A380X Procedures

For simulation purposes only

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PRELIMINARY COCKPIT PREPARATION

flybywire

AIRCRAFT POWER-UP

ENGINES

ENG MASTERS 1, 2, 3, 4..... OFF
ENG START selector..... NORM

WIPERS

BOTH WIPER selector ..... OFF

BATTERIES

ALL BAT pb-sw (BAT 1, ESS, 2, APU BAT)..... ON

EXT POWER

If the AVAIL light is on:
EXT pb_sw (2, 3, 1, 4)..... ON
The AVAIL light goes off.

The EXT power units should be connected, in the following order:

- *EXT 2*
- *EXT 3*
- *EXT 1*
- *EXT 4*

This order ensures the shortest start time of the display units.
At least two EXT power units are necessary to supply the entire electrical network.

If the flight crew anticipates high electrical demands (e.g. APU start or doors actuation):

- *A third or a fourth EXT power unit is necessary to supply the entire electrical network, or*
- *The flight crew must temporarily reduce the electrical load when only two EXT power units are available, by setting the:*
  - *CAB FANS pb-sw to OFF, and*
  - *COOLG pb-sw to OFF.*

Note: These temporary actions ensure that enough electrical power is available during a high electrical demand (e.g. to start the APU or to operate the doors). When the flight crew sets to OFF the CAB FANS pb-sw and the COOLG pb-sw, no degradation of the galley cooling system and of the air conditioning is expected for a few minutes, i.e. the time necessary to start the APU or to operate the doors.
As soon as it is possible, the flight crew should set to ON the CAB FANS pb-sw and the COOLG pb-sw.
When the APU is available, no reduction of load is necessary

COCKPIT LIGHTS

COCKPIT LIGHTS..... AS RQRD

On the overhead panel, set the STBY COMPASS sw as required, and set to BRT or DIM the ANN LT as required.
On the pedestal, set the PEDESTAL FLOOD LT knob, the AMBIENT LT knob, and INTEG LT knob as required.
Adjust the brightness of the Display Units: PFD, ND, MFD, EWD, and SD.

OIS INITIALIZATION

LAPTOP START

CAPT & FO LAPTOPS..... ON

If the maintenance personnel did not set to ON the CAPT and FO laptops, on each lateral console, set the CAPT and FO laptops to ON.
To turn on the laptops, slide the laptops ON/OFF sw to the right not more than 2 s.
Set the laptop to ON sufficiently early to give enough time for laptop power on. Time for power on is approximately 5 min.

BACKUP LAPTOP..... ON

The backup laptop rack is located in the FO lateral console.
If the maintenance personnel did not set to ON the backup laptop, set the backup laptop to ON.
To turn on the laptop, slide the laptop ON/OFF sw to the right for not more than 2 s.
The backup laptop must be running to perform automatic data loading.

KEYBOARD AND CURSOR CONTROL UNIT (KCCU)

CCD sw and KBD sw 1 and 2..... ON

OIS APPLICATION START

OIT knob..... ON

Turn the OIT knob in order to start the OIT and adjust brightness.

OIT SLIDE sw..... NSS AVNCS
LOGIN AS PILOT..... PERFORM

The connection to NSS AVNCS takes a few minutes. During that time, the flight crew should launch the FLT OPS applications.

OIT SLIDE sw..... FLT OPS
LOGIN AS PILOT..... PERFORM
NAV CHARTS..... START
OPS LIBRARY..... START

COMPANY COM(ACARS)INITIALIZATION

OIT SIDE sw..... NSS AVNCS
INIT DATA..... SEND
Send a request to the airline ground station via the INIT DATA button of COMPANY COM application.
When the request is delivered on ground (I.e. an acknowledgement from ground is received onboard), the request message appears in the Sent items.

Note: Send Initialization after check input data and display data.

Note: Check Uplink message: CAT Recency, Full Thrust Recency And SOW Index Range.

Note: SOW Index Range isincluded for a month only if it is changed.

FLT OPS STATUS

OIT SIDE sw..... FLT OPS

In accordance with Operators policy or if required by operational regulation:
FLT OPS STS page..... CHECK OIS VERSION
If required, the flight crew performs this check unless a specific procedure is established as per Operators policy to ensure that the correct version is on board.
On the FLT OPS STS page, check OIS version number and compare it with the valid version number given as reference by the Operator (e.g. on the company flight plan).

NAV CHARTS..... CHECK VALIDITY DATE

Check the validity date of the NAV CHARTS on the FLT OPS STS page.

ECAM/LOGBOOK CHECK

ECAM RCL

RCL pb..... PRESS
Press the RCL pb for at least 3 s to recall all alerts that were cleared or cancelled.
CLEARED or CANCELLED ALERTS..... CHECK

LOGBOOK CHECK

OIT SIDE sw..... NSS AVNCS
MEL/CDL ITEMS..... CHECK and NOTE CDL

- Check the deferred items list
- Crosscheck with ECAM recall
- Note the missing parts of the CDL deferred items
- Check the maintenance release status
- Enter the pre-flight parameters, in accordance with Operators policy.

MEC/CDL ITEMS CHECK

OIT SIDE sw..... FLT OPS
MEL/CDL ITEMS (as appropriate)..... CHECK DISPATCH CONDITIONS

Access the MEL and CDL items via the LOGBOOK STATUS panel of OPS LIBRARY.
MEL items are automatically actived in performance applications.
CDL items are automatically activated in performance applications, but without missing parts.

AIRCRAFT ACCEPTANCE

OIT SIDE sw..... NSS AVNCS
AIRCRAFT ACCEPTANCE..... PERFORM
Before the electronic flight acceptance, check that VHF3 DATA mode is active.
Accept the aircraft, sign electronically the flight acceptance report.

Note: The aircraft acceptance can be performed later, but must be completed at the end of the Cockpit Preparation

APU AND FIRE TEST/APU START

RMP

RMP 1 and 2..... ON
FO switches on both RMPs.
STBY RAD NAV key..... OFF
COMMUNICATION FREQUENCIES..... TUNE

Use:

- *VHF will normally be selected for the active ATC communications*
- *VHF will normally be selected for the emergency (121.5 MHz)*

Note: When A/C is parked at the gate, VHF2 can be used for ATIS or company frequencies to ensure that VHF3 is devoted to ACARS.

- *VHF3 will normally be selected for ACARS (Also used for ATIS, and company radio in flight)*

Note: When VHF3 is selected for voice mode, up/down links of all ACARS won't work, so it must be switched to data mode immediately after having finished using the voice.

Note: The speaker volume should be turned on for monitor during the flight.

The flight crew usually uses VHF3 for ACARS.

INT RECEPTION knob..... RELEASE/ADJUST
Press and release the INT RECEPTION knob to the out position.
Turn the INT RECEPTION knob to adjust the volume and to enable contact with the ground crew.

APU AND ENG FIRE TEST

Note: The flight crew should apply the APU Start on Batteries supplementary procedure to start the APU on batteries. For more information, Refer to PRO-SUP-49 APU Start on Batteries. The flight crew should perform the APU and ENG fire tests when the APU is available.

APU FIRE pb-sw..... CHECK IN and GUARDED
APU AGENT light..... OFF
ENG 1(2)(3)(4) FIRE pb-sw..... CHECK IN and GUARDED
ENG 1(2)(3)(4) AGENT 1 and 2 light..... OFF
FIRE TEST pb..... PRESS
The flight crew should maintain the TEST pb pressed during the time of the test.
TEST RESULT
Check that all ENG FIRE and APU FIRE detection and extinguishing systems are operative:

- *The continuous repetitive chime sounds*
- *The MASTER WARN light flashes*
- *The ECAM displays the ENG 1(2)(3)(4) FIRE, APU FIRE and MLG BAY FIRE alerts*
- *All ENG FIRE pb-sw and the APU FIRE pb-sw come on in red*
- *All SQUIB lights of the ENG and APU AGENT pb come on*
- *All DISCH lights of the ENG and AUPU AGENT pb come on*
- *All FIRE lights on the ENG MASTER panel come on.*

APU START

APU MASTER SW pb-sw..... ON

When the APU flap is fully open (I.e. FLAP OPEN indication appears on the APU SD page):

APU START pb..... ON

On the APU SD page, check that FLAP OPEN appears before setting to ON the APU START pb.

ELEC

EXT PWR (if ON)..... AS RQRD

The flight crew should keep ON the external power units to reduce the APU load, particularly in hot weather conditions.

OIS PREPARATION

FMS/OIS FLT OPS STS

The flight crew initializes the OIS with the planned city pair (FROM/TO) and flight number (FLT NBR). The OIS can be initialized automatically from the FMS or manually. Initialization of the FMS enables automatic initialization of the OIS Flight Ops applications (Performance and Navigation charts), the AOC and the Logbook. At aircraft power-up, the DATA/STATUS page is the default FMS page that appears. Display the FMS ACTIVE/INIT page by pressing the INIT key on the KCCU, or by selecting INIT in the ACTIVE menu on the General Menu Bar on the MFD.

- **If Company Flight Plan is received via ACARS:**

ACFT STATUS on the FMS DATA/STATUS page..... CHECK

Check:

- *The engine and aircraft types*
- *The active database validity period*
- *The pilot stored elements.*

Check if any waypoint, NAVAID, route, and runway appear. Review and delete them, if appropriate.

RECEIVED CPNY F-PLN..... INSERT
The Company Flight Plan is automatically loaded in the FMS.
If the flight crew wants to insert the received flight plan in SEC 1(2)(3), they should clear the secondary flight plan by using the Delete button, before inserting the received flight plan. The Company Flight Plan can be received via ACARS even if the flight crew did not previously select CPNY F-PLN REQUEST.

FLT NBR and FROM/TO on FMS ACTIVE/INIT page..... CHECK
OIT SIDE sw..... FLT OPS
FLT OPS STS page..... SELECT
FLT OPS STS page..... CHECK UPDATED
Check that FLT NBR and CITY PAIR in the OIS are in accordance with the FMS.

- **If Company Flight Plan is not received via ACARS:**

OIT SLIDE sw..... FLT OPS
FLT IOS STS page..... SELECT
FLT NBR and FROM/TO..... INSERT
Enter the FLT NBR and CITY PAIR on the FLT OPS STS page.
FLT OPS STS page..... CHECK UPDATED

PRELIMINARY PERFORMANCE DETERMINATION

Compute the preliminary performance data in accordance with the technical condition of the aircraft and/or any other criteria that may impact the performance data (e.g. NOTAM, runway condition, aircraft configuration).

T.O PERF..... START
Start the T.O PERF application.
AIRFIELD DATA..... OBTAIN
Obtain airfield data that are used for preliminary takeoff performance computation.

- **If dispatch under MEL or CDL and in accordance with the logbook:**
  MEL ITEMS (as appropriate)..... CHECK ACTIVATED
  As appropriate, check that the MEL items are activated in the applicable performance application.
  CDL ITEMS (as appropriate)..... CHECK ACTIVATED and COMPLETE
  As appropriate, check that the CDL items are activated in the applicable performance application.
  Complete missing parts of the CDL items in accordance with the logbook
  OIS PRELIMINARY TAKEOFF PERF..... COMPUTE and CROSSCHECK
  In the T.O PERF application, enter the selections in accordance with the estimated departure conditions:
    - In the RUNWAY SELECTION panel, enter the runway characteristics

  The flight crew should consider any NOTAM that affects the airport data.
  Note: In anticipation of a possible runway change, select multiple runways, as applicable in the MULTIPLE RWY panel.
    - In the OUTSIDE CONDITIONS panel, enter the outside conditions
    - In the MEL/CDL panel, check selected items, if any
    - In the AIRCRAFT CONFIGURATION panel, enter the aircraft configuration (e.g. aerodynamic configuration, air flow, thrust option)

  Check the takeoff weight.
    - Launch the computation and check the results.
      - **In accordance with the Operators policy or if required by operational regulation:**

      PRELIMINARY TAKEOFF PERFORMANCE..... STORE IN CURRENT EFF

COCKPIT PREPARATION

OVERHEAD PANEL

WHITE LIGHTS ON THE OVERHEAD PANEL

- **During the scan sequence of the overhead panel:**

ALL WHITE LIGHTS..... OFF

It is a general rule to turn off all white lights for all the systems during the scan sequence (Bottom to top, left to right)

Note: - Depending on Operators policy, the GND CONNECTION pb-sw on the MAINT panel and the REMOTE C/B CTL pb-sw on the maintenance ELEC panel may be kept ON during the cockpit preparation, if the maintenance personnel uses the Portable Multipurpose Access Terminal (PMAT) for maintenance purposes

- During the scan of the overhead panel, check also that the only amber lights are the GEN FAULT lights.

RCDR

RCDR GND CTL pb-sw..... ON

EVAC

CAPT/CAPT & PURS sw..... CAPT

Set the CAPT/CAPT & PURS sw on the EVAC panel as per Company policy.

PROBE & WINDOW HEAT

PROBE & WINDOW HEAT pb-sw..... AUTO

The PROBE & WINDOW HEAT pb-sw should not be set to ON except in cold weather operations.

ADIRS

ALL IR MODE selector..... NAV

Many aircraft systems use the ADIRS outputs. Therefore, align the IRs as soon as possible in order to provide data to the related systems.

Perform a complete alignment, if:

- *This is the first flight of the day*
- *There was a change in flight crew*
- *The GPS is not available, and if the flight crew expects long segments in airspaces with poor radio NAVAID coverage.*

For other flights, perform a fast alignment.

Note: During the refuel operations or the Auto Ground Transfer (AGT), at least one IR should remain operative. If the flight crew needs to align the IRs during the refuel operations or the AGT, they should switch off two IRs, then set them to NAV and wait for 40 s before switching off the third IR.

ELT

ELT..... ARMED

RESET

RESET BUTTONS (Left side)..... CHECK

Check that all reset buttons are pushed.

EXTERIOR LIGHTS

STROBE sw..... AUTO

BEACON sw..... OFF

NAV sw..... ON

Set to ON the NAV sw, as required, to turn on the navigation and obstruction lights.

REMAINING EXTERIOR LIGHTS..... AS RQRD

SIGNS

SEAT BELTS sw..... ON

Set to ON the SEAT BELTS sw when refueling is complete.

NO SMOKING sw..... AUTO

EMER EXIT LT sw..... ARM

ENG START

ENG START selector..... NORM

AIR

APU BLEED pb-sw..... ON

Do not use the APU BLEED, if the maintenance personnel confirms that an HP ground air unit is connected to the aircraft.

The flight crew should also check on the BLEED SD page, if there is pressure in the bleed air system, to determine if an HP ground unit is connected.

XBLEED selector..... AUTO

AIR FLOW selector..... NORM

As long as the number of passenger is not entered in the FMS, airflow is automatically adjusted for the maximum number of passengers.

As soon as the number of passenger is entered, during FMS initialization, airflow is automactically adjusted to the actual number of passengers.

CKPT selector..... AS RQRD

The temperature ranges between 18 ° C and 30 °C. The recommended temperature selection is approximately 21.5 °C (about 10 o'clock).

CABIN selector..... PURS SEL

Cabin temperature is controlled from the Flight Attendant Panel (FAP) only.

ELEC

ELEC DC SD PAGE..... DISPLAY

ALL BAT pb-sw (BAT 1, ESS, 2, and APU)..... OFF then ON

- 10 s after setting all BAT pb-sw to ON

On the ELEC DC SD page, check that the current charge of each battery is below 60 A, and is decreasing.

Fuel

TRIM TK FEED sw..... AUTO

MAINTENANCE

ALL LIGHTS..... OFF

- *Depending on Operators policy, the GND CONNECTION pb-sw on the MAINT panel and the REMOTE C/B CTL pb-sw on the maintenance ELEC panel may be kept ON during the cockpit preparation, if the maintenance personnel uses the Portable Multipurpose Access Terminal (PMAT) for maintenance purposes*
- *Check that all lights are off. If not, select the corresponding pushbutton to turn off the light.*

CARGO AIR COND

CARGO AIR COND selectors..... AS RQRD

RMP 3

RMP 3..... ON

STBY RAD NAV key..... OFF

CVR

CVR TEST pb..... PRESS

Press and release the pushbutton. If the test fails, the RECORDER CVR FAULT ECAM alert triggers 5 s after the flight crew presses the CVR TEST pb.

RESET

RESET BUTTONS (Right side)..... CHECK

Check that all reset buttons are pushed.

CENTER INTRUMENT PANEL

SWITCHING

SWITCHING selectors..... NORM

Check that the ATT HDG selector, the AIR DATA selector, and the FMS selector are set to NORM.

ISIS

ISIS..... CHECK

- *Adjust the brightness, as appropriate*
- *Check:*
  - *The airspeed*
  - *The barometric settings*
  - *The altitude indication*
  - *The attitude indications*
  - *The heading.*

L/G GRVTY

L/G GRVTY sw..... OFF

CLOCK

CLOCK..... CHECK and SET AS NECESSARY

Check the time and adjust, if necessary.

Elapsed time and chronometer should be set to zero.

A-SKID

A-SKID sw..... ON

PEDESTAL

PARK BRK

PARK BRK..... ON

- **If brakes are hot and chocks are in place:**

PARK BRK..... OFF

Release the PARK BRK handle to improve brake cooling.

On the triple pressure indicator, check that the left and right brake pressure drops to zero.

BODY ACCU PRESSURE

BODY ACCU Pressure..... CHECK/REINFLATE

Check for normal indications.

The BODY ACCY pressure indication must be in the green band.

If required, press the ACCU REINFLATE pb to reinflate the BLG brake accumulators.

ENG

THRUST LEVERS..... IDLE

THRUST REVERSER LEVERS..... STOWED

ENG MASTER 1, 2, 3 AND 4..... OFF

CKPT DOOR

CKPT DOOR sw..... NORM

MFD ATC COM

- **On the MFD ATC COM/MSG RECORD page:**

MSG RECORD..... ERASE ALL

Click on the ERASE ALL button in order to erase the record of all CPDLC messages of the previous flight before starting a new flight. This avoids confusing CPDLC messages from the previous flight with the ones of the current flight.

- **On the MFD ATC COM/CONNECT/CONNECTION STATUS page:**
  - **If ADS services are expected:**

ADS..... CHECK ARMED

ATC CLEARANCE

ATC CLEARANCE..... THE MOST PROBABLE/OBTAIN

The flight crew should obtain ATC clearance, or use the probable clearance.

NAV CHARTS CLIPBOARD..... PREPARE

At ATC clearance, or at any convenient time, the FO prepares the NAV CHARTS clipboard.

MFD SURV

On the MFD SURV/CONTROLS page:

SURV DEFAULT SETTINGS..... SELECT

- XPRD is set to AUTO. The SQWK code remains as previously selected
- TCAS is set to TA/RA and NORM
- WXR is set to AUTO
  - ELEVN/TILT is set to AUTO
  - MODE is set to WX
  - TURB is set to AUTO
  - GAIN is set to AUTO
  - WX on VD is set to ON
  - PRED W/S is set to AUTO
- All TAWS modes are set to ON.

MFD FMS INITIALIZATION

FLIGHT PLAN INITIALIZATION

FLIGHT PLAN INITIALIZATION..... COMPLETE, AS RQRD

Complete the FMS ACTIVE/INIT page, as required.

Note: For ATC needs, the crew should enter exactly the entire Flight number, as shown on the ICAO flight plan, without inserting any space, on the MFD INIT page

Note: Enter the Cost Index will be decided in consideration with the economical efficiency by the company.

WINDS

WINDS..... ENTER AS APPROPRIATE

Choose between the trip wind or the forecasted wind for climb, cruise, or descent, as appropriate.
Use the average wind or forcasted wind from the computerized F-PLN.

IRS ALIGNMENT

- **If the GPS is available:**

IRS 1, 2, and 3..... CHECK NAV or ALIGN

On the FMS POSITION/IRS page, check that the IRS are either aligned or in alignment.

- **If the GPS is not available, or is failed:**

IRS 1, 2, and 3..... ALIGN

DEPARTURE SELECTION

DEPARTURE..... SELECT/CHECK

Select the runway, SID and TRANS, as appropriate, in the FMS DEPARTURE page. If the company route already has the departure procedure, check this departure.

NAVAIDS

NAVAIDS..... CHECK

On the FMS POSITION/NAVAIDS page, check the VOR, ILS, and ADF, tuned by the FMS.
Change them, if required, and check that the ND and PFD (for the ILS) display the correct ident.

NAVAID DESELECTION..... AS RQRD

Check the list of deselected navaids on the FMS POSITION/NAVAIDS page. If the NOTAMs warn that some navaids are not available, deselect them.

FUEL AND LOAD

ZFW/ZFWCG..... INSERT

If the ZFWCG and ZFW are not available, the flight crew can enter the expected values to enable:

- *FMS performance predictions*
- *Optimum fuel distribution, if refueling is not complete.*

BLOCK FUEL..... INSERT

CAUTION	*Some of the characteristic speeds that are displayed on the PFD (green dot, F, S, VLS) are based on the ZFW and ZFWCG that the flight crew enters in the FMS . In addition, when the first engine starts, the pitch trim is automatically set to the takeoff target, based on the entered ZFWCG and block fuel. It is therefore the Captain's responsibility to carefully check all of this data.*

The fuel is automatically distributed, in accordance with the entered ZFWCG and takeoff CG target.
If refuel is not yet completed, the flight crew can enter the expected Fuel On Board (FOB).
When the flight crew enters the ZFWCG, ZFW and BLOCK FUEL, the FMS provides all the predictions, as well as the EXTRA fuel, if any.

RTE RSV/FINAL..... CHECK/INSERT AS APPROPRIATE
MIN FUEL AT DEST..... CHECK/INSERT AS APPROPRIATE
Check that the minimum fuel at destination is in accordance with the required minimum fuel.

TAKEOFF PERFORMANCE

PRELIMINARY TAKEOFF PERF DATA..... INSERT
Insert the preliminary takeoff performance data on the T.O panel of the FMS ACTIVE/PERF page.
V1, VR and V2..... INSERT
TOGA/FLEX/DERATED..... SELECT/INSERT
FLAPS..... SELECT
ANTI-ICE..... INSERT
THR RED/ACCEL ALTITUDE..... SET OR CHECK
NOISE PROCEDURE..... AS APPROPRIATE
TRANS ALTITUDE..... AS APPROPRIATE
EO ACCEL ALTITUDE..... SET OR CHECK

CLIMB PERFORMANCE

DERATED CLB..... INSERT AS APPROPRIATE
Check NONE or insert the selected derated climb on the CLB page of the FMS ACTIVE/PERF page, as appropriate.

SPEED PRESELECTION

On the CLB and CRZ panels of the FMS ACTIVE/PERF page:
PRESEL SPEEDS..... AS RQRD

ACTIVE F-PLN CHECK

COMPUTERIZED FLIGHT PLAN..... ACCESS

Use the computerized flight plan in the EFF as reference for routing and fuel predictions.

ACTIVE F-PLN..... CHECK and COMPLETE AS APPROPRIATE

Modify the active flight plan, as appropriate, depending on the data provided by the ATIS, ATC, or MET.

1. *Lateral revision at departure airport*
2. *Lateral revision at waypoint for route modification, as appropriate*
3. *Vertical revision for climb speed limit/constraints in accordance with ATC clearance. Enter step altitudes as appropriate*
4. *Lateral revision for arrival.*

Check the EOSID on the ND PLAN mode, if applicable

Check the F-PLN and the ND PLAN mode vs. The computerized flight plan or the navigation charts.

Check the distance to destination along the F-PLN. Compare it with the toal distance computed by the computerized flight plan.

SEC F-PLN

SECONDARY FLIGHT PLANS..... AS APPROPRIATE

Create the SEC 1, SEC 2, and SEC 3 F-PLN, as appropriate, using the FMS SEC INDEX page. The flight crew can use SEC 1 and SEC 2 to copy the active F-PLN, and to anticipate a runway change, an immediate return, or a diversion immediately after takeoff.

For an anticipated runway change, they must compute the takeoff performance accordingly. The flight crew can load an ATC flight plan in the SEC 3 only.

Note: Before the flight crew creates a SEC 1(2)(3) flight plan, they should erase associated SEC 1(2)(3) data from the previous flight via the DELETE button on the SEC 1(2)(3) panel of the SEC INDEX page.

ROUTE SUMMARY CHECK

ROUTE SUMMARY..... CHECK versus ATC F-PLN

Check the route summary via the FMS DATA/ROUTE page.

FMS DATA CROSSCHECK

FMS INITIALIZATION..... CROSSCHECK

After the FO initialized the FMS, the CAPT crosschecks:

- *The airfield data*
- *The IRS alignment*
- *The fuel and load data*
- *The takeoff performance data with the OIS takeoff performance data*
- *The F-PLN*

NAV CHARTS CLIPBOAD

NAV CHARTS CLIPBOARD..... IMPORT

The CAPT imports the NAV CHARTS clipboard that the FO prepared.

GLARESHIELD

LIGHTING

INTEGRAL LIGHTS..... AS RQRD

LOUDSPEAKER

LOUDSPEAKER knob..... SET

Set the LOUDSPEAKER knob to approximately 1 o'clock position.

BAROMETRIC REFERENCE

BAROMETRIC REFERENCE..... SET

Set the QNH on the EFIS CP and on the ISIS.

Check the barometric reference and altitude indications on the PFD and on ISIS.

The maximum difference is:

- *+/- 20 ft between both PFDs*
- *+/- 30 ft between ISIS and PFD*
- *+/- 25 ft between each PFD and airport elevation.*

Note: If the barometric unit is mercury inches, the flight crew may notice a discrepancy of 0.01 inHg between the QNH values on the PFDs and the QNH values selected on the EFIS CP. This discrepancy does not impact the altitude computation.

EFIS CONTROL PANEL (EFIS CP)

ND MODE AND RANGE..... AS RQRD

MODE : Display the ARC mode on the ND, if the takeoff direction is in approximately the same direction as the departure clearance.

Display the NAV mode, if the change in direction will be more than 70°, after takeoff.

This enables the ND to display the area behind the aircraft.

RANGE : Set the minimum range to display the first waypoint after departure, or as required for weather purposes.

WX pb on EFIS CP..... OFF

Before pressing the WX pb on any EFIS CP, the flight crew should ensure that:

- *No maintenance personnel is facing the aircraft within a distance less that 20 ft within an arc of 135° on either side of the aircraft centerline.*
- *The aircraft is not directed toward any large metallic obstacle, such as a hangar, within 20 ft in an arc of 90° on either side of the aircraft centerline.*

The weather radar starts to emit as soon as the first engine is started if WX is selected on the EFIS CP to display weather information.

OTHER EFIS OPTIONS..... AS RQRD

Select other EFIS options (e.g. constraints, waypoints, navaids, etc.) as required.

AFS CONTROL PANEL (AFS CP)

– *The FO sets the AFS CP:*

FD..... ON
NORTH REF..... MAG
Check that TRUE does not appear neither on the HDG/TRK window of the AFS CP, no on the PFD.
SPD/MACH window..... DASHED
HDG/TRK window..... DASHED
ALT window..... INITIAL EXPECTED CLEARANCE ALTITUDE
V/S / FPA window..... DASHED

- **The CAPT crosschecks the AFS CP:**

AFS CP..... CROSSCHECK

LATERAL CONSOLES

OXYGEN MASK TEST

Test the oxygen masks of each occupied station. During the test, check that the oxygen correctly reaches the oxygen mask by verifying that the oxygen mask blinker becomes yellow, and the flow of oxygen flow can be heard via the loudspeakers.

- **On the RMP:**

INT/RAD sw..... INT

- **On the mask stewage box:**

OXYGEN MASK TEST..... PERFORM

- **On the DOOR SD page:**

REGUL PR LO indication..... CHECK NOT DISPLAYED

The flight crew must perform this check after checking the masks of each occupied station, to ensure that the oxygen supply valve is open. Due to residual pressure between the oxygen supply valve and the oxygen mask, it may not be possible to detect that a supply valve is failed closed, during the oxygen mask test.

SLIDING WINDOWS

SLIDING WINDOWS..... CLOSED/LOCKED

Check that the green part of the unlock pb is visible on the control handle of the sliding window.

TAKEOFF BRIEFING

TAKEOFF BRIEFING..... PERFORM

The purpose of the takeoff briefing is for the PF to inform the PM of the planned course of action for both normal and abnormal situations during takeoff, and to identify other operational risks.

BEFORE PUSHBACK OR START

BEFORE START CLEARANCE

LOADSHEET

FINAL LOADSHEET..... CHECK

Carefully check the final loadsheet, particularly for significant errors. Make sure that the loadsheet data is correct (e.g. correct flight number, aircraft, dry operating weight/CG, configuration, fuel on board).

FUEL ON BOARD..... CHECK

On the permanent data of the SD, check that the Fuel On Board (FOB) corresponds to the F-PLN and to the Loadsheet.

ZFW/ZFWCG in FMS..... CHECK/REVISE

The PF compares the ZFW/ZFCG of the loadsheet with the ZFW/ZFWCG entered in the FMS ACTIVE/FUEL & LOAD page, and revises them if necessary.

ZFW/ZFWCG in FMS..... CROSSCHECK

The CAPT crosschecks the ZFW / ZFWCG entered in the FMS ACTIVE/FUEL& LOAD page.

LOADSHEET TOCG AND ECAM GWCG..... CROSSCHECK

Check the loadsheet TOCG vs. the ECAM GWCG :

- *If the difference is less than 1 % , no further action is required The ECAM GWCG is reliable.*
- *If there is more than 1 % difference, check that the ZFW and the ZFCG are correctly entered in the FMS.*
  - *If not, revise the ZFW / ZFWCG in the FMS and compare the ECAM GWCG and the loadsheet TOCG*
  - *If the difference is confirmed, compute again the loadsheet using the trim tank fuel quantity displayed on the FUEL SD page For more information on how to compute the loadsheet using trim tank fuel quantity, Refer to PER-LOD-FDC Trim Tank Adjustment .*
  - *If the difference between the loadsheet TOCG and the ECAM GWCG is still greater than 1 % , suspect an abnormal fuel distribution. Confirm the fuel distribution with load control and compute again the loadsheet accordingly.*

ECAM GWCG..... CHECK WITHIN OPERATIONAL LIMITS

Check that the Gross Weight CG displayed on the permanent data of the SD is within the operational limits using the OIS Loadsheet application or referring to the loadsheet.

- **If the ECAM CGWG is within the operational limits:**

THS FPR_ in FMS ACTIVE/PERF page..... INSERT T.O CG (in %)
Use the TOCG indicated on the loadsheet as the reference for insertion of the T.O CG in the FMS.
THS FOR_ in FMS ACTIVE/PERF page..... CROSSCHECK
FINAL LOADSHEET..... SIGN and EXPORT
If the loadsheet is modified, or if required by the authorities or by the airline policym the Captain sends the loadsheet to the ground via EXPORT function in the LOADSHEET application.

- **If the ECAM GWCG is not within the operational limits:**

AUTO GND XFR pb-sw..... ON
Ground transfer is activated to automatically obtain the ground CG target in accordance with the final ZFW / ZFWCG values entered in the FMS .

- *If time permits, continue the Automatic Ground Transfer (AGT) until the FUEL AUTO GND XFR COMPLETED alert triggers*
- *If departure is imminent, monitor the ECAM GWCG during the AGT . The flight crew can manually stop the AGT when the ECAM CG is within the operational limits.*

Note: - The flight crew can obtain the amount of fuel that should be transferred from/to the trim tank to be inside the operational envelope, via the Loadsheet application - The flight crew should not launch the automatic ground transfer if the aircraft is moving (e.g. during towing.) The AGT is inhibited as soon as at least two engines are running.

AUTO GND XFR..... MONITOR
THS FOR _ in FMS ACTIVE/PERF page..... INSERT T.O CG (in %)
Use the TOCG indicated on the loadsheet as the reference for the insertion of the T.O CG in the FMS.
THS FOR _ in FMS ACTIVE/PERF page..... CROSSCHECK
FINAL LOADSHEET..... SIGN and EXPORT
If the loadsheet is modified, or if required by the authorities or by the airline policym the Captain sends the loadsheet to the ground via EXPORT function in the LOADSHEET application.

TAKEOFF DATA

OIS FINAL TAKEOFF PERF..... CONFIRM or RECOMPUTE

- *If takeoff conditions did not change, verify and confirm that the preliminary takeoff data are still valid*
- *If takeoff conditions changed, calculate the final takeoff performance, using the T.O PERF application on the OIS.*

FMS TAKEOFF DATA..... CHECK/REVISE, AS REQUIRED
The FO checks or revises the takeoff data in the T.O. panel of the FMS ACTIVE/PERF page.
REVISED FMS TAKEOFF DATA..... CROSSCHECK
The CAPT crosschecks the takeoff speeds and the flexible temperature. The CAPT crosschecks the FMS entries made by the FO, using the XCHECK WITH AVNCS function in the T.O PERF application.
The flight crew should pay particular attention in determining the takeoff configuration.

- **In accordance with Airlines policy or if required by operational regulation:**

FINAL TAKEOFF PERFORMANCE..... STORE IN CURRENT EFF

SEATING POSITION

SEATS, SEAT BELTS, HARNESSES, RUDDER PEDALS, ARMRESTS..... ADJUST

The seat is correctly adjusted when the pilot's eyes are in line with the red ball and the white light. For additional training-oriented information, Refer to FCTM/NO-70 Seating Position.

HUD

HUD..... DEPLOY

HUD knob..... ADJUST

Turn on the HUD and adjust the brightness according to conditions

DISPLAY MODE..... AS RQRD

Select the declutter mode as required. The flight crew should select the crosswind mode only in flight, when the FPV is not within the display area of the HUD.

CAUTION	In order to avoid head contact with the HUD, the flight crew should: • Tight the seat belts and the fifth strap for takeoff and landing • Maintain the seat belts and the fifth strap fasten, in all other flight phases

MFD

MFD..... IN TAKEOFF CONFIGURATION

- *ACTIVE/F-PLN page on the PM side*
- *T.O panel of the ACTIVE/PERF page on the PF side.*

EXTERNAL POWER

EXT PWR..... CHECK AVAIL

Check that the EXT PWR pb-sw are set to AVAIL before the request of the external power disconnection.

EXT PWR DISCONNECTION..... REQUEST

LP GROUND CART

LP GROUND CARTS..... CHECK DISCONNECTED

If LP ground carts are used for air conditioning, request disconnection before engine start. If LP ground carts are connected during the engine start, air pressure in the mixer unit may be detected out of range, and the associated alert COND MIXER PRESS REGUL FAULT may trigger.

BEFORE START CHECKLIST DOWN TO THE LINE

BEFORE START C/L down to the line..... COMPLETE

AT START CLEARANCE

PUSHBACK/START UP CLEARANCE

PUSHBACK/START UP CLEARANCE..... OBTAIN

Obtain ATC pushback/start up clearance and ground crew clearance.

VIDEO

TAXI VIDEO..... AS RQRD

As required, set the TAXI video on the PFD or on the SD to see the aircraft vicinity.

WINDOWS AND DOORS

WINDOWS AND DOORS..... CHECK CLOSED

- On the DOOR SD page, check that all doors and windows are closed
- When required by local authorities, check that the cockpit door is closed and locked (I.e. OPEN does not appear on the CKPT DOOR light).

SLIDES..... CHECK ARMED

LIGHTS

BEACON sw..... ON

When cleared for start or pushback, set to ON the BEACON sw.

THRUST LEVERS

THR LEVERS..... IDLE

CAUTION	*The engines start regardless of the thrust lever position. If the thrust levers are not set to IDLE, then thrust rapidly increases to the corresponding thrust lever position, causing a hazardous situation.*

PARKING BRAKE AND NOSEWHEEL STEERING

1. **If pushback is not required:**

PARK BRK..... ON

On the triple pressure indicator, the left and right BRK pressure indications should be above 3 500 PSI.

- **If pushback is required:**

PARK BRK..... OFF

CAUTION	*Do not use the brakes during pushback, unless required due to an emergency.*

N/W STEER DISC MEMO..... CHECK DISPLAYED

In the case of a pushback (towbarless or conventional), the ground crew should set the tow pin to the towing position on the steering nose gear panel. The N/W STEER DISC memo on the ECAM indicates this position.

CAUTION	*If the ECAM does not display the N/W STEER DISC memo, but the ground crew confirms that the tow pin is in the towing position, the flight crew should not perform the pushback in order to avoid possible damage to the nose landing gear upon green hydraulic pressurization.*

When the pushback is completed, set to ON the PARK BRK handle, and ask the ground crew for towbar disconnection.

BEFORE START CHECKLIST BELOW THE LINE

BEFORE START C/L below the line..... COMPLETE

ENGINE START

AUTOMATIC ENGINE START

ENG START selector..... IGN START
The ENG SD page appears.
WAIT FOR 10 s
The flight crew should wait approximately for 10 s before the ENG MASTER lever of the engines 2 and 3 are set to ON.
A 10 s delay permits to detect the loss of a thrust reverser function.

- **If no ENG 2(3) REVERSER FAULT ECAM alert appears:**

START ENGINES 1 and 2..... ANNOUNCE
Note: For any operational reason, any engine can be started first.
ENG MASTER 1, then 2..... ON
Set the ENG MASTER levers to ON when all amber crosses and messages no longer appear on the engine parameters of the EWD and of the ENG SD page.
Note: Parameter callouts are not mandatory.
Note: The level of N2 vibration may exceed 5 units and the indication may pulse for a short period of time during the engine start sequence. Depending on the time between the engine is shutdown and the next engine start, the HP rotor can bow due to the thermal stabilization of the engine. As a result, during the engine start sequence, the N2 vibration indication may exceed 5 units. In order to minimize the rotor bow effect during the engine automatic start sequence, the FADEC cranks the engine for 20 s after the N2 reaches 20 %.

- **When the engine reaches idle (I.e. AVAIL appears on the EWD):**

ENG IDLE PARAMETERS..... CHECK NORMAL
At ISA , sea level, with bleed off, check that:

- *THR is approximately 3 %*
- *EGT is approximately 455 °C*
- *N1 is approximately 20 %*
- *N2 is approximately 66 %*
- *FF is approximately 1 400 lbs/h.*

START ENGINES 3 and 4..... ANNOUNCE
ENG MASTER 3 then 5..... ON
Apply the same procedure as indicated for engines 1 and 2.

- **If ENG 2(3) REVERSER FAULT ECAM alert appears:**

ENG START selector..... NORM

- **When XX appears on ENG parameters:**

ENG START selector..... IGN START

The action to set the ENG START selector to NORM then to IGN START enables to reset the electrical power of the FADEC and ETRAC, and to clear thrust reverser failure.

– **If ENG 2(3) REVERSER FAULT ECAM alert no longer appears after 10 s :**

ENGINES 1 and 2..... START

Apply the same procedure as previously indicated under condition "If no ENG 2(3) REVERSER FAULT ECAM alert appears".

ENGINES 3 and 4..... START

Apply the same procedure as previously indicated under condition "If no ENG 2(3) REVERSER FAULT ECAM alert appears".

AFTER START

AFTER START

ENG START SELECTOR

ENG START selector..... NORM

- *Setting to NORM the ENG START selector indicates the end of the start sequence if the ENG START selector remains in the IGN START position, this prevents a continuous ignition on ground. The flight crew should set the ENG START selector to NORM then to IGN START to activate continuous ignition on ground. The flight crew should then perform the AFTER START actions.*
- *The WHEEL SD page appears instead of the ENG SD page*

  Note: If the flight crew does not set the ENG START selector to NORM, the WHEEL SD page automatically appears instead of the ENG SD page 30 s after the last engine start. To prevent thermal shock, the engine should run at idle or taxi thrust for a minimum of 3 min (5 min recommended) prior to takeoff .

APU BLEED

APU BLEED pb-sw..... OFF

- *The APU bleed valve closes*
- *All engine bleed valve opens*
- *All crossbleed valves close.*

ENG ANTI-ICE

All ENG ANTI-ICE pb-sw..... AS RQRD

- *Set to ON the ENG ANTI-ICE pb-sw , if:*
  - *Icing conditions exist or are anticipated, or*
  - *Standing water, slush, ice, or snow is on the taxiways or runway when the OAT is less than 10 °C .*
- *When taxiing in icing conditions, if temperature is less than + 3 °C :*
  - *With freezing fog conditions: the flight crew must apply the ice shedding procedure*
  - *Without freezing fog conditions: In order to shed any possible ice on the fan, the flight crew must increase the thrust to 60 % N1 momentarily on two symmetric engines at a time (i.e. 1 and 4, 2 and 3) with parking brake on (or brake with pedals). The engines run-up must be performed at least every 30 min of total taxi time (including taxi-in and taxi-out time) and when lined-up before applying the takeoff thrust.*

CAUTION	*Pay particular attention to the aircraft movement during this procedure. If during thrust increase, the aircraft starts to move, immediately retard the thrust levers to IDLE.*

If the aircraft moves, apply the thrust on only one engine at a time.

APU

- **If the APU is not required:**

APU MASTER SW pb-sw..... OFF

GROUND SPOILERS

GND SPLRS..... ARM

RUDDER TRIM

RUDDER TRIM..... ZERO

If the rudder trim position is not zero, press the RESET pb on the RUDDER TRIM panel.

FLAPS

FLAPS..... SET

- *Set the FLAPS for takeoff*
- *Check the slats and flaps position on the slats/flaps display of the PFD*
- *If taxiing in icing conditions with rain, slush, or snow, maintain the slats/flaps retracted, until the aircraft reaches the holding point of the takeoff runway, in order to prevent contamination of the slats/flaps mechanism.*

PITCH TRIM

PITCH TRIM..... CHECK

Check that the pitch trim is set to the takeoff target on the pitch trim display of the PFD.

ECAM STATUS

ECAM STATUS..... CHECK

- *The F/O checks and the CAPT crosschecks that there is no status reminder (STS) on the EWD*
- *If STS appears on the EWD, press the STS pb on the ECP to display the STATUS page.*

GROUND CREW

CLEAR TO DISCONNECT..... ANNOUNCE

The ground crew will:

- *Remove the chocks*
- *Remove the tow pin*
- *Disconnect the interphone*
- *Make the hand signal on the left or right side.*

N/W STEER DISC MEMO

N/W STEER DISC MEMO..... CHECK NOT DISPLAYED

FLIGHT CONTROLS

FLIGHT CONTROLS..... CHECK

The flight crew should perform the flight control check when the slats/flaps are set to the takeoff configuration.

- *The CAPT remains silent, and applies full longitudinal and lateral sidestick deflection. On the F/CTL SD page, the FO checks full travel of all elevators and all ailerons, and the correct deflection and retraction of all spoilers. The FO announces "full up", "full down", "neutral", "full left", "full right", "neutral", when each applicable full travel/neutral position is reached. The CAPT remains silent, and checks that the FO calls are in accordance with the sidestick order.*

Note: To reach full travel, maintain full sidestick for a sufficient period of time.

- *The CAPT remains silent, presses the PEDAL DISC pb to disconnect the NWS and applies full left rudder, full right rudder, and neutral. The FO follows on the rudder pedals and announces "full left", "full right", "neutral" as each full travel/neutral position is reached. Note: To reach full travel, apply full rudder for a sufficient period of time.*
- *The FO applies full longitudinal and lateral sidestick deflection, remains silent, and checks full travel and the correct sense of all elevators and all ailerons, and the correct deflection and retraction of all spoilers, on the F/CTL SD page.*

Note: - The F/CTL SD page automatically appears during 20 s after any flight crew action on the sidestick or on the rudder pedals

- After the F/CTL checks, the rudder trim returns to a position between ±3 °. As a result, the rudder trim check at neutral in the AFTER START C/L may appear as not completed (I.e. in blue).

AFTER START CHECKLIST

AFTER START C/L..... COMPLETE

TAXI

TAXI

The Captain will turn ON then OFF the Landing Light/Taxi Light/Turnoff Light in response to the Ramp Coordinator's signal.

CLEARANCE

TAXI CLEARANCE..... OBTAIN

EXTERNAL AND TAXI AID CAMERA SYSTEM (ETACS)

TAXI pb on EFIS CP..... AS RQRD

AIRPORT NAVIGATION

Direct visual obvservation out of the cockpit windows remains the primary means of taxiing. If there is a conflict between the outside and the OANS display, the reference must be the outside view.

ND RANGE selector..... ZOOM, AS APPROPRIATE

- *If necessary, set the ND RANGE selector to ZOOM to activate the Onboard Airport Navigation System (OANS). Then, select ARC, ROSE, or PLAN mode, as appropriate*
- *If the DATABASE CYCLE NOT VALID message appears on the STATUS panel, check the active database cycle validity period, and swap the active and second database.*

EXTERIOR LIGHTS

NOSE sw..... TAXI

During the day and during the night, set the NOSE sw to TAXI.

RWY TURN OFF & CAMERA sw..... AS RQRD

PARK BRK

PARK BRK..... OFF

Check that the left and right brake pressure is zero on the triple pressure indicator.

THRUST LEVERS

THRUST LEVERS..... AS RQRD

- *Little, if any, power above idle thrust can be necessary to move the aircraft (e.g. approximately up to 10 % THR at heavy weight, with a uphill taxi slope). Excessive thrust application on engines can result in exhaust-blast damage (e.g. on airport signs). The flight crew should use symmetrical thrust. When the aircraft begins to move, less thrust is necessary.*
- *If the inner engines are located over unconsolidated or unprepared ground during taxi, avoid high thrust settings on the inner engines (i.e. engine ingestion (FOD) risk increases). If additional thrust is necessary, the flight crew should preferably use the outer engines.*
- *The use of engine anti-ice increases the ground idle thrust*
- *If the aircraft was parked for a long time (i.e. more than 6 h) in high tire temperature conditions and with a high aircraft weight, then the flight crew can feel a "square wheel effect" when the aircraft begins to move.*

BRAKES

BRAKES..... CHECK

CAUTION	*If the aircraft was parked in wet conditions for a long time, the first brake application at low speed is less effective*

- *When the aircraft begins to move, the PF smoothly presses the brake pedals to check the braking efficiency of the normal braking system. The FO checks that the left and right BRK pressure on the triple pressure indicator remains at zero.*
- *The maximum taxi speed should be 30 kt in a straight line on long taxiways, and 8 to 10 kt on a sharp turn. It is difficult to assess the ground speed. Therefore, monitor the ground speed on the ND or on the ETACS video. Avoid continuous brake application. When the aircraft exceeds 30 kt with idle thrust, smoothly brake, and decelerate to 10 kt . Release the brakes, to enable the aircraft to accelerate again.*

NOSEWHEEL STEERING

NOSEWHEEL STEERING..... AS RQRD

- *Use smooth and progressive handwheel inputs.*
- *The nosewheel steering angle is limited to 70 °.*

ATC CLEARANCE

ATC CLEARANCE..... CONFIRM

TAKEOFF DATA

If the takeoff data changed, or in the case of a runway change, prepare updated takeoff data and recompute takeoff performance, as appropriate.

TAKEOFF DATA COMPUTATION

- **If multiple runway selection was used in anticipation of the runway change:**

  T.O PERF..... ACCESS

  SELECTED RWY AND INPUT DATA..... CHECK

  Check that the new runway was previously selected and check that the conditions used for takeoff performance computation are still valid.

  TAKEOFF DATA..... CHECK

  Check that the takeoff data for the selected runway.

- **If multiple runway selection was not used, or if the takeoff conditions changed:**

T.O PERF..... ACCESS

NEW RUNWAY/NEW CONDITIONS..... SELECT/ENTER

TAKEOFF PERF..... COMPUTE

Launch the computation for the new selected runway or the new takeoff conditions.

TAKEOFF PERFORMANCE RESULTS..... CROSSCHECK

IN THE FMS ACTIVE/PERF PAGE

- **In the case of ATC clearance or takeoff change:**

TAKEOFF PERF DATA..... UPDATE

Update the FMS in accordance with the new results of the takeoff performance computation: I.e. update the T.O panel of the FMS ACTIVE/PERF page, and the FMS ACTIVE F-PLN page.

If the flight crew anticipated the runway change in a secondary flight plan, activate this SEC F-PLN.

V1, VR AND V2..... UPDATE

FLX T.O TEMPERATURE..... UPDATE

FLAPS..... UPDATE

FMS UPDATES..... CROSSCHECK

The CAPT crosschecks the new FMS inputs.

FLAPS lever..... AS APPROPRIATE

Set the FLAPS for takeoff

AFS/FLIGHT INSTRUMENTS

- **In the case of ATC clearance or takeoff runway change:**

F-PLN (SID, TRANS)..... REVISE or CHECK

Carefully confirm that the ATC clearance agrees with the FMS, if NAV mode is to be used.

INITIAL CLIMB SPEED AND SPEED LIMIT..... REVISE or CHECK

Revise the SPD panel of the FMS ACTIVE/VERT REV page associated with the departure, or the CLB waypoint.

CLEARED ALTITUDE ON AFS CP..... SET

On the PFD, crosscheck and confirm the first cleared altitude.

HDG ON AFS CP..... PRESET, AS RQRD

- *If the ATC requires a heading after takeoff, or in the case of a radar vector departure, preset the heading on the AFS CP . NAV disarms.*
- *RWY TRK mode maintains the aircraft on the runway track until HDG engages*

FD..... CHECK SELECTED ON

PFD/ND..... CHECK

Check that the PFD and the ND indications (e.g. airspeeds, initial target altitude, heading, slats/flaps configuration, FMA modes) are in accordance with the departure.

MFD..... IN TAKEOFF CONFIGURATION

- *The PF displays the T.O panel of the FMS ACTIVE/PERF page*
- *The PM displays the FMS ACTIVE/F-PLN page.*

TAKEOFF BRIEFING

TAKEOFF BRIEFING..... CONFIRM

The takeoff briefing should usually be only a brief confirmation of the entire takeoff briefing that is done at the gate. The flight crew should address any clearance changes at this time.

AUTO BRK

RTO pb..... ARM

- *The RTO ARM light comes on*
- *BRK RTO appears on the FMA*
- *The flight crew can arm the AUTO BRK in the RTO mode, even if the PARK BRK is set to ON*
- *The RTO mode improves the safety in the case of an aborted takeoff. If the takeoff is aborted, the AUTO BRK system applies maximum braking as soon as the thrust levers are set to idle, and if the speed is above 72 kt (i.e. corresponding to the order of ground spoiler extension). Below 72 kt , the AUTO BRK does not activate, because the ground spoilers do not automatically extend.*

ATC

ATC CODE..... CONFIRM/SET

FINAL CHECK

TO CONFIG pb..... TEST

Press the TO CONFIG pb on the ECP, and check that the EWD displays the T.O CONFIG NORMAL memo.

T.O MEMO..... NO BLUE LINE

Check that the EWD does not display any blue line in the T.O memo section.

CABIN..... READY

Check CABIN READY on the EWD, or obtain the report from the chief: "Cabin ready for takeoff"

BEFORE TAKEOFF CHECKLIST DOWN TO THE LINE

BEFORE TAKEOFF C/L down to the line..... COMPLETE

BEFORE TAKEOFF

BEFORE TAKEOFF

TAKEOFF OR LINE UP CLEARANCE

TAKEOFF OR LINE UP CLEARANCE..... OBTAIN

CABIN CREW

CABIN CREW..... ADVISE

About 3 minutes prior to the estimated takeoff time, captain call "TAKEOFF SIGNAL"

PACKS

PACKS 1 and 2..... AS RQRD

- *Consider setting the packs to OFF, or setting the APU BLEED pb-sw to ON:*
  - *this improves aircraft performance when using TOGA thrust*
  - *In the case of a FLEX takeoff, this reduces the EGT and therefore, reduces the maintenance costs.*
- *It is not authorized to use the APU bleed, if wing anti-ice is used.*

EXTERIOR LIGHTS

EXTERIOR LIGHTS..... SET

In order to minimize bird strike hazard during takeoff:

- *Set the RWY TURN OFF & CAMERA sw to ON*
- *Set the LAND sw to ON*
- *Set the NOSE sw to T.O.*

ETACS

- **If the ETACS was used during the taxi:**

TAXI pb on EFIS CP..... OFF

EFIS CP

ND RANGE selector..... AS RQRD

On the ND, when Airport Navigation is no longer used, set the minimum range to display the first waypoint after departure, or as required for weather purposes.

EFIS OPTIONS (WX pb or TERR pb)..... AS RQRD

Consider the following settings:

- *WX pb set to ON, on the PF side*
- *TERR pb set to ON, on the PNF side.*

TRAF pb..... ON

BEFORE ENTERING THE RUNWAY

APPROACH PATH..... CHECK CLEAR OF TRAFFIC

STROBE sw..... ON

Set the STROBE sw to ON to cross or enter a runway.

TAKEOFF RUNWAY..... CONFIRM

Confirm that the line up is performed on the intended runway. Useful aids are:

- *The runway markings*
- *The runway lights Be careful that in low visibility, edge lights could be mixed up with the center line lights.*
- *The ILS signal*
  If the runway is ILS equipped, the flight crew can press the LS pb: The LOC deviation should be centered after line up.
- *The runway symbol on the ND.*

SLIDING TABLE

SLIDING TABLE..... STOWED

TCAS

TA pb..... TA ONLY or TA/RA

TA/RA is the default mode of the TCAS.
The flight crew may use the TA ONLY mode in specific airports, and for specific procedures (identified by Operators) that may provide resolution advisories that are neither wanted nor appropriate (e.g. closely-spaced parallel or converging runways).

BEFORE TAKEOFF CHECKLIST BELOW THE LINE

BEFORE TAKEOFF C/L below the line..... COMPLETE
Read the checklist below the line, when the flight crew obtains the line up clearance.

TAKEOFF

TAKEOFF

THRUST SETTING

Rolling takeoff is permitted

TAKEOFF..... ANNOUNCE
THR..... 25 %
Apply 25 % of THR on all four engines with the brakes set to on. However, the flight crew can release the brakes to perform a rolling takeoff.

– **If the crosswind is at, or below 23 kt, and there is no tailwind:**

BRAKES..... RELEASE
THRUST LEVERS..... FLX or TOGA
Note: The ECAM displays the ENG SD page, instead of the WHEEL SD page.

– **If the crosswind is above 23 kt, and/or in the case of tailwind:**

BRAKES..... RELEASE
THRUST LEVERS..... 50 %

- **At 20 kt ground speed:**

  THRUST LEVERS..... FLX or TOGA
  Note: When FO is PF, After calling FMA "MAN FLEX...", the Captain's hand must be on the thrust levers until V1, and FO's hand must be removed from the thrust levers.

CHRONO..... START
DIRECTIONAL CONTROL..... USE RUDDER
PFD/ND..... SCAN

– *Check the FMA on the PFD:*
  - *MAN FLX or MAN TOGA*

Note: If an ILS is tuned associated with the departure runway, RWY mode appears. In all other cases, no lateral mode appears until the aircraft lifts off.

1. *If GPS PRIMARY LOST, check on the ND the FMS position: I.e that the aircraft is on the runway centerline. The FMS updates the aircraft position at takeoff, only if GPS PRIMARY LOST.*

TAKEOFF THRUST..... CHECK

Before the aircraft reaches 80 kt, check the thrust setting, i.e. check that the actual THR of each engine reached the thrust rating limit and the thrust target indicated by the blue dot.

BEFORE REACHING 80 KT

THRUST SET..... ANNOUNCE
PFD and ENG indications..... SCAN
Scan the airspeed and the THR throughout the takeoff.

AT 100 KT

ONE HUNDRED KNOTS..... ANNOUNCE

- Below 100 kt, the PF can decide to abort the takeoff, depending on the circumstances
- Above 100 kt, rejecting the takeoff is a more serious matter.

AT V1

V1..... MONITOR or ANNOUNCE

AT VR

ROTATION..... ORDER

ROTATION..... PERFORM

If the PF uses the HUD :

- *At VR , initiate the rotation, and bring the inverted T toward the horizon line*
- *After liftoff, fly the velocity vector and follow the SRS using the flight path director.*

If the PF does not use the HUD :

- *At VR , initiate the rotation toward a pitch attitude of 12.5 ° (10 ° , if one engine is failed)*
- *After liftoff, follow the SRS pitch command bar.*

Note: If a tail strike occurs, the ECAM triggers the TAIL STRIKE alert.

- *At 30 ft, if NAV is armed (i.e. the flight crew did not preset any HDG or TRK), NAV automatically engages*
- *If NAV is not armed, RWY TRK engages at 50 ft and remains displayed until the flight crew selects another lateral mode.*

WHEN POSITIVE CLIMB

POSITIVE CLIMB..... ANNOUNCE
Announce positive climb, when the vertical speed indication is positive and the radio altitude has increased
L/G UP..... ORDER
L/G..... UP
AP..... AS RQRD
The flight crew engage AP 1 or AP 2 above 100 ft AGL.

AT THE THRUST REDUCTION ALTITUDE (I.E. LVR CLB FLASHES ON THE FMA)

THRUST LEVERS..... CL
Note: *When the aircraft reaches 1 500 ft, or at the thrust reduction altitude, whichever occurs the first, the CRUISE SD page appears instead of the ENG SD page.*

ABOVE THE ACCELERATION ALTITUDE

- **At F speed:**

Note: *For takeoffs in CONFIG 1+F, F speed does not appear.*

FLAPS 1..... ORDER
FLAPS 1..... SET

- **At S speed:**

FLAPS ZERO..... ORDER
FLAPS ZERO..... SET
EXTERIOR LIGHTS..... SET

- *Set to OFF the NOSE sw and the RWY TURN OFF & CAMERA sw*

GND SPLRS..... DISARM

AFTER TAKEOFF

AFTER TAKEOFF

APU

- **If the APU was used to supply the air conditioning during takeoff:**

APU BLEED pb-sw..... OFF
APU MASTER SW pb-sw..... OFF

TCAS

- **If the takeoff was performed with TA ONLY:**

TA pb..... TA/RA

ANTI-ICE PROTECTION

ANTI-ICE pb-sw..... AS RQRD
The flight crew should set to ON the ENG ANTI-ICE pb-sw, when icing conditions are expected with a TAT at, or below 10°C.

SLIDING TABLE

SLIDING TABLE..... RELEASE, AS NECESSARY

AFTER TAKEOFF/CLIMB CHECKLIST DOWN TO THE LINE

AFTER TAKEOFF/CLIMB C/L down to the line..... COMPLETE

flybywire

CLIMB

CLIMB

INITIAL CLIMB

CRZ FL..... SET AS RQRD

- *If the ATC clears the aircraft to the scheduled CRZ FL or above, it is not necessary to modify the CRZ FL that was inserted on the ACTIVE/INIT page during the cockpit preparation. The flight guidance automatically takes into account any altitude that the flight crew selects on the AFS CP above the CRZ FL.*
- *If the ATC limits the CRZ FL to a lower level than the one entered on the ACTIVE/INIT page (or than the one that appears on the PERF page) insert this lower CRZ FL on the PERF page. If the flight crew does not enter this lower CRZ FL on the PERF page, there is no transition to the CRZ phase. Therefore, the managed speed/Mach targets are not modified and A/THR SOFT mode is not available. In that case, the FMA displays ALT instead of ALT CRZ in the second column.*

CLIMB SPEED MODIFICATIONS..... AS RQRD

If ATC requests, or operational considerations lead to change the speed:

- Select the new speed with the SPD/MACH knob on the AFS CP and pull
- The new speed target is now activated
- Press the SPD/MACH knob to return to the managed speed profile. The speed target becomes managed.

Note: - The best speed (and rate of climb) for long-term situations is between Green Dot (GD) and the ECON speed. At high altitude, an acceleration from GD to ECON speed can take a long time

- At high altitude and depending on the Mach (selected or computed by the FMS), the airspeed can be below GD.

AFTER TAKEOFF/CLIMB CHECKLIST BELOW THE LINE

AFTER TAKEOFF/CLIMB C/L below the line..... COMPLETE

ANTI-ICE PROTECTION

ANTI-ICE pb-sw..... AS RQRD

The flight crew shoud set to ON the ENG ANTI-ICE pb-sw, when the aircraft encounters icing conditions, unless the SAT is below -40°C.

AT 10 000 FT

LAND sw..... OFF

SEAT BELTS sw..... AS RQRD

EFIS OPTIONS..... AS RQRD

ECAM MEMO..... REVIEW

– **On PF request, or at least with PF approval:**

NAVAIDS..... CLEAR

Clear the manually tuned NAVAIDS in the TUNED FOR DISPLAY panel of the POSITION/NAVAIDS page.

OPT/MAX ALT..... CHECK

Check the optimum and maximum altitude capability.

AT THE TRANSITION ALTITUDE

BAROMETRIC REFERENCE..... SET STD/CROSSCHECK

- At the transition altitude, the barometric setting flashes on the PFD . The flight crew should set STD on the EFIS CP and on the ISIS SFD - Crosscheck the barometric settings and the altitude indications For additional training-oriented information on the VD in relation to the barometric reference setting, Refer to FCTM/NO-140 Vertical Display . - For additional information on the associated callouts, Refer to PRO-NOR-SCO Summary for Each Flight Phase

CRUISE

CRUISE

ALT CRZ

ALT CRZ on FMA..... CHECK

Check that the aircraft flies at the cruise flight level that was entered on the CRZ panel of the FMS ACTIVE/PERF page. This enables the aircraft to:

- *Fly at the ECON cruise Mach/speed The cruise Mach/speed is targeted and cruise fuel consumption is optimized.*
- *Benefit from the A/THR SOFT mode*
- *Have accurate predictions.*

Note: If the selected AFS CP altitude is below the FMS CRZ FL , then change the CRZ to the current altitude.

ECAM

ECAM MEMO..... REVIEW

SD PAGES..... REVIEW

Periodically review the SD pages, and particularly monitor the ENG oil pressure.

Note: During the cruise, the oil quantity variation is not linear. The flight crew can notice a rapid decrease, particularly at the beginning of the flight. This rapid decrease is due to an oil temperature decrease that leads to a longer oil transit time in the sumps (i.e. more oil is retained in the sumps).

Periodically review the following SD pages:

- *BLEED: For bleed parameters*
- *ELEC: For electrical parameters and GEN load*

FLIGHT PROGRESS

FLIGHT PROGRESS..... CHECK

STEP FLIGHT LEVEL

STEP FLIGHT LEVEL..... AS APPROPRIATE

DESCENT PREPARATION

DESCENT PREPARATION

LANDING INFORMATION

The flight crew should begin the briefings approximately 80 nm before the top of descent.

WEATHER AND LANDING INFORMATION..... OBTAIN

The flight crew can receive the landing information update via either AOC, ATIS, ATC, etc. Check the weather reports at ALTERNATE and DESTINATION airports. Airfield data, if any, should include the runway to be used for arrival.

LDG ELEVN..... CHECK

Check that LDG ELEVN appears on the CRUISE page, and check the associated value.

BAROMETRIC REFERENCE

BAROMETRIC REFERENCE..... PRESET

Preset the QNH on the EFIS CP.

ECAM

STATUS PAGE/STATUS MORE PAGE..... CHECK

- *Check the STATUS page before completing the approach briefing. Review the active DEFERRED PROCs (i.e. ALL PHASES, APPR and LDG) and LIMITATIONS, and take particular note of any degradation in landing capability, or any other aspect affecting the approach and landing*
- *The STATUS page also automatically appears, if not empty, when the flight crew sets the barometric reference, or when the slats are extended*
- *Check the ALERTS IMPACTING LDG PERF on the STATUS MORE page, in order to verify if any alert triggered during the flight has an impact on the landing performance.*

LANDING PERFORMANCE

SYNCHRO ECAM button..... CLICK

LANDING PERFORMANCE..... CHECK

In the LDG PERF application, modify the selections in accordance with the estimated arrival conditions:

- *In the AIRPORT/RUNWAY part, select the applicable runway*
- *In the CONDITIONS part, enter the estimated landing conditions*
- *In the AIRCRAFT STATUS part, check the selected items, if any*
- *Launch the computation and check the results versus Airline policy or applicable regulations*

FMS

FMS ACTIVE/F-PLN/ARRIVAL page..... INSERT/CHECK

- *Insert APPR, STAR, TRANS, and APPR VIA, if applicable*
- *If the NO FLS FOR THIS APPR message appears on the FMS message area, the flight crew will fly the NPA without FLS function.*

DES panel of the FMS ACTIVE/PERF page..... INSERT/CHECK

- *Before the descent, check the MANAGED MACH/SPD*
- *If a speed different from the ECON Mach/speed is required, insert that Mach/speed in the ECON entry fields.*

The managed speed profile of the descent has a default speed limit of 250 kt below 10 000 ft . The flight crew can delete or modify this speed limit, if necessary, on the SPD panel of the VERT REV page.

APPR panel of the FMS ACTIVE/PERD page..... INSERT/CHECK

Insert and check the approach data on the APPR panel of the FMS ACTIVE/PERF page.

- *Enter the destination QNH , temperature, and wind. The entered wind should be the average wind value provided by the ATC or ATIS . Do not enter the gust values (e.g. if the wind is 150/20-25, insert the lower speed 150/20. In the managed speed mode, the ground speed mini function takes into account the gusts).*
- *Insert the MINIMUM (i.e. BARO or RADIO), as applicable. If the BARO/RADIO MINIMUM value is not a multiple of ten, round up the MINIMUM (BARO or RADIO) to the nearest ten feet. For example, if the MINIMUM is equal to 91 ft , insert ' 100 ft ' on the APPR panel.*

Note: - *Any change of the RWY or the type of arrival (e.g. VOR , ILS) automatically deletes the previous MINIMUM*

- *To avoid undershooting the published MDA (MDH) during a go-around due to the aircraft inertia during the pull-up, some Authorities may require Operators to add a specific number of feet to the published MDA (MDH).*

- *Check or modify the landing configuration.*

Always select the landing configuration on the APPR panel of the PERF page:

- *The flight crew can choose FLAPS 3 rather than FLAPS FULL for landing, depending on the available runway length or go-around performance, or if they expect windshear or severe turbulence during the approach*
- *In the case of a system failure, the ECAM can require a specific landing configuration. Select the correct landing configuration on the APPR panel.*
  - *Select CONF 3 on the APPR panel for landing in CONF 3*
  - *Select FULL for all other slats/flaps configuration.*

As a general rule, the flight crew can use the managed speed if the landing configuration and the configuration selected on the APPR panel are the same (if they are not the same, the managed speed will not drop down to the approachspeed).

- *In the case of an in-flight failure that affects the landing performance and increases the VAPP , use the LDG PERF application for VAPP computation. Insert the computed VAPP in the APPR panel of the FMS ACTIVE/PERF page. L2 The flight crew can modify VAPP. The ground speed mini function takes into account this new value.*

GA panel of the FMS ACTIVE/PERF page..... CHECK

Check the THR RED and ACCEL altitudes, and modify them if necessary

FMS POSITION/NAVAIDS page..... CHECK

- *Set the NAVAIDS as required, and check the VOR/ADF idents on the ND s and the ILS (GLS) ident on the PFD s*
- *For an ILS (GLS) approach, check the frequency (channel) and the course of the selected ILS (GLS)*
- *If a VOR/DME exists close to the airfield, select it and enter the associated ident in the BRG/DIST O entry fields of the POSITION/MONITOR page, for NAV ACCURACY monitoring during descent.*

SEC pages..... AS RQRD

The flight crew should prepare a SEC F-PLN before the top of descent, either to an alternative runway for destination, or to the landing runway in the case of circling. In all cases, the routing to the alternate should be available. If there is a last-minute runway change, then the flight crew only needs to activate the appropriate SEC F-PLN , without forgetting to set the new MINIMUM and NAVAIDS.

FMS..... CROSSCHECK

OANS

RUNWAY SHIFT..... AS RQRD

The flight crew must shift the runway threshold and/or the runway end, as required (e.g. due to NOTAM).

- *BTV locates the dry and wet lines according to the runway threshold and to ensure that the flight crew will select an achievable runway exit The dry and wet lines computation takes into account the current weight of the aircraft (i.e. not the predicted landing weight).*
- *ROW/ROP needs the real position of the runway end to ensure the aircraft protection against runway excursion.*

BTV

The use of the BTV autobrake mode is recommended in the case of dry or wet runway conditions.

CAUTION	*Do not use BTV in the case of:* – *Contaminated runway* – *Any reverse inoperative, or in the case of any aircraft failure affecting landing performance.*

ND MODE selector..... PLAN
ND RANGE selector..... ZOOM
RUNWAY..... SELECT
RUNWAY EXIT..... SELECT

Select the exit in accordance with the runway conditions, i.e. wet or dry. It is recommended to select an exit beyond the WET line, even on a dry runway, in order to:

- *Anticipate the last minute change of the runway condition from dry to damp or wet*
- *Provide a smooth deceleration for passenger comfort.*

The flight crew chooses the exit by taking into account

- *The destination airport gate*
- *The airport ground circulation*
- *The runway exit configuration (i.e. high speed turn off on dry runway)*
- *The predictive turn around times displayed on the ND.*

AUTOBRAKE

AUTO BRK/BTV..... SELECT, AS RQRD

Set the AUTO BRK Mode selector to the appropriate autobrake mode, depending on the condition and the length of the runway. To use BTV, set the AUTO BRK Mode selector to BTV before removing the Airport Navigation display from the ND (i.e. before the selection of a ND range different from ZOOM). If the flight crew sets another ND range before arming the BTV autobrake mode, the BTV preparation is lost.

On contaminated runways, use autobrake mode 3. Do not use BTV.

If BTV is not available, the HI mode produces a smooth but high level of deceleration on dry runways, that can be useful in short runway conditions.

- **If the crew selected BTV:**

OANS RUNWAY LENGTH Vs CHARTS RUNWAY LENGHT..... CROSSCHECK

The flight crew crosschecks the runway length displayed on the Airport Navigation display with the LDA published in the charts, when BTV is armed. The difference between the runway length displayed on the Airport Navigation display and the LDA published in the charts must not exceed 115 ft.

LANDING BRIEFING

LANDING BRIEFING..... PERFORM

The main objective of the landing briefing is for the PF to inform the PM of the planned course of action for the approach. It is recommended to use the FMS pages as a guide for the descent and approach briefing.

DESCENT CLEARANCE

DESCENT CLEARANCE..... OBTAIN
CLEARED ALTITUDE ON AFS CP..... SET
When the flight crew obtains the ATC clearance, they should set the cleared altitude(FL) on the AFS CP taking into account the safe altitudes. If the lowest safe altitude is above the cleared altitude, check with the ATC to determine if this constraint applies. If the ATC confirms that this constrain applies, set the safe altitude on the AFS CP until it is safe to reach the cleared altitude.

ANTI-ICE PROTECTION

ANTI-ICE pb-sw..... AS RQRD
During the descent, the flight crew should set to ON the ENG ANTI-ICE pb-sw when they expect or encounter icing conditions. When the engines are at idle, the use of the anti-ice reduces the descent path angle. If needed, the flight crew can compensate this behavior by increasing the descent speed, or by extending the speed brakes, as necessary.

DESCENT

DESCENT

DESCENT INITIATION

DESCENT..... INITIATE

The standard method to initiate a descent is to engage the DES mode at the Top of Descent (T/D) computed by the FMS.

The FMS computes the T/D based on the following assumptions:

- The aircraft will beging the descent in DES mode with managed speed
- The FMS will guide the aircraft along the descent profile computed with all the vertical F-PLN data (i.e. ALT CSTR, MANAGED MACH/SPD, SPD CSTR, SPD LIMIT) to reach VAPP at 1 000 ft AGL.

The T/D appears on the ACTIVE/F-PLN page and on the ND.

Note: The ND does not display the Top of Descent when HDG (Or Track) mode is engaged.

- **When the aircraft reaches the T/D**

ALT knob..... PUSH

- **If the ATC requires an early descent**

Use the DES mode.

The DES mode guides the aircraft down to a lower vertical speed, in order to converge with the required descent path. (The flight crew may use a V/S of 1 000 ft/min).

- **If the ATC delays the descent**

Beyond the T/D, the T/D REACHED message appears on the PFD and MFD. This suggests that the flight crew should reduce the speed torward green dot speed with ATC permission. When cleared the descent, engage DES mode with the managed speed active.

DESCENT MONITORING

DESCENT..... MONITOR

DESCENT ADJUSTMENT

RATE of DESCENT..... ADJUST, AS RQRD

To increase the rate of descent, increase the descent speed by using the selected speed, if comfort and the ATC permit. It is more cost-effective (Time/Fuel) than using the speed brakes:

- *Maintain a high speed as long as possible, provided that the ATC permits to fly above the speed limits*
- *If the aircraft is high and at high speed, it is more efficient to keep the high speed until ALT* then to decelerate at level-off, instead of combining descent and deceleration.*

If the aircraft goes below the desired profile, use the selected speed and the V/S mode to adjust the rate of descent.

SPEED BRAKES..... AS RQRD

In the OP DES mode, the flight crew can use the speed brakes to increase the rate of descent. The flight crew can also use the speed brakes to maintain the required rate of descent, when engine anti-ice is used. In the DES mode, if the aircraft is on, or below the flight path and the ATC requires a higher rate of descent, do not use the speed brakes because the rate of descent is imposed by the planned flight path. Therefore, the A/THR may increase thrust to compensate for the increase in drag. In this case, use the OP DES mode with speed brakes.

AT 20 000 FT

Cabin Crew..... ADVICE

Note: *The Captain Use Seat Belt Selector 3 chimes then Auto or On and make a PA "Cabin Crew, Prepare For Landing"*

TAWS AND WXR

TERR pb on EFIS CP..... AS RQRD

WX pb on EFIS CP..... AS RQRD

AT 10 000 FT

LAND sw..... ON

The flight crew may set to ON the landing lights, depending on the airline policy, or following regulatory recommendations.

SEAT BELTS sw..... ON

CSTR pb on EFIS CP..... ON

LS pb..... AS RQRD

Press the LS pb, if one of the following approaches is planned:

- *ILS/GLS*
- *ILS G/S out, LOC only, or LOC B/C*
- *NPA with the FLS function*

The PFD displays the landing system data, in accordance with the approaches selected on the FMS ARRIVAL page: Deviation scales, deviation signals, course pointer, information. If an NPA is selected on the FMS ARRIVAL page, the FMA displays the FLS capability.

- **For NPA flown with the FLS function:**

FLS CAPABILITY..... CHECK

The FLS capability does not appear, if one of the following conditions occured:

- *The NO FLS FOR THIS APPR has appeared on the FMS message area*
- *The required conditions to display the FLS capability are not met.*

FLS DATA..... CHECK

NAVAIDS..... AS RQRD/CHECK

HOLDING

HOLDING PATTERN..... AS RQRD

The flight crew can insert an holding pattern in the FMS if required during the descent.

APPROACH CHECKLIST

APPROACH C/L..... COMPLETE

flybywire

PRECISION APPROACH

INITIAL APPROACH

INITIAL APPROACH

APPROACH PHASE…… CHECK/ACTIVATE

- *If the aircraft overflies the DECEL pseudo waypoint in NAV mode, the APPR phase activates automatically*
- *If the aircraft is in HDG or TRACK mode approximately 15 nm from touchdown, activate and confirm the APPR phase on the FMS ACTIVE/PERF page.*

POSITIONING…… CHECK/ACTIVATE

- *In NAV mode, use the VERT DEV on the PFD and on the DES panel on the ACTIVE/PERF page*
- *In HDG or TRACK mode, use the energy circle on the ND that shows the required distance to land.*

MANAGED SPEED…… CHECK

Check that the managed speed is active and monitor the target speed.

Note : The aircraft decelerates automatically at the DECEL pseudo waypoing when managed speed is active and NAV, LOC or LOC mode is engaged.*

During the approach, the autothrust maintains the maneuvering speed of the current configuration (O, S, F, VAPP).
If ATC requires a particular speed, use selected speed. Adjust the aircraft configuration accordingly. When the ATC speed constraint (e.g. « maintain 170 kt to the outer marker ») no longer applies, return to managed speed.
If ATC orders successive step descents down to the final approach flight path, use V/S or FPA mode and monitor the VERT DEV.

SPEED BRAKES…… AS RQRD

NAVIGATION ACCURACY

- **If GPS PRIMARY LOST :**

  NAVIGATION ACCURACY…… MONTIOR

  On the POSITION/MONITOR page, check that the required navigation accuracy is appropriate to the phase of flight.
  Monitor the navigation accuracy and be prepared to change the approach strategy. If the NAV ACCUR DOWNGRADED message appears on the FMS message area and on the ND, use raw data to check the navigation accuracy.
  The navigation accuravy determines the autopilot modes that the flight crew should use for the approach, the type of ND displays, and the use of TAWS.

INTERMEDIATE/FINAL APPROACH

General

The preferred technique for flying an ILS(GLS) approach is to fly a decelerated approach using the AP / FD s, the LOC and G/S modes, the autothrust is SPEED mode, and the managed speed target.

The objective is to stabilize the aircraft on the final descent path at VAPP in the landing configuration, at 1 000 ft above the airfield elevation in instrument conditions, or at 500 ft above airfield elevation in visual conditoins, after continuous deceleration on the glide scope.

To be stabilized, all of the following conditions must be achieved prior to, or upon reaching this stabilization height :

- The aircraft is on the correct lateral and vertical flight plan,
- The aircraft is in the desired landing configuration,
- The thrust is stabilized, usually above idle, to maintain the target approach speed along the desired final approach path,
- There is no excessive flight parameter deviation.

If the aircraft is not stabilized on the approach path in landing configuration at 1 000 ft above airfield elevation in instrument conditions, or at 500 ft above airfield elevation in visual conditions, or as restricted by Operator policy/regulations, a go-around must be initiated unless the crew estimates that only small corrections are necessary to rectify minor deviations from stabilized conditions due, amongst others, to external perturbations.

Decelerated Approach

The decelerated approach technique descends the aircraft to 1 000 ft , at VAPP . In most cases, the interception of the final descent path is achieved with CONF 1 at S speed.

The advantages are :

- Decrease in fuel consumption
- Decrease in the noise level
- Time saving
- Flexibility and ability to vary speed, to be in accordance with ATC requests.

Note : For ILS approach, the ICAO defines the envelope in which the quality of the G/S signal ensures a normal capture. This envelope is within 10 nm, +- 8 degress from the centerline of the ILS glide path, and up to 1.75 teta (teta, being the nominal glide path angle).
*If the approach is armed when the aircraft is far outside from the standard glideslope (G/S) capture envelope, spurious G/S * engagement may occur, due to an incorrect G/S deviation signal. This spurious G/S capture will order a pitch up, if the aircraft is below the glide beam, and a pitch down, if the aircraft is above the glide beam.*

*Each time that the flight crew notices pitch movement, or a spurious G/S * , or a trajectory deviation, they must immediately disconnect the AP , if engaged, in order to re-establish a normal attitude and disengage APPR mode. It is then recommended to arm/rearm the APP (ILS) mode within the normal capture zone.*

APPR MODE ACTIVATION

- **When the ATC clears the aircraft for the approach :**
  APPR pb on AFS CP…… PRESS

  – *The flight crew should press the APPR pb only after the ATC clears the aircraft for the approach.*

    When pressed, the LOC and G/S modes arm provided that the flight crew :
    - *Selected ILS(GLS) approach on the FMS ARRIVAL page, or*
    - *Manually-tuned an ILS(GLS) in the POSITION/NAVAIDS page and did not select an approach or only selected a runway on the FMS ARRIVAL page, or*
    - *Set the RAD NAV key to STBY and selected the LS on RMP 1 or 2.*

  – *LOC and/or G/S modes engaged not sooner than 3 s after being armed.*

Note : If the flight crew selects a non-precision approach in the active flight plan, and if they manually tune an ILS(GLS) on the POSITION/NAVAIDS page, the MFD and PFD display CHECK APPR SEL. This message is a reminder to the flight crew that, although an ILS(GLS) is tuned in the POSITION/NAVAIDS page, the available approach guidance modes are F-LOC and F-G/S modes (for NPA flown with the FLS function) when the APPR pb is pressed on the AFS CP.

- **If GPS PRIMARY LOST :**
  The pre-capture zone of the LOC beam is not available. Therefore, the LOC capture performance may be degraded, and overshoot of the LOC beam may occur.
  The following graph illustrates the angle of interception vs. the distance, that ensures a capture with a single overshoot. This overshoot is less than 1.3 dots.

LOC Capture Domain

The LOC capture point is the point at which the aircraft track projection intercepts the LOC centerline.

AP 1+2…… ON

When the APPR mode is selected, the flight crew should engage both AP s.

FMA…… CHECK

Check that the FMA displays the approach capability (CAT2, CAT3 SINGLE, CAT3 DUAL, or AUTO LAND) for the intended ILS(GLS) approach.

APPROACHING GREEN DOT SPEED

FLAPS 1…… ORDER

FLAPS 1…… SET

- *The flight crew should not set FLAPS 1 later than 3 nm from the Final Approach Fix (FAF)*
- *Check the aircraft deceleration toward S speed*
- *The aircraft must reach, or be established on, the glideslope with FLAPS 1 and S speed at or above 2 500 ft AGL*
- *If the aircraft speed is significantly above S on the glideslope, or if the aircraft does not decelerate on the glideslope, extend the landing gear in order to decelerate the aircraft.*
  The flight crew can also use the speed brakes. However, the flight crwe should be more aware of the VLS increse, and the limited effect of the speed brakes at low speeds.

TA pb…… TA ONLY or TA/RA

The flight crew may use the TA ONLY mode in specific airports, and for specific procedures (identified by Operators) that may provide resolution advisorie that are neither wanted or appropriate (e.g. closely-spaced parallel or converging runways).

LOC CAPTURE…… MONITOR

The flight crw must always monitor the capture of a LOC beam. During the capture phase, when the LOC deviation is within the LOC scale, the LOC deviation on the PFD and the ND should move towards the center of the scale.

If GPS PRIMARY is lost, the LOC capture performance may be degraded, and overshoot of the LOC beam may occur.

Note: For ILS capture, the ICAO requires the LOC beam to ensure a normal capture within 10 nm, and +-35 degrees from the centerline of the course. Some current ILS systems just meet the requirement and are the subject to an erroneous capture outside these limits.

G/S CAPTURE..... MONITOR
<u>Note:</u> The glideslope may be capture independently of the LOC beam capture, depending on the PRIM pin program.

- **If above the glideslope :**
  V/S MODE..... AS RQRD
  Do not exceed 2000 ft/min
  AFS CP ALTITUDE..... SET ABOVE A/C ALTITUDE
  Select an altitude above the aircraft altitude, in order to prevent inadvertent ALT engagement.*

- **When G/S Capture (G/S*) :**
  GO-AROUND ALTITUDE..... SET
  <u>Note :</u> *- This procedure prevents from an undesired level off at the G/S intercept altitude*
  - If the aircraft intercepts the ILS(GLS) above the validity range of the radio altimeter (i.e. when the radio altitude indication is not yet available on the PFD), CAT 1 appears on the FMA. Check that the FMA displays the correct capability for the intended approach when the airraft is below 5 000 ft.

<u>BELOW VFE NEXT, AT 2500 FT AGL MINIMUM</u>

FLAPS 2..... ORDER
FLAPS 2..... SET

- *Check the aircraft decelerated toward F speed*
- *If the aircraft intercepts the ILS(GLS) glideslope below 2 500 ft AGL, select FLAPS 2 at one dot below the glideslope*
- *If the aircraft speed is significantly above F on the glideslope, or if the aircraft does not decelerate on the glideslope, extend the landing gear in order to decelerate the aircraft. The use of speed brakes is not recommended.*

<u>AFTER FLAPS 2 SELECTION, AT 2000 FT AGL MINIMUM</u>

L/G DOWN..... ORDER
L/G..... DOWN
AUTO BRK..... CONFIRM
If the runway conditions deteriorated since the approach briefing, consider the impact on the landing performance assessment and if there is a need for another braking mode.
When BTV is selected, if the aircraft lands on the runway different from the runway selected for BTV settings, the autobrake reverts automatically toautobrake mode Hi in short final.
GND SPLRS..... ARM
EXTERIOR LIGHTS..... SET

AFTER LANDING GEAR DOWN DOWN SELECTION

- **Below VFE NEXT :**
  FLAPS 3..... ORDER
  FLAPS 3..... SET
  WHEEL SD PAGE..... CHECK
  - *The WHEEL SD page appears below 800 ft, or at landing gear extension*
  - *Check the five landing gear green indications. At least one green triangle on each landing gear strut is sufficient to indicate that this landing gear strut is down and locked.*

- **Below VFE NEXT :**
  FLAPS FULL..... ORDER
  FLAPS FULL..... SET
  Check that the aircraft decelerates to VAPP.

A/THR..... CHECK IN SPEED MODE or OFF
For GLS CAT I with autoland, if the A/THR is available, activate the A/THR
SLIDING TABLE..... STOWED
LDG MEMO..... NO BLUE LINE
CABIN..... READY
Check CABIN READY on the EWD, or obtain the report from the chief purser : « Cabin ready for landing »
LANDING C/L..... COMPLETE
FLIGHT PARAMETERS..... CHECK
The PF announces any modification to the FMA
The PM announces any flight parameter deviation.

- **At 500 ft AGL (or RA) and below and if the flight crew selected BTV autobrake mode :**
  The PM may take advantage to adjust the ND RANGE selector to display the dry and wet lines on the Airport Navigation display, when the landing is positively considered.

- **At 350 ft AGL (or RA) :**
  LAND ON FMA..... ANNOUNCE
  ILS(GLS) COURSE..... CHECK
  Check the ILS(GLS) course on the PFD.

AT MINIMUM+100 FT

ONE HUNDRED ABOVE…… MONITOR or ANNOUNCE

AT MINIMUM

MINIMUM…… MONITOR or ANNOUNCE

LANDING or GO-AROUND…… ANNOUNCE

Maintain the aircraft on a stabilized flight path up to the flare.

At 50 ft, one dot below the glide slope means that the aircraft is 7 ft below the glide slope.

Do not duck under the glide slope.

ALL ILS APPROACHES (CAT I) Procedure and Call out

AT MINIMUM

The following approach pattern is based on the assumption that managed speed is used :

(inline image not included)

If in selecte speed, select :

- S speed after FLAPS 1 selection
- F speed after FLAPS 2 selection
- VAPP after landing FLAPS selection.

Note : If earlier stabilization at VAPP is required, start the deeleration at a higher altitude.

NON-PRECISION APPROACH

INITIAL APPROACH

INTERMEDIATE/FINAL APPROACH

VISUAL APPROACH

INITIAL APPROACH

INITIAL/INTERMEDIATE APPROACH

The flight plan selected on the FMS should include the selection of the landing runway. The downwind leg may also be part of the flight plan. This may produce a useful indication of the aircraft position in the circuit, on the ND. However, the flight crew must use the appropriate visual references.

AT THE BEGINNING OF THE DOWNWIND LEG

APPROACH PHASE..... ACTIVATE
On the APPR panel of the ACTIVE/PERF page, use the ACTIVATE APPR button to activate the approach phase
FD OFF..... ORDER
FD..... OFF
FLYING REFERENCE..... TRK-FPA
A/THR ACTIVE..... CHECK

ON THE DOWNWIND LEG

Abeam threshold, extend the downwind leg to 45 s (+/- wind correction). Turn into the base leg with a maximum of 30° of bank. Descend with the appropriate FPA.

- **Below VFE NEXT:**
  FLAPS 2..... ORDER
  FLAPS 2..... SET
  Check the aircraft deceleration toward F speed.

FINAL APPROACH

- The speed trend arrow and FPV help the flight crew to make timely and correct thrust settings (if in manual thrust) and approach path corrections. Avoid descent through the correct approach path with idle thrust. (Late recognition of this situation without a prompt thrust increase may lead to considerable speed decay and altitude loss).
- Have the aircraft stabilized by 500 ft AGL, on the correct approach path at VAPP (or ground speed mini) with the appropriate thrust applied. If the aircraft is not stabilized on the approach path in landing configuration at 500 ft above airfield elevation, or as restricted by Operator policy/regulations, a go-around must be initiated unless the crew estimates that only small corrections are necessary to rectify minor deviations from stabilized conditions due, amongst others, to external pertubations.
- Avoid any tendency to duck under in the late stages of the approach.
- Avoid destabilizing the approach in the last 100 ft to have the best chance of making a good touchdown at the desired position.

flybywire

LANDING

LANDING

FOR MANUAL LANDING

AP..... OFF

The flight crew should disengage the AP whatever the type of approach is. A/THR SPEED mode remains engaged.

AT AROUND 40 FT RA

From a stabilized approach, the flate height is approximately 40 ft.

FLARE..... INITIATE

ATTITUDE..... MONITOR

THRUST LEVERS..... IDLE

Move the thrust levers to idle, and begin a gentle progressive flare to enable the aircraft to touch down without a prolonged float. If the autothrust is engaged, it automatically disconnects when all the thrust levers are set to idle detent. At 20 ft , an automatic "RETARD" callout will trigger, as a reminder

Note: *Ground spoilers extension is inhibited if two or more thrust levers remain above the IDLE detent.*

FOR AUTOMATIC LANDING

BETWEEN 50 FT AND 40 FT RA

FMA..... CHECK FLARE

FLARE..... MONITOR

AT APPROXIMATELY 30 FT RA

FMA..... CHECK THR IDLE

The autothrust begins to decrease thrust to idle.

AT 10 FT RA

An automatic "RETARD" callout triggers.

THRUST LEVERS..... IDLE

The autothrust disconnects.

LATERAL GUIDANCE..... MONITOR

Monitor the lateral guidance by using external references.

AT TOUCHDOWN

FMA"..... CHECK ROLL OUT

- **If AUTO ROLL OUT:**

AP..... KEEP ENGAGED, UNTIL END OF ROLL OUT

DEROTATION

- **As soon as the main landing gear touches down:**

DEROTATION..... INITIATE

LANDING ROLL

REVERSER LEVERS..... PULL

- *Select MAX REV immediately after the main landing gear touches down*
- *If the airport regulations limit the use of the thrust reversers and if landing performance permits, select and maintain IDLE REV until the aircraft reaches the taxi speed*
- *In the case of a failure of one reverser, it is possible to use the opposite reverser*
- *If required for performance reasons, braking may begin before the nosewheel touchdown. However, if passenger comfort is the priority, the flight crew should delay braking on dry runways only, until the nosewheel touches down*
- *During rollout, avoid sidestick inputs (either lateral or longitudinal). If the flight crew encounters directional control problems, they should reduce the thrust to reverse idle until directional control is satisfactory*
- *After the flight crew selects reverse thrust, they should perform a full stop landing.*

GND SPLRS EXTENDED..... ANNOUNCE

Check the slats/flaps display on the lower part of the PFD , to ensure that the ground spoilers are extended. If no ground spoilers are extended:

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

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

REVERSERS..... CHECK/ANNOUNCE

Check that the EWD displays the expected reverser deployment (i.e. REV).

DIRECTIONAL CONTROL..... MONITOR/ENSURE

Do not use the nosewheel steering control handle before reaching taxi speed.

- **If autobrake selected:**

AUTO BRK..... CHECK/ANNOUNCE

Check and announce BTV, BRK LO, BRK 2, BRK 3, or BRK HI on the FMA.

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

- **If no autobrake:**

BRAKES"..... AS RQRD

DECELERATION..... CHECK/ANNOUNCE

The flight crew feels the deceleration. They confirm the deceleration by using speed trend on the PFD.

- **If AUTO ROLLOUT, before 20 kt:**

AP..... DISCONNECT

AT 80 KT

EIGHTY KNOTS..... ANNOUNCE

REVERSER LEVERS..... IDLE

CAUTION	*Avoid using high levels of reverse thrust at low speed, unless required due to an emergency or if "KEEP MAX REVERSE" sounds. The distortion of the airflow caused by gases that re-enter the compressor can cause engine stalls that may result in excessive EGT .*

FOR CAT II & CAT III OPERATIONS WITH BTV

- *If the aircraft ground speed is more than 10 kt when the aircraft enters the last 1 000 ft of the runway (i.e. the centerline runway lights are continuously red):*

The runway center line is color coded. Continuous red lights mark the last 1 000 ft of a runway designed for CATII and CATIII operations. In low visibility condition, the flight crew must select an exit 1 000 ft before the runway end. In normal BTV operation, BTV deactivates when the aircraft reaches 10 kt ground speed. If the aircraft ground speed is more than 10 kt when the aircraft enters the last 1 000 ft of the runway, the flight crew must override BTV and apply manual braking as required.

BTV AUTOBRAKE MODE..... OVERRIDE
MANUAL BRAKING..... APPLY AS RQRD

AT TAXI SPEED

REVERSER LEVERS..... STOW

When the aircraft reaches the taxi speed, and before it leaves the runway, stow the reversers.

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

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

- *The engines may ingest fine sand and debris that may be detrimental to the engines and airframe systems.*
- *On snow-covered areas, snow will recirculate into the air intel, and may cause an engine flameout or rollback.*

AUTO BRK..... DISARM

- *The autobrake may be disarmed at pilot's discretion.*
- *The flight crew should use one of the A/THR Instinctive Disconnect pb to disarm the autobrake.*
- *If BTV is active and the flight crew did not disarm manually the autobrake, the autobrake disarms automatically at 10 kt.*

GO AROUND

GO-AROUND

GO-AROUND INITIATION

THRUST LEVERS..... TOGA

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

Notes: *If the thrust levers are not briefly set to the TOGA detent, the FMS does not engage the GO-AROUND phase, and when the aircraft flies over, or close to the airport (less than 7 nm) the FMS will sequence the destination waypoint in the F-PLN .*

The GO-AROUND phase engages. The previously-flown approach is automatically strung back into the flight plan at the end of the missed approach procedure.

ROTATION..... PERFORM

Initiate the rotation toward a pitch attitude of 12.5 ° (10 ° , if one engine is failed) to obtain a positive rate of climb, then follow the SRS pitch command bar.

GO-AROUND..... ANNOUNCE

FLAPS..... RETRACT ONE STEP

FMA..... CHECK/ANNOUNCE

If the flight crew decides not to fly the flight plan after the go-around, they can use the HDG/TRK preset function.

POSITIVE CLIMB..... ANNOUNCE

- *If the pitch attitude goes above 20 ° , or below 10 ° up: The PM announces: "PITCH"*
- *If there is no climb rate: The PM announces: "SINK RATE"*

L/G UP..... ORDER

L/G..... UP

NAV or HDG..... AS RQRD

AT GO-AROUND THRUST REDUCTION ALTITUDE (LVR CLB FLASHING ON FMA)

THRUST LEVERS..... CL

AT GO-AROUND ACCELERATION ALTITUDE

- **If the speed target does not increase to initial CLB speed:**

  AFS CP ALTITUDE..... CHECK

  ALT pb..... PRESS

FLAPS..... ORDER RETRACION ON SCHEDULE

FLAPS..... RETRACT ON SCHEDULE

GND SPLRS..... DISARM

EXTERIOR LIGHTS..... SET

AFTER TAKEOFF/CLIMB C/L down to the line..... COMPLETE

- **If necessary, at the transition altitude:**

BAROMETRIC REFERENCE..... SET STD/CROSSCHECK

AFTER TAKEOFF/CLIMB C/L below the line..... COMPLETE

- **To prepare for a second approach:**

  APPROACH PHASE..... ACTIVATE

  Activate the APPR phase on the FMS ACTIVE/PERF page. If the APPR phase is not activate:
    - *Manage approach speed is not available*
    - *BARO/RADIO indications do not appear on the PFD.*

- **To divert to the alternate:**

FMS..... UPDATE

- *If the flight crew prepared an alternate flight plan, they should use ENABLE ALTN in the revision menu of the TO waypoint on the ACTIVE/F-PLN page*
- *If the flight crew prepared a SEC/F-PLN to the diversion airfield, they should swap the SEC F-PLN to the ACTIVE F-PLN.*
- *If the flight crew did not prepare any alternate, they should:*
    - *Initiate a selected climb*
    - *Perform a lateral revision to insert a new destination*
    - **When cleared to a waypoint:**

  DIRECT TO..... PERFORM

The FMS automatically reverts to the CLB phase. The FMS automatically sets the CRZ FL at the default alternate CRZ FL (FL 220, or FL 310), and maintains the previous cost index. The flight crew may adjust these targets if necessary

FMS..... CROSSCHECK

AFTER LANDING

AFTER LANDING

GROUND SPOILERS

GND SPLRS..... DISARM

FLAPS

FLAPS..... RETRACT

APU

APU MASTER SW pb-sw..... ON

APU START may be delayed until just prior to engine shutdown.

- **If the APU flap is fully open (i.e. FLAP OPEN appears on the APU SD page):**

APU START pb..... ON

On the APU SD page, check that FLAP OPEN appears before setting to ON the APU START pb.

ENG START

ENG START selector..... CHECK NORM

ANTI-ICE

ANTI ICE..... AS RQRD

If engine anti-ice is used, carefully control taxi speed, particularly on wet or slippery surfaces because ground idle is increased. L1 When taxiing in freezing fog conditions, if temperature is less than + 3 °C (37 °F), ice may accumulate on the engines fans. In order to shed the ice, the flight crew must apply the ice shedding procedure at least every 30 min of total taxi time before takeoff. The total taxi time is the cumulative time of the taxi-in time of the previous flight and taxi-out time of the next flight. Therefore, because it is necessary to determine the remaining taxi-out time that is allowed for the next flight, the flight crew must record in the logbook the taxi-in time in freezing fog conditions.

EXTERIOR LIGHTS

LAND sw..... OFF

Turn off the LAND lights, if they are not necessary

STROBE sw..... AUTO

When leaving the runway, set the STROBE sw to AUTO.

OTHER EXTERIOR LIGHTS..... AS RQRD

Set the NAV sw to ON, as required, to turn on the navigation and obstruction lights.

NOSE sw..... TAXI

Set NOSE sw to ON, when the aircraft leaves the runway.

RWY TURN OFF & CAMERA sw..... AS RQRD

Turn on the RWY TURN OFF & CAMERA sw at night for ETACS purpose.

AIRPORT NAVIGATION

ND RANGE selector..... ZOOM, AS APPROPRIATE

EFIS CONTROL PANEL (EFIS CP)

TAXI pb..... AS RQRD

When the TAXI pb is set to ON, the ETACS appears on the PFD.

WX pb..... CHECK OFF

The weather radar automatically switches off 60 s after landing

BRAKE TEMPERATURE

BRAKE TEMPERATURE..... MONITOR

- *Check the brake temperature for discrepancies and high temperature on the WHEEL SD page*
- *Maintenance action is due in the following cases:*
    - *The temperature difference between two brakes on a same gear is above 150°C, and the temperature of either brake is above or equal to 600°C, or*
    - *The temperature difference between two brakes on a same gear is above 150°C, and the temperature of either brake is below or equal to 60°C, or*
    - *The difference between the average temperature on the left and right brakes is above or equal to 200°C, or*
    - *A fuse plug has melt, or*
    - *THe brake temperature exceeds 800 °C.*

AFTER LANDING CHECKLIST

AFTER LANDING C/L..... COMPLETE

PARKING

PARKING

ANTI-ICE

ANTI-ICE..... OFF

APU BLEED

APU BLEED pb..... ON

Set the APU BLEED pb to ON immediately before the engine shutdown to prevent engine exhaust fumes from entering the air conditioning.

PARK BRK

Park BRK..... ON

- *If the temperature of one brake is above 500 °C, avoid applying the parking brake, unless operationally necessary.*
- *On the triple pressure indicator, check the left and right brake pressures.*

ENG MASTERS 1, 2, 3, and 4

ENG MASTERS 1, 2, 3, and 4..... OFF

- *After high thrust operations, such as the use of maximum reverse thrust at landing, operate the engine at idle for 3 min before shutting down the engine. This 3 min period thermally stabilize the hot section of the engine. This 3 min period can include operational time at idle, such as taxiing. Depending on the circumstances (e.g. urgent need to open a cargo door or to connect to staires), the flight crew may decide to shut down the engine regardless of the time at idle.*
- *Check that engine parameters decrease*
- *The DOOR/OXY SD page appears*
- *If the APU is not available, connect external power before shutting down the engines.*
- *After the last engine shutdown, an automatic test of the fuel crossfeed valves, the LP valves, and the heat exchanger valves, begins. If a failure is detected, the associated ECAM alert triggers, and should be entered in the logbook. This test lasts approximately 2 min.*

ELAPSED TIME

ELAPSED TIME (If applicable)..... STOP

SEAT BELTS

SEAT BELTS sw..... OFF

SLIDES

SLIDES DISARMED..... CHECK

Check that the slides are disarmed on the DOOR/OXY SD page. If any slide is not disarmed, warn the cabin crew.

EXTERIOR LIGHTS

BEACON sw..... OFF

Turn off the BEACON lights when all engines spooled down.

OTHER EXTERIOR LIGHTS..... AS RQRD

GROUND CONTACT

GROUND CONTACT..... ESTABLISHED

- *The flight crew should establish communication with ground crew*
- *Check that chocks are in place.*

FUEL PUMPS

FUEL PUMPS..... OFF

HUD

HUD..... STOW

FUEL QUANTITY

FUEL QUANTITY..... CHECK

Check that the sum of fuel on board and the fuel used is consistent with the fuel on board at departure. If the flight crew detects a discrepancy that is not usual, maintenance action is due.

PARKING CHECKLIST

PARKING C/L..... COMPLETE

PARK BRK

PARK BRK..... AS RQRD

If the ECAM displays the BRAKES BRAKE HOT alert, the flight crew should release the parking brake when the wheel chocks are in position.

Notes: *When winds including guts exceed 30 knots or, if slope of parking ramp is excessive, leave parking brakes set.*

Releasing the parking brake prevents critical structure from being exposed to high temperature for an extended period of time. However, the flight crew may keep the parking brake applied if operationally required (e.g. slippery tarmac).

ONBOARD INFORMATION SYSTEM (OIS) CLOSURE

OIT SLIDE sw..... FLT OPS

ALL APPLICATIONS..... CLOSE

Close all the applications on the laptops

EXIT SESSION..... PERFORM

The exit session initializes again the FLT OPS STS page on the laptops for the next flight.

LOGBOOK

OIT SIDE sw..... NSS AVNCS

Set the OIT SIDE sw to NSS AVNCS in order to access the logbook.

FLIGHT CLOSURE..... PERFORM

Before the electronic flight closure, check that VHF 3 DATA mode is active.

SECURING THE AIRCRAFT

SECURING THE AIRCRAFT

PARK BRK

PARK BRK..... ON

Keep the parking brake on in order to reduce the rate of the hydraulic leak in the LEHGS accumulators.

OXYGEN CREW SUPPLY

OXYGEN CREW SUPPLY pb-sw..... OFF

ADIRS (1+2+3)

ADIRS (1+2+3)..... OFF

The flight crew should not turn off the ADIRS during transits at latitudes above 70 °N, in order to avoid excessive alignment time. After turning off the ADIRS, wait at least 10 s before turning off the electrical supply, in order to ensure that the ADIRS will memorize the latest data.

EXTERIOR LIGHTS

EXTERIOR LIGHTS..... OFF

GROUND SERVICING

GND SERVICING pb-sw..... AS RQRD

If the ground crew or the servicing personnel requires electrical power, consider setting to ON the GND SERVICING pb-sw (in the forward cabin, near the M1 door), before powering off the aircraft.

APU BLEED

APU BLEEED pb-sw..... OFF

EXT POWER

EXT pb-sw..... AS RQRD

At least two EXT power units are necessary to supply the entire electrical network.

If the electrical charge of at least one APU generator is above 50 %:

- *At least three EXT power units are necessary to supply the aircraft with the APU OFF*
- *If only two EXT power units are available, it is recommended to keep the APU ON or to reduce the load demand for a while (e.g. by setting to OFF the CAB FANS pb-sw and COOLG pb-sw).*

Note: These temporary actions ensure that enough electrical power is available during a high electrical demand (e.g. to operate the cargo doors). When the flight crew sets to OFF the CAB FANS pb-sw and the COOLG pb-sw, no degradation of the galley cooling system and of the air conditioning is expected for a few minutes, i.e. the time necessary to operate the doors. As soon as it is possible, the flight crew should set to ON the CAB FANS pb-sw and the COOLG pb-sw.

APU

APU MASTR SW pb-sw..... OFF

Turn off the APU after all passengers disembarked.

EMER LIGHTS AND SIGNS

EMER EXIT LT sw..... OFF

The flight crew must set to OFF the EMER EXIT LT sw to avoid battery discharge, when:

- *Only batteries supply the aircraft, or*
- *No electrical power supplies the aircraft (i.e. external power, APU and all batteries are set to OFF).*

When EMER EXIT LT sw is set to ARM or ON and the aircraft is not supplied, the Emergency lighting in cabin operates. In this case the HOT BUS via the BAT 1, the ESS BAT and the internal EPSU batteries supply the emergency lighting

NO SMOKING sw..... OFF

The flight crew must set to OFF the NO SMOKING sw to avoid battery discharge, when only the batteries supply the aircraft.

ONBOARD INFORMATION SYSTEM (OIS)

ALL LAPTOPS..... OFF

Switch off all laptops only if the aircraft is left unattended. To turn off the laptops, click on the SWITCH OFF LAPTOP button on the LOGIN page of the FLT OPS Domain.

Note: The Network Server System (NSS) automatically shuts down at aircraft power down.

OIT knob..... OFF

The flight crew should switch off both OITs.

SECURING THE AIRCRAFT CHECKLIST

SECURING THE AIRCRAFT C/L..... COMPLETE

BAT 1, ESS, 2, AND APU BAT

ALL BAT pb-sw (BAT 1, ESS, 2, APU BAT)..... OFF

Wait until the APU flap is fully closed (i.e. around 2 min after the APU is set to OFF) before turning off the APU battery. This ensures that the APU shutdown sequence is entirely completed.

COCKPIT WAY LIGHT

COCKPIT WAYLIGHT pb-sw..... ON, IF NECESSARY

If the aircraft is not electrically supplied, the flight crew can use the cockpit way light in order to leave the aircraft. The cockpit way light goes off automatically after 60 s