



SSW A-310-300

"The Master's Edition"

Advanced Flight Tutorial

London "Heathrow" (EGLL)
- Frankfurt-on-Main (EDDF)

Load It

Before you start MSFS you should ensure that you have saved a suitable load out for your aircraft. To do this you must firstly locate the SSW load configuration utility. This utility can be found by going to: START, All Programs and then the SSW folder and finally by clicking on the Load It icon.

If this is the first time you are using Load It, you must specify the exact location of the aircraft.cfg file that the load configuration utility will be editing. The actual location of the aircraft.cfg file will vary depending on which folder you installed MSFS into, but the location will be similar to: E:\FS2002\aircraft\SSW A310-300\aircraft.cfg

Or C:\Program Files\Microsoft Game\Flight Simulator 9\aircraft\SSW A310-300\aircraft.cfg
Define precisely where your FS and SSW A310-300 folder is located.

Pick the specific aircraft class configuration and then select a season, I have chosen the following for this tutorial:

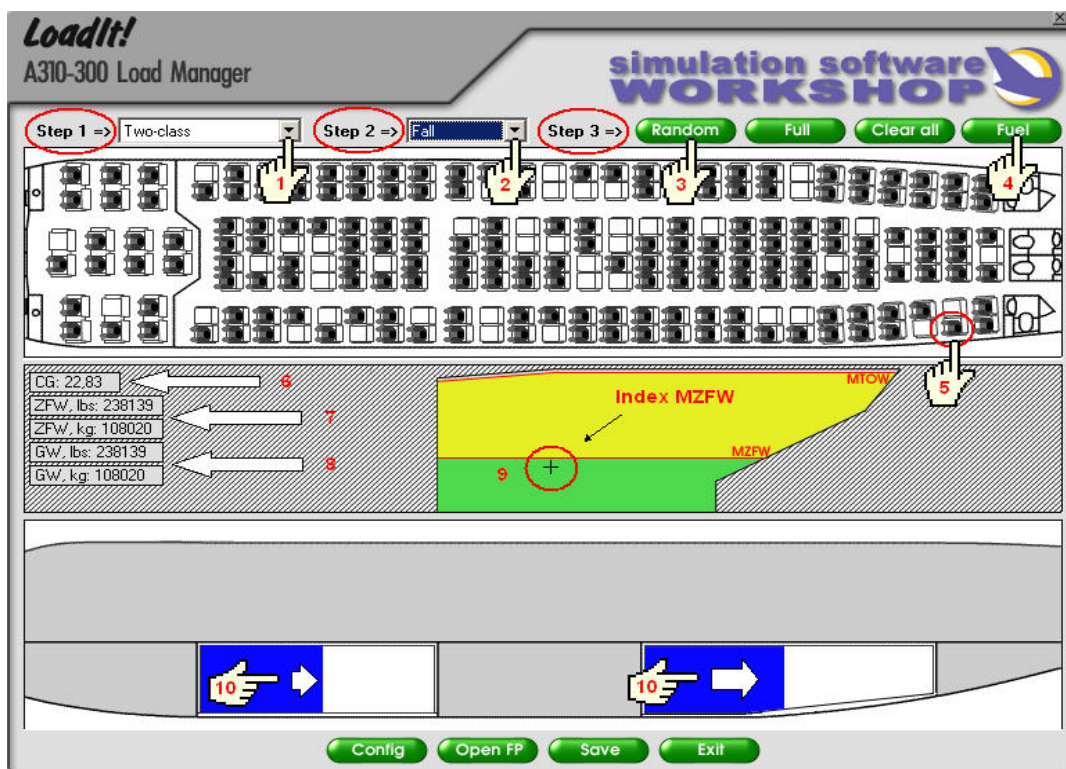


Figure 1-00

1. Select a specific aircraft configuration. (I have selected the Two-Class load out)
2. Pick a specific season. (I'll use Fall for this tutorial)
3. Click the Random button (This will give you a random load of passengers and cargo)
 - Clicking the Full load button will configure the aircraft with its maximum payload.
 - Clicking the Clear All button will reset the load edit utility to a zero load out.

Since we now have our passengers and cargo loaded lets look at some of the other features of the load configuration utility.

4. The Fuel button will take you to the fuel page which will display the required amount of fuel for an inserted flight plan.
5. You can manually adjust the passenger load out by selecting a specific seat on the aircraft seating schematic diagram which will either add or remove a passenger.
6. The aircraft current Center of Gravity (CG) is displayed in %.
7. The aircrafts weight without fuel or zero fuel weight (ZFW) is displayed in both Kg & Lbs.
8. The aircrafts Gross weight (GW) is also displayed in Kg & lbs. $GW = ZFW + \text{loaded Fuel}$.
9. The cross hair displays the MZFW Index. The index should always be in the green area before you try to add fuel. If the index falls out side of the green range you may have to relocate passengers and cargo to bring the aircraft within its CG limits.
10. This area allows you to manually edit the quantity of luggage onboard.

With the passenger and cargo load out now complete, you must confirm that the MZFW index falls within the green band. We can now command the load configuration utility to determine the required fuel to load.

The load edit utility will determine the amount of fuel to load on the aircraft by reading the distance from an inserted flight plan. The flight plan must be in the (.fpn) format.

Place the EGLL-EDDF.fpn file in the SSW\Flights folder which is located in your main FS folder.

Press the OPEN FP button and select the appropriate flight plan. (EGLL-EDDF.fpn)
The loader will calculate the necessary fuel to be carried and will specify the quantity under the fuel page.

Look at the following diagrams for further details:

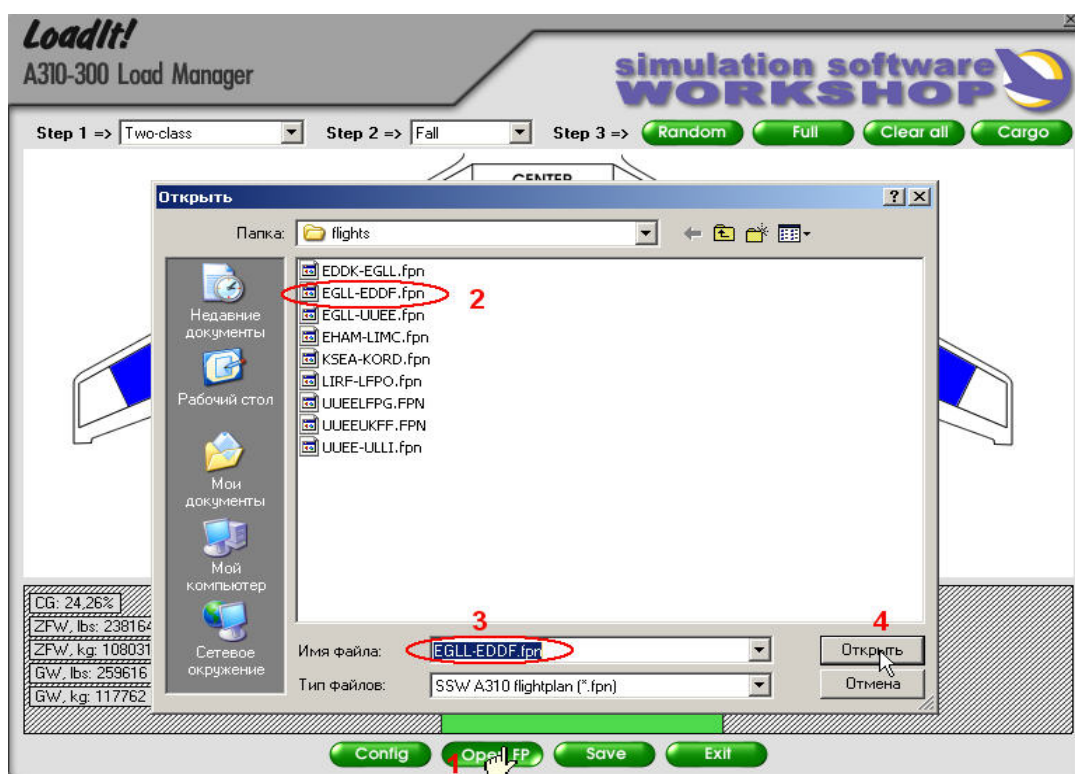


Figure 1-01

1. The flight plan button allows you to insert a flight plan.
 2. Select the flight Plan to be used.
 3. Confirm the plan.
 4. Loads the currently selected flight plan.
- This page displays the fuel to load information.

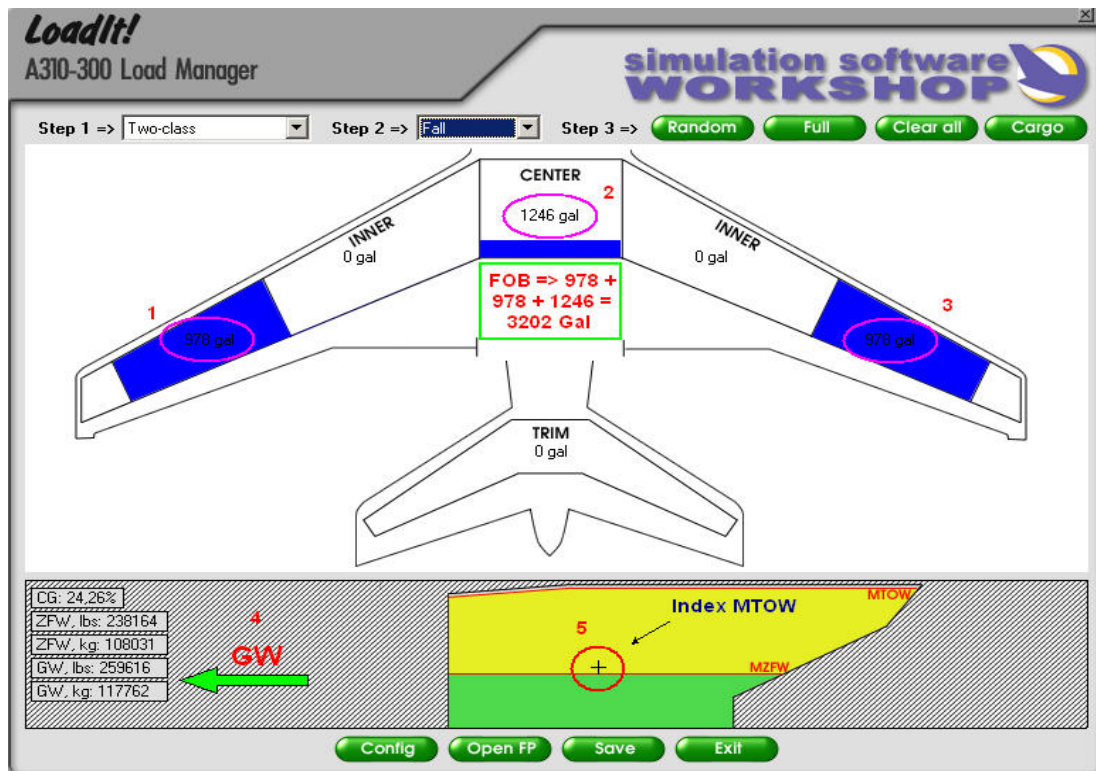


Figure 1-03

1. Quantity of fuel in Left Outer a tank.
2. Quantity of fuel in the Central tank.
3. Quantity of fuel in Right Outer a tank.
4. GW (Gross Weight) - take-off weight of the plane.
5. MTOW Index - an index of the maximal take-off weight (should be in yellow sector).

Now that the fuel is loaded you should note the total amount of fuel to load as well as the ZFW and the GW and CG %. These figures will all be required once we get into MSFS.

My ZFW comes out to be 108020 Kilos. (108.0 Kg)

My Fuel to load comes out to be 3202 Gals.

My GW comes up to 117762 Kilos. (117.7Kg)

Once you have noted your weights and fuel press the save button to send the information to the aircraft; you can then exit the load it utility by clicking on the exit button.

Setting the time for IRS (Inertial Reference System) Align

Go to the preferences menu under the SSW A310 tab.



Figure 1-04

Set the IRS Alignment Time at 2 minute. Press OK.

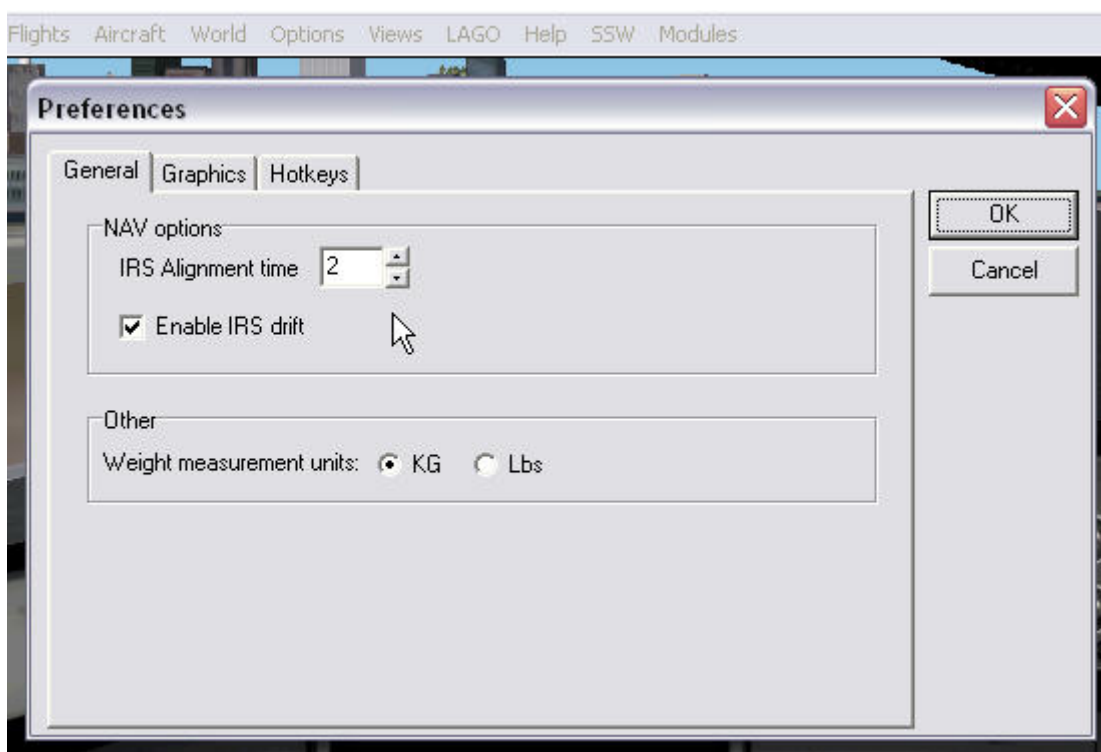


Figure 1-05

Restart Flight Simulator to activate changes.

Start Flight Simulator

You should now be positioned at MSFS default airport in the Cessna.

(It is strongly recommended that you start out with the default situation before using the SSW A310).

This tutorial will take you from London Heathrow (EGLL) to Frankfurt Main (EDDF). Position the aircraft at EGLL. You can do this by going to the World menu, and selecting the Go to Airport tab. Insert the ICAO code for Heathrow in the Airport ID window - **EGLL**.

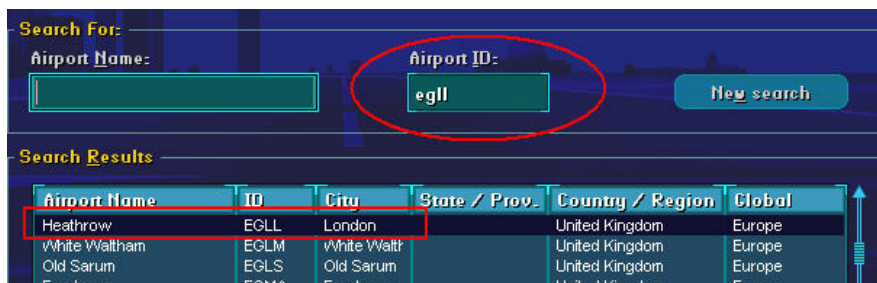


Figure 1-06

On the bottom of the page under the Runway/Starting Positions tab choose "parking at Gate" **J15 (J13)**.

Press OK.



Figure 1-07

The aircraft should be now positioned at gate **J15**, London **Heathrow Airport**.

Change the time to day to around 1:00PM

In the Aircraft Tab - Select Aircraft **SSW - A310-304**.

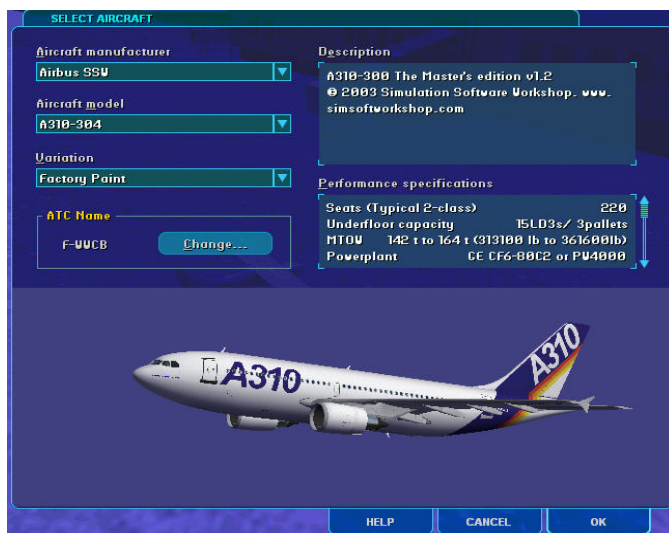


Figure 1-08

Press - **OK**.

The flight will be made at an altitude of 10.100 meters (**FL340**).

The flight time will be approximately 1 hour 05 minutes and will cover some 390 miles.

IGNITION OFF
 WIPERS OFF
 THROTTLE LEVERS Check Idle
 REVERSE LEVERS Check Stowed position
 FUEL HP VALVES Check OFF
 LANDING GEAR LEVER Check DOWN

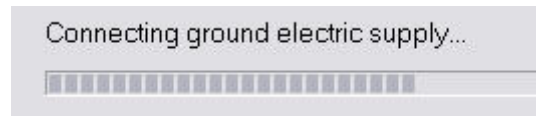
BATTERIES:

- **BAT 1, 2 and 3 Check OFF**
- **BAT 1, 2 and 3 voltage Check above 25 V**

Connect external power. (Connect Ground Electric Supply)



Figure 1-09



EXT PWR (If AVAIL Lt illuminated) ON
 AVAIL Lt extinguishes.



Figure 1-10



Figure 1-11

Before attempting to start the APU.

- **BAT 1, 2 and 3 AUTO**
 Check FLOW BARS in line.

APU START

- **APU MASTER SW ON (1)**
- **APU START ON (2)**



Figure 1-12

- APU page appears on ECAM
 - ON it illuminates.
 - Blue ACCEL light illuminates and indicates that APU is accelerating
 - On ECAM APU page, N and EGT rise

At 50 % of Speed Start PB-Switch is released automatically ON white light extinguishes
At 95 % of speed:

- On ECAM APU page, AVAIL indication appears

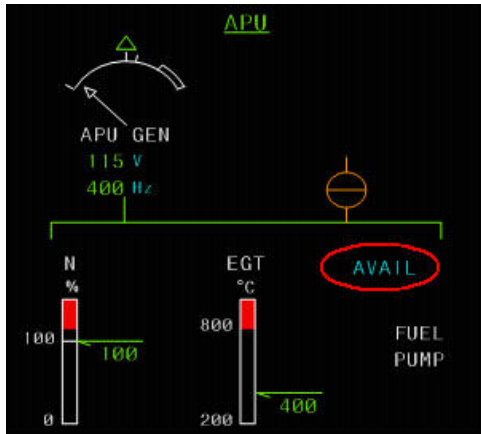


Figure 1-13

- On APU panel: ACCEL blue light extinguishes AVAIL it illuminates



Figure 1-14

- EXT PWR OFF
COCKPIT LIGHTS AS REQ

Set STDBY COMPASS, DOME, STORM and PANEL it's as required. DOME Light should be on since it is the only lighting source in EMER ELEC configuration. DIM position is recommended for take-off.

ELEC PWR Check

- Scan ELEC PWR panel: no amber light illuminated except GEN 1 and GEN 2 FAULT lights.

FUEL:

LEFT INNER PUMP 2 NORM

- If there is sufficient fuel in the left inner tank, this avoids fuel depletion from the outer tanks which would lead to increased refueling time.

AIR BLEED/COMPT TEMP:

- APU BLEED ON

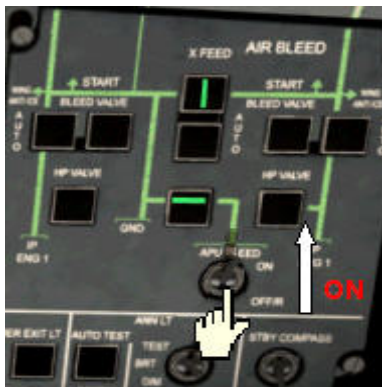


Figure 1-15

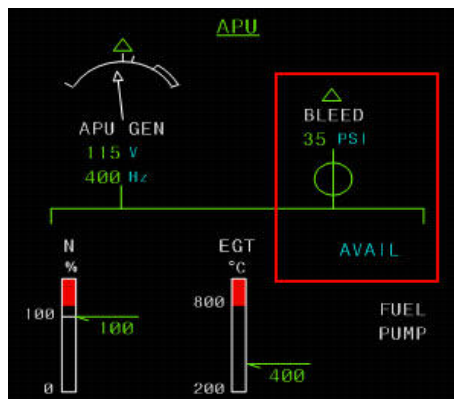


Figure 1-16

Do not use APU bleed if ground air is connected.

- **PACK VALVES 1 and 2 Pb switches.....Check ON**
- Check Flow bars in line
- **COMPT TEMP selectors AUTO/AS REQ**

SPEED BRAKE HANDLE Check in RETRACT position

SLATS/FLAPS HANDLE Check

- If handle position disagrees with slats/flaps position, set handle to corresponding position.

OVERHEAD PANEL

CABIN SIGNS

- **NO SMOKING.....AUTO/ON**
- **SEAT BELTS.....SEAT BELTS/ON**

CALLS

- Check CALL its extinguished. Reset as required.

HYD PWR

- BLUE, GREEN, YELLOW RSVSwithin normal range
- Check the 3 fluid level indications are normal.

Note: On ground, system not pressurized, qty ind. needle should be in the outer green sector.

ISDU OFF

- Check SYS rotary sel set to OFF.



Figure 1-17

EXT LT As required

- Check STROBE in AUTO position and BEACON in OFF position.

PITCH TRIM/YAW DAMPER/ATS (Press Shift+4)

PITCH TRIM 1+2 ON

YAW DAMPER 1+2 ON

ATS 1+2 ON



Figure 1-18

FUEL

- **X-FEED** **check X-Line**
 - **ISOL VALVES/LP VALVES** **check in line**
- Flow bars in line and steady.



Figure 1-19

FMS INITIALIZATION

INTRODUCTION

The FMS includes computer (the FMC) and Control Display Unit (the CDU). The CDU allow dialogue between you and the FMC via a screen and an alphanumeric keyboard.

The FMS shall normally be coupled to the AFS (through PROFILE and NAV modes) throughout the whole flight.

When this coupling is active, VERTICAL navigation via PROFILE mode and HORIZONTAL navigation via NAV mode is fully controlled by the FMS which sends its commands to the AFS. NAV mode can be engaged from 30 ft (at TAKE OFF) to LOC capture (case of an ILS approach) or to a minimum authorized altitude (case of a FMS approach).

PROFILE mode can be engaged from THRUST REDUCTION ALTITUDE (value stored into the FMC data base or 1500 ft AGL by default) to GLIDE capture (case of an ILS approach) or to a minimum authorized altitude (case of a FMS approach).

MAIN RULES OF USE

- Each FMS function is performed on a specific PAGE displayed on the CDU screen. There are several pages each one grouping information and sub-functions unique to that page.
- A page is called on the CDU screen by pressing a function key, a line select key (in certain cases) or the «NEXT PAGE» key (when several pages are simultaneously called by one key).
- Any data entry must be checked. Any F-PLN revision must be checked on F-PLN page B by using COURSE and DISTANCE.
- Insertion of data on a page (in a data field) is always done via the SCRATCHPAD.
- When the SCRATCHPAD is cleared on one side, this does not clear the SCRATCHPAD on the other side (even if, for example, the same message is displayed).
- PROFILE and NAV modes are engaged or disengaged, as any other AFS mode, by means of pushbuttons located on the FCU.
- When PROFILE is active, a level cannot be left without at least two positive actions of you :
 - turning ALT knob to select a new level
 - pulling this knob to initiate the level change.
- In certain cases (e.g. pilot action not accepted, a MESSAGE is displayed in the SCRATCHPAD).

SPECIFIC VOCABULARY

WRITE/INSERT = BASIC PILOT DATA ENTRY PROCEDURE

WRITE = TO TYPE A TEXT ON THE KEYBOARD. THIS TEXT IS DISPLAYED IN SCRATCHPAD.

INSERT = TO TRANSFER THIS TEXT FROM THE SCRATCHPAD TO A DATA FIELD (AND SO TO FMC'S) by pressing the LS key adjacent to this DATA FIELD.

SIDS AND STAR

NAV should not be used to fly a SID or STAR which has been manually built. Furthermore, it is not recommended to build a SID/STAR manually. SID's and STAR'S use specific legs such as DME arcs, VOR radial interceptions, conditional altitude legs which cannot be manually constructed. Only DIRECT TO legs may be manually constructed. Therefore if NAV is engaged to fly a SID or a STAR manually constructed, the A/C will be controlled on direct to legs instead of the legs to be flown.

LEAVING THE LATERAL FLIGHT PLAN

It is not recommended to keep PROFILE if NAV is disengaged to leave the lateral F. PLN, especially during climb, approach and go-around. This is because altitude constraints, generally linked to waypoints, will be matched in the corresponding leg even if these waypoints are not overflown.

ALTITUDE CONSTRAINTS

Altitude constraints are coded in the DATABASE and linked to waypoints only. They are provided for advisory and for an optimal flight path construction only. THERE ARE NO MINIMUM EN ROUTE ALTITUDE AND NO SAFE ALTITUDE CODES IN THE DATABASE. THEY REMAIN PILOT RESPONSIBILITY.

On ground, raising the FCU altitude above the altitude constraints has no effect on them. When the A/C is airborne in Descent phase and FCU altitude is lowered below the altitude constraints, they remain valid. When the A/C is airborne in Climb phase and FCU altitude is raised above the altitude constraints, they are canceled and replaced by altitude predictions on the CDU.

F-PLN DISCONTINUITIES

Always check that there are no forecoming discontinuities in the f-PLN. AP disengages as soon as A/C enters a discontinuity. Especially for go-around, NAV and PROF should not be reengaged without a F-PLN checking. A special case is made for a discontinuity following a manual terminated leg. This discontinuity can be cleared only by making a DIRECT TO any WAYPOINT following the leg.

Before performing a F-PLN lateral revision causing a F-PLN DISCONTINUITY, PROFILE should be disengaged in order to avoid the computation of a wrong vertical F-PLN. PROFILE can be reengaged after the F-PLN DISCONTINUITY is cleared.

PROFILE DISENGAGEMENT

It is recommended to disengage PROFILE by pulling the speed/mach knob on the FCU. The speed window is automatically synchronized and the AFS reverts to LEVEL CHANGE mode. This procedure should not be used during RNAV approaches because final RNAV approaches must be performed in V/S mode. In this special case PROF should be disengaged by pressing the PROF push-button within 10 sec after dialing VAPP. AFS reverts in V/S mode with V/S automatically synchronized on present vertical speed.

It must be done before G/S interception during ILS approaches.

NAV DISENGAGEMENT

It is recommended to disengage NAV by pulling the HDG SEL knob on the FCU. Pushing the HDG SEL knob will synchronize the FCU heading on actual heading. The AFS reverts to HDG SEL mode.

SPEED TACTICAL MODE

Whenever you want to fly at a specific speed, it is better to do it with the SPD TACT MODE than leaving PROF and using FCU. Thus the vertical guidance is kept. This recommendation is not valid for descent where TACT SPD use would induce a misleading descent path recomputation. If a specific speed has to be used, it should be done through A/P.

The cost index should NEVER be changed during flight to change A/C speed.

REVERTING TO A DEFAULTED VALUE

When a defaulted value has been manually changed, it may be recovered by clearing the manual entry (press the CLR key and the corresponding line select key).

Before Take Off

DURING COCKPIT PREPARATION

VOR/NAV/ILS switch (at FCU)SET TO **NAV**



Figure 1-20

DATA BASE VALIDITY.....CHECK ON STATUS PAGE

This page is automatically displayed at power on

PERF FACTOR.....CHECK

Autotune functions are activated.

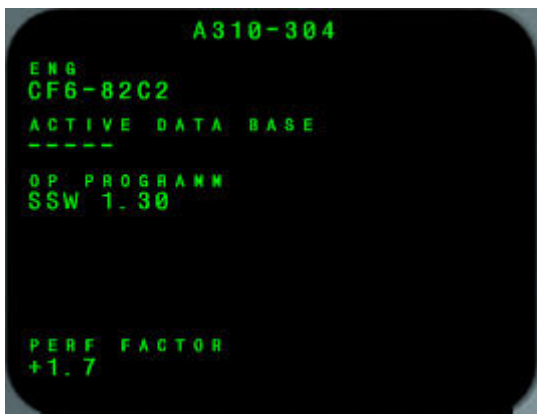


Figure 1-21

INIT A: FMC INITIALIZATION

INIT KEY.....PRESS TO DISPLAY INIT A

COMPANY ROUTE INITIALIZATION

CO RTE/FLT (1L) **(NOT MODELED)**



Figure 1-22

AIRPORT PAIR INITIALIZATION

ORIGIN/DESTINATION (LSK 1R).....WRITE (**EGGL/EDDF**) / INSERT (Press LSK 1R)

It will be necessary to construct the ROUTE waypoint by waypoint on the F-PLN page. In this case Cost Index and CRZ FL are not given with ORIGIN/DESTINATION and thus should be inserted.



Figure 1-23

You can also load your saved flight plan into the FMS. To do this, bring the mouse pointer to black area of screen CDU and press the right button. The window for a choice of actions will appear.



Figure 1-24

Press LOAD FLIGHT PLAN. Choose the necessary Flight Plan.

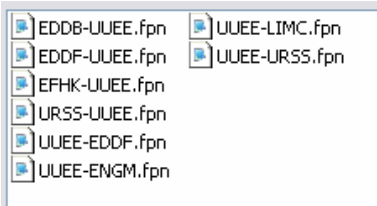


Figure 1-25

ALTERNATE

ALTERNATE (LSK 2R).....WRITE (**EDDB**) / INSERT (Press LSK 2R)



Figure 1-26

The aircraft should be at the London Heathrow (EGLL) - J Apron, Stand Nº 15, its INS Coordinates from the Jeppesen chart is:

5, 7 9, 34, 36	H Apron N51 28.1 W000 27.4 N51 28.1 W000 27.3
2, 4, *6 8, 10 13 15	J Apron N51 28.1 W000 27.6 N51 28.1 W000 27.5 N51 28.1 W000 27.7 N51 28.1 W000 27.6

Figure 1-27

In MSFS the combination of keys SHIFT + Z

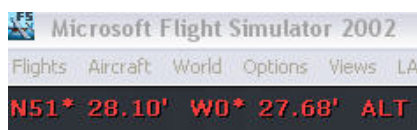


Figure 1-28

DEPARTURE COORDINATES

LAT/LONG (LSK 3L, LSK 3R).....CHECK

If the Aircraft is at a gate with published coordinates, these may be used to update the airfield coordinates provided automatically on INIT page A. If the gate coordinates are not published, airfield coordinates will be used for IRS alignment. To change coordinates, use the slew keys to increase or decrease the displayed value.

Now we correct our Coordinates as they at us do not coincide.



Figure 1-29

Check and correct that LAT/LONG values match airport reference coordinate given by airport chart.



Figure 1-30



Figure 1-31

1. The slew symbols may be moved from 3L to 3R, or vice versa, by pressing the LSK adjacent to the desired field. LAT/LONG may also be changed by typing the coordinates into the SP and transferring the data by pressing the LSK adjacent to the desired field.
2. The slew keys of the CDU are used, with each key press being equal to ± 0.1 minute of LAT/LONG to the maximum of 90 degree. (LAT), and 180 degree (LONG). Only the magnitude may be changed in this way.

COST INDEX

COST INDEX (LSK 4L).....CHECK or WRITE (50) / INSERT

IRS ALIGNMENT

When entering the cockpit, MSU's should be in the OFF position; If they aren't, set them to the OFF position for more than 10 sec and back to the NAV position, to erase the displayed coordinates on ISDU.



Figure 1-32

MSU1 / MSU2 / MSU3 should be set to the NAV position.



Figure 1-33

ALIGN IRS prompt (LSK 4R)..... PRESS



Figure 1-34

LAT/LONG are sent to IRS

ALIGN IRS prompt is displayed only if LAT/LONG is filled and one MSU is set to NAV.

ISDU.....CHECK that valid coordinates have been sent



Figure 1-35

CRZ DATA

CRZ FL..... INSERT (**340**) and CHANGE/PRESS (LSK 5L)

Normally it is given with CO RTE. CRZ FL is not limited by MAX ALT computed at weight entry.

CRZ TEMP.....CHANGE if necessary defaulted to ISA at CRZ FL

CRZ WIND DIRECTION/VELOCITY..... WRITE (**340/50**) /INSERT (LSK 6R)



Figure 1-36

Wind at departure will be inserted by automatically or manually on F-PLN page B.
Press F_PLN then NEXT PAGE.



Figure 1-37

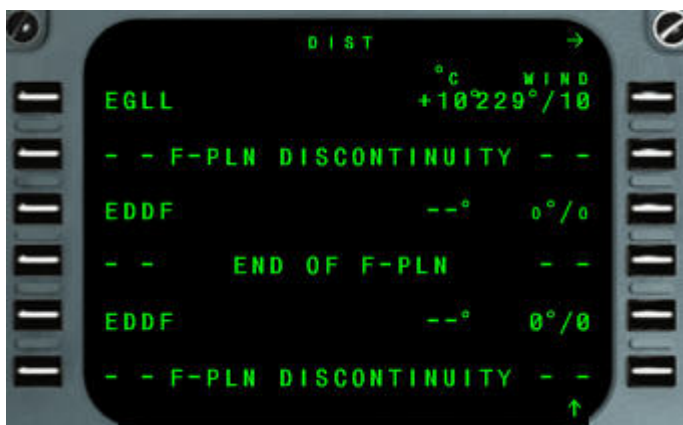


Figure 1-38

F-PLN: REVISION AND CHECKING

Press NEXT PAGE (or F_PLN) to display F-PLN page A



Figure 1-39

STANDARD INSTRUMENT DEPARTURE (SID)

AIRPORT EGLL key (LSK 1L).....PRESS to display LATERAL REVISION page



Figure 1-40

SID > prompt.....PRESS LSK 1L to display SID page



Figure 1-41

In this case, the title line is, "SID from EGLL", and a list of available SIDS and RWYS is displayed.

The RWY **27R** may be selected first then SID **DVR5F** (DOVER FIVE FOXTROT). Assuming this flight has been cleared for a DVR5F departure, pressing LSK 2R selects RWY 27R for departure, and changes the display to that shown in Figure Below.

RWY to be selectedPRESS to select (LSK 2R) (**Figure 1-42**)
The SIDs menu is modified to allow only the SIDs corresponding to the selected RWY.

SID to be selected.....PRESS to select (LSK 3L) (**Figure 1-43**)

The SID may be selected before the runway but it is less efficient as the runway given by ATC may not be compatible to the selected SID.



Figure 1-42



Figure 1-43

TRANS (if any).....PRESS to select **(NOT MODELED)**
 TRANS has not the same meaning for SPERRY as for navigation documents. Therefore it may be necessary to select a TRANS while documents don't mention any transition.
EOSID (if any).....automatically selected **(NOT MODELED)**
 * INSERT prompt.....PRESS LSK6L to insert RWY/SID/TRANS in the F-PLN



Figure 1-44

The selected RUNWAY and SID is indicated by the <SEL>
 On EFIS Panel select ND MAP Mode.



Figure 1-45

Check SID on a Navigation Display (ND).



Figure 1-46

- The discontinuity following a manual terminated leg may be cleared only in flight by activating a DIRECT TO any following fixed waypoint.

The F-PLN A page is displayed automatically:

- When a fixed waypoint is entered on the DIR TO page.
- When a revision page, accessed from the F-PLN A page, is inserted in the flight plan.
- From the INIT A or RTE SELECTION page when the flight phase transitions from PREFLIGHT or DONE to an active in-flight phase.
- From a MAINTENANCE page when the flight phase transitions from PREFLIGHT or DONE to an active in-flight phase.

The NEXT PAGE function key from the **F-PLN B** page.



Figure 1-50

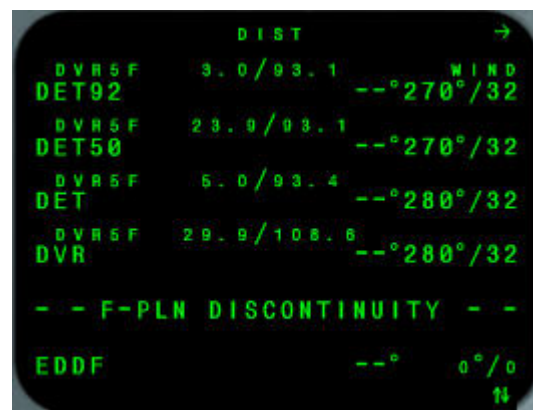


Figure 1-51

The F-PLN B page format is identical to the F-PLN A page insofar as display of the flight plan is concerned. In addition to the display of flight plan route, the right half of the F-PLN B page displays the leg distance, temperature, and wind for each waypoint. The F-PLN B page is accessed:

- Manually via the NEXT PAGE function key from the **F-PLN A** page.

The forecast wind direction/velocity, based on pilot entries is displayed for each waypoint, except the FROM waypoint where the actual forecast wind for that waypoint is displayed. If the FROM waypoint is PPOS, dashes (----) are displayed. Wind direction is referenced to True North. Wind values are displayed in both large (pilot entered) and small (default or predicted) font. Wind is displayed at T/C and T/D, but not at any other pseudo waypoint.

You can take the forecast wind data from either FSMeteo or ActiveSky.

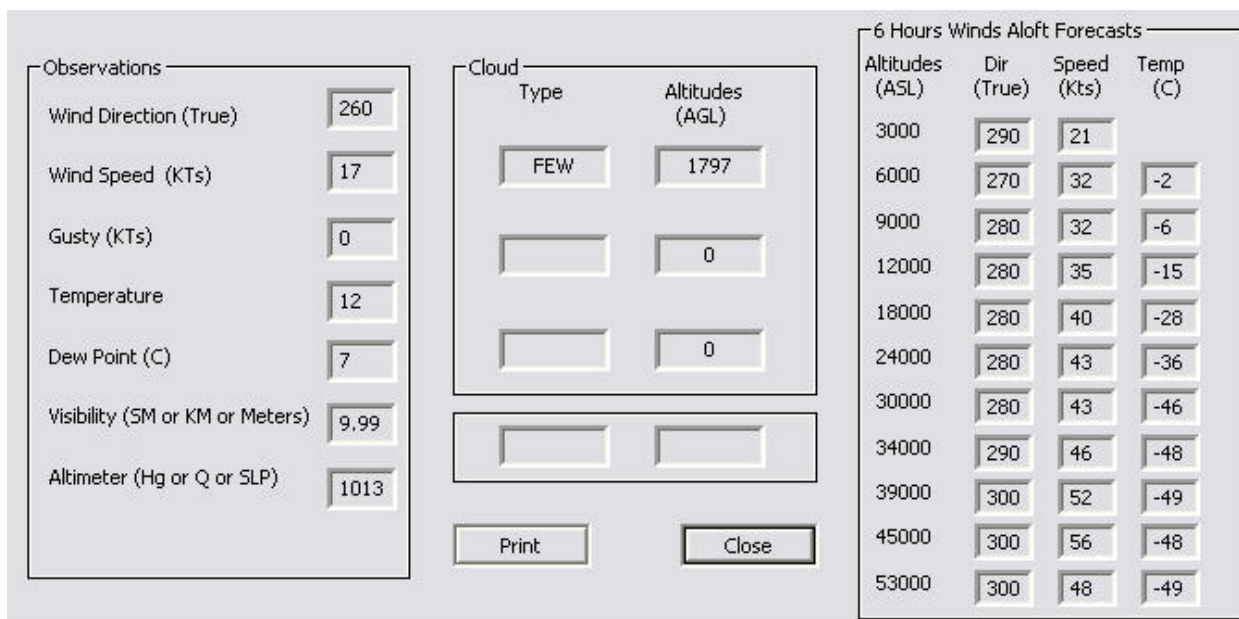


Figure 1-52

F-PLN CHECKING and VERTICAL REVISIONS

ND PLAN MODE.....SELECT
SLEW KEYSPRESS

The F-PLN is slewed on F-PLN page A or B and on ND PLAN mode.



Figure 1-53



Figure 1-54



Figure 1-55



Figure 1-56



Figure 1-57

CONSTRAINTS if any..... CHECK each SPEED and ALTITUDE constraint.



Figure 1-58

Final approach outer marker and the destination runway are constrained by dummy altitude constraints. These constraints are inserted by the DATA BASE in order to prevent the A/C from going below these constraints if PROFILE is not disengaged or if the FINAL APPROACH prompt is not pressed (see APPROACH paragraph).

PROC T (if any).....WRITE/INSERT a speed constraint at the waypoint at the beginning of PROC T.

HOLDING (one round) if any.....DELETE if no necessary

WPT/NAVAID ENTRY

As a technique during manual flight planning, to prevent the unwanted scrolling of the flight plan waypoints as the pseudo waypoints are inserted by the FMC, it is recommended that waypoint stringing on the F-PLN pages be accomplished prior to initializing the weights on the INIT B page.

This is our Flight Plan:

DVR DCT KONAN UL607 SPI UT180 ARCKY DCT ROLOR T180 DEPAX DCT EPINO DCT RUDUS

Figure 1-59 shows the SID as far as Dover (DVR), the end point of this departure procedure; A F-PLN DISCONTINUITY appears after Dover because the route has not been defined beyond this point.



Figure 1-59

Enter Konan into the scratch pad, it is the next waypoint along the route of flight, pressing LSK 6L strings it into the flight plan and moves the F-PLN DISCONTINUITY down one data line.



Figure 1-60

An entire route may be constructed in this manner, however, there are other options to accomplish the same result.

(See A310 FMS Pilot's Guide, Section 2 "Flight Phases", and Section 2.1.3.2.3 NEW WAYPOINT Function)

AIRWAYS Page

Accessed from LAT REV Page, the AIRWAYS page may be used to string an entire airway segment along the route of flight. (See Figure 1-61)



Figure 1-61

The Airway from KONAN to Sprimont (SPI) is UL607.

After entering KONAN into the flight plan, the desired revise point for a LAT REV to continue the manual stringing process will become KONAN.

A LAT REV from KONAN is done, and the AIRWAYS page is accessed by pressing LSK 2L, Figure 1-61.

The airways page lists all airways defined by the KONAN, including Low Altitude. Select UL607 by pressing LSK 2L. Figure 1-62.



Figure 1-62

Figure 1-63 lists the end points associated with UL607 from KONAN - notice the title line.



Figure 1-63

The airway courses FROM KONAN are shown at the top of each list. Pressing SPI*, then the desired end point, LSK 4R, strings this airway segment into the flight plan.

Waypoints are inserted into the flight plan by first typing the alpha numeric data into the scratchpad, and then by inserting the data into the desired field by pressing the adjacent LSK. (See APPENDIX B, DATA FORMATS, for the correct format.)

NOTE: Incorrect data format is indicated by the SP message, "FORMAT ERROR". A data entry attempt into the wrong field generates the SP message, "NOT ALLOWED". Waypoints may be inserted directly into the flight plan, from the SP, at any point other than the FROM waypoint, by any of the following methods:

- By its identifier, if it is contained in the data base, as was previously demonstrated.
- By its identifier, if it has been pilot defined on the NEW WAYPOINT page (not in data base).
- By its LAT/LONG, (e. g., LL01 would be the first LAT/LONG waypoint, and would be displayed on the ND as LLO1.)
- By its PLACE/BEARING/DISTANCE, (e. g., SPI/225/15 would be displayed on the ND 15NM from SPI on a bearing of 225 deg). PBDO1 would be the first PLACE/BEARING/DISTANCE waypoint, and would be displayed on the ND as PBDO1.
- By its PLACE/DISTANCE, (e. g., SPI/15 would be displayed on the ND, on the route of flight; 15NM after SPI, SPI/-15 would occur 15NM before SPI). PDO1 would be the first PLACE/DISTANCE waypoint, and would be displayed on the ND as PDO1.

The flight plan may be scrolled up or down through use of the scroll up or scroll down function keys.



Figure 1-64

Scroll the flight plan up to SPI.
After SPI we need to proceed to ARCKY, via Airway UT180.
Press LSK 4L.



Figure 1-65

Press LSK 2L <AIRWAYS



Figure 1-66

Choose airway UT180, pressing LSK 5L



Figure 1-67

We enter from SPI via airway UT180 up to ARCKY.
Choose ARCKY and press LSK 1R

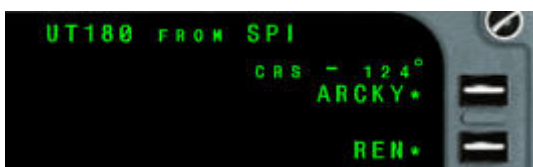


Figure 1-68

Scroll the flight plan up to ARCKY

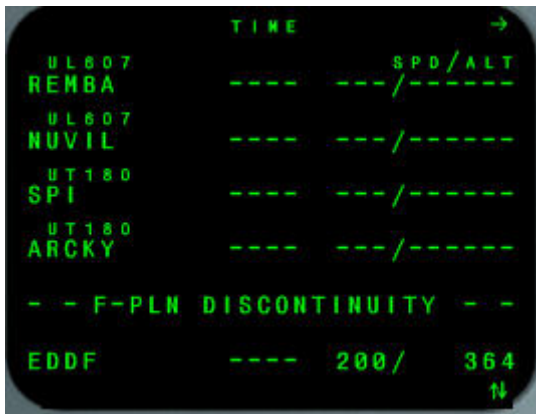


Figure 1-69

This is what our flight plan looks like; we are just about halfway through the process of entering the flight plan into the FMS:

DVR DCT KONAN UL607 SPI UT180 ARCKY DCT ROLOR T180 DEPAX DCT EPINO DCT RUDUS

After passing ARCKY, we need to proceed direct to ROLOR

As you already know, there are two ways to input waypoints into our flight plan

First:

After ARCKY, enter the next waypoint along the route of flight into the scratchpad (ROLOR).



Figure 1-70

Pressing LSK5L strings it into the flight plan and moves the F-PLN DISCONTINUITY down one data line.



Figure 1-71

Second:

The NEW WAYPOINT function is accessed from the LAT REV page. When manually stringing a flight plan, the revision point would be at the last waypoint defined. Using this function, the new waypoint is strung into the flight plan after the revision point, with a DIRECT TO leg, and is followed by a F-PLN DISCONTINUITY, provided that no down path waypoints exist

Pressing LSK4L, next to ARCKY, Figure 1-72, accesses the LAT REV from ARCKY page.



Figure 1-72

Type ROLOR into the scratch pad then Press LSK4L



Figure 1-73

Scroll the flight plan up to ROLOR



Figure 1-74

Repeat the procedure above for other airway inserts.
Also insert up to point DEPAX via ROLOR through Airways T180.
We look further along the page to see what changes were made.

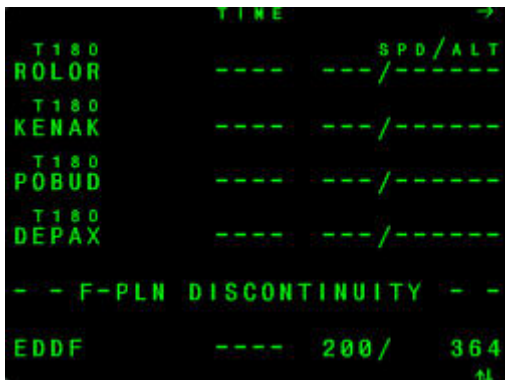


Figure 1-75

F-PLN CHECKING and VERTICAL REVISIONS

ND PLAN MODE.....SELECT
SLEW KEYSPRESS

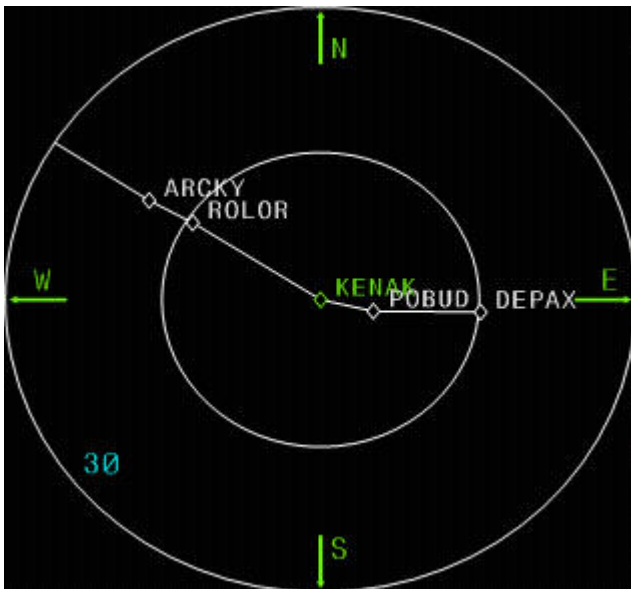


Figure 1-76

... DEPAX DCT EPINO DCT RUDUS

After passing DEPAX, we will proceed direct to EPINO

Press LSK 4L (Lateral Revision from DEPAX)



Figure 1-77

Enter EPINO into the SP (scratch pad) and PRESS LSK 4L



Figure 1-78

Scroll the flight plan up to the following point: EPINO.

```

T180      SPD/ALT
KENAK     ---- /-----
T180      ---- /-----
POBUD     ---- /-----
T180      ---- /-----
DEPAX     ---- /-----
EPINO     ---- /-----
- - F-PLN DISCONTINUITY - -
EDDF      ---- 200/ 364

```

Figure 1-79

Repeat the same procedure for RUDUS and insert this point into the route.

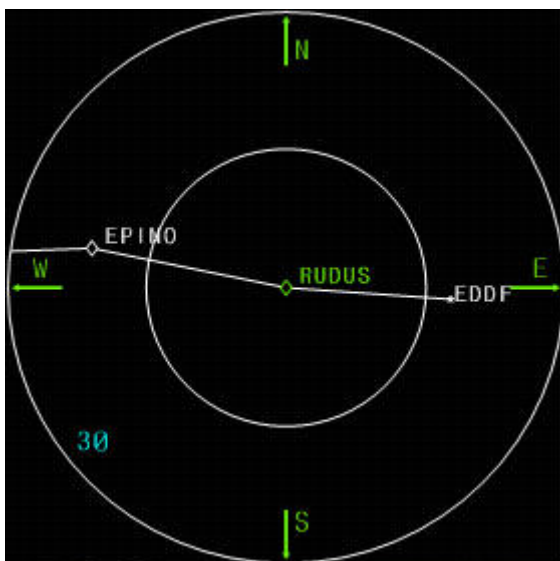


Figure 1-80

```

DIST      →
EPINO     21.9 / 87.7  --°  WIND  0°/0
RUDUS     21.6 / 101.3 --°  0°/0
EDDF      18.0 / 93.6  --°  0°/0
- - END OF F-PLN - -
EDDF      --°  0°/0
- - F-PLN DISCONTINUITY - -

```

Figure 1-81

SPECIFIC SPEED TO BE FLOWN AFTER TAKE OFF

The usual target speed after take off is 250 kt (speed limit). It is possible to change it when a 180° turn has to be flown at green dot for instance, or for any other reason.

TACT MODE key.....PRESS

SPEED to be flown.....WRITE/INSERT in 4L

SPEED LS key (4L).....PRESS to activate TACT SPD MODE

This procedure will allow the use of profile mode at the beginning of climb rather than using the FCU speed knob.

```

CLB
PRED TO
FL340
*ECON  GWT  DIST
*MAX CLB  ---  ---
SPD      ---  ---
250

```

Figure 1-82

Save flightplan.

FMS GROSS WEIGHT INSERTION

(This procedure is made before engine start, after engine start the INIT B page will no longer be accessible).

INIT B page is accessed from the INIT A page by pressing the NEXT PAGE key.

INIT B: WEIGHT ENTRIES

INIT KEY.....PRESS to display INIT page A (1)

NEXT KEY.....PRESS to display INIT page B (2)

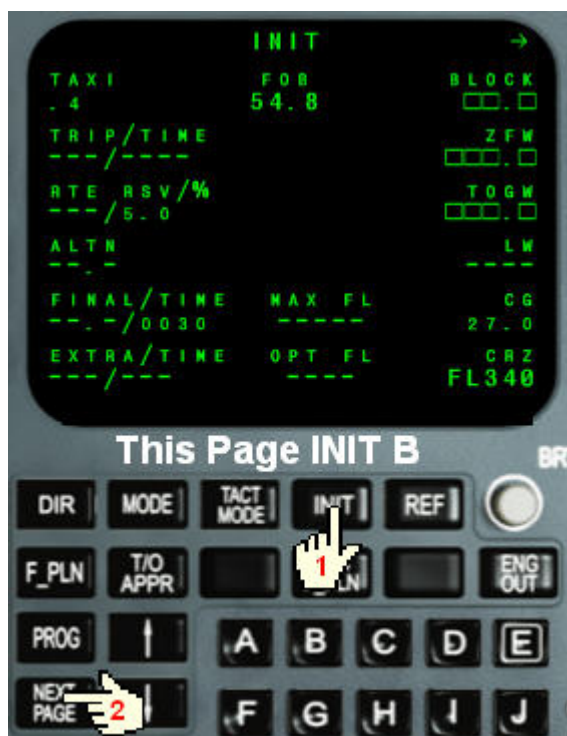


Figure 1-83

ZFW.....WRITE/INSERT

Entry in Scratchpad 108.0 and press LSK 2R

Now we will load the necessary fuel for our flight by using the FMC and our saved flight plan.

Press the REF button.

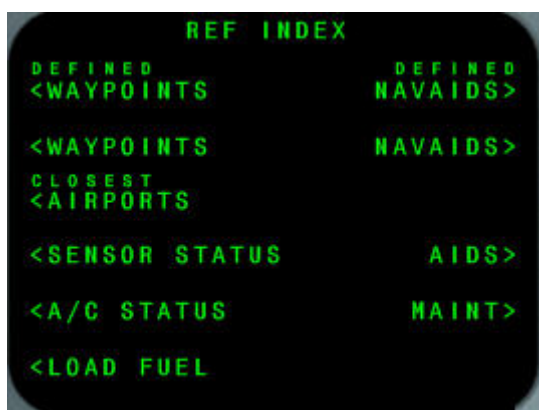


Figure 1-84

Press the LSK 6L alongside Load Fuel prompt.

Fuel will automatically be loaded into the aircraft tanks.

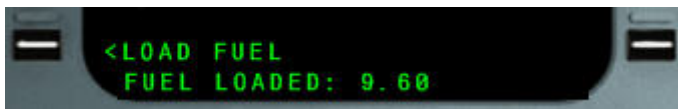


Figure 1-85

Press the CLR button.

Return again on page INIT B.

(From INIT A page pressing NEXT PAGE key)

Compare indications of quantity of fuel onboard, on page INIT B and on display ECAM page FUEL.



Figure 1-86

1. ECAM CONTROL PANEL window open (or by pressing Shift+2 key for Pedestal Panel).
2. EXPANDED ECAM Displays.
3. Switching between displays ECAM1/ECAM2.

FUEL PLANNING ON INIT B

(Only if needed before engine start)

BLOCK.....WRITE/INSERT

Entry in Scratchpad 12.0 and press LSK 1R

TOGW is deduced by summing up both the ZFW and the BLOCK columns. BLOCK is automatically replaced by FOB (fuel on board) at engine start and thus is needed only for fuel computations before engine start.



Figure 1-87

MAX FL and OPT FL.....CHECK (They are displayed just after BLOCK is inserted)

CRZ FL.....MAY BE CHANGED

Replace FL340 on FL370. Entry in Scratchpad 370 and press LSK 6R.

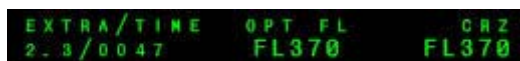


Figure 1-88

BEFORE PUSHBACK OR START

TAKE OFF DATA

TO/APPR KEY.....PRESS to display TAKE OFF page

F, S, O speeds.....CHECK



Figure 1-89

CAUTION: In case of FMS « LAT ONLY » configuration, O, S and F values are not valid. They must be manually entered by the crew.

Before we enter V1, Vr and V2 speeds, we need to know our take-off weight.
The take-off weight can be found in two ways:

- 1. On the FMC INIT B page (TOGW).
- 2. On the ECAM FUEL page (GW).



Figure 1-90

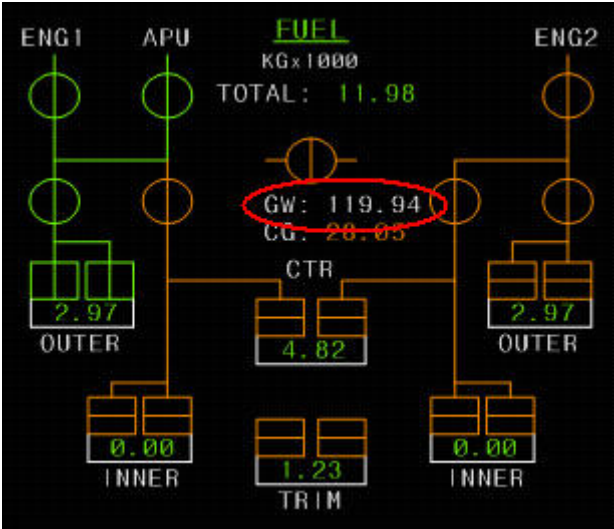


Figure 1-91

Let's approximate our TO Weight up to 120 ton.
Look the data in the speeds in the table "WEIGHT" (Runway Analyzes).

Simulation Software Workshop AIRBUS A310-200/300 "The Masters's Edition"		
		15/00

Weight 1000 kg	-10	0
108.0	131 142 145	131 142 145
110.0	132 143 146	132 143 146
112.0	134 144 147	133 144 147
114.0	138 146 149	135 146 149
116.0	141 147 150	136 147 150
118.0	145 148 151	140 148 151
120.0	154 154 157	145 151 153
122.0	155 155 157	152 156 158
124.0	155 155 158	163 163 165
126.0	156 156 158	164 164 166
128.0	156 156 159	164 164 167

Figure 1-92

They are equaled to the following values:

V1 – 145 Vr – 151 V2 – 153

V1 (LSK 1L).....WRITE/INSERT (**V1 – 145**)

Vr (LSK 2L).....WRITE/INSERT (**Vr – 151**)



Figure 1-93

V2 (LSK 3L).....SELECT SPEED ON THE FCU KNOB
V2 is recopied from the FCU window to TAKE OFF page. (**V2 – 153**)
Turn to select V2.

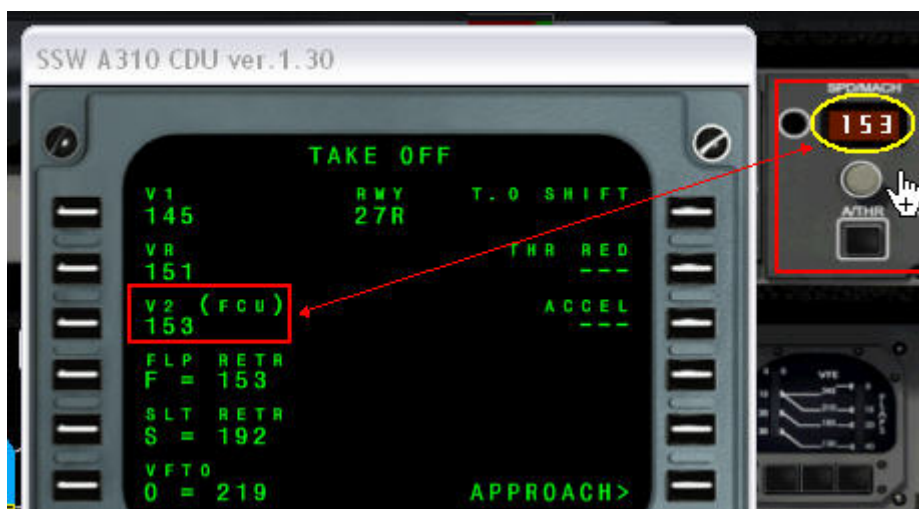


Figure 1-94

Push to Activate Preset on the FCU Panel. (PRESET Function Activated – PRESET Green illuminated)



Figure 1-95

Turn to Preselect initial climb speed. Set speed to 230 knots.



Figure 1-96

ALT Sel.....Initial cleared ALT, set 6000 ft



Figure 1-97

THR RED (LSK 2R).....Type 1578 press LSK 2R
Not lower than 1 500 ft AGL
ACCEL ALT (LSK 3R).....Type 3078 press LSK 3R
Not lower than THR RED



Figure 1-98

TO SHIFT LS KEY (LSK 1R).....PRESS SELECT prompt **(NOT MODELED)**
If take off is initiated at about 1000 m away from the runway threshold
Pressing this key inserts a 970 m shift from RWY threshold.

GLARESHIELD

EFIS

- PFD and ND brightness.....As Required
- FPV/FD.....ON/ to position FD
- VOR/NAV/ILS switchAs Required (Set NAV position)

Note: - **VOR position: manual tune.**
- **NAV/ILS positions: auto tune.**

- EFIS control box.....As Required
- ND mode and range.....As Required

MODE: It is recommended to use MAP mode for take-off.

RANGE: It is recommended to set the minimum range to display the first waypoint on departure.

STBY ASI

Check speed pointer 0 (Zero).
Set one bug to V2 and another to Green Dot.
V2 – 153 knots
Green Dot – 219 knots



Figure 1-99

PFD

Check to ensure that the display is correct; check IAS, FMA, initial target ALT, altimeter readings and attitude.

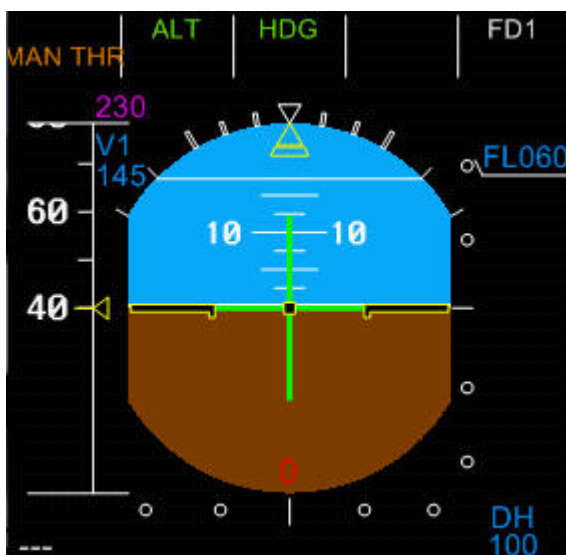


Figure 1-100

VSICheck

- Check no flag and pointer 0.

ALTIMETERCheck

- Check no flag.

- QNH/QFE Set

CLOCKCheck/Adjust

-Check time. Adjust if necessary.

Set elapsed time and chrono to zero.

METRIC ALTIMETERSCheck

-QNH/QFE Set



Figure 1-101

CTR INSTRUMENT PANEL

1. **STBY ALTIMETER**.....Check
- QNH/QFE Set
2. **STBY HORIZON**.....Check
3. **ECAM**.....RCL (DOOR Page)
4. **BRK-A/SKID**.....NORM-ON

5. ENG INSTRUMENTS

- Check:

OIL PRESS.....check Zero

OIL QTY.....Check

• MIN OIL quantity before start is 10QT + estimated consumption, (estimated consumption is based on each operator's oil consumption monitoring)

FF ind......check zero

N2 ind. needles and counter.....check zero

No flags and red max pointers in front of the red limit marks.

EGT ind. needles and counter.....check logical temperature

No flags and red max pointers in front of the red limit marks.

N1 ind. needles and counter.....check zero

No flag, red max pointers in front of the red limit mark and N1 mode select knobs are pushed and counter for manual setting is masked.

REV and REV UNLK Lts.....check extinguished

6. THRUST RATING PANEL (TRP)

- TOGA/FLEX.....Press and set 65
- TAT.....check logical
- THR LIMIT bugs.....check correspond to THR LIMIT display

7. LANDING ELEVATION.....Set departure field Elevation 100

Note: If QFE is used set 0 (Zero) on LANDING ELEVATION counter.



Figure 1-102

PEDESTAL PANEL

ADF.....Check and Set

- Check and set as required

RADIOS.....Check and Set

PARKING BRK **OFF/As req**

(If chocks are in place, release PARKING BRK to increase brake cooling)

ATC.....STBY/OFF

TCAS.....STBY/OFF

VOR/ILS CRS/FREQ.....As required

TAKE OFF BRIEFING...

BEFORE PUSHBACK or START

CDU.....In TAKE OFF Configuration

- It is recommended to display F-PLN on PNF side, TAKE OFF on PF side.

EXT PWR.....Check OFF

WINDOWS and DOORS.....Check closed

- Check cockpit windows closed and locked.

- Check on ECAM DOOR page that all doors are closed.

BEACON.....ON

PARKING BRAKE.....As required

- If no pushback is required, check to ensure that the parking brake is on and check brake pressure indication. Chocks may be removed.

BEFORE START C/L DOWN TO THE LINE.....COMPLETED

ENGINE START

The following procedure applies upon completion of the BEFORE PUSHBACK or START checklist. Engine 2 is normally started FIRST.

Check Fuel Pumps in position – ON (Overhead Panel)

ON Position



Figure 1-103

OFF Position



Figure 1-104

THROTTLE LEVERS.....IDLE

Be aware of prevailing surface wind, as tail wind may result in starting difficulties.

Engine Generators GEN1 and GEN2 – Press



Figure 1-105

Open Overhead Forward Panel (Shift + 4)

IGNITION.....START A/B

Set IGNITION to START A (odd days) or START B (even days) and check both ARM lights illuminate on START 1 and 2 pushbuttons.

Ignition selector set to position A.



Figure 1-106

START ENGINE 2

- Announce....."START ENGINE 2"
- START 2.....Press

- Check ARM white light extinguishes
- OPEN blue light illuminates.



Figure 1-107

- Announce....."VALVE OPEN"
- BLEED PRESSURE.....check increasing.

WHEN N2 INCREASES

- Announce....."N2"
- OIL PRESSURE.....checks increasing
- Announce....."OIL Pressure"

AT 15% N2 MINIMUM

- FUEL LEVER.....ON
Confirm fuel lever ON and locked/seated in notch.

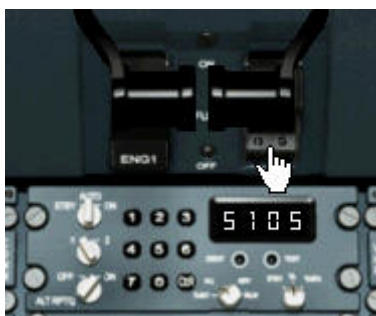


Figure 1-108

CLOCK.....Start

- 25 sec. max from FUEL ON to light up

Notes: 1. As required (quick turn-around, tail wind), set FUEL LEVER to ON at max motoring speed. 2. Max motoring speed is assumed when there is no significant increase in N2.

- Announce....."FUEL ON"

- FUEL FLOW.....check in normal range

- Announce....."Fuel Flow"

EGT INCREASING

- Announce....."EGT"

- CLOCK.....Stop/reset

N1 INCREASING

- Announce....."N1"

N2 45 %

- Announce....."N2 45 %"

Check START 2 OPEN lights extinguished

- Announce....."VALVE CLOSED"

Note: Start valve is fully closed when engine reaches ground idle.

AT IDLE

- N1, N2, EGT and FF.....check

(At ISA, sea level: N1 about 24%, N2 about 65%, EGT about 400-550 C and FF about 600 kg/h)

- ECAM.....Check Secondary Parameters.

- **Announce....."ALL PARAMETERS CORRECT"**

- **Announce....."START ENGINE 1"**

Repeat the start sequence as stated above

Note: Both ARM lights illuminate when ENG 1 N2 reaches 45%.

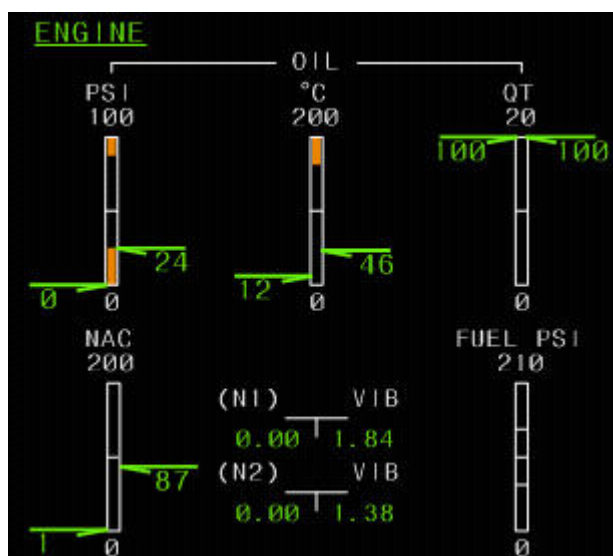


Figure 1-109

AFTER SECOND ENGINE START

- OIL QTY.....CHECK BELOW BUG OR BELOW 20 QUARTS

(At least 30 seconds after the engine reaches stabilized idle and prior to any thrust application for break-away).

AFTER ENGINE START

IGNITION.....OFF

ARM light should extinguish.



Figure 1-110

APU BLEED.....OFF

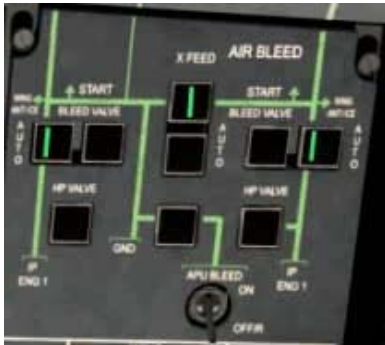


Figure 1-111

APU MASTER SWITCH.....OFF

"ON" light should extinguish; "Avail" light will extinguish a few seconds later.



Figure 1-112

ENGINE ANTI ICE.....AS REQ

Depending on your current temperature you may need or need not turn anti-ice on. Icing usually occurs when the temperature is below 0 degrees Celsius and humidity is high.

Turn on anti-ice by clicking at the appropriate button. A few moments later, the blue "ON" light will appear.



Figure 1-113

WING ANTI ICE.....AS REQ

Note that WING ANTI ICE valves will remain closed while the aircraft is on the ground.

SLATS & FLAPS.....SET TO

Set slats 15 and flaps 0 for this flight and check indication.



Figure 1-114

GROUND SPOILERS.....ARM

Ground spoilers should be ARMED, so that they will extend automatically should you decide to abort the takeoff.

You may use Flight Simulator's default "shift" + "/" combination.

AILERON AND RUDDER TRIM.....ZERO

To avoid any unwanted movement of the plane, make sure that your aileron and rudder trims are neutral. To do that, go to "F\CTL" page of ECAM.

It should look something like this:



Figure 1-115

PITCH TRIM.....SET T\O

Set trim somewhere around 2.0 NU [Nose Up] position. Be aware that take-off trim range is between 2.3 degrees DN [Nose Down] to 3.5 degrees NU.

ECAM.....CHECK STATUS

There should be no warning messages on the ECAM display.

TAXI

NOSE LIGHT.....TAXI

On the overhead lighting panel, move the NOSE LIGHT switch to "TAXI" position.



Figure 1-116

NOTE: The red circle was added to guide you. It does not appear in Flight Simulator. If you find red areas like this on illustrations below, keep in mind that it shows you where you should look at.

PARKING BRAKE.....OFF

THRUST LEVERS.....AS REQ

Apply some thrust to get aircraft moving. As soon as the Aircraft reaches its normal taxi speed (around 20 Knots).

Move thrust levers to zero or almost zero, the aircraft will continue to uniformly taxi at this speed.

BRAKES.....CHECK

During taxi, apply brakes to check them and make sure that they are working properly.

FLIGHT CONTROLS.....CHECK

Switch ECAM display to "F/CTL" page. Now move your flight controls and make sure that on the ECAM they move too.

If any of flight controls fail to move, check if you have turned on the flight control switches on the overhead panel. After the check is complete, deselect the "F/CTL" page on the ECAM.

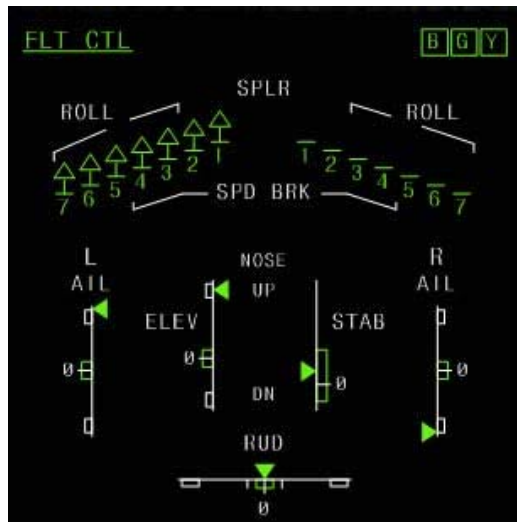


Figure 1-117

TAKE OFF DATA/CONDITIONS.....REVISE

Once again, check your pre-takeoff data:

- SLATS & FLAPS.....T\O Position
Check that flaps are zero and slats 15 for this flight.
- V2.....set on FCU
- Initial Climb Speed.....preset on FCU

FMS.....REVISE

Revise your FMS data to ensure that everything is correct:

- V1, VR.....CHECK
- F-PLN SID AND RUNWAY.....CHECK

FCU.....REVISE

Check following on FCU:

- CLEARED ALTITUDE.....SET
Set the initial climb altitude
- PROFILE.....ARM
Press the "PROFILE" button
- NAV.....ARM
Press the "NAV" button
- INITIAL AFTER T\O HEADING.....SET
Set the initial heading. For runway 27R it will be 271 degrees.
- FD [Flight Director].....CHECK ON

- Your FCU panel should look like this:



Figure 1-118

FLIGHT INSTRUMENTS.....CHECK

Scan the flight instruments to ensure that they work normally.

BEFORE TAKE OFF

TAKE OFF OR LINE UP CLEARANCE.....RECEIVED

APPROACH PATH CLEAR OF TRAFFIC.....CHECK

Look around to ensure that there is no traffic on approach.

AUTOBRAKE.....MAX

Autobrake will be engaged at maximum rate in the event of emergency take off abort. After you turn in ON, check that the blue "ON" on it illuminates.



Figure 1-119

TCAS.....SET TA\RA

On the transponder panel, move TCAS switch to "TA\RA" position.

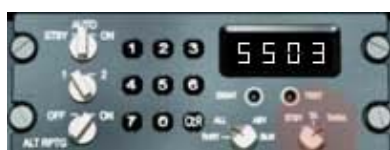


Figure 1-120

EXTERNAL LIGHTS.....AS REQ

Turn on the landing lights, switch nose gear light to "T\O" position. Check that strobe light is in "AUTO" mode; it will engage as soon as the aircraft leaves the ground.



Figure 1-121

BEFORE TAKE OFF CHECKLIST.....COMPLETED

Give yourself a minute to read the checklist and find out if you have forgotten anything.

TAKE OFF

- LINE UP THE RUNWAY

- **A\THR.....ENGAGE**

Engage the auto throttle on the FCU panel.

- **CLOCK.....START**

Move "ET" switch to "RUN" position.



Figure 1-122

- **SLIGHTLY ADVANCE THROTTLE LEVERS**

Advance throttles until engines reach around 90% N1 rate.

- **DIRECTIONAL CONTOL.....USE RUDDER PEDALS**

If the aircraft moves away from the centerline during the take off roll, carefully use your rudder to get it back on the centerline.

- **MONITOR SPEED ON PFD**

- **ROTATE.....At Vr**

When the speed on the PFD passes the "Vr" marker, gently rotate the aircraft to 12-13 degrees pitch.



Figure 1-123

AT V2 THE AIRCRAFT WILL LIFT OFF THE GROUND

Maintain V2+10 knots (in our case this will be 163 KIAS) by pitching the aircraft, but try not to exceed 18 degree pitch, as the aircraft can stall.

GEAR UP.....AT POSITIVE CLIMB RATE

Ensure that your climb rate is strong and positive, and get your gear up.

GROUND SPOILERS.....DISARM

You can press "shift" + "/" to disarm the spoilers.

LANDING LIGHTS.....OFF



Figure 1-124

AUTOPILOT.....ENGAGE

Turn the Autopilot 1. The aircraft will start following the NAV and PROFILE programs.



Figure 1-125



Figure 1-126

AT THRUST REDUCTION ALTITUDE

- THROTTLES.....CHECK SYMMETRICAL RETARDING

Check that throttles are moving back [retarding] symmetrically. They will stop retarding as soon as they reach climb power rate.

- P.THR and P.CLB on PFD.....CHECK

The P.THR and P.CLB indication should appear on PFD.

- SLATS.....UP AT "S" SPEED

When your speed is over the green "S" marker on PFD, retract slats to zero position. Retracting slats before this speed may result in stall.

AFTER TAKE OFF

- ICE PROTECTION.....AS REQ

If there is a possibility of icing, turn on the engine anti-ice system.
If severe icing is expected, turn on wing and tail anti-ice as well.

- PASSENGER SIGNS.....AS REQ

You may turn off passenger signs a few minutes after take off and if no turbulence is expected.

Now you're airborne and it's time to run through after take off checklist.

- AFTER TAKE OFF CHECKLIST.....COMPLETED

CLIMB

You may relax for a few minutes and enjoy the beautiful view of London as your aircraft climbs to Flight Level 340. However, don't forget to run through climb procedure!

- LANDING LIGHTS.....RETRACT/OFF

Turn off nose gear light shortly after take off. Retract and turn off wing lights at 10.000 ft.

- ALTIMETER.....STANDARD AT TRANSITION ALTITUDE

Set altimeters to 29.92 (1013) standard pressure at 6000 ft.

- CDU.....PROG PAGE

Leave the CDU on PROG page for quick reference information regarding the flight. This is not mandatory; you may look at other pages as well.

- CLIMB CHECKLIST.....COMPLETED

CRUISE

- THRUST RATING PANEL.....CHECK

Check that thrust limit sets to CL [Climb]

- ECAM MEMO STATUS.....CHECK

Check for any abnormal messages at ECAM "MEMO" page.

- ECAM SYSTEM STATUS.....CHECK

From time to time, run through ECAM system pages to ensure that everything works fine.

PAGE
ENG

CHECK
OIL PRESSURE AND TEMPERATURE



Figure 1-127

HYD Fluid quantities, pressure.

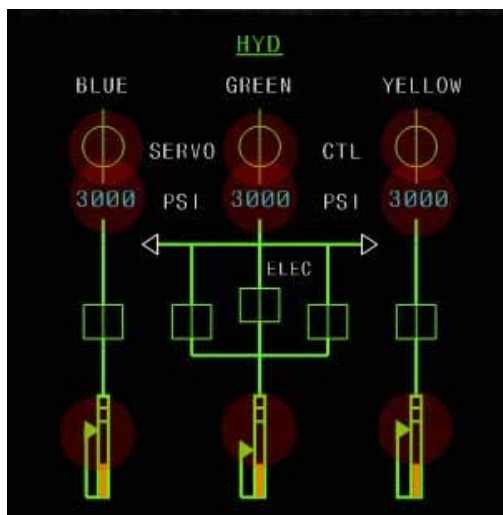


Figure 1-128

AC Generator parameters, IDG OIL temp.

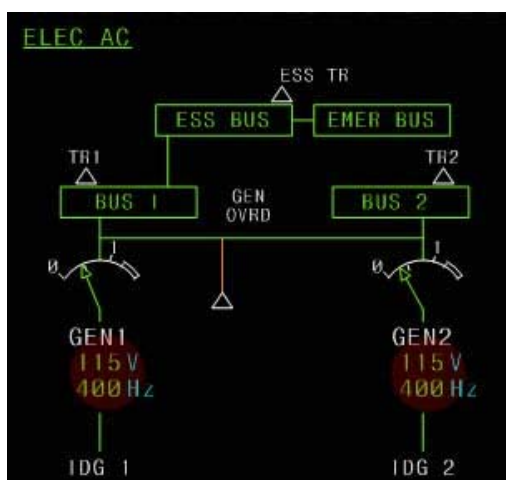


Figure 1-129

BLEED Bleed parameters.

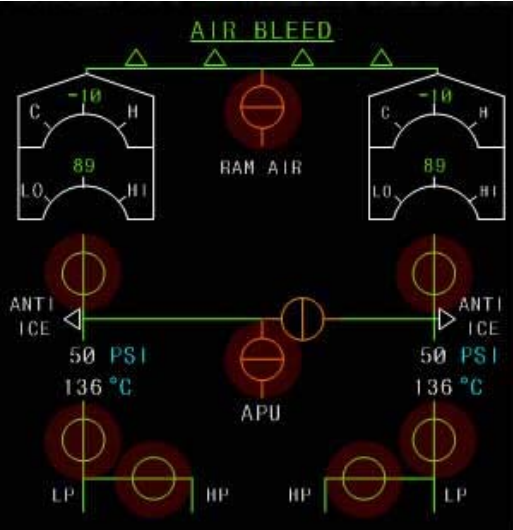


Figure 1-130

COND Air Temperature

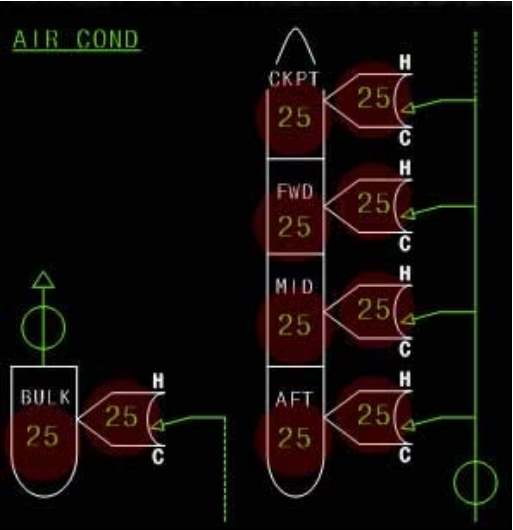


Figure 1-131

PRESS Cabin altitude and V\S



Figure 1-132

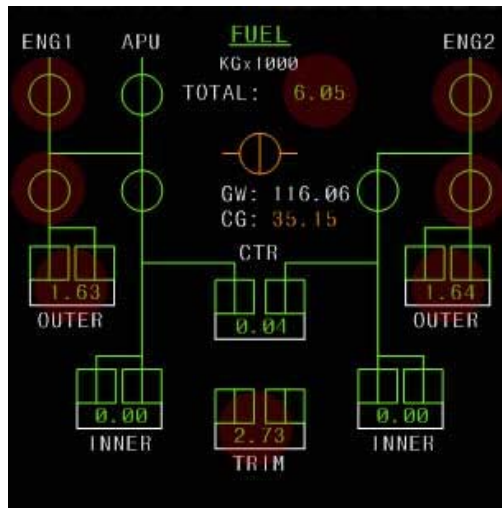


Figure 1-133

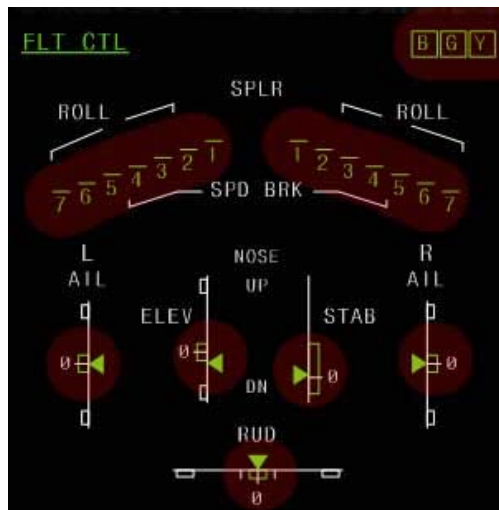


Figure 1-134

- FLIGHT PROGRESS.....CHECK

Periodically review the PROG page to ensure that you have enough fuel on board (check FUEL PRED value)

Now we are cruising through European sky on our way to Frankfurt. All you have to do now is basically communicate with ATC and watch the aircraft systems to ensure that they work properly.

When you are around 100 nm inbound of the TOP-OF-DESCEND (a white downward-looking arrow on the ND), start running through DESCEND procedure.

DESCEND

- ECAM MEMO.....CHECK

Once again, check for any emergency messages on ECAM "MEMO" page.

- WEATHER AND LANDING INFORMATION.....OBTAIN

Get the weather information for Frankfurt. You may use FSMetar, ActiveSky, or <http://www.vatsim.net> site (go to METAR section). The main thing you should be looking for is wind, as it will define which runway you will be landing.

Here is the METAR code taken from VATSIM site:

EDDF 242320Z 34005KT CAVOK 04/M00 Q1016 NOSIG

Figure 1-135

As we can see from this code, wind is 340 degrees at 5 knots, clouds and visibility are OK, temperature is +04 deg. Celsius and altimeter setting is 1016.

According to this data, the best runway for arrival is 07, so we will choose runway 07 Left. We recommend you to manually enter the weather so that it looks something like one above. Otherwise it may occur that your winds will make you to land on runway 25L\R, and this approach is not included in this tutorial.

FMS preparations

- Landing configuration.....CHECK

On FMS "APPR" page check for "20\20" landing configuration.

- STAR.....INSERT

First, go to MCDU "F-PLAN" page, then find "EDDF" (should be after "EPINO" and "RUDUS") and enter its menu.



Figure 1-136



Figure 1-137

Now select "STAR" (Press LSK 1R)
You will see the list of STARs and runways available in Frankfurt.



Figure 1-138

We chose to land on runway 07 Left and we're coming from EPINO waypoint; therefore, it is quite logical to select "EPINO2E" from "STARS" list and "ILS07L" from "APPRS" list.



Figure 1-139

Now press "INSERT" and you will go to TRANSITION page:



Figure 1-140

Select "EPI07" from "TRANS" list and then "INSERT"

You will be returned to "F_PLN" page of the CDU, which will look something like this:



Figure 1-141

"F-PLN DISCONTINUITY" means that there is a gap in flight plan.

If it is not deleted, aircraft will stop following NAV and PROFILE as soon as it reaches the discontinuity. To delete it, simply press "CLR" on CDU keyboard and then select "F-PLN DISCONTINUITY" (LSK 2L in this example).

***NOTE:** Sometimes you might get unwanted waypoints after inserting the STAR. Remove them with CLR function, so that the order is following:

...EPINO-REDLI-DF090-DF092...

Remove any other discontinuities as well.

APPROACH

After passing "DF044" and "DF054" you will be on final approach to Frankfurt. At this time, we recommend you to change to SPD mode, when you manually input speed into FCU. To do this, click at speed knob and then rotate it to set new speed.

- **SPEED.....200 KIAS**

Set speed 200 on FCU. At this speed, you will have a lot of time to prepare to land.

- **SLATS.....15**

When speed is below 230 IAS, set slats to 15 position.

- **NAV\COMM FREQ.....CHECK\SET**

Set ILS frequency for runway 07 Left and set VOR\NAV\ILS switch to ILS.



Figure 1-144

- **LANDING LIGHTS.....EXTEND\ON**

Turn on nose light and extend and turn on wing landing lights.

- **AUTOBRAKE.....MED**

- **SPEEDBRAKE.....ARM**

- **ILS INDICATION ON PFD.....CHECK**

Two diamonds will appear on PFD when ILS signal is received by the aircraft.



Figure 1-145

- **SPEED.....180 KIAS**

- **FLAPS\SLATS.....15/15**

- **V\L MODE.....ENGAGE**

After passing "LOMPO", turn on V\L [VOR\LOC HOLD] mode on FCU.



Figure 1-146

- LOCALIZER CAPTURE.....MONITOR
Aircraft will capture ILS Localizer. Now you are aligned to runway's centerline.

- LAND MODE.....ENGAGE
When glide slope indicator in PFD becomes "alive" (i.e. starts to move), turn on "LAND" mode on FCU.

- GLIDE SLOPE CAPTURE.....MONITOR
Aircraft will capture ILS Glide Slope. Aircraft is now approaching perfectly using the ILS.

- SPEED.....160 KIAS
Set speed 160 on FCU

- FLAPS AND SLATS.....20\20

* **NOTE:** We will perform automatic approach and manual landing.

LANDING

AT 200 FEET

- AUTOPILOT.....DISENGAGE
Disengage autopilot and establish manual control of the aircraft.

- AUTOTHROTTLE.....DISENGAGE
Disengage autothrottle and keep speed around 135 - 140 knots.

AT 20-30 FEET:

- THROTTLESIDLE

AT TOUCHDOWN:

- REVERSE THRUST.....ENGAGED

- GROUND SPOILERS.....CHECK EXTENTION

- DIRECTIONAL CONTOL.....USING RUDDER PEDALS
Use rudder to keep the aircraft on the centerline.

- AT 80 IAS.....THROTTLE IDLE
At 80 IAS move throttles to idle (you may use "F1" key).

AFTER LANDING

- **LANDING LIGHTS.....RETRACT\OFF**
Retract and turn off wing landing lights. CAUTION: leave nose light turned on, as it is now considered as TAXI light.
- **STROBE LIGHTS.....OFF**
- **APU.....START**
Set APU MASTER SW to "ON" and then press "START" button.



Figure 1-147

- **GROUND SPOILERS.....DISARM**
Disarm spoilers and check retraction.
- **TCAS\TRANSPONDER.....STANDBY**



Figure 1-148

- **SLATS\FLAPS.....0\0**
Retract slats and flaps (you may use "F5" key)
- **AFTER LANDING CHECKLIST.....COMPLETE**

Now you are free to taxi to the gate of your choice. As you approach to gate, run through PARKING procedure.

PARKING

- **PARKING BRAKE.....ON**
Turn on parking brake when you come to a complete stop at the gate.
- **NOSE TAXI LIGHT.....OFF**
- **APU GEN.....CHECK ON**
No light indicates that generator is on.



Figure 1-149

- **APU BLEED.....ON**

- ENGINE FUEL LEVERS.....OFF



Figure 1-150

- PASSENGER SIGNS.....OFF

- EXTERNAL LIGHTS.....AS REQ

Turn all lights as required. Turn off BEACON light when engine stops completely. We recommend turning all lights off, except for NAV light.

- FUEL PUMPS.....OFF

Turn all fuel pumps off EXCEPT for L INNER TANK, as it is used to feed APU.

- IRS MSU 1, 2, 3 AND ISDU.....OFF

Turn off all three MSUs:



Figure 1-151

Turn off ISDU as well:



Figure 1-152

- PARKING CHECKLIST.....COMPLETE

SECURING THE AIRCRAFT

- EXTERIOR LIGHTS.....ALL OFF

- APU BLEED.....OFF

- APU MASTER.....OFF

- BATTERIES.....OFF

You have now secured the aircraft and ready to exit it.

**On behalf of all of us at Simulation Software Workshop,
Welcome to Frankfurt, and thank you for using our product!**