Falcon 7X

Getting Started

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Purpose of this Manual

The Falcon 7X is a very complex aircraft and the systems are modelled to high degree of accuracy. As a result, there are over 200 pages of documentation describing the operation and function of the displays, controls and systems. This manual is intended to condense this information to the essentials required to power up, start the engines, and take off in this advanced aircraft.

Installation

During the installation process you should see this utility:

The utility should indicate that your dll.xml file is properly formatted. If this is not the case, or if you encounter an error message, find the Configuration Utility in the Falcon folder in the simulator:

SimObjects\Airplanes\Wilco_Dassault_Falcon_7X

Right click on Falcon Configuration.exe and select “Run as Administrator”. Make sure that it shows that the dll.xml file is formatted. If this critical simulator file is not formatted with an entry for the Falcon FMS driver, the systems and Flight Management System will not work. If you need to format this file manually, you can find it in the following location, depending on the version of the simulator you are using:

Flight Simulator X	C:\Users\[*username*]\AppData\Roaming\Microsoft\FSX\dll.xml
Flight Simulator X Steam	C:\Users\ *username* \AppData\Roaming\Microsoft\FSX-SE\dll.xml
Prepar3D v2	C:\Users\ *username* \AppData\Roaming\Lockheed Martin\Prepar3D v2\dll.xml
Prepar3D v3	C:\Users\ *username* \AppData\Roaming\Lockheed Martin\Prepar3D v3\dll.xml

The file must contain this entry, right before the line entry </SimBase.Document> :

```
<Launch.Addon>
   <Name>Falcon7xFMS</Name>
   <Disabled>False</Disabled>
   <Path>SimObjects\Airplanes\Wilco_Dassault_Falcon_7X\panel\Falcon7xFMS.dll</Path>
   <DllStartName>module_init</DllStartName>
   <DllStopName>module_deinit</DllStopName>
 </Launch.Addon>
```

This will command the simulator to load the FMS driver when the simulator starts.

Navigraph Data

The Falcon FMS is Navigraph compatible. If you subscribe to this service, you will have SIDs departure routing and STARs arrival route capability. If the data is installed correctly this will be indicated on the configuration utility. If it cannot be located on your system the utility will give you the option to browse to it.

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Reference Diagrams

The Falcon 7X (here and in real life) utilizes four glass displays and a multifunction keyboard (MKB).

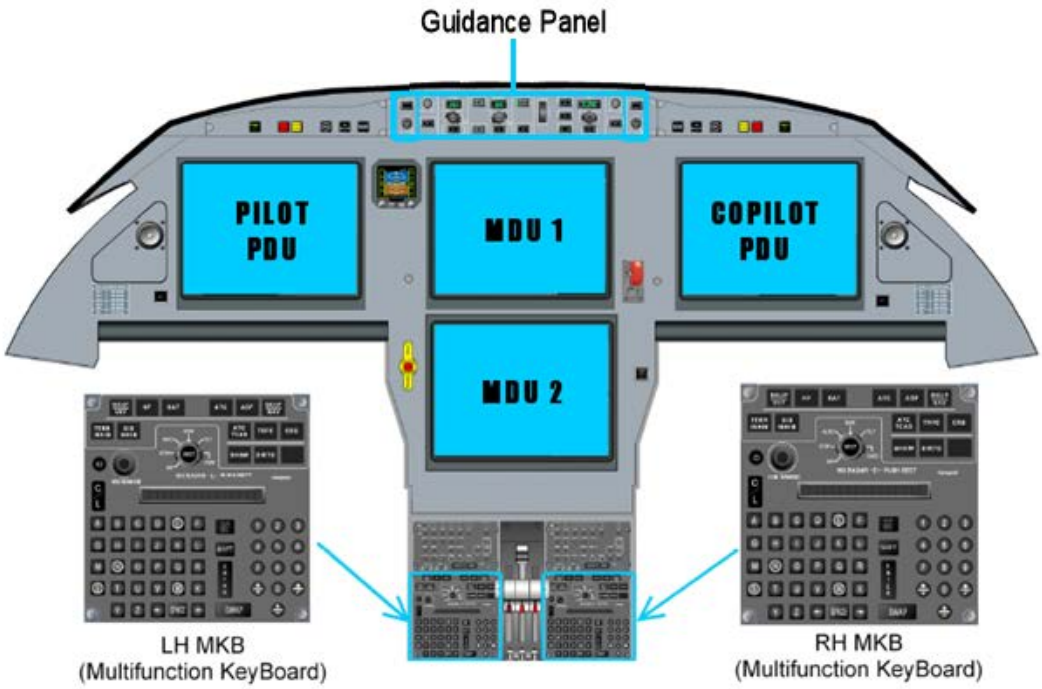


Figure 1 - GLASS DISPLAYS

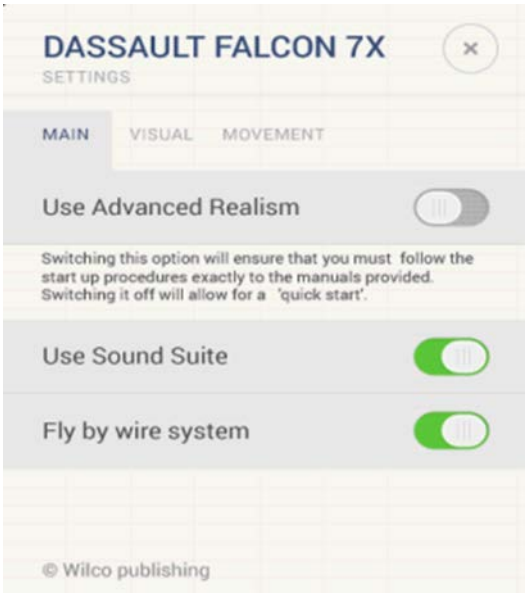
Popups

You can bring up larger popups of all these displays using keyboard commands:

Shift + 2	Configuration Manager (info Pad)
Shift + 3	Pilot PDU
Shift + 4	MDU 1
Shift + 5	MDU 2
Shift + 6	Multifunction Keyboard
Shift + 7	Copilot PDU

In addition, you can popup each glass display by mouse clicking on the very (small) upper left hand of the display screen.

Configuration Utility and System Realism



You can access this utility by pressing Shift + 2 in the cockpit.

Here you will find an option labelled "Use Advanced Realism". In advanced realism mode, the procedures and controls must be operated exactly according to the checklists and documentation, otherwise things will not work. This, of course, is how the real plane works.

However, we do realize that virtual pilots have not had the benefit of the extensive classroom and systems training as the real world pilots. In order to make things work more like a simulator aircraft, you can switch this mode off.

The differences in operating the controls will be outlined below.

Cockpit Views

OVERHEAD

The bulk of the systems controls for the aircraft are on the Overhead Panel. You can also press the keyboard 'O' key for quick access to the overhead, and then press 'O' again to return to the previous view. This is particularly useful for switching views between the pilot and overhead.

SHOW PREVIOUS VIEW

Press the 'V' key at any time to go back to the previous view. This allows you to go backwards through the cockpit views, instead of continually advancing forward using the 'A' key to get back to where you were. In other words, the opposite of the 'A' key.

Automatic Settings

Pushbutton switches that have an upper and lower indicator have an AUTO mode, where the system will be automatically available when needed. In normal conditions, operation of these switches is not necessary. Manually pushing the button sequentially will change the system to off (sometimes STBY) and ON.

Off

On

Auto Mode

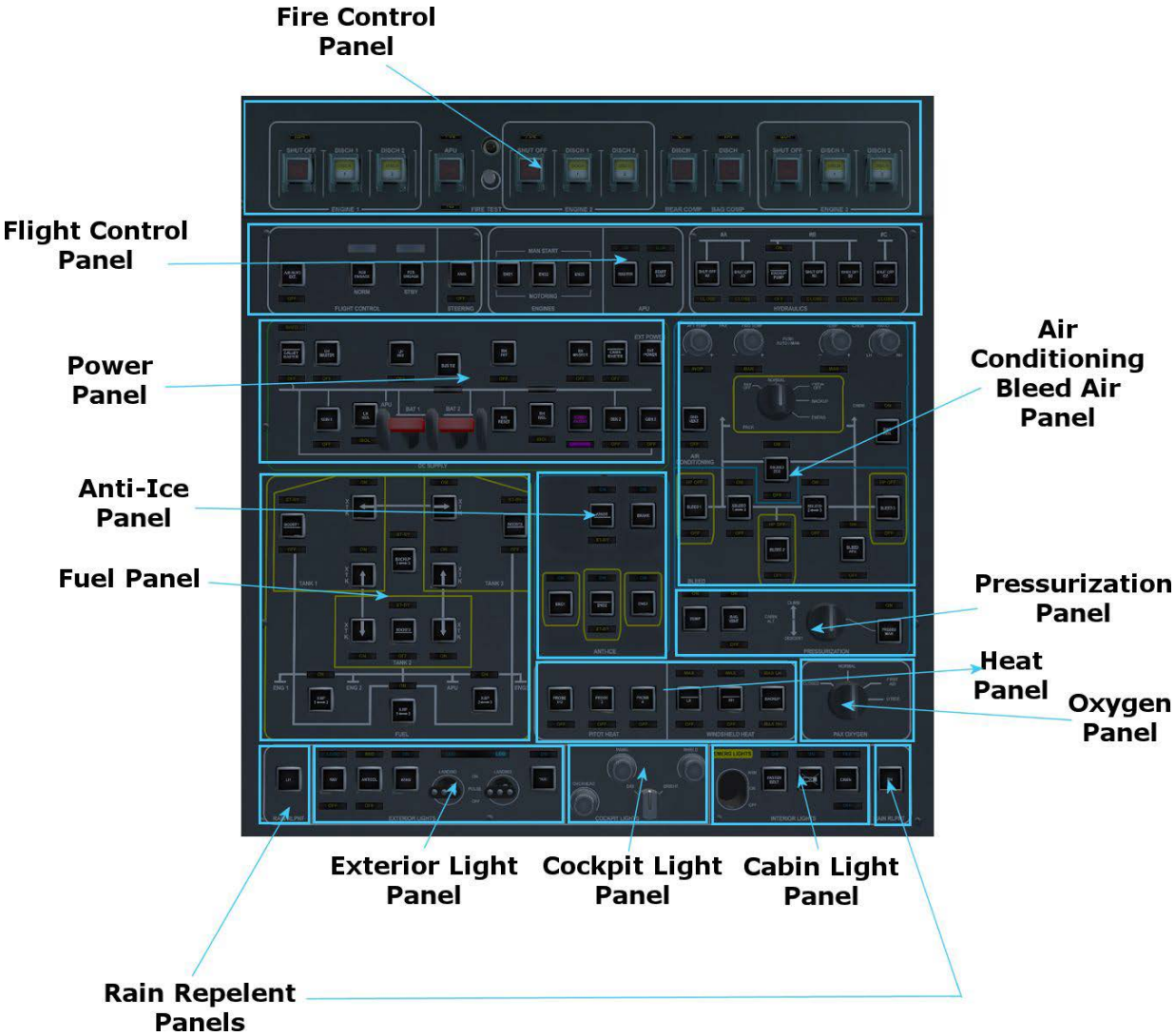


Figure 2 - OVERHEAD PANEL

Establishing Electrical Power

Locate the Power Panel on the *Overhead*.

Advanced Realism ON	Advanced Realism OFF
1. BAT 1 BAT 2 - **ON**	BAT 1 BAT 2 **ON** – Everything else comes online
2. LH INIT – **ON**	
3. LH MASTER – **ON**	
4. RH INIT – **ON**	
5. RH MASTER - **ON**	

Locate the *Flight Control Panel.*

Advanced Realism ON	Advanced Realism OFF
1. APU Master - **ON**	APU already online when battery switches are ON
2. Press the Start/Stop Button	

Note – The APU will only come online automatically during ground procedures, not if the saved Flight begins with the plane in flight.

Display Status

The Pilot PDU and MDU 2 will initialize as soon as the two Battery Switches are ON and the LH Init Switch is ON. MDU 2 and the Copilot PDU will come online when LH Init and LH Master are ON. Obviously, with Advanced Realism OFF all four displays will come online as soon as the Battery Switches are ON.

Note that there is no “Master Avionics” switch in the cockpit, like most conventional simulator aircraft. There is no such thing in the actual Falcon Cockpit. The simulator avionics circuit is controlled by our software driver once the power up procedures above are followed.

Bleed-Air

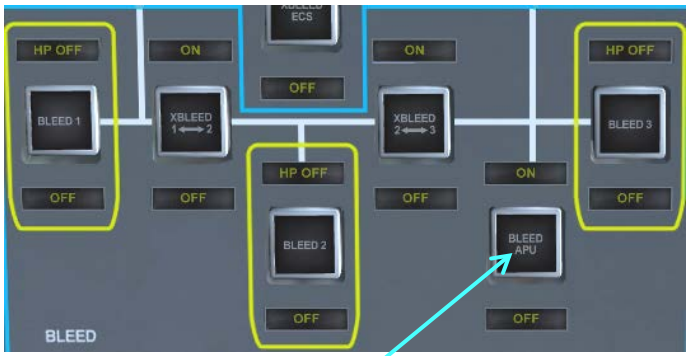
This is not something typically used in simulator aircraft, but in reality it is a very critical aircraft system. It drives the Environmental Control System (ECS), the airplane pneumatic systems, and provides pressure for engine start. As is the case in the real-world, none of these systems will work without bleed-air.

For ground operations and engine start, bleed-air from the APU must be provided.

Once the APU is started, locate the *Air Conditioning/Bleed-Air Panel*.

The BLEED APU switch must be in **ON or AUTO** position.

If *Advanced Realism* is OFF this will have already been done for you automatically.



APU Bleed-Air Valve Switch

Engine Start

If electrical power is established, the APU is started, and APU bleed-air is provided, the engines will have the electrical power and air pressure to start. **<u>If these conditions are not met, the engines will not start!</u>**

If you have *Advanced Realism* is OFF all of this should have been done for you automatically once the battery switches are ON. See Configuration Utility and System Realism.

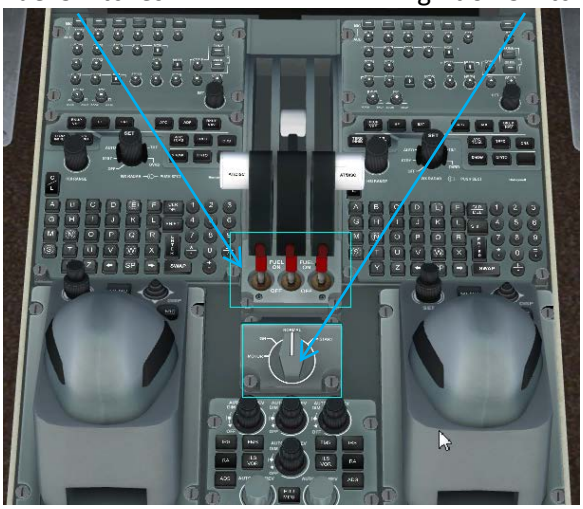
<u>Ground Start</u>

Before starting, the following criteria must be met:

1. LH and RH power must be available. See Establishing Electrical Power.
2. APU must be ON. See Establishing Electrical Power.
3. APU Bleed Air switch must be ON. See Bleed-Air.

Locate the following controls:

Fuel Switches Ignition Switch



FUEL CUT-OFF SWITCHES

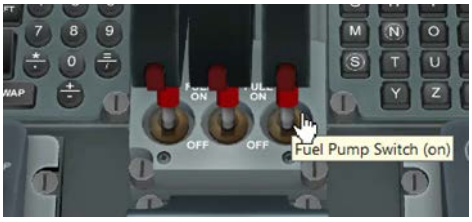


Figure 3 Fuel Switches

Three fuel cut-off switches (one per engine) are located on the pedestal. They have two positions: Fuel ON (Up) / Fuel OFF (Down).

ENGINE START SELECTOR

Figure 4 Pedestal Engine Start Selector

NORMAL: Normal position on ground and in normal flight condition
START: On ground, initiates the starting sequence of the selected engine
IGN: Activates continuous ignition on all engines.
MOTOR: Enable motoring

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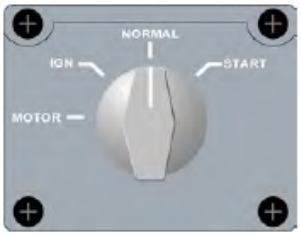
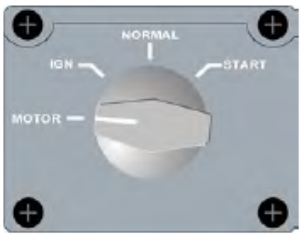
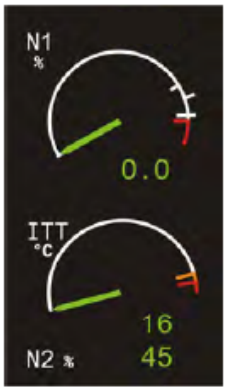
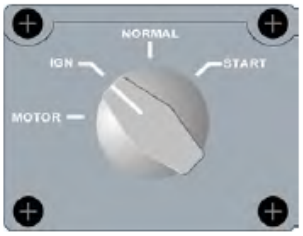
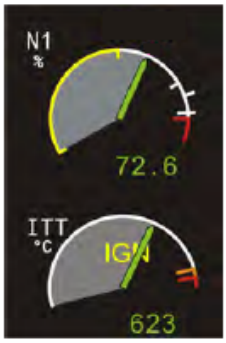
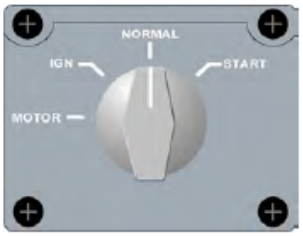
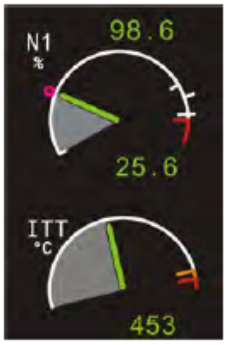
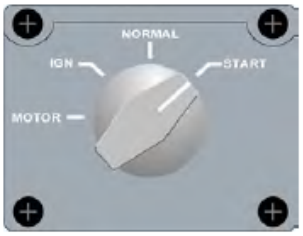
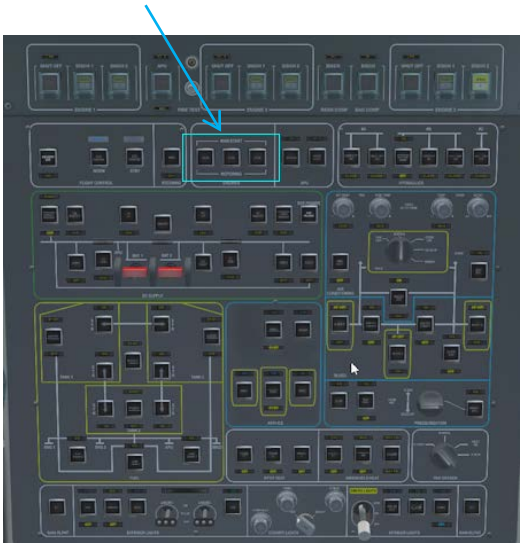
 Engine start selector	MOTOR: enables motoring and stop manually the starting sequence		
	IGN: activates all engine igniters simultaneously		
	NORMAL: normal position in normal flight		
	START: initiates the starting sequence of the selected engine. (spring-loaded position)		

MANUAL START PUSHBUTTONS

Engine MAN START pushbuttons are used for in flight starting or engine motoring.

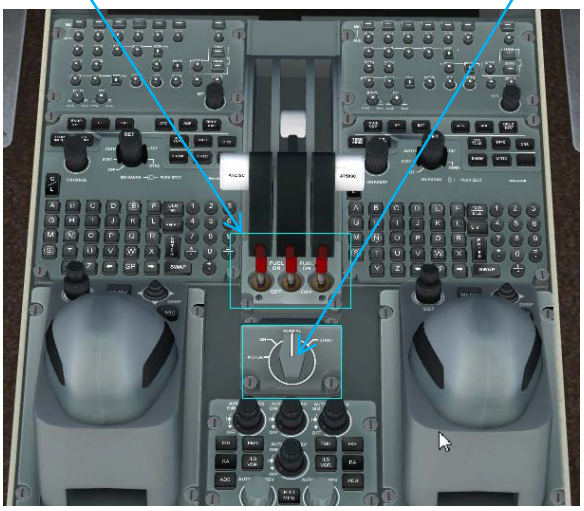
Locate the following controls:

Overhead Start Switches



Fuel Switches

Ignition Switch

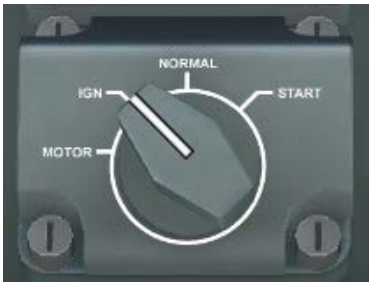


1. Enable motoring my moving the Ignition Switch to MOTOR.

2. Make sure the fuel switch for the respective engine is in the ON (up) position.

3. With the Ignition Switch in the MOTOR position, and the engine's fuel pumps switch ON, press the manual start for the respective engine on the overhead panel

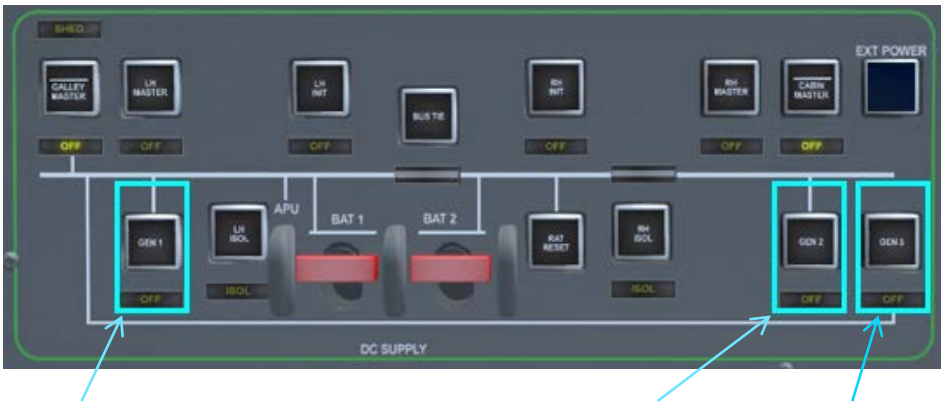
SIMULTANEOUS SEQUENTIAL START



To start all engines simultaneously, move the switch left (right click) to the IGN position. This will start all engines in sequence (left, right, center). This is the equivalent to pressing Ctrl + E in the simulator.

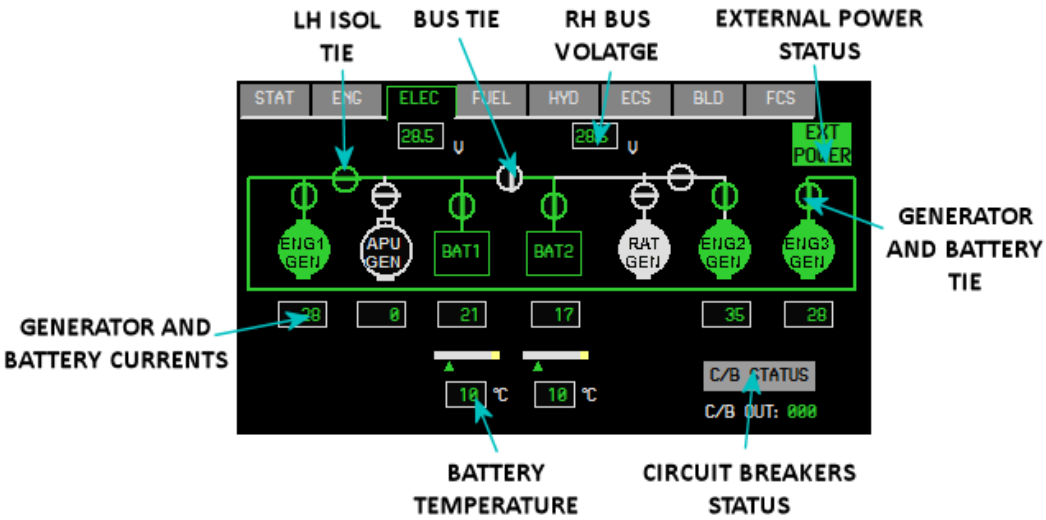
After Engine Start

Locate the Power panel on the overhead. Once an engine is started, press its generator switch (GEN) to bring its electrical generator online, to power the aircraft systems during flight and take the load off of the APU. Once generator power is established you can shut down the APU. All of this will be done automatically if *Use Advanced Realism* is OFF.



GEN 1 (left engine) GEN 3 (center) GEN 3 (right)

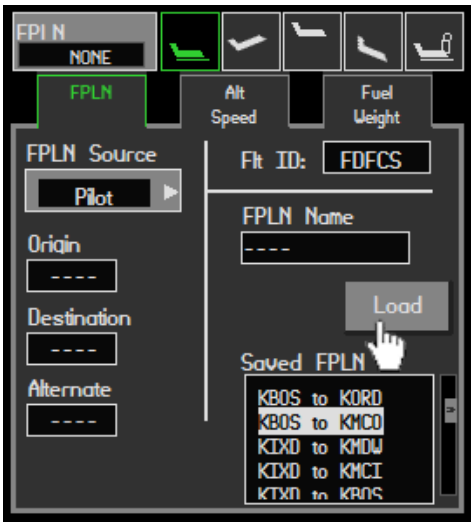
Electrical status is displayed on the MDU 2 ELEC synoptics page. See the handbook *Electrical Systems.pdf* for more details.



Flight Planning

Many of the features of the Flight Management System (FMS) require a flight plan be filed and loaded into the system. See page 14 of the handbook Falcon Avionics Quick Start.pdf for more details on the FMS and flight planning. Below is a simplified step by step to get your flight started.

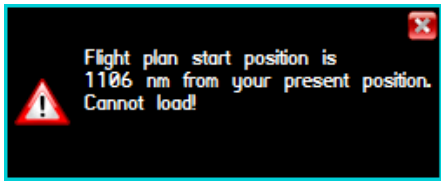
Loading a Flight Plan



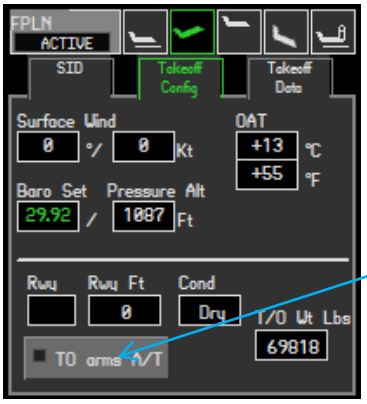
Locate the Flight Planning section on MDU 2. The Falcon utilizes standard simulator flight plans (*.PLN files). The stored flight plans for the simulator will be listed in this box, by airport IDENT (Departure – Destination).

Scroll down the list for the desired flight plan and press **Load**.

Note that the aircraft must be located at the starting point of the flight plan. Otherwise an error message will be displayed and the flight plan will not load.



ARMING THE AUTOTHROTTLE



The FMS provides recommended Autothrottle settings. The values are calculated automatically when the flight plan is loaded. Optionally, you can have the FMS arm and set the Autothrottle automatically when the aircraft takes off, and reaches 400 feet AGL. To engage this features, go to the takeoff configuration page and select **TO Arm A/T**.

Autothrottle settings can always be overridden manually by simply changing the setting manually on the guidance panel.

LNAV and VNAV

The FMS can control all aspects of Lateral Navigation (LNAV) and Vertical Navigation (VNAV). LNAV will direct the aircraft guidance system to follow the waypoints in your flight plan to your final destination. VNAV will control your altitude/vertical profile.

Once takeoff is achieved, and control altitude (400 feet AGL) is reached, LNAV and VNAV can be selected on the Guidance panel.

LNAV Switch AP Master VNAV Switch

1. Press the AP Master switch. It will annunciate ON.
2. Press the LNAV switch
3. Press the VNAV switch

Note that there is no "*NAV/GPS*" switch as commonly found on simulator aircraft. This function is controlled by the LNAV function.