flight

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PROCEDURES Airbus A320 FF

PRE REQUIS :

- Lire les check listes Pré Requis
- Appliquer les réglages de Pré Connexion relatif à l'appareil

Note :

PF = Pilot Flying PNF Pilot Not Flying

Les procédures sont réalisées de mémoire :-)

Le PF appelle la checklist qui est lue par le PNF

Le PF vérifie et confirme les items de la checklist

Les zones en vert clair définissent des actions réalisées en parallèle.

Annexes : Panels description

Note:

PF = Pilot Flying PNF Pilot Not Flying

The procedures are carried out from memory :-)

The PF calls the checklist which is read by the PNF

The PF checks and confirms the checklist items

Light green areas define actions performed in parallel.

Annexe : Panels description

PF

PNF

PRELIMINARY COCKPIT PREPARATION

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COCKPIT LIGHTS	AS RQRD
ECAM	CHECK
RCL pb	PRESS 3 s

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ENG MASTERS 1, 2	OFF
ENG MODE selector	NORM
WEATHER RADAR	OFF
L/G lever	DOWN
Both WIPER selectors	OFF
BAT	CHECK / AUTO
CHOCKS	ON
EXT PWR	AS RQRD
AIR STARTER UNIT (ASU)	AS RQRD
AIR COND panel	SET
COCKPIT LIGHTS	AS RQRD
ECAM OXY PRESS >> DOOR	CHECK
ECAM HYD QTY > HYD	CHECK
ECAM ENG OIL QTY > ENG	CHECK
FLAPS	CHECK POSITION
	CHECK RET AND
SPD BRK lever	DISARMED
PARKING BRAKE handle	OFF
	CHECK AND PRESSURIZE
ACCU/BRAKES PRESS	IF NECESSARY

FUEL AND PAYLOAD

FUEL TRUCK (EFB)	CALL		
POWER	ON		
PRESELECTED (FUEL QUANTITY]	SET		
CTL	ON		
Then when done : CTL	OFF		
POWER	OFF		
FUEL PANEL (EFB) MASTER PUSH SET ... THEN ... SLAVE PUSH GET			
FUEL TRUCK (EFB)	REMOVE		
PAX PANEL (EFB)			
PAX (EFB) AIRSTAIRS	CALL		
CABIN A B C	SET		CABIN A B C SET
VALIDATE (MASTER AND SLAVE) SET BUTTON			
PAX PANEL (EFB) AIRSTAIRS	REMOVE		
CARGO PANEL			
CARGO (EFB) BAGAGE LOADER	CALL		
CARGO 1 3 4 5 (CARGO 5 MAX)	SET		CARGO 1 3 4 5 (CARGO 5 MAX) SET
VALIDATE (MASTER AND SLAVE) SET BUTTON			
EFB Cross check the PERF DATA Tab			

COCKPIT PREPARATION

ALL WHITE LIGHTS	EXTINGUISH		
<i>RCDR GND CTL pb-sw (NI)</i>	<i>ON</i>		
<i>CVR TEST pb (NI)</i>	<i>PRESS</i>		
<i>CAPT & PURS / CAPT sw (NI)</i>	<i>AS RQRD</i>		
ALL IR MODE selector	NAV		
EXTERIOR LIGHTS	SET		
SIGNS	SET		
PROB/WINDOW HEAT	AUTO		
LDG ELEV	AUTO		
PACK FLOW :			
LO = less than 115 pax			
NORM = 115 pax or more	AS RQRD		
HI = abnormal hot and humid conditions			
ELEC panel	CHECK		
BAT	CHECK		
ENG FIRE	CHECK / TEST		
<i>AUDIO SWITCH (NI)</i>	<i>NORM</i>		
VENT panel	CHECK		
MAINTENANCE panel	CHECK		
ISIS	CHECK		
CLOCK	CHECK / SET		
A/SKID & N/W STRG sw	ON		
ACP	CHECK		
SWITCHING PANEL	NORM		
THRUST LEVERS	CHECK IDLE		
ENG MASTERS	CHECK OFF		
ENG MODE selector	CHECK NORM		
GRAVITY GEAR EXTN	CHECK STOWED		
ATC	STBY	ATC	STBY
RMP	SET		
NAV CHARTS CLIPBOARD	PREPARE	NAV CHARTS CLIPBOARD	PREPARE
		REQUEST CLEARANCE	OBTAIN
		TRANSPONDER	SET
MCDU	PREPARE	MCDU	CHECK
•When both flight crewmembers are seated:			
BAROMETRIC REFERENCE	SET	BAROMETRIC REFERENCE	SET
FD	CHECK ON	FD	CHECK ON
LS/ILS	AS RQRD	LS/ILS	AS RQRD
ND mode and range	AS RQRD	ND mode and range	AS RQRD
VOR / ADF selector	AS RQRD	VOR / ADF selector	AS RQRD
FCU	SET		
OXY MASK	TEST	OXY MASK	TEST
PFD-ND brightness	AS RQRD	PFD-ND brightness	AS RQRD
LOUDSPEAKER knob	SET	LOUDSPEAKER knob	SET
PFD-ND	CHECK	PFD-ND	CHECK
LDG ELEV (ECAM)	CHECK AUTO	IRS ALIGN	CHECK
ECAM STATUS	CHECK		
TAKEOFF BRIEFING	PERFORM		
CALL BEFORE START CHEKCLIST			

BEFORE START CHEKCLIST

COCKPIT PREP	COMPLETE (BOTH)
SIGNS	ON / AUTO
ADIRS	NAV
FUEL QUANTITY	XX KG. / BALANCED
MCDU (TO DATA)	SET
BARO REF	SET
WINDOWS / DOORS	CLOSED / ARMED (BOTH)
BEACON	ON
THRUST LEVERS	IDLE
PARKING BRAKE	SET

BEFORE START POWER ASSISTED

FINAL LOADSHEET	CHECK
FOB	CHECK
MCDU PERF TO page	SELECT
WINDOWS / DOORS	CHECK CLOSED
SLIDING TABLES	STOWED
EXTERIOR LIGHTS	SET
THRUST LEVERS	IDLE
ACCU PRESS	CHECK
NW STRG DISC	AS RQRD
PARK BRK	ON
CHOCKS	OFF

FINAL LOADSHEET	CHECK
FOB	CHECK
MCDU F-PLN page	SELECT
PUSHBACK / START CLEARANCE	OBTAIN
ATC	SET FOR OPERATION
WINDOWS / DOORS	CHECK CLOSED
SLIDING TABLES	STOWED

ENGINE START POWER ASSISTED

BLEED SELECTOR	START OPEN
ENG MODE selector	IGN/START
ENG N 2 START	ANNOUNCE
ENG MASTER N 2 ON ENG IDLE PARAMETERS	CHECK
ENG 2 START	ANNOUNCE
BLEED SELECTOR	AUTO
ENG N 1 START	ANNOUNCE
ENG MASTER N 1 ON ENG IDLE PARAMETERS	CHECK
ENG 1 START	ANNOUNCE

ENG MASTER N 2 ON ENG IDLE PARAMETERS	MONITORING
ENG MASTER N 1 ON ENG IDLE PARAMETERS	MONITORING

AFTER START POWER ASSISTED

ENG MODE selector	NORM
ASU	DISCONNECT
ENG ANTI ICE pb-sw	AS RQRD
WING ANTI ICE pb-sw	AS RQRD
GRD PWR	DISCONNECT
ECAM STATUS	CHECK
N/W STEER DISC MEMO	CHECK NOT DISPLAYED

GND SPOILERS	ARM
RUD TRIM	ZERO
FLAPS	SET
PITCH TRIM	SET
ECAM STATUS	CHECK

CALL AFTER STARTUP CHECKLIST WITHOUT PUSHBACK

AFTER STAR CHECKLIST

ANTI ICE	AS RQRD
ECAM STATUS	CHECKED
PITCH TRIM	% SET
RUDDER TRIM	ZERO

TAXI

EXTERIOR LIGHTS	SET	TAXI CLEARANCE	OBTAIN
PARKING BRAKE handle	OFF	BRAKES PRESSURE	CHECK AT ZERO
THRUST LEVERS	AS RQRD		
BRAKE	CHECK		
TILLER or RUDDER PEDALS	USE AS RQRD		
FLT CTL	CHECK	FLT CTL	CHECK
FMS REVISED T.O PERF DATA	CROSSCHECK		
EFB/MCDU GREEN DOT	COMPARE		
PFD/NDCHECK	CHECK	FLAPS lever	AS APPROPRIATE
TAKEOFF BRIEFING	CONFIRM	FMS F-PLAN / SPD	CHECK
		FCU ALT/HDG	SET
		BOTH FD	CHECK ON
		PFD/ND	CHECK
		RADAR	ON
		ATC CODE / MODE	CONFIRM / SET FOR TAKEOFF
TERR ON ND	AS RQRD	TERR ON ND	AS RQRD
		AUTO BRK	MAX
		T.O CONFIG pb	TEST
		T.O MEMO	CHECK NO BLUE

BEFORE TAKEOFF

	BRAKE TEMP (if brake fan running)		CHECK
	BRAKE FAN pb-sw (if brake fan running)		OFF
	TAKEOFF / LINE UP CLEARANCE		OBTAIN
EXTERIOR LIGHTS	SET	TCAS Mode selector	TA or TA/RA
		APPROACH PATH	CLEARED OF TRAFFIC
APPROACH PATH	CLEARED OF TRAFFIC		
		ENG MODE selector	AS RQRD
		SLIDING TABLE	STOW
SLIDING TABLE	STOW		
THRUST BUMP	AS RQRD		
TAKEOFF RUNWAY	CONFIRM	TAKEOFF RUNWAY	CONFIRM
		PACKS 1hN	AS RQRD

CALL BEFORE TAKE OFF CHECKLIST

BEFORE TAKE OFF CHECKLIST

FLT CTL	CHECKED (BOTH)
FLT INSTRUMENTS	CHECKED (BOTH)
BRIEFING	CONFIRMED
FLAPS SETTING	CONF (BOTH)
V1. VR. V2./FLX TEMP	X CHECK
TRANSPONDER	SET
ECAM MEMO	TAKEOFF NO BLUE
TAKEOFF RWY	CONFIRMED
CABIN	SECURED FOR TAKEOFF
ENG MODE	SEL AS RQRD
TCAS	TA / RA
PACKS	AS RQRD

TAKEOFF

TAKEOFF	ANNOUNCE		
BRAKES :RELEASE THRUST LEVERS	FLX or TOGA		CHRONO START
The Captain places hand on thrust levers until V1			
DIRECTIONAL CONTROL	USE RUDDER		
FMA	ANNOUNCE		PFD/ND MONITOR
•BELOW 80 kt:			N1 (EPR) CHECK
			THRUST SET ANNOUNCE
			PFD and ENG indications MONITOR
•AT 100 kt:			ONE HUNDRED KNOTS ANNOUNCE
100 kt	CHECK		
•AT V1:			V1 ANNOUNCE
•AT VR:			ROTATION ORDER
ROTATION	PERFORM		
WHEN POSITIVE CLIMB:			POSITIVE CLIMB ANNOUNCE
L/G UP	ORDER		L/G SELECT UP
AP	AS RQRD		
•AT THR RED ALT:			PACK 1hN (if applicable) ON
THRUST LEVERS	CL		
•AT F SPEED:			FLAPS 1 SELECT
FLAPS 1	ORDER		
•AT S SPEED:			FLAPS 0 SELECT
FLAPS 0	ORDER		
			GND SPLRS DISARM
			EXTERIOR LIGHTS SET

AFTER TAKEOFF

		APU BLEED pb-sw	AS RQRD
		APU MASTER SW	AS RQRD
		ENG MODE selector	AS RQRD
		TCAS Mode selector 8	TA/RA
		ANTI ICE pb-sw	AS RQRD

CALL AFTER TAKEOFF CHECKLIST

AFTER TAKEOFF CHECKLIST

LANDING	GEAR UP
FLAPS	RETRACTED
PACKS	ON
BARO REF	STANDARD SET

CLIMB

MCDU	PERF CLB	MCDU	F-PLN
FCU / FMGS	SET IF AP ON	FCU / FMGS	SET IF AP OFF
•At transition altitude:			
BAROMETRIC REFERENCE	SET STD / XCHECK	BAROMETRIC REFERENCE	SET STD / XCHECK
RADAR	ADJUST AS APPROPRIATE	ENG ANTI ICE	AS RQRD
•At 10 000 ft:			
		LAND LIGHTS selector	RETRACT
		SEAT BELTS sw	AS RQRD
EFIS OPTION	AS RQRD	EFIS OPTION	AS RQRD
		ECAM MEMO	REVIEW
		NAVAIDS	CLEAR
		SEC F-PLN	AS RQRD
		OPT / MAX ALT	CHECK

CRUISE

ECAM MEMO / SD PAGES	REVIEW		
FLIGHT PROGRESS	CHECK		
FUEL	MONITOR		
NAVIGATION ACCURACY	MONITOR		
RADAR	ADJUST AS APPROPRIATE		

DESCENT PREPARATION

NAV CHARTS CLIPBOARD	PREPARE
LDG PERFO	CONFIRM
FMS	PREPARE
LDG ELEV	CHECK
AUTO BRK	AS RQRD
APPR BRIEFING	PERFORM
TERR ON ND 8	AS RQRD
RADAR	ADJUST AS APPROPRIATE
CLEARED ALTITUDE ON FCU	SET

WEATHER AND LANDING INFORMATION	OBTAIN
NAV CHARTS CLIPBOARD	PREPARE
LDG PERFO	CHECK
FMS PREPARATION	CHECK
GPWS LDG FLAP 3	AS RQRD
TERR ON ND 8	AS RQRD
ENG ANTI ICE pb-sw	AS RQRD
WING ANTI ICE pb-sw	AS RQRD
DESCENT CLEARANCE	OBTAIN

DESCENT

MCDU	PROG / PERF DESCENT
DESCENT	MONITOR / ADJUST
•When the aircraft approaches the transition level, and when cleared for an altitude:	
BAROMETRIC REFERENCE	SET / XCHECK
•At 10 000 ft:	
EFIS option pb	.CSTR
LS pb	AS RQRD
•If GPS PRIMARY not available:	
NAV ACCY	CHECK

MCDU	F-PLN
BAROMETRIC REFERENCE	SET / XCHECK
ECAM STATUS	CHECK
LAND LIGHTS sw	SET
SEAT BELTS sw	ON
EFIS option pb	CSTR
LS pb	AS RQRD
RADIO NAV	SELECT / IDENT
ENG MODE selector	AS RQRD

AIRCRAFT CONFIGURATION FOR APPROACH

F-PLN SEQUENCING	ADJUST		
•Approx 15 NM from touchdown:			
<i>APPR PHASE ACTIVATE or set green dot</i>			
MANAGED SPEED	CHECK		
FLIGHT PATH	MONITOR	NAV ACCURACY	MONITOR
SPEED BRAKES lever	AS RQRD		
RADAR	ADJUST AS APPROPRIATE		
INTERMEDIATE / FINAL APPROACH:			
•At green dot:			
FLAPS 1	ORDER	FLAPS 1	SELECT
<i>SPEED..... CHECK OR SET</i>			
		TCAS 8	TA or TA/RA
•At 2 000 ft AGL minimum:			
FLAPS N	ORDER	FLAPS N	SELECT
<i>F SPEED..... CHECK OR SET</i>			
When FLAPS 2:			
/G DOWN	ORDER	L/G	SELECT DOWN
		AUTO BRAKE	CONFIRM
		GRND SPLRS	ARM
		EXTERIOR LIGHTS	SET
•When LIG down:			
FLAPS 3	ORDER	FLAPS 3	SELECT
		ECAM WHEEL PAGE	.CHECK
•When FLAPS 3:			
FLAPS FULL	ORDER	FLAPS FULL	SELECT
<i>SPEED TARGET..... CHECK OR SET</i>			
		A/THR	CHECK SPD or OFF
		WING A. ICE (if not required)	OFF
SLIDING TABLE	STOW	SLIDING TABLE	STOW
ALL EFB (with no mounted equipment)	STOW	ALL EFB (with no mounted equipment)	STOW
		LDG MEMO	CHECK NO BLUE
CABIN REPORT	RECEIVE		
ANNOUNCE ANY FMA MODIFICATION		FLT PARAMETERS	MONITOR
		Announce any deviation in excess of:	
		• V/S: 1 000 ft/min	
		• IAS: speed target h 10 kt; speed target - 5 kt	
		• PITCH: N.5 ° nose down; 10 ° nose up	
		• BANK: 7 °	
CALL APPROACH CHECKLIST			

AFTER APPROACH CHECKLIST

BRIEFING	CONFIRMED
ECAM STATUS	CHECKED
SEAT BELTS	ON
BARO REF	SET
MDA / DH	SET (BOTH)
ENG MODE SEL	AS RQRD

APPROACH USING LOC GIS GUIDANCE

DESCENT PREPARATION:		
APPROACH MINIMUM	DETERMINE	
APPROACH BRIEFING	PERFORM	
INITIAL / 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 SET

FINAL APPROACH:		
		FLT PARAMETERS
		MONITOR
		Announce any deviation in excess of:
		• LOC: ½ dot
		• GLIDE: ½ dot
•At 350 ft :		
LAND mode	CHECK ENGAGED / ANNOUNCE	
For CATI, CATII and CATIII with DH approach:		
•At minimum h100 ft:		
		ONE HUNDRED ABOVE
		MONITOR OR ANNOUNCE
•At minimum:		
CONTINUE OR GO-AROUND	ANNOUNCE	MONITOR OR ANNOUNCE
For CATIII with no DH approach:		
•At 100 ft RA:		
If no failure detected		
CONTINUE	ANNOUNCE	

APPROACH USING FINAL APP GUIDANCE

DESCENT PREPARATION:	
F-PLN A Page	CHECK
PROG Page	COMPLETE
GO AROUND STRATEGY	REVIEW
DESCENT:	
•At 10 000 ft:	
NAV ACCURACY	CHECK
•For RNAV(GNSS):	
GPS PRIMARY	CHECK
BARO REF	SET
INITIAL / INTERMEDIATE / FINAL APPROACH:	
POSITION	MONITOR
APPR pb on FCU	PRESS
APP NAV	CHECK ARMED or ENGAGED
FINAL	CHECK ARMED
•At Final Descent Point:	
FINAL APP	CHECK ENGAGED

WEATHER AND LANDING INFO	OBTAIN
F-PLN A Page	CHECK
PROG Page	COMPLETE

GO AROUND ALT..... SET

At minimum h100 ft:	
•At minimum:	
CONTINUE OR GO-AROUND	ANNOUNCE

FLT PARAMETERS	MONITOR
Announce any deviation in excess of:	
• XTK > 0.1 NM	
• V/DEV > ½ dot	
ONE HUNDRED ABOVE	MONITOR OR ANNOUNCE
MINIMUM	MONITOR OR ANNOUNCE

MANUAL LANDING

•In stabilized approach conditions, at approx. 30 ft:		
FLARE	PERFORM	ATTITUDE
THRUST LEVERS	IDLE	MONITOR
•At touchdown:		
DEROTATION	INITIATE	
BOTH THRUST LEVERS	REV MAX or REV IDLE	GRND SPLRS
		CHECK / ANNOUNCE
DIRECTIONAL CONTROL	ENSURE	REVERSERS
BRAKES	AS RQRD	CHECK / ANNOUNCE
•At 70 kt:		DIRECTIONAL CONTROL
BOTH THRUST LEVERS	REV IDLE	MONITOR
•At taxi speed:		DECELERATION
BOTH THRUST LEVERS	FWD IDLE	CHECK / ANNOUNCE
•Before 20 kt:		
AUTOBRK	DISENGAGE	SEVENTY KNOTS
		ANNOUNCE
CALL LANDING CHECKLIST		

LANDING CHECKLIST

CABIN A / THR SPEED / AUTOBRAKE GO-AROUND ECAM MEMO LDG NO BLUE . L/G DOWN . SIGNS ON . SPLRS ARM . FLAPS SET	SECURED FOR LANDING OFF AS REQ ALT FT SET
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GO AROUND

THRUST LEVERS	TOGA
ROTATION	PERFORM
GO-AROUND	ANNOUNCE
FMA	ANNOUNCE
L/G UP	ORDER
AP	AS RQRD
NAV or HDG mode	AS RQRD
•AT GA THR RED ALT:	
THRUST LEVERS	CL
•AT GA ACCEL ALT:	
SPEED	MONITOR
•AT F SPEED:	
FLAPS 1	ORDER
•AT S SPEED:	
FLAPS 0	ORDER

FLAPS lever	SELECT AS RQRD
POSITIVE CLIMB	ANNOUNCE
L/G	UP
FLAPS 1	SELECT
FLAPS 0	SELECT
GND SPLRS	DISARM
EXTERIOR LIGHTS	SET

AFTER LANDING

GRND SPLRS	DISARM		
EXTERIOR LIGHTS	SET		
		RADAR	OFF
		ENG MODE selector	NORM
		FLAPS	RETRACT
		TCAS	STBY
		ATC	AS RQRD
		APU	START
		ANTI ICE	AS RQRD
		BRAKE TEMP	CHECK

CALL AFTER LANDING CHECKLIST

AFTER LANDING CHECKLIST	
FLAPS	RETRACTED/1+F
SPOILERS	DISARMED
APU	AS REQ
RADAR	OFF
PREDECTIVE RADAR WINSHEAR SYSTEM	OFF

PARKING

ACCU PRESS	CHECK		ANTI-ICE	OFF
PARKING BRAKE handle	ON		APU BLEED pb-sw	ON
ALL ENG MASTERS	OFF			
SLIDES	CHECK DISARMED			
SEAT BELTS sw	OFF		FUEL PUMPS	OFF
EXTERIOR LIGHTS	SET		ATC	STBY
GROUND CONTACT	ESTABLISH		IRS PERFORMANCE	CHECK
			FUEL QTY	CHECK
			STATUS	CHECK
PARKING BRK	AS RQRD		BRAKE FAN	OFF
Dus	DIM		Dus	DIM
ALL EFB TRANSMITTING MODE	AS RQRD		ALL EFB TRANSMITTING MODE	AS RQRD

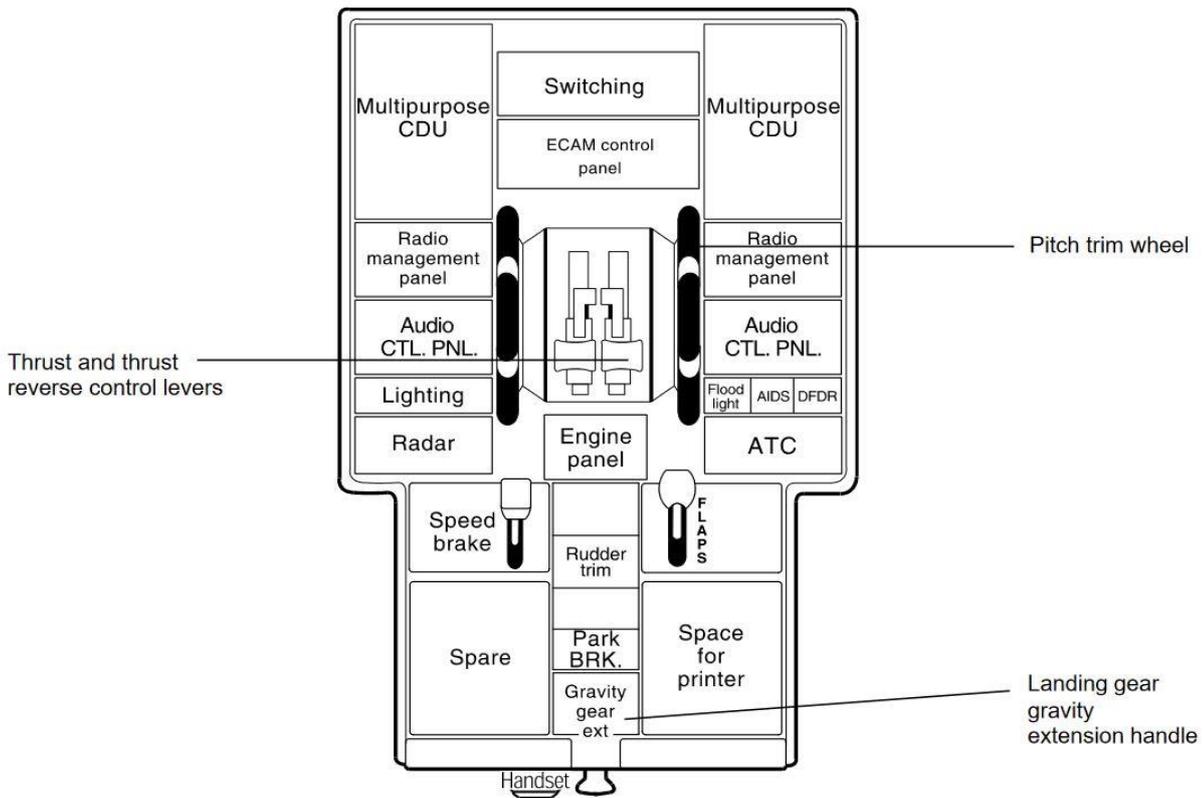
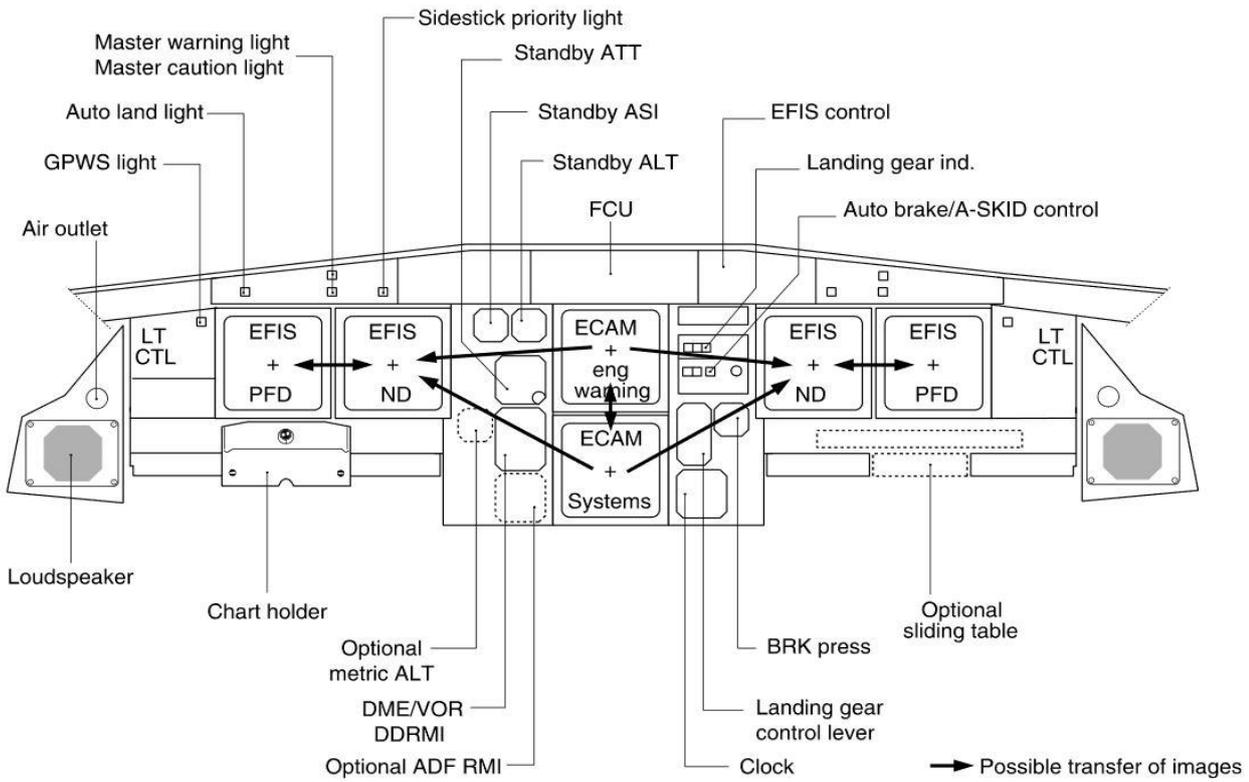
CALL PARKING CHECKLIST

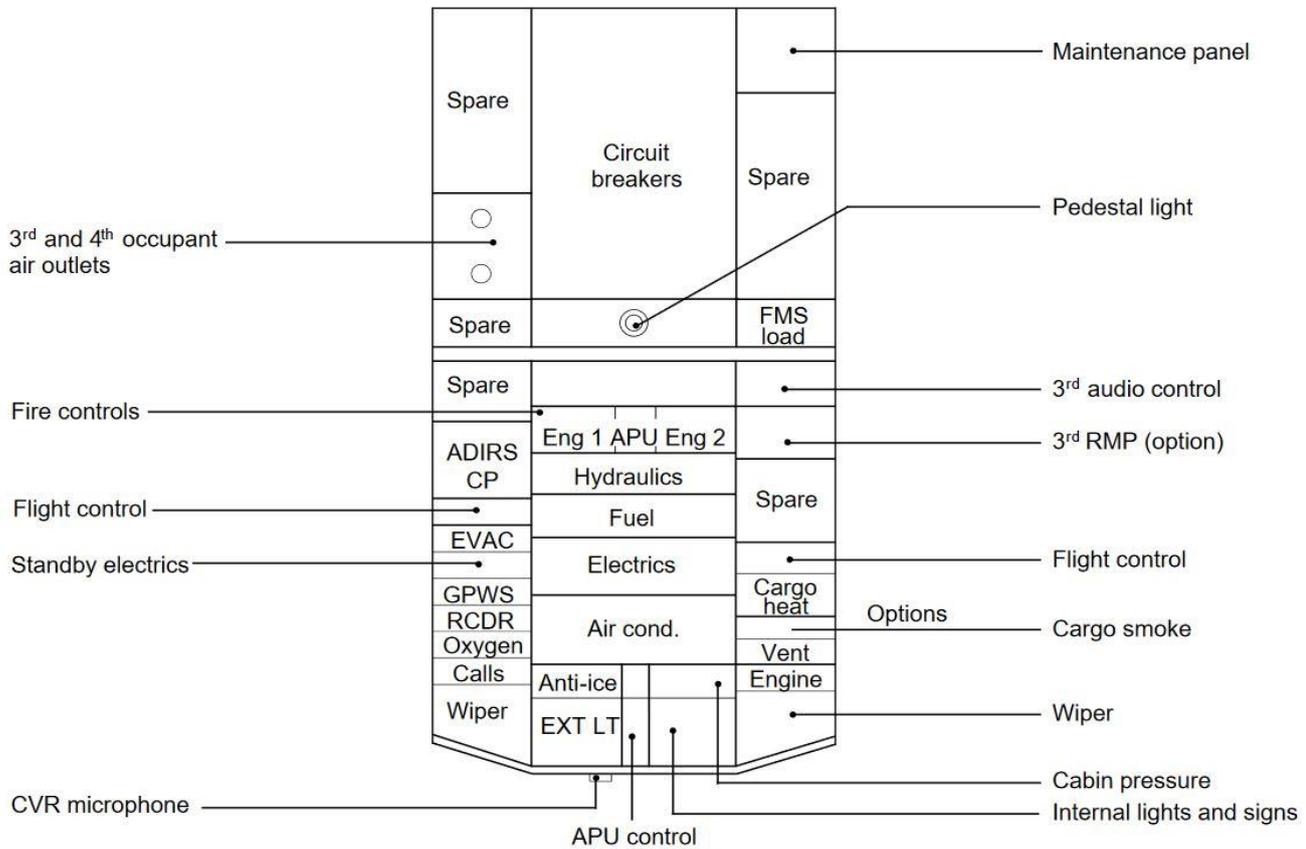
PARKING CHECKLIST	
APU BLEED	AS RQRD
Y ELEC PUMP	OFF
ENGINES	OFF
SEAT BELTS	OFF
EXT LT	AS RQRD
FUEL PUMPS	OFF
PARK BRK and CHOCKS	AS RQRD
TRANSPONDER	STBY

SECURING THE AIRCRAFT

PARKING BRK	CHECK ON		
ALL IR MODE selectors	OFF		OXY CREW SUPPLY pb OFF
			EXTERIOR LIGHTS OFF
			MAINT BUS SW AS RQRD
			APU BLEED pb-sw OFF
			APU MASTER SW OFF
			EMER EXIT LT sw OFF
			SIGNS sw OFF
			EXT PWR pb AS RQRD
			BAT 1hN OFF
EFB applications	CLOSE		EFB applications CLOSE
ALL EFB	SWITCH OFF		ALL EFB SWITCH OFF
CALL SECURING THE AIRCRAFT CHECKLIST			

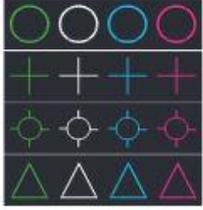
SECURING THE AIRCRAFT CHECKLIST	
ADIRS	OFF
OXYGEN	OFF
APU BLEED	OFF
EMER EXIT LT	OFF
NO SMOKING	OFF
APU AND BAT	OFF





INDICATION	DESCRIPTION
	Position where the aircraft will level-off at the FCU selected altitude. The same symbol will indicate a level-off from a managed climb (CLB) or selected climb (OP CLB).
	Position where the aircraft will level-off at the constrained altitude entered in the MCDU. The managed CLB mode must be engaged for the altitude constraint symbol to appear and be honored.
	Position where the aircraft will level-off at the FCU selected altitude. The same symbol will indicate a level-off from a managed descent (DES) or selected descent (OP DES).
	Position where the aircraft will level-off at the constrained altitude entered in the MCDU. The managed DES mode must be engaged for the altitude constraint symbol to appear and be honored.
	Start of climb with the CLB mode armed.
	Start of climb with the CLB mode <u>not</u> armed.
	Top of Descent or continue descent with DES armed.
	Top of Descent or continue descent with DES <u>not</u> armed.
	Intercept point where the aircraft is predicted to intercept the FMGS computed vertical descent profile. The indicator is blue indicating the DES mode is engaged.
	Intercept point where the aircraft will meet the FMGS computed vertical profile. The indicator is white indicating the DES mode is not engaged.
	<ul style="list-style-type: none"> Flight Plan Waypoint FMGC Database Waypoint: Displayed when the waypoint pb is pressed on the EFIS control panel. "TO" Waypoint.
	Speed Change <ul style="list-style-type: none"> Indicates the point where the aircraft will initiate an automatic acceleration or deceleration from current speed to new computed speed in case of SPD LIM, SPD CSTR, or HOLDING SPD (including 250 knots below 10,000).
	Deceleration Point <ul style="list-style-type: none"> Indicates where the aircraft will initiate an automatic deceleration toward V_{APP}. Managed NAV mode and managed speed must be engaged.

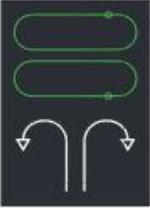
	<p>Altitude Constraints</p> <ul style="list-style-type: none"> • Constraint is predicted to be met when the aircraft is in managed lateral and vertical modes. • Constraint is predicted to be missed. In this situation the aircraft is in the managed lateral and vertical modes; however, the FMGC will not be able to meet the altitude constraint. • Constraint is not being considered by the FMGC.
	<p>Flight Plan Routes</p> <ul style="list-style-type: none"> • The NAV modes can display the following flight plans. <ul style="list-style-type: none"> • A green line represents the Active Flight Plan. <ul style="list-style-type: none"> • Managed Mode: The course line will be continuous and depict the waypoints in range that are yet to be overflown. <ul style="list-style-type: none"> • When the range selector is set to 160 or 320 NM, only the first waypoint of a SID or the last waypoint of a STAR will be depicted. • A continuous blue line depicts the Missed Approach Procedure. • A dashed blue line depicts the Alternate Flight Plan until activated. Once activated, the alternate flight plan is displayed in green. • If a flight plan offset is entered, the original flight plan course will be a dashed green line and the offset course will be depicted as a continuous green line. • Note: When flying an ILS approach the ND course will be depicted as a continuous green line; however, course guidance is being provided by the localizer signal. The FMA must be referenced to determine the active navigation mode. • Selected Mode: If HDG is selected (FCU HDG knob pulled) the active flight plan line will be dashed. <ul style="list-style-type: none"> • When the HDG mode active with NAV armed to intercept the FMGC course, the ND will display the new active flight plan as a continuous green line once the FMGC has computed the intercept. The portion of the flight plan before the intercept, that will not be flown will be shown as a dashed line. • A continuous white line depicts the Secondary Flight Plan. The ND will continue to display the active flight plan and where common legs occur, the course line will be a continuous green line. • A dashed yellow line represents the Temporary Flight Plan.
	<p>Airports</p> <ul style="list-style-type: none"> • Airports included in flight plan: <ul style="list-style-type: none"> • If the runway is specified in the flight plan (departure or destination) it is represented by the oriented runway symbol in white. • If the runway is not specified in the flight plan it is represented by a star and the identification is displayed in white. • The magenta star represents the airports that are displayed by pressing the APRTS pb on the EFIS control panel.
	<p>ILS Marker Beacon (Diamond Shape)</p> <ul style="list-style-type: none"> • Outer marker • Middle marker • Inner marker



Nav aids

The ND can display:

- TACAN/DME
- VOR
- VOR/DME
- NBD nav aids from the database.
 - The color of the symbols will vary depending on its current status:
 - Green if the nav aid is a current waypoint on the flight plan.
 - White if it is the TO waypoint.
 - Blue when the nav aid is tuned for display either automatically by the FMGC or manually through the MCDU.
 - Magenta when the nav aid is not part of the flight plan and is displayed by selecting the appropriate pb on the EFIS control panel.



Holding Pattern

- The ND will display the holding pattern circuit when the hold is part of the active or next leg. The holding pattern will be displayed with right or left turns as appropriate.
- The ND will display an arc representing the holding pattern and the direction of the hold when the hold is not part of the active or next leg.



Energy Circle

This symbol indicates the radius corresponding to the required distance to land from present position. This symbol will be centered on the aircraft position and oriented to the current track line and is only displayed in DES and APPR phase when a selected lateral mode is engaged (i.e. heading).