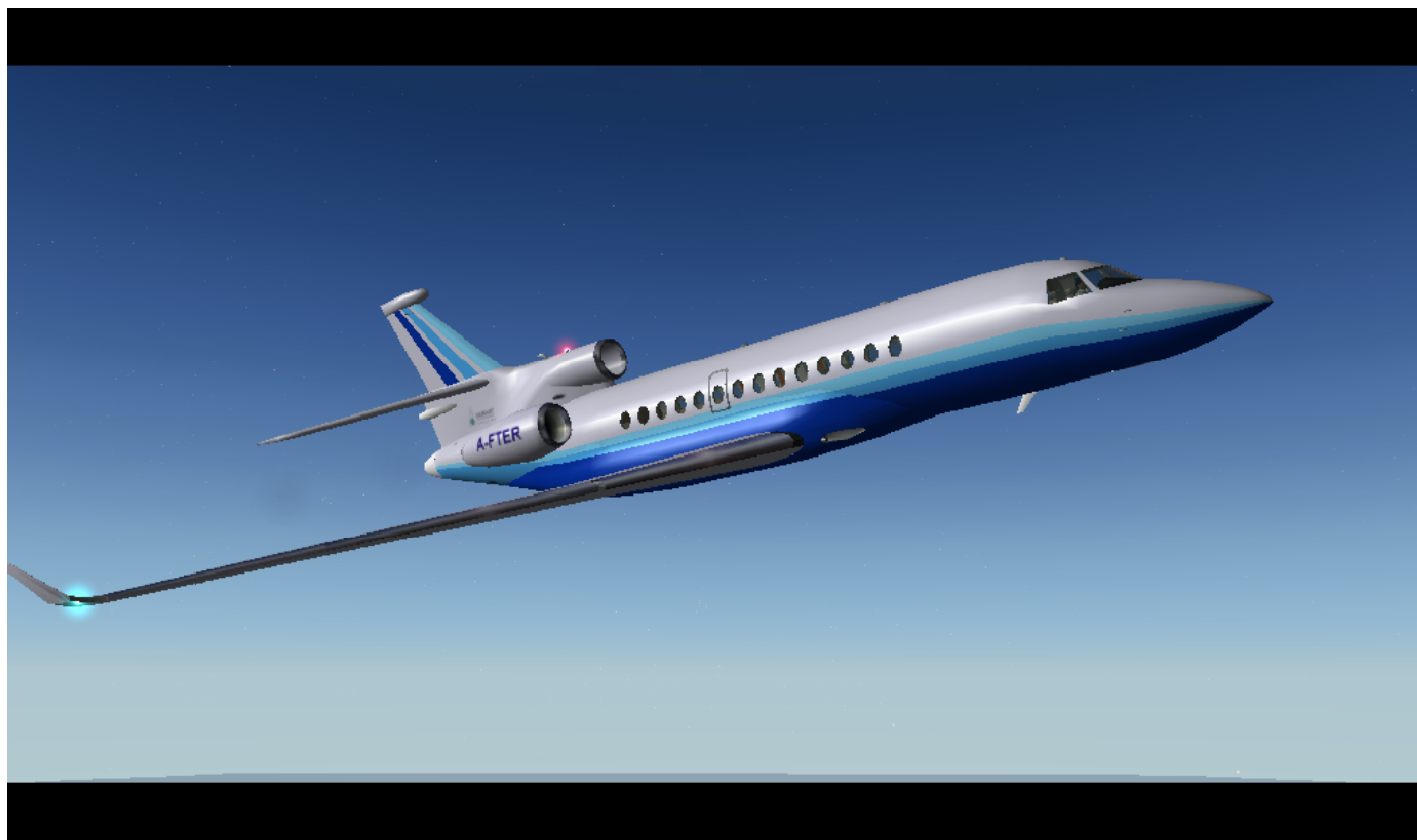


Falcon 7X Manual



Design for the fly simulator X-Plane 9.21rc2
Not sure it will work for other version
Build by After
Site : <http://afterfree.free.fr>

It took me several thousands hours to build it
Fell free to comment or to say just thanks if you did like it
All files included with the plane are
Not for sell
Not for repaint
Not to be modified
Not to be copy to build an other plane
Not for commercial use
Not to be used for commercial vidéo or picture.
Feel free to make no commercial picture or video.

Recommendations from the author

For best result, view must be set to 65° for a résolution of 1024 x768 , increase to 75° for larger display
In X-Plane, go to menu Settings => rendering options
lateral field of view => 65° or more
For fps optimisation, better result is obtained if you set X-Plane resolution equal to the resolution of your computer screen.

Some plug-in may cause disfunction of the Falcon 7x and X-Plane program Quit
In this case, clean up all your preferences folder (in Output folder) and restart X-Plane.

Take time to look outside

All part have been done using 3D software Blender

Moving part on the body are:

- Door entrance
- Flap
- Roll spoiler
- Aileron
- Horizontal stab move with the trim
- Reverse engine door
- Gear and door gear
- Speed brake
- Slat
- rudder
- elevator
- RAT can be deploy



Using 3D option, you can also take rest in the full equipped galery, don't forget to switch PA on before leaving the cockpit.



Mouse area to control the Falcon 7X

Here find bellow the principal area working with the mouse

I recommend to zoom if you got difficulty to control the buttons



Quick start up

This plane is very sophisticated and use all systems available in X-Plane
But as I know most of people don't want to read the manual,
here is the main procedure to take off quickly with engines running.

- Go to Center screen

Click here to go to page FCS



Click on TOT button
Take off Trim

Put flap to position 2
using your joystick

- Go to Left screen



Release brake
by pressing
Brake

- Put full throttle and take off
After take off, press button GEAR on FCS page to retract gear

Enjoy flying,
Alarm will tell you to retract flap and gear if you forget it.

Cockpit Presentation



**All red arrows show moving parts, these parts can't be moving using mouse
Waiting for Austin to provide manipulators.**

How to use 3D cockpit

I see sometime some remark saying that it is difficult to use 3D cockpit
So follow this instruction and you should not have problems.

Don't use the option Menu / view / Toggle 3-D because it is very difficult to click a button with the mouse using this option

Instead:

Go to menu settings / Joystick & Equipment

On page Buttons:Basic , assign one button of your joysticks to View: toggle 3-D cockpit

On page Keys set a key panel to the following instruction

For AZERTY key board but you can assign the key you want

Z to view/pan_up

S to view/pan_down

Q to view/pan_left

E to view/pan_right

By default rest of key should be set up correctly

Left to general/left

Right to general/right

Up to general/up

Down to general/down

PageUp to general/forward

PageDown to general/backward

And that is it

navigate in the 3D cockpit using your preset key and use the mouse to click where you want.

Very easy.

Left screen (right screen is almost identical)



PA system indicator

Main Alarm area

Multi screen display

Alarm area for
Speed brake on
Reverse on

Alarm area for
Parking brake
Gear overspeed
Flap overspeed

Click here to
change pages



Click here to
switch Freq.



Click to increase
or decrease Freq

Decimal



Central Screen

6 different pages can be displayed on central screen

Click on arrow to change page

NAV Page



Nav1 arrow

Nav2 arrow

ADF1 arrow

ADF2 arrow

FCS Page



All graphic green parts are moving and show the position of elements

Speed brake arm button

Auto brake selection

Art stab mode

Gear button

Take off trim button

Trim adjust button (Trim icon can be dragged)

Graphic showing flap position, speed brake position and slat position

All moving parts are graphically represented

ENG page



APU on/off and start

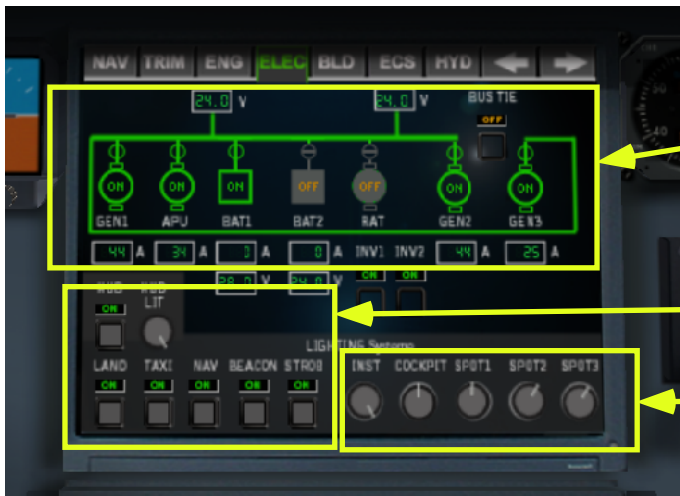
Button to start engine

Button N1 syncro and FADEC

Anti-ice per engine



ELEC Page

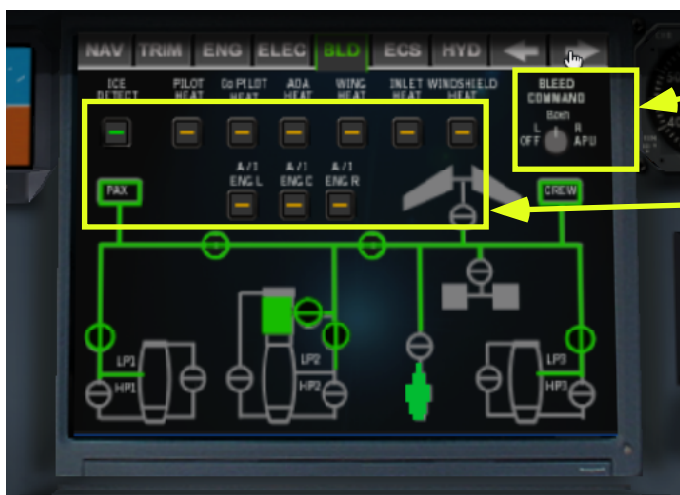


Generators and batteries on/off

Lights On/Off

Cockpit Lighting reostat

BLEED page



Bleed command

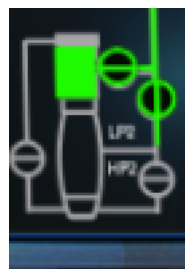
Ice protect commands

Example of graphical representation in function of bleed and anti-ice switch for central engine

All OFF



Bleed ON



Bleed + Inlet heat



Bleed + Inlet heat + Anti-Ice



ECS Page



Pressurization system

Bottom screen

5 different pages can be displayed on central screen

Click on arrow to change page

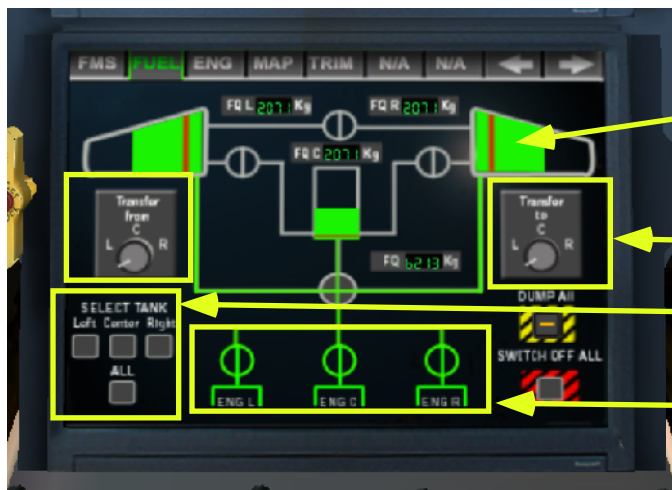
FMS and Radio page



By clicking on white triangle
you can change Frequency

By clicking on S button,
you can switch frequency

Fuel page



Graphic represent fuel quantity in left and right wing
and in center tank.

Fuel transfert buttons

Fuel tank selection

Shut off fuel valve per engine

Engine page



same as the one in center screen

Bottom screen (suite)

Trim page



same as the one in central screen

Map screens

It is fixed map and I limited to only 3 maps, plane is already to much overloaded by instrument

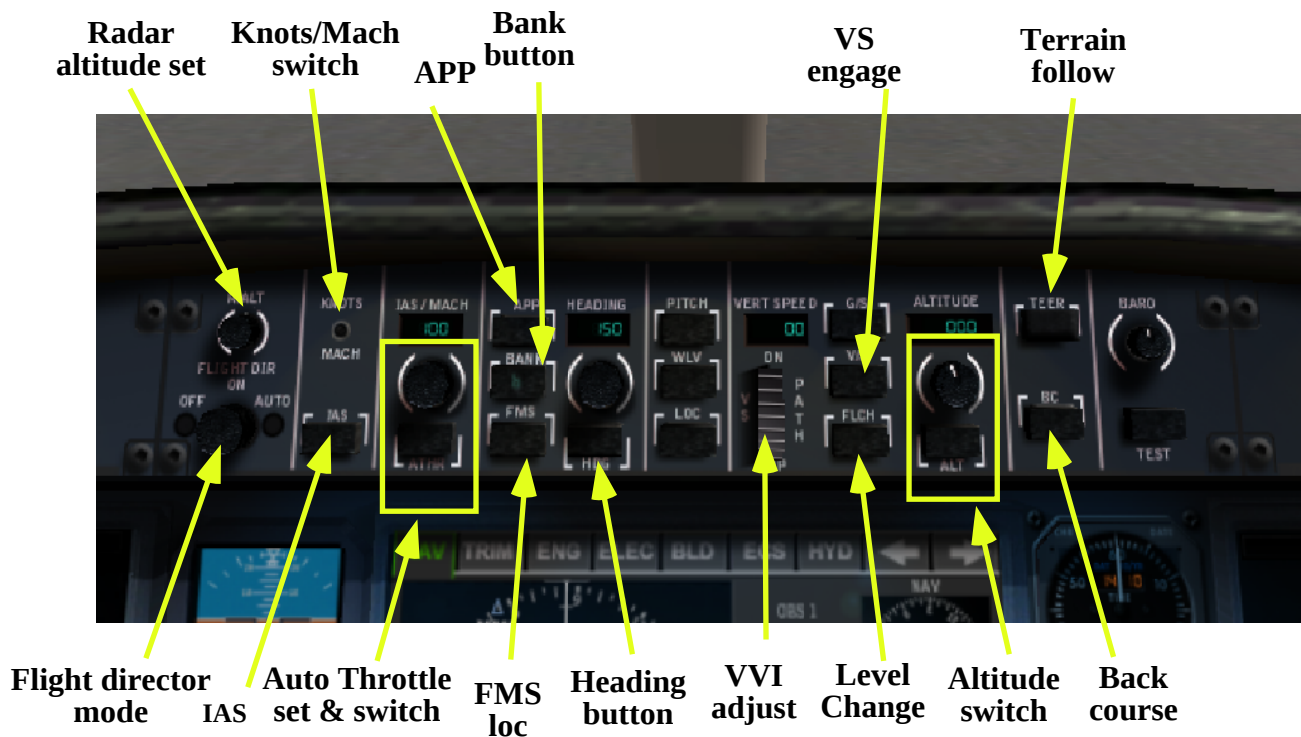
The cross of the two red line show the plane position in real time on the map
The plane green icone show the heading of the plane and bellow there is the
Position of the plane in the map is just an indication due to the accuracy of the maps.



If the plane is outside the maps, red lines are not displayed.

PA panel

Like standard X-Plane PA panel



Note:

Bank button you can select a bank from 1 to 6 to be used by the PA when you engage the heading

Note: PA is working fine if you don't make mistake

NEVER go over the maximum speed limit of the plane, PA will disfunction.

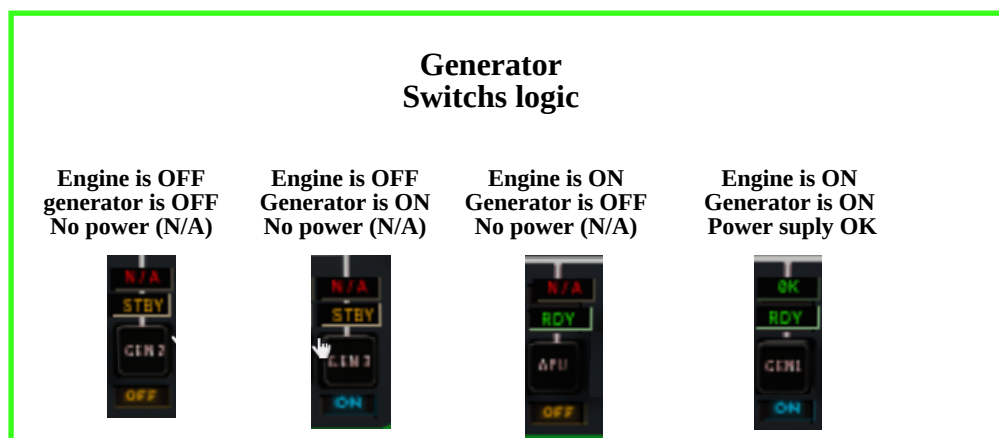
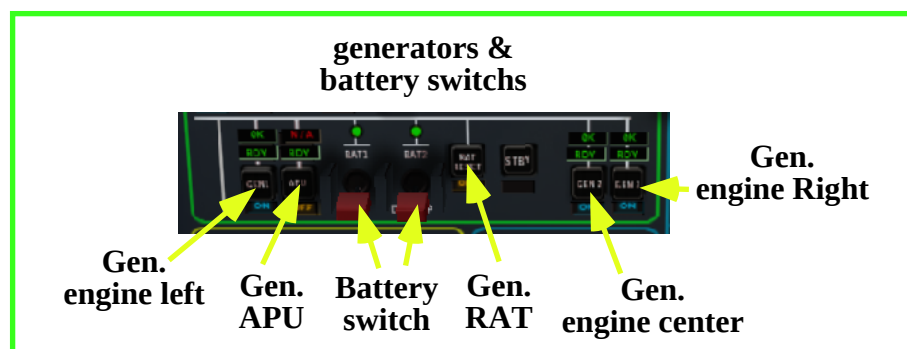
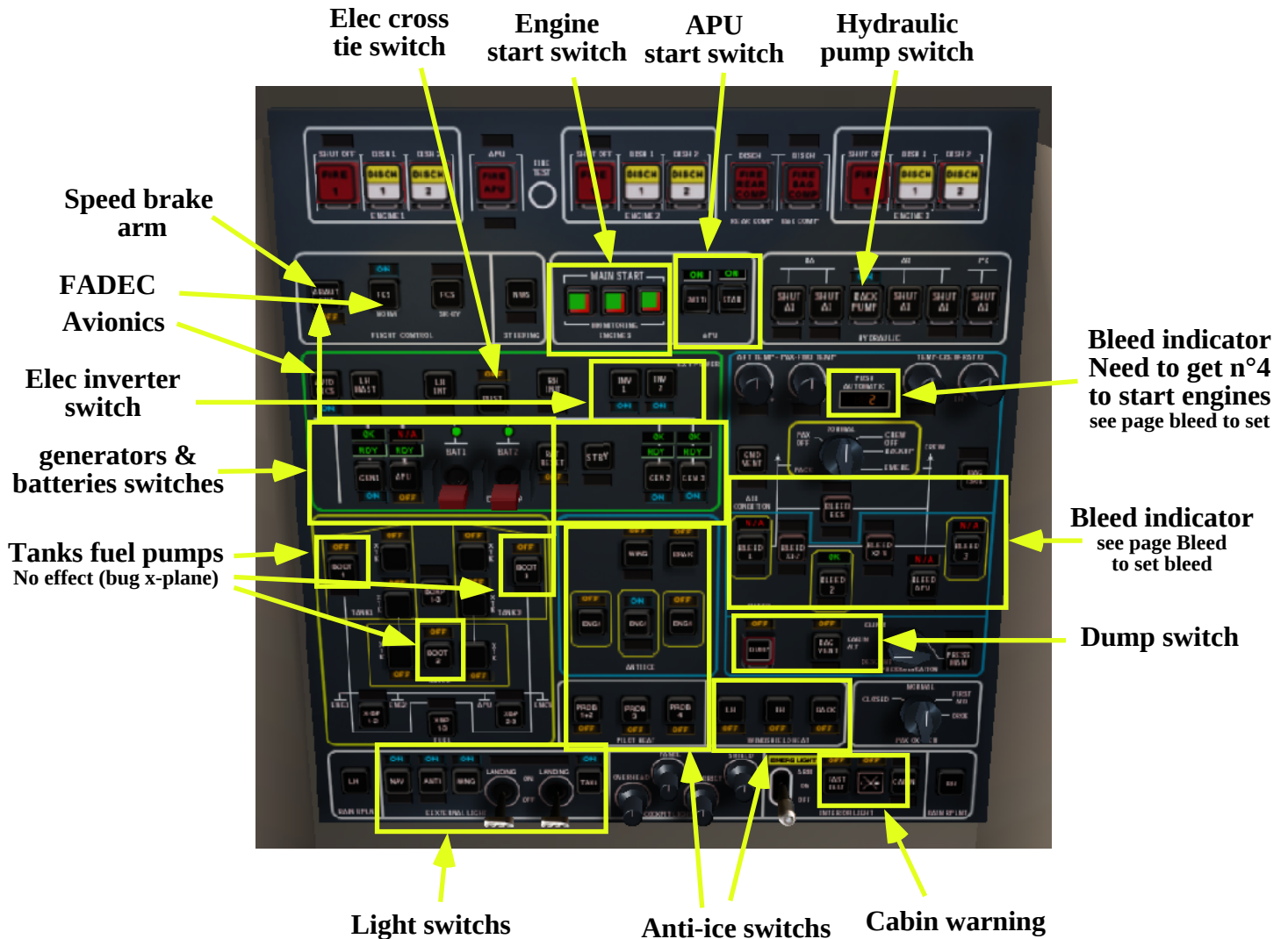
Be carrefull at vvi rate, to much vvi rate can cause the plane to slow down to much and PA will not work corectly.

Max suggested vvi 2500 or 3000 if you have enough speed

Be carrefull at the FLCH button, to change altitude, better to set a new altitude target then press VS button and set vertical speed rate.

Forget the TEER buton, is gadget

Overhead panel



Anti Ice system

The Falcon 7x is equipped with an anti ice system

There is 7 ice detector, each detector get an alarm and there is 7 switch to provide anti ice to the parts needed

Ice detection alarm on left main screen

This alarm will detect ice from any detector

Icing conditions exist when:

- The OAT on the ground and for take-off, or TAT in flight is 10°C or below, and visible moisture in any form is present (such as clouds, fog with visibility of one mile or less, rain, snow, sleet or ice crystals),

Or:

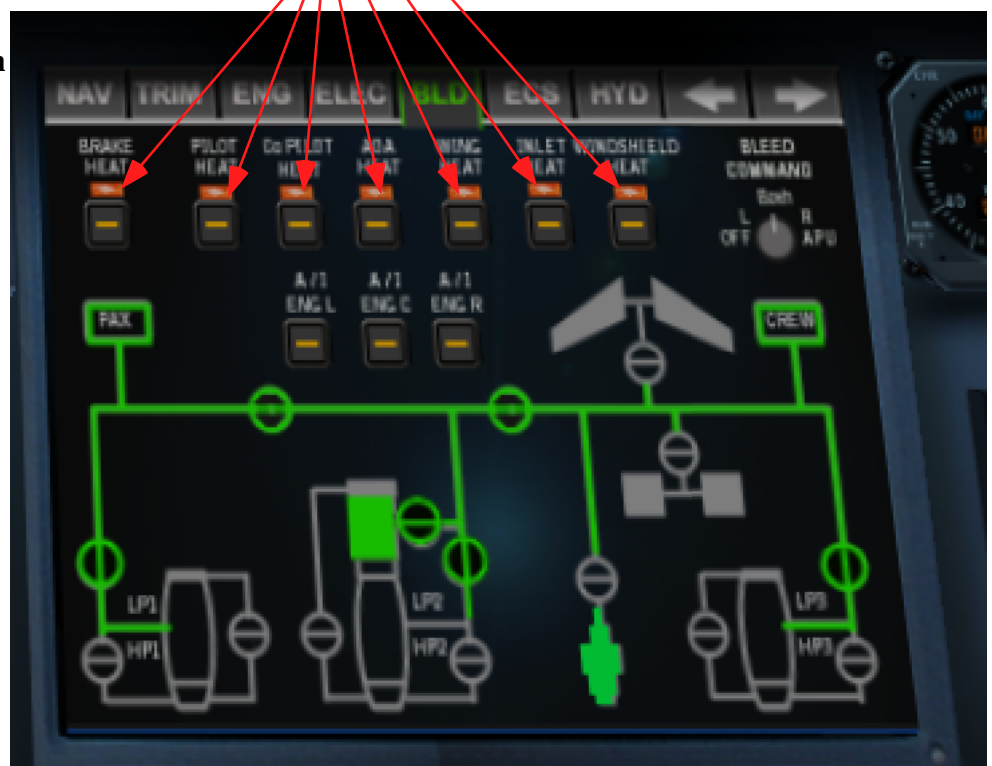
- The OAT on the ground and for take-off is 10°C or below when operating on ramps, taxiways or runways where surface snow, ice, standing water, or slush may be ingested by the engines or freeze on engines, nacelles or engine sensors.



As soon you get ICE alarm, go to BLD page in central screen
Red light will show you where ice is detected

Press on the corresponding button to activate ant-ice

If ice is present for a long time, it may take some time to the anti-ice système to remove it



Different case

Anti ice OFF
no ice detected

Anti ice OFF
Ice is present



Anti ice ON
and Ice removed

Anti ice ON
but Ice not yet removed

Compute the weight in kg of ice you are carrying
If PT is Red

Ice weight (IW)
 $IW = PT - (PF + PE + PL)$

PT should never exceed PM

PF= Fuel weight in kg
PE= Empty weight in kg
PL= Load weight in kg
PT= Actual Weight in kg
PM= Max weight in kg



Engines start up procedure

In case you want to start from zero with all switches off
Here is procedure

- Switch battery ON (overhead panel or main panel)

- Switch avionics ON (overhead panel or main panel)

- Go to page ELEC in central screen and page FUEL in bottom screen, if you have switch off all switches, you should have screen like these.

This is the worse case where you can see that battery 1 is completely flat (0v) because you was reading the manual and during this time the battery got flat :)

- Let understand the logic of these generators switches

There is one generator per engine (3 gen), one generator APU, and one generator for RAT (Ram air turbine)

Engine is OFF
generator is OFF
No power (N/A)



Engine is OFF
Generator is ON
No power (N/A)



Engine is ON
Generator is OFF
No power (N/A)



Engine is ON
Generator is ON
Power supply OK



By clicking on the generator icon,
you switch the generator to ON or OFF

You can click also on Battery icon to switch it OFF or ON

- Select fuel tank by clicking here

- Open Fuel valve engine by clicking on icon here

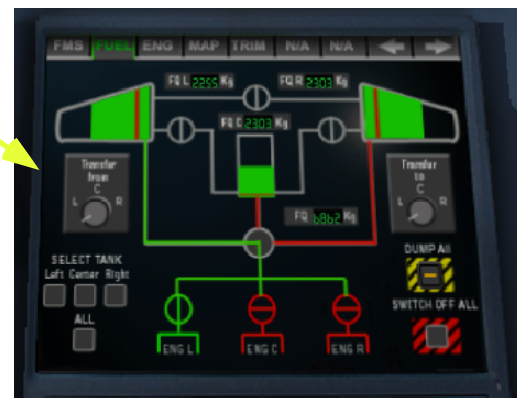
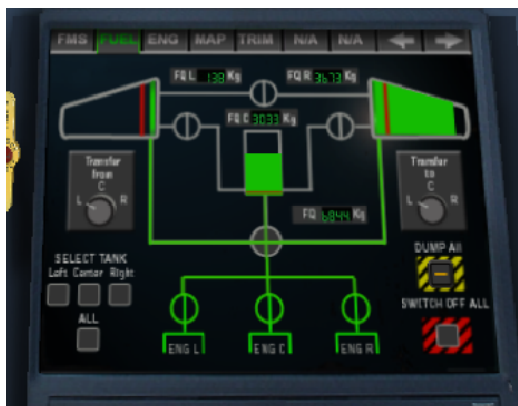


Avionics Battery



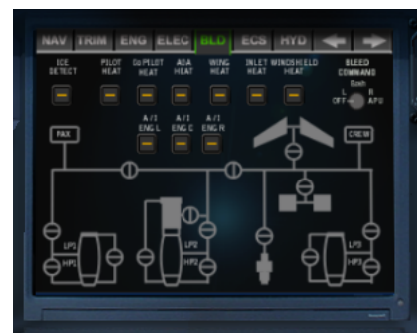
You should have somethink like these if you have select
Left wing fuel tank and open only Engine left fuel valve.
Better select all fuel tanks and open all engine fuel valve.
Note also that from this screen you can transfer fuel

Example here
where left wing fuel tank has been transferred to right wing tank and center tank.



Better get an equal repartition of fuel to avoid any
trouble during take off and fly

- go to page BLD on central screen, in this example everything is OFF (just to show you)



- Go back to ENG page in central screen and start APU by clicking ON/OFF button and Start button.

- Go to ELEC page on central screen, the generator APU should look like this



- Click on APU generator icon to start the APU generator, it should look like this



- Go to BLD page The APU icon should be green showing that APU generator is running



- Turn BLEED command button to APU position note that valve icon is now open



- Go to ECS page and switch the Hydraulic pump to ON note: if you see that hydraulic pressure is still 0 with hydraulic pump ON, it is probably because your batteries are flat.



- If your batteries are flat, goto page ELEC and switch button BUS TIE ON, that will connect your plane to a ground generator , hydraulic pump should then give you pressure. You will need also in this case of battery failure, to have the BUS Tie ON to start the engine.

- Keep page ELEC open on central screen and Goto to page ENG on bottom screen

- Assuming you open all fuel engine valves, select start engine button (red button) then click and hold it untill it becomes green, note that on ELEC page , the corresponding generator icon will change color.

- Click on generator icon of the corresponding engine to switch the generator ON

- Switch ON the Inverter 1 and 2 (INV1 & INV2)

- You can then switch the Bus tie OFF if you have use it. Your screen should look like this.



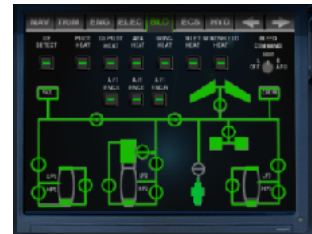
Your engines are running
Lets go for a take off check list.

Before take off check list

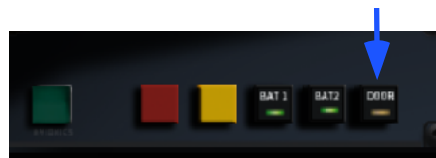
- Go to page ELEC and switch off APU generator
- Go to page ENG and switch off APU engine
- Goto to page BLD on central screen
With BLEED command button , you can select Left , Both, Right bleed
- Select position Both
- note: you can see graphically the circuit selected coming green (nice isn't it)
At least you start to understand why this plane takes me so many hours. :)
- Ice detection system is automaticly ON
- Switch Anti -Ice button if necessary or if you get ICE alarm before take off

Play with these switches and look at the graphic representation becoming green when they are ON
So many Hours :)

You should obtain this if everything is ON



- Close the door (or shift F1)



If all passengers are on board of course

- On ENG page, switch Sync N1 ON and FADEC ON
- Go to ECS page and switch Seatbelt ON and no smoking ON

Assuming you are on position for take off

- Go to Trim page and switch ON TOT button (take off trim)
- Switch FCS mode ON (art stab)
- Set flap to position 2 for take off

Assuming you don't use FMS and NAV

- Set your planed fly altitude on PA panel
- Release brake
- Put full throttle
- The plane should take off at around 160 kts (depending on your weight)
- Retract gear (there is alarm if you don't)
- Press VS button on PA panel to control your climb rate (2000 vert speed is ok)
You will notice that the fly directory button will switch to Auto
- When you are at 190kts, retract flap (there is alarm if you don't)
- Enjoy your fly.

After take off check list

Switch off landing light and taxi light
Go to page ECS and set cabin altitude to 3000
Check Pressurization rate set at 500

No smoking switch off (yes you can in private jet)

Seat Belt switch off

Adjust cruise speed
normal cruise speed is Mach.80 at 30 000'

Check Fuel quantity



Before landing check list

Get ATIS and adjust your altimeter using BARO button on PA panel and Barometer on ECS page
Set cabin altitude to 0 and check pressurization rate to -500
Seat belt switch on
No smoking switch on
Reduce your speed to 250 kts
Set descent rate around 2000

Flap limit are
position 1 200 kts
position 2 190 kts
position 3 180 kts

Lower Landing gear

Go to page TRIM
Switch S/B ARM on
Switch Auto Brake to 3

Landing speed depend on your weight , 125 kts is ok, but the Falcon 7x can land at 104 kts with minimum weight 38 287 lb (8 passengers, NBAA IFR reserves)

After parking check list

Open DOOR

Go to BLD page

Switch off BLEED COMMAND

Switch off ICE DETECT, PILOT HEAT etc...

Go to page ECS

Switch off Hydraulic pump

Go to page ELEC

Switch off Land light, taxi light
and NAV light

Switch off HUD

Switch off the 3 engine generators

Switch off Inverter 1 and 2

Go to page Fuel (bottom screen)

Switch off fuel Valve (one per Engine)

Click on SWITCH OFF ALL button
to close all pumps fuel off



Switch OFF Avionics

Switch OFF Battery 2

Switch OFF Battery 1



Cockpit Lighting

The Falcon 7x use the new x-Plane v9 lighting possibilities
So you can create your own lighting environment.
Go to page ELEC in central screen, there is 5 rheostats to adjust the cockpit lighting

- Inst will adjust instrument brightness
- Cockpit will adjust general lighting of the cockpit
- Spot 1 will adjust blue spot light
- Spot 2 will adjust yellow spot light
- Spot 3 will adjust brightness on some reading



Some examples of lighting

Day view with all rheostats to 0 and Inst to middle



Night view with same adjustment



Day view with all rheostats cockpit to max



Night view with same adjustment



Night view with only spot 1



Night view with spot 1 and spot 2



Cockpit Lighting (continue)

Night view with spot 1 + spot 2 + spot 3



Night view with spot 1 + spot 2 + spot 3 plus little cockpit light



Get your own lighting

Open Falcon 7x with PM

Go to Standard / Viewpoint / Lights

Adjust color by modifying light parameters



Here some examples





Electrical RAT system

The Falcon 7x is equipped with Ram Air Turbine (RAT)

The RAT will be deployed automatically to provide emergency electrical power source in case of generators failure.
(if you want to test the RAT, just click on RAT generator icon in ELEC page)



Suggested landing speed with full flap and 15000 lb of fuel 125 knots

The plane can also land as the spec at 105 knots with the NBAA IFR reserves fuel.
(full trim down)

Other recommendation on landing:

As it is impossible in Plane-Maker to simulate reverse on 1 engine only like the Falcon has, apply forward stick to get the nose down before to start the reverse.

Aircraft description

(From Dassault)

Spec of the Falcon 7x are close as possible from the original

Limitations:

Weights

Maximum ramp weight	69,200 lb	31,389 kg
Maximum takeoff weight	69,000 lb	31,298 kg
Maximum landing weight	62,400 lb	29,304 kg
Maximum zero fuel weight	41,000 lb	18,598 kg
Equipped Empty weight	33,200 lb	15,060 kg
Basic operating weight	34,272 lb	15546 kg

CG location

CG limits: From 38.5% of Mean Aerodynamic Chord (MAC) aft to 19.5% of MAC forward.

Fuel Quantity

The approximate total usable fuel capacity is 4,784 US gallons (18,110 liters) or 31,940 lb (14,448 kg) at a 0.803 kg/l density (6.7 lb/US gallon)

Speeds

Maximum Operating Speed (VMO)	370 kias
Maximum Operating Mach (MMO)	0.90

Altitude and Temperatures

Maximum operating altitude	51,000 ft
Airport altitude (maximum)	14,000 ft
Operating temperatures at sea level	-54°C to +55°C

GUARANTEED PERFORMANCE:

Approach Speed (Vref).....104 kias*
38,287 lb (8 passengers, NBAA IFR reserves)

Takeoff Distance
Balanced Field Length
67,811 lb5,505 ft**
(8 passengers, full fuel)

Landing Distance
38,287 lb2,262 ft**
(8 passengers, NBAA IFR reserves)

Range
(Full fuel, 8 passengers and baggage,
3 crew, 34,272 lb Basic operating weight,
NBAA IFR reserves, Mach .80* , ISA, no wind ..5,950 nm**

* Guaranteed Performance (+- 3%)

** Guaranteed Performance (+- 5%)

Speed Limitations:

SF1	200 KIAS
SF2	190 KIAS
SF3	180 KIAS

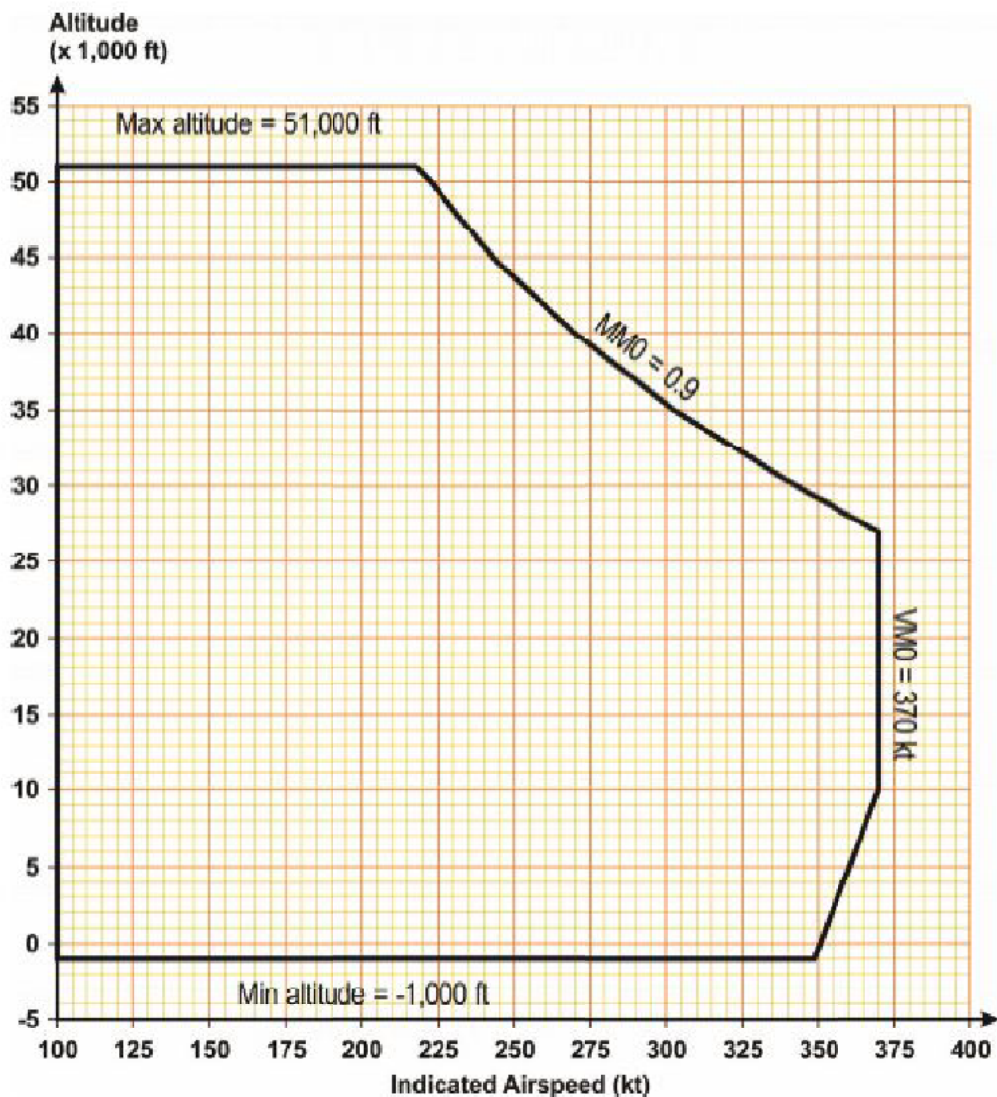
VLO	190 KIAS
VLE	245 KIAS

VA	218 KIAS
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MAXIMUM OPERATING LIMIT SPEED: VMO / MMO

VMO / MMO ENVELOPE

Unless otherwise specified, limits are expressed in terms of indicated values.
Instrument error is assumed to be zero.



CAUTION

The maximum operating limit speed VMO / MMO must not be deliberately exceeded in any regime of flight (climb, cruise, descent) unless a higher speed is authorized for flight test or pilot training.