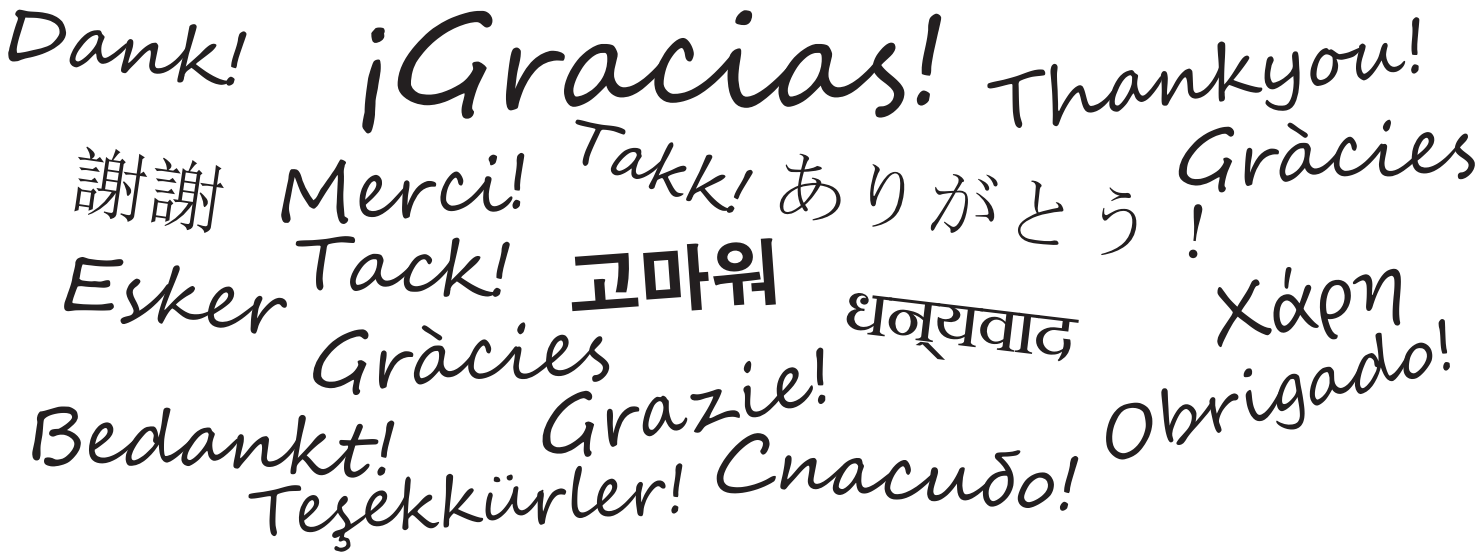
JETSTREAM 32

FLIGHT PLANES



Hello again!!

Yes, I know, I know. It is the same graphic I used for giving you thank you for your support to the CRJ200, but I wanted to say it again, so again I repeat the graphic. It is easy and fast, because this of making manuals is really boring!! and you want to fly this plane fast without reading!

Anyway. Here I am again, making “knock knock” to your computer door trying to make you fly this, my last creation, and hope I am success with this, because believe me is hard making them fly as people would like to see.

Some things changed in JRollon life. Had a little rascal pilot called Teo who never stops smiling but who takes a lot of time changing nappies, feed, bath.. etc... and I get married to my lovely wife. :)

I started the Jetstream project in Dec-January 2012, and never figured that was going to take so long to end it. Definitely time consuming in my little copilot and Laminars X-Plane 10 planes makes me advance really slowly in my “private” creations. Remember that I thought that I could end it before my wedding in July, but I was able only to finish the modelling of the plane and cockpit. The cabin was ended but not the texture of it... and of course all the animation and systems where there to do.

After honeymoon trip and relax of creating planes (believe me I have wings.. not like red bull!!) I started working in Laminar planes again.. but I couldn’t continue the work in the Jetstream. No way.. too hot, too depressed after the vacations...

But I started again.. and I set a target date. Xmas. To reach that one I had to work every single free moment that Laminar work let me have. Weekends, full nights, time for eat... any of them. And must say that without the help from my wife this plane wouldn’t be out. So cheers for her!

What can you expect from this plane?

Well, as you can see there isn’t any glass screen. No FMC (I wanted to be the first to release a plane with FMC inside the 3D cockpit. Did it, change page..) no jet. Back to propellers. Lower sellings for sure (?!? demonstrate me I was wrong!!).

Why then? People would remember that I was making an Airbus 320, don’t you? Even the 3D cockpit modelling was ended. Why change my mind and send away all work done? (please I am going to cry..... argg!) Because I saw that we couldn’t. Philipp is really great.. he could do it.. in how many years???? That plane needs really important support. A big team. Bigger in number than Laminar. We are not PMDG. We don’t have their budget.

I decided to go one step back and then make 10 forward. Yes you heared well. 10 or 100 forward... why? maybe you don't consider this plane a step forward, but for me it is. The only plane I programmed something for it before was the Mentor. But maybe 20 lines of code for controlling the radios and other little graphics stuff.
The Jetstream has over 4000 lines of code fully implemented the systems of the plane, trying to do match as close as possible as the real one, and I don't know if I did it, but for sure I enjoy flying this baby.
But not only systems but something that was around my head for long time. The starting of a maintenance system!
Well.. don't run with the credit card now because of that to buy the plane. I don't want to trick people. The plane right now in the 1.0 version has not got any maintenace system programmed. I don't know what it will be in the 1.x version. BUT what it got is some situations the plane could need a maintenance system. Let me explain myself:
I have been flying looong time sim planes. In Fs2004, fs9, FSX, X-Plane9 and now X-Plane10 (well I am not saying the truth... nowadays I don't fly so much, I am always inside "the hangar" building for others to fly). And I can say I was bored. All the planes would never fail unless you program a fail in the failure systems, so you would know that you could have a failure so you would be prepared (3D?? no no!!! XD).
Also you could set the maintime random failures.. that is nice.. but I always recomend people to DEACTIVATE that option inside xplane because some people may believe that they can be bugs...
What I always wanted was to make failures if you pilot the plane not correctly. Take in consideration those little clocks you never see where are they pointing at because never happened anything.
Now yes.. it can happen, so beware!

It has been hard. Very hard one more time! So this time I also want to say you THANK YOU because you support my work and let me continue working in this crazy world of planes and crazy pilots. Thankyou for buying the plane and not using that "test - free - version" from any torrent.

Really really Thankyou!

Javier Rollón Morán

SETUP

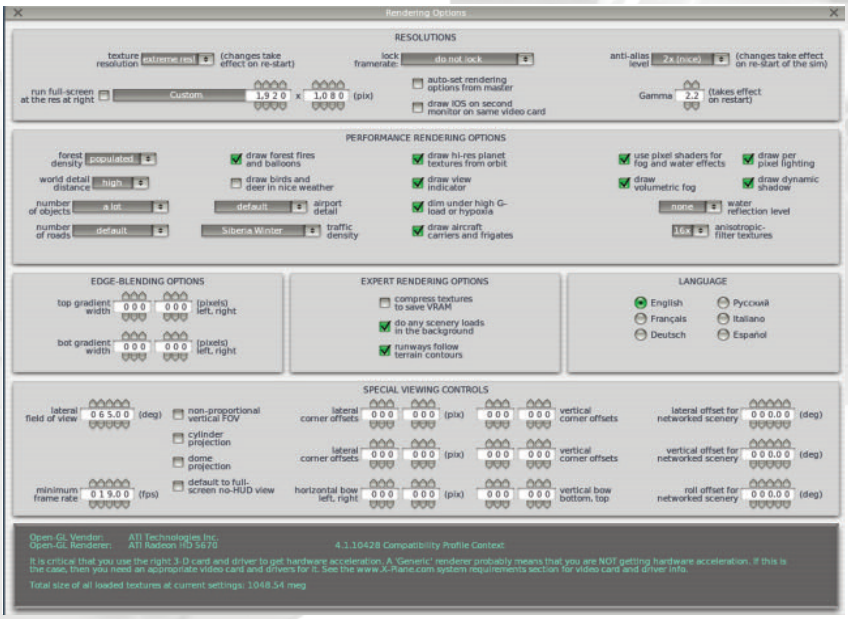
You may know my CRJ200. After some time Philipp made a great job with the programming and we could have good performance even in not really good computers.
The most of the impact was taken by graphical programming I believe.
The Jetstream don't have any graphical OpenGl programmed instrument. I don't know how to do it. Yes.. I know how to program, but only logic.
This plane don't need that graphics programming (maybe a little inside the radar) and that is why I chose it, but what I have seen is that the plugin has almost not impact in frames per second performance.
So the only thing in consideration could be the graphical memory that you have, because I use HD textures to reach those crisp panels and instruments.
64bits version is comming to X-Plane world.. and that is great news!! But at the time I am writing this lines the only version I got is the 32bits one. PLEASE read and stay alert of any news because for sure I will compile in 64bits, but first the beta has to end of that 10.20 version. And second I have to learn and try it before releasing. WE have flought 32bits for years. Don't think won't be a problem.

Minimun computer? well... In the CRJ200 I had several complains about this, because there were people that couldn't run the plane, but others with less systems, could.
I have no idea. I tried in the laptop of my wife.. that is one of the slowest computers I have ever seen.. and it was running with 20-22 frames per second...
Of course the more you have the better.
"If I buy the plane and it don't run in my computer because it are you going to refund my money?" no. Sorry but that is not because a problem of the plane. It is because the system is not good configurated. This plane, as the Mentor, Seamax, Javelin and CRJ200 is going to be for you until the end of the world (that according to the Maya civ. will be the 21 Dec of this year.... XDDD) so, in future you can update your computer and fly it there.
Numbers?

• iMac 21.5'' (bootcamp) i3 Radeon HD 5670 ATI 512MB GDDR3 - Normal conditions 22- 35fps - Rain CATIII 22fps

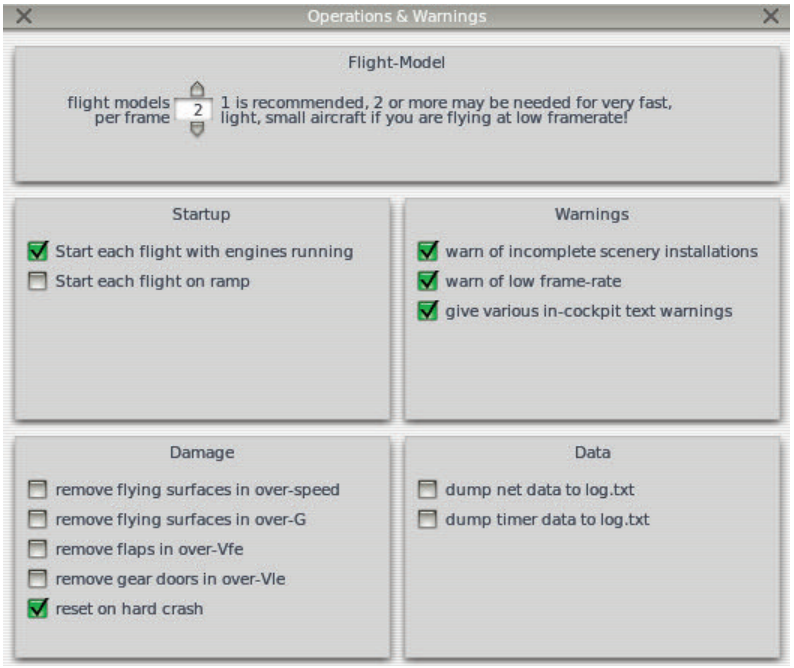
What if you have a computer with low VRAM. Well you can lower the textures settings, that I always recomend to let them be in "extreme resolution!" (that is only the default resolution they where created)

(Screenshot is from xplane9, but more or less is the same in xplane10).

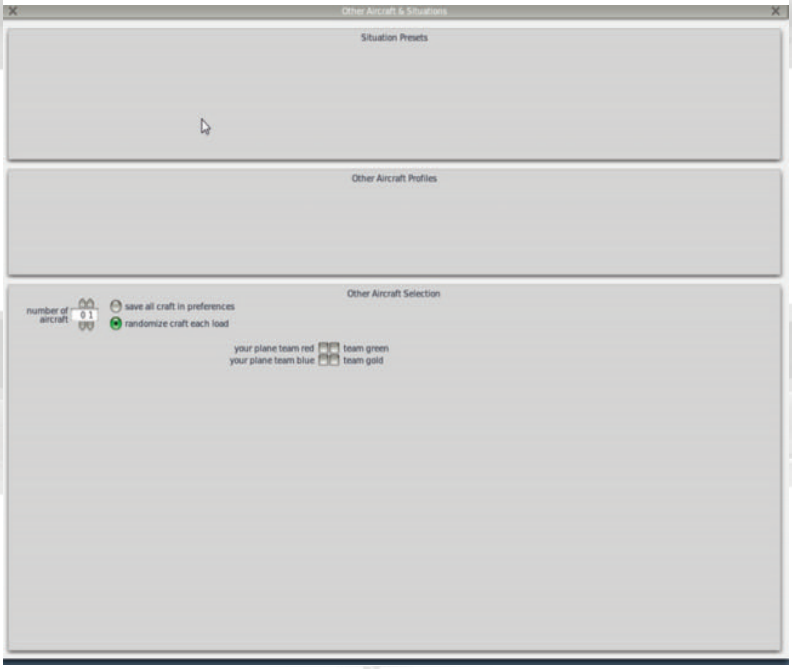


If you lower the textures resolution, you will safe VRAM but be careful because with lower resolution textures are blurred and you cannot see several important details, like text back illumination. Play with values until you have the desired result.

Inside the same menu of Rendering options, down to Operations & Warnings, you can set the number of flight models per frame. I recomend 2, but increasing this number decreases the performance. Play again with numbers until you find the result you like most.



And set the number of IAs aircrafts to 1 (only you) if you have problems with performance. I recommend fly this plane on IVAO or VATSIM where you can set this number to 10 if you want because online there is no such big impact on performance (computer is not calculating how other planes fly. They are flown by other users)

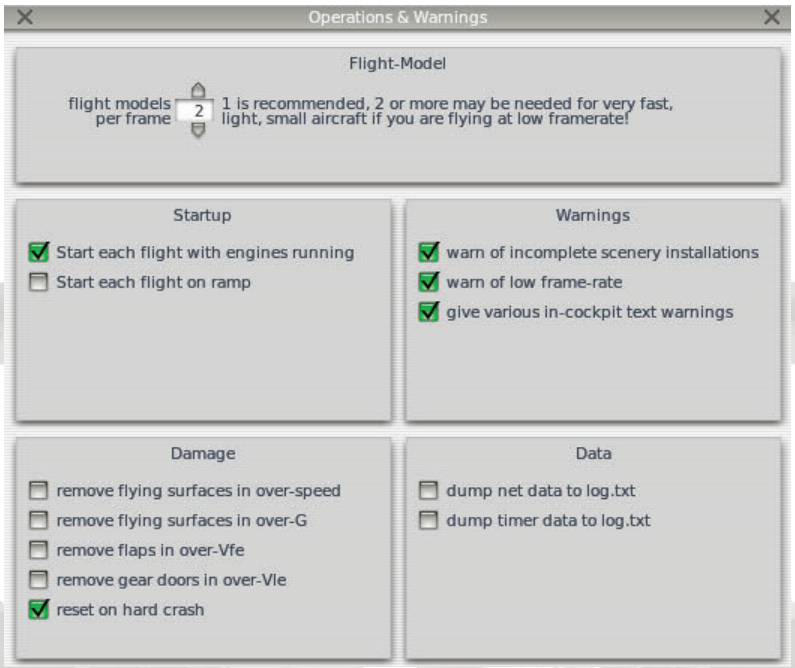


Important: If you want the Jetstream fly correctly with autopilot modes, then don't assign any axis to any trim mode (pitch, roll or heading). To it with button pressing (as the real one). If you don't do this, the plane will try to catch the autopilot mode but the first control that is going to obey are the trim axis, and because if they are axis always are making inputs to the plane.
The plugin deactivates your cutoff fuel axis, but it is better if you don't assign it to your joystick. It can interfere with the normal running of the plugin.

Also deactivate Random Failures on equipment failures to discart any malfunction on the plane done by xplane failure systems. As said the plane already has its own failure system.

ALSO: This plane uses a code inside that deactivates your assigned axis of your joystick in several situations (when you have locked commands..) You **WON'T be able** to assign any axis to your joystick while the Jetstream is loaded. You could Stop the plugin in the plugins menu, or load other plane and make the changes over that plane.
IT IS VERY IMPORTANT that once you have ended flying the Jetstream, you **DON'T QUIT X-Plane with it loaded.** You have to load other plane (any) and then when loaded, quit. ***If you don't do this, you will loose all your axis assignations*** but the throttle one. Specially when the controls al locked.

Some people ask where is the option to start the plane with a cold and dark situation. Well... it is below rendering options in operations & warnings, a option called "Start each flight with engines running". (this graphic is from xplane9, but in xplane10 is very similar).



VERY IMPORTANT

UPDATING XPLANE!!

As you may know Laminar research is always releasing new version of x-Plane. In case x-plane 9 there won't be any new version, so the final one is 9.70. The Jetstream will work always over it without any fear breaking it any update of x-plane 9.

BUT in X-Plane 10 a new update even they are final (more important to do this if they are beta) can break something it was working before. That doesn't mean they are doing something wrong, but they are increasing new systems that can make the old ones break.

Because I cannot work as fast as X-Plane updates, it is very important that you **NEVER** update xplane over your existing copy.

The way to do it is this:

1. Make a copy of your installed x-plane full directory. X-Plane let you use several copies if you move it into different locations. Of course with write permissions.

2. Update your copy.

With only this simple steps if something is not working, not only with the Jetstream but any other addom, you could go back to your older version to continue flying your favorite plane without any waiting to a fix for the new version. And when I release the update-fix then you would be able to fly in the new updated xplane.
Of course if new versions comes, always make copies, and delete old ones when you certified that the new ones works with all your addoms.

Sometimes is heavy to copy all the scenary.. BUT you always can move the scenery folders manually from the old version to the new one.. so nothing have to be copied in that case.
The installed Scenaries are in /Global Scenery/ and /Custom Scenery/. You could move those two folders between version anytime you want without loosing lot of time copying them.

Also you can install a Demo version that will include the latest version released, so you can try the Jetstream (or any addom) there before risking updating your usual version.

Please remember I am a only man, that works when I am in front of the computer and not sleep or don't have important problems to solve.. so always is good to keep your working versions very safe!!

VERY IMPORTANT2

BUGS!!

in case you find a bug I recommend you this:

1. Try to obtain the bug again so you can tell me when repporting what did you do exactly to let me reproduce the bug in my computer.

2. In case you have the bug confirmed, install a **CLEAN** version of X-Plane. Go to X-Plane.com and download a demo version. It will install the only necesary files to fly x-plane.

3. Install the plane into the DEMO version of x-plane and try to reproduce again the failure. If is not producing then there is something in your normal copy that is breaking the plane. Maybe other plugins you have inside installed. Not always the new addom is culprit of the mess!

4. If you have CTD (crash to the desktop - exit of xplane without asking) then maybe is related because your system don't have enough memory. Yes, maybe you have lot of memory but I have found sometimes corrupted memory or even not good managing of it in some systems.
Put your rendering options to the minimum and try to reproduce the CTD.
If that is the reason then I cannot do anything for it... you must update your system.

Of course this doesn't mean you are going to find bugs this way.. but in my years devoloping for x-plane I have seen almost all, and must say that the normal is that 95% times the bugs are produced because their systems configurations.

If you still find the error, then report to the forum of your shop the error and attach with it your Log.txt and crash-log.txt you may find in the main folder of your xplane installation.

Thanks! :)

BAE SYSTEMS

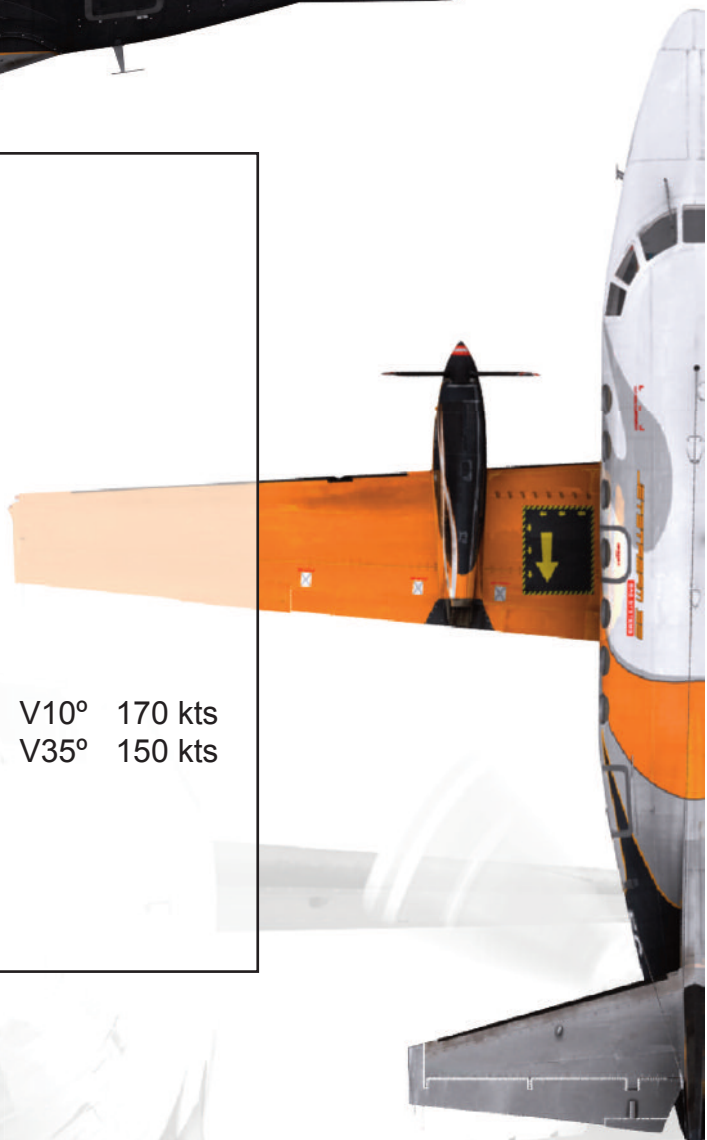
JETSTREAM 32

DIMENSIONS (external)		
Length	47 ft 1¾ in	(14.37m)
Wingspan	52 ft	(15.85 m)
Wing area	271 ft^2	(25.2 m^2)
Height	17 ft 5½ in	(5.32 m)

Weights		
Empty weight	10,236 lb	
Max fuel Load	3,248 lb	(484gal)
Maximum takeoff weight	16,204 lb	
Zero fuel	14,330 lb	
Max landing	15,609 lb	

Speeds					
Vs	100 kts	Vso	92 kts	V10º	170 kts
Vmo	250 kts	V20º	160 kts	V35º	150 kts

Limits	
Ceiling	25,000 ft
Landing Field	2,700 ft
Range	850 nm



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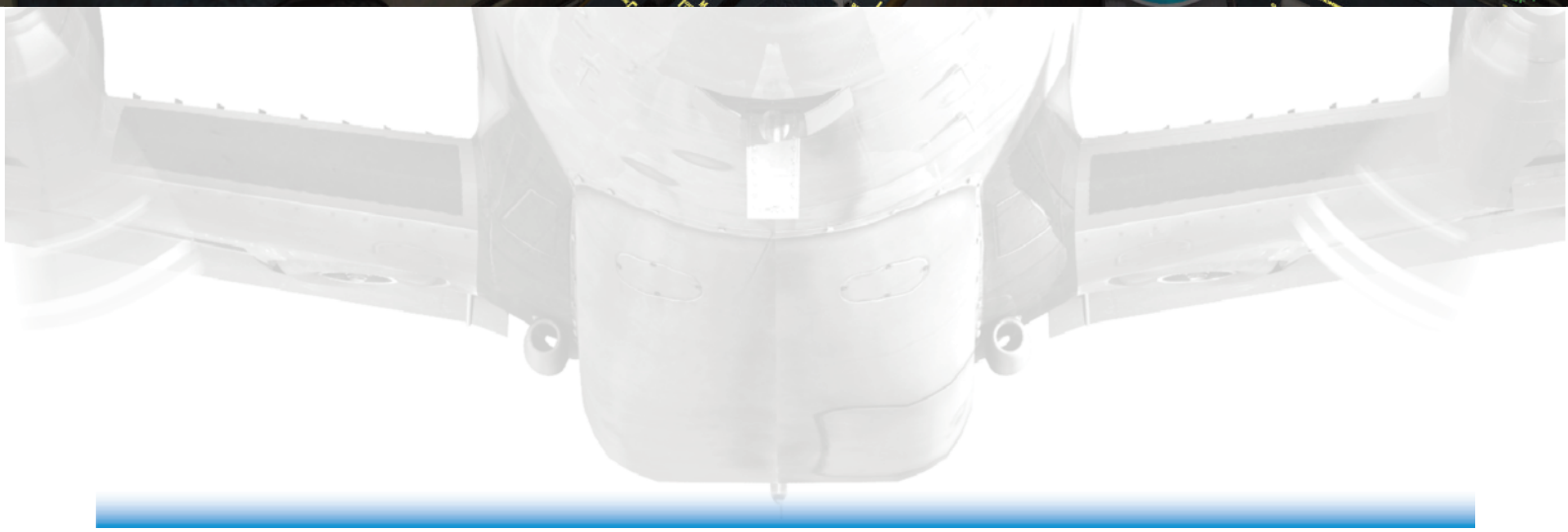
COCKPIT GUIDE



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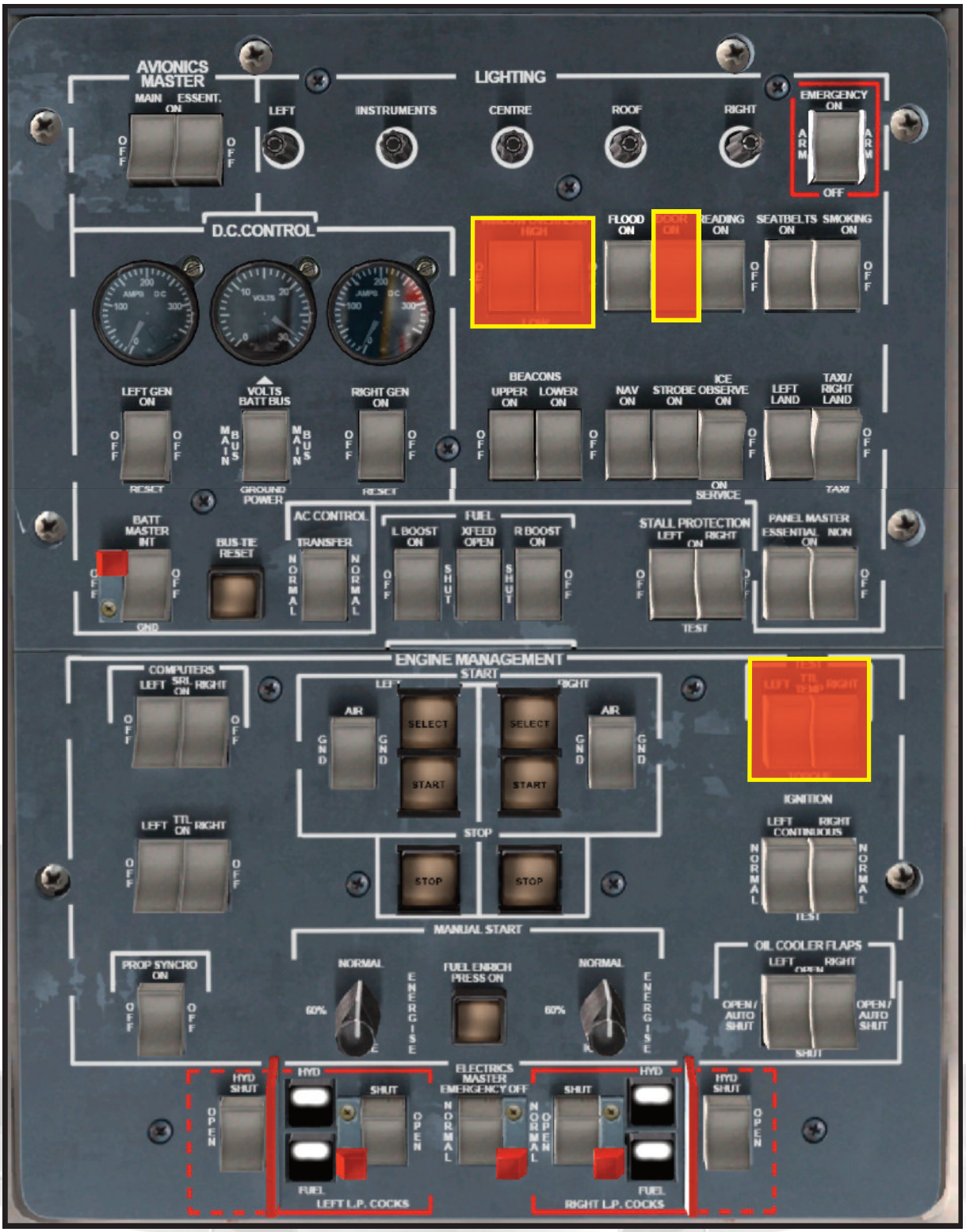
OVERHEAD PANEL



Not simulated.

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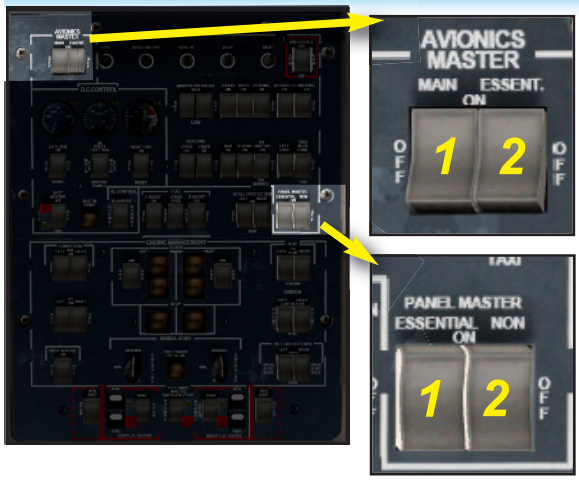


AVIONICS

1 • **On -** Powers the 28v DC main avionics busbar. Powers the Panel Master Essential busbar.

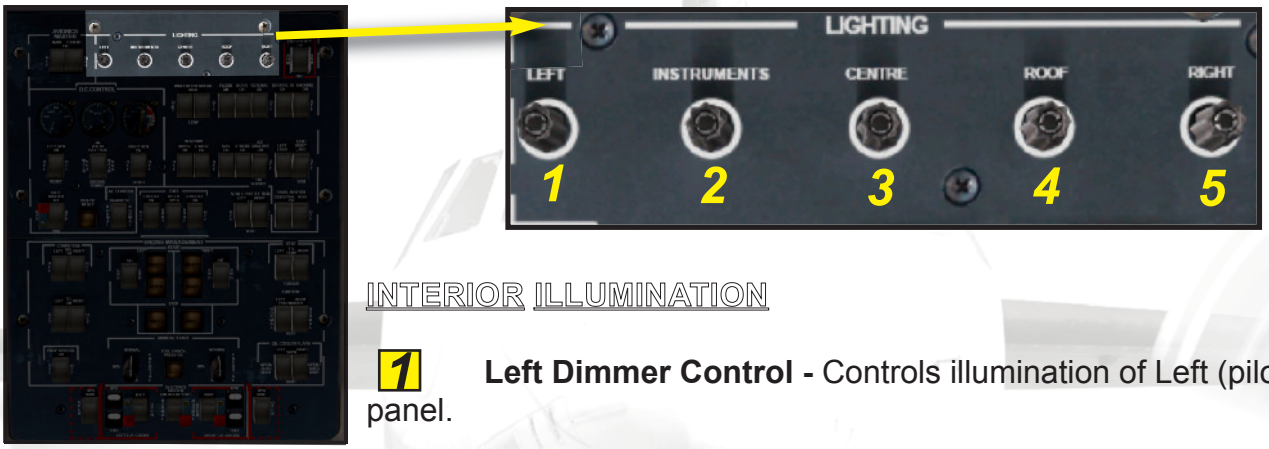
2 • **On -** Powers the 28v DC essential avionics busbar. Powers the Non-Essential panel paster

The Jetstream in resume has 2 Avionics systems. One Essential and other Non-Essential. In this simulated plane, both can be activated from pilot or copilot side.

• **Essential Avionics:** They are, like the word says, the necesary ones to fly the plane. HSI, ADI, engine instruments...

• **Non-Essential:** These includes the Radios, Weather Radar and GPS.

It doesn't matter which ones you turn on, but Both Essential and Non-Essential to manage correctly the plane .



INTERIOR ILLUMINATION

1 **Left Dimmer Control -** Controls illumination of Left (pilot) front panel.

2 **Instruments Dimmer Control -** Controls illumination of front, pedestal, sides, CB and skirt panels, as well as the numbers, Radar, radios and GPS illumination.

3 **Centre Dimmer Control -** Controls illumination of Center front panel.

4 **Roof Dimmer Control -** Controls illumination of Overhead panel.

5 **Right Dimmer Control -** Controls illumination of Right front panel (copilot side).

EMERGENCY ILLUMINATION

- **Off -** Deactivates all Emergency Illumination.
- **Arm -** Arms the Emergency light system.
- **On -** Directly activates the Emergency Light system.

The Emergency Illumination consists in a guide illumination system to let passengers and crew know the exit gates. The ARM position of the switch will activate only the illumination during take off and landing plane configurations.

D.C.CONTROL PANEL

1 AMMETER - Shows related generator loading in amps.

2 VOLTMETER - Shows the selected busbar voltage.

3 LEFT GEN SELECTOR -
- **On -** Connect the left generator output to the d.c. main busbar.
- **Off -** Disconnects generator from d.c. main busbar. Caption “GEN” in amber On.
- **Reset -** Resets the generator control unit trip circuits.

4 VOLTS BUSBAR SWICH -
- **Batt bus -** The battery busbar voltage is indicated on the Voltmeter.
- **Main bus -** The d.c.main busbar voltage is indicated on the Voltmeter.
- **Ground power -** The GPU voltage is indicated on the Voltmeter.

5 RIGHT GEN SELECTOR -
- **On -** Connect the right generator output to the d.c. main busbar.
- **Off -** Disconnects generator from d.c. main busbar. Caption “GEN” in amber On.
- **Reset -** Resets the generator control unit trip circuits.

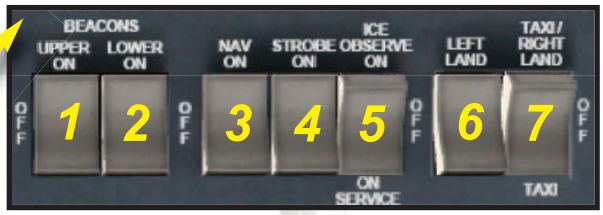
COCKPIT ILLUMINATION

1 FLOOD - Illuminates the entire cockpit from the rear up light.

2 READING - Illuminates the cockpit with the side lamps and yoke reading illumination.

3 SEATBELTS - Shows the fasten seatbelts sign in the cabin area.

4 SMOKING - Shows the non-smoking sign in the cabin area.



EXTERNAL ILLUMINATION

1 BEACON UP - Activates the upper beacon light.

2 BEACON LOWER - Activates the lower beacon light.

3 NAV - Activates the navigation lights in the tip of the wings and the tail nav light as well as the tail logo light.

4 STROBE - Activates strobe anticolision light.

5 ICE OBSERVE -

- **On -** Activates the lights to be able to see the wings front area to look for ice formation.
- **Off -** Deactivates the ice observe lights.
- **On Service -** Arms the observe lights. They will illuminate when Ice is detected.

6 LEFT LAND - Illuminates the left wing landing light.

7 TAXI / RIGHT LAND -

- **Up Position -** Illuminates the Right Landing Light.
- **Off -** Switch off the Right Landing Light and Taxi light.
- **Taxi -** Switch on the taxi light located in the front landing gear.

BATTERY CONTROL. Ac-Dc.

1 BATT MASTER SWITCH -

• **Int -** Closes battery contactors to power the essential busbar if ELECTRICS MASTER at NORMAL.

Once the generators are on, the battery will charge and all energy will come from the generators

• **Off -** Open the battery contactors. The batteries (the plane has 2) are disconnected from the aircraft electrical system.

Once the generators are on, switching off the battery doesn't mean the plane won't receive energy. In this situation the plane will have energy but the battery won't be charged.

• **Gnd -** The energy to power the essential busbar will come from Ground Power Unit (GPU). The switch is protected with a red protector no not move by mistake the switch. It jumps when reach the INT position, so to move it back, you have to move the red protection

2 BUS TIE RESET (Light amber) -

• **On -** Shows that the main and essential d.c. busbars are separated.

• **Pressed -** Connects the main and essential d.c. busbars if one busbar is powered and the unpowered busbar has not faults.

3 A.C. CONTROL -

• **Transfer -** if one inverter has failed, the remaining inverter supplies all a.c. busbars.

• **Normal -** Nº1 Inverter powered from the d.c. essential busbar.

FUEL PANEL

1 LEFT BOOST -

Pump fuel into left engine from the left tank.

2 XFEED - Controls the open/close position of the crossfeed valve that connects both tanks.

• **Open -** Opens the crossfeed valve, so each tank can feed the opposite engine. When you have not left fuel in one tank, open this valve to provide fuel to the stopped engine.

• **Shut -** Closes the crossfeed valve so each tank provides fuel only to its side engine.

3 RIGHT BOOST -

Pump fuel into right engine from the right tank.

STALL PROTECTION

1 LEFT STALL PROTECTION -

Each wing has a probe that determines if that side has a near stall situation.

- **On -** Activates the stall protection system for the Left side.
- **Off -** Deactivates the Left side stall protection system.
- **Test -** Test the stall protection system. It illuminates in the front console the warning - caution lights for the left side and make a push stick command in the yoke if the pilot didn't press the stall lights

2 RIGHT STALL PROTECTION -

- **On -** Activates the stall protection system for the Right side.
- **Off -** Deactivates the Right side stall protection system.
- **Test -** Test the stall protection system. It illuminates in the front console the warning - caution lights for the Right side and make a push stick command in the yoke if the pilot didn't press the stall lights.

Each side, pilot and copilot, has 2 stall warning - caution switches. When a stall is produced on the left side the left light will illuminate, and with the Right side the same. The color is red.
Also there will be a stick pusher, so the Yoke will command a negative pitch to recover from Stall situation. This can be sometimes very danger especially in short final or take off.
To deactivate the stick pusher but leave the lights come on (in amber) push the illumination stall buttons in the front panel.

COMPUTERS & PROP SYNCRO

1 SRL COMPUTER SWITCHES -

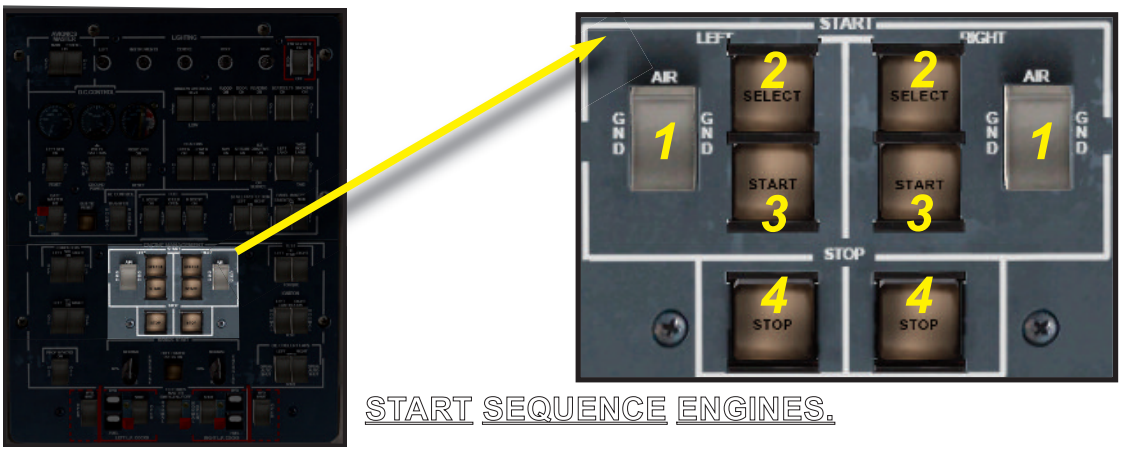
Provides sequenced switching of engine starter, fuel and ignition during auto control of engine starting cycle.
The SRL computers are necesary to start the engines in Automatic mode.

2 TTL COMPUTER SWITCH -

Limits fuel flow to related engine to prevent over-torque or over-temp. (this function only will work in xplane if piloting with a throttle joystick, mouse wheel or keyboard. If done with manipulators-throttle mode it won't control temperature EGT)
To make functional this computer is necesary to activate the SRL one before.

3 PROP SYNCRO -

Synchronises speeds of both propellers only within 1% RPM.



START SEQUENCE ENGINES.

1 GND / AIR SWITCH -

• **Gnd -** Arms the starter mode of related starter/generator

• **Air -** Arms the related propeller unfeathering pump. Inhibits starter mode of related starter/generator.

GND must be selected for all engine starting on the ground, and AIR must be selected for all engine starting in flight.

2 SELECT PUSH SWITCH

• **Pressed -** Changes switch color to amber. Arms the related START switch. Inhibits the other engine starting circuit.

3 START PUSH SWITCH

Providing the related SRL computer is active and the related SELECT switch is pressed:

• **Pressed -** Changes color to red. Inhibits the TTL computer

With GND/AIR switch to GND powers the starter to crank engine.

With GND/AIR switch to AIR powers the unfeathering pump to unfeather the propeller to crank engine.

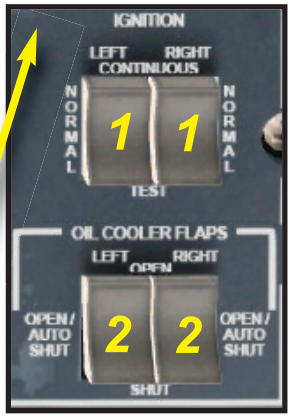
Both switches will be illuminated through all the starting process which normally takes something like 20 seconds if there is a not false start. After that both will be de-illuminated.

4 STOP PUSH SWITCH

Shuts HP fuel cock. Terminates auto-engine starting cycle.

This switch only stops the engine DURING the starting sequence. Not once they have started. So you have 20 seconds to press this button in case you wish to stop the engine starting process. For example during a hotstart, because if you don't stop it engines can burn.

Also, the pilot have to wait at least 30 seconds once he has pressed the STOP button, to start again the starting sequence. If not a hotstart can be produced.



INGNITION AND OIL COOLER FLAPS

1 IGNITION SWITCH

- **Continuous -** Set a continuous spark fuse. During the starting process of engines if not selected the Continuous set will be automatically selected
- **Normal -** Set a normal spark fuse.
- **Test -** Not simulated.

2 OIL COOLER FLAPS -

- **Open -** Open oil cooler flap to increase cold air flow across oil cooler.
- **Open/AutoShut -** Determines when is necesary to open or close the oil cooler flaps based in oil temp.
- **Shut -** Closes the oil cooler flap.

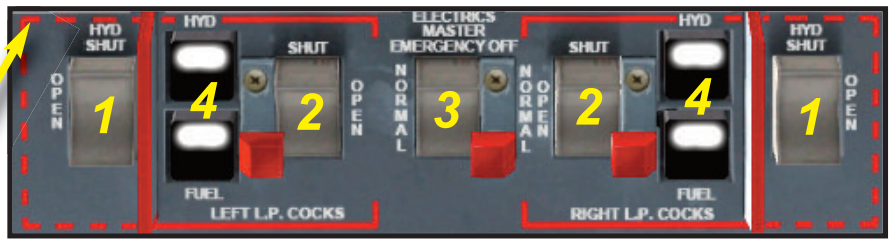
MANUAL START

1 MANUAL ENGINE / STARTING SELECTOR -

- **Energise -** Arms magnetic hold circuits of SELECT and START.
- **Ignite -** Opens HP fuel valve. Energises engine igniters. Arms the fuel enrich system. direct fuel to primary nozzles only.
- **60% -** De-energises starter motor. De-energises engine igniters. Disarms fuel enrich system. Arms fuel filter anti-icing. Allows normal primary and secondary fuel supplies.
- **Normal -** Connects start circuit for engine. Enables the engine to be started by auto-start computer.

2 FUEL ENRICH PUSH SWITCH -

Supplies additional fuel to the fuel supply of engine being started. This only is for a manual start control.



MANUAL START

1 HYD SWITCH -

- **Shut -** Shuts hydraulic LP cock only.
- **Open -** Opens hydraulic LP cock only if engines are stopped (no burning fuel).

2 LEFT / RIGHT LP VALVE SWITCHES -

- **Shut -** Selects LP valve shut.
- **Open -** Selects LP valve open if the related engine is stopped.

Both has a red switch guard. To operate the switch, guard must be moved sideways.

3 ELECTRIC MASTER SWITCH

- **Normal -** Enables the electrical system to be powered.
- **Emergency Off -** Removes power from all busbars except battery busbar.

Move sideways the switch guard to permit switch operation.

4 LEFT / RIGHT LP FUEL & HYDRAULICS VALVE CAPTIONS.

- **Shut -** (red) shows valve shut.
- **Open -** (white) shows valve open.

FRONT PANEL

Not simulated.

This panel is simulated to work separatelly the instruments of the pilot and the copilot. It is done that way, first because is the way that is done in real plane, but also because I am searching the posibility of sharing cockpits online so a pilot and a copilot could fly together. Of course nothing is promised, but the posibility is just there. Even x-plane 9 already had that posibiltiy implemented but the problem is that the system to make it, is not very friendly. As said I will investigate more.

CLOCK

1 TIME MODE -

- **Time -** Shows the actual local time in hours and minutes in the upper area, and seconds in the lower one.
- **F.T. -** Zulu or GMT time.
- **E.T. -** Selects the elapsed time or chronometer.

2 START/STOP

- **Zero -** Resets to cero all the time values of the elapsed time.
- **Stop -** Pauses the Chronometer (Elapsed time).
- **Run -** Starts or continue the slapsed time.

DME INDICATORS

1 CH PUSH BUTTON -

Selects between Nav1 and Nav2 channels. You have to press a quick mouse stroke to change it because the continuous pressing makes a full run over both 2 channels.

2 SEL PUSH BUTTON -

Selects between KT (Ground speed in knots), MIN (time to reach nav aid in minutes) or ID display (shows the name of the nav aid tuned.
User has to press a quick mouse stroke to make a good sequence of functions. Continuous pressing changes quickly between system.

3 PWR PUSH BUTTON -

Energises or switches off the DME indicators system.

iAS

The indicated air speed gauge shows the speed that the plane has related with the air. These are the VSpeeds for this plane:

- V_s (Stall speed in clean conf.) 100 knots.
- V_{so}(Stall speed in landing conf.) 92 knots
- V_{mo}(Max. operating limit speed) 250 knots

The V_{mo} is indicated by the green and white pointer.

- V_f (Designed flap speed. 10º) 170 Knots
- V_{fe}(Max. flap extended speed 35º) 150 Knots
- V_{lo}(Max. Landing gear operating) 160 Knots.

RMI (RADIO MAGNETIC INDICATOR)

1 No1 ADF/VOR SWITCH

- **ADF1 -** N1 pointer shows ADF information
- **VOR1 -** N1 pointer shows Nav1 system information.

2 No2 ADF/VOR SWITCH

- **ADF2 -** N2 pointer shows ADF information
- **VOR2 -** N2 pointer shows Nav2 system information.

3 N1 POINTER.

4 N2 POINTER.

When the pointer is in the horizontal pointing to the right, means not information received.

ADI (ATTITUDE DIRECTOR INDICATOR)

ATT TEST PUSH BUTTON
Test ADI to show 20º right bank and 10º pitch up

DH DISPLAY
Shows height set by DH SET control. DH is Decision High.

RAD ALT
This is the radio altitude in feet. Disappears when overpass the 2000 feet.

DH SET
Input the desired Decision High.

HSI (HORIZONTAL SITUATION INDICATOR)

COURSE DISPLAY
Shows the desired course selected in the course selector (4).

DISTANCE DISPLAY
Show distance in nm to the selected radio aid.

HDG BUG.
Selects the desired heading direction commanded in the HDG selector (5)

COURSE SELECTOR
Selects the desired course direction of the tuned radio nav aid.

HDG SELECTOR.
Select the desired heading direction to command the HDG autopilot mode.

Also we have 3 red flags:

- **HDG flag -** Indicates that the heading reference is not valid.
- **NAV flag -** Indicates that the navigation reference is not valid
- **VERT flag -** Indicates that the vertical reference (glide slope indication) is not valid.

MODE INDICATOR

1 T.C.S. CAPTION -

Shows the TCS push button is pressed. TCS is the Touch Control Steering, that allows the pilot to take control of the aircraft to manually change aircraft attitude without dissengaging autopilot system.
This is a button is not present inside the 3D of the plane but the user have to assign to a joystick button. It is located inside Joystick&Equipment menu in xplane, inside autopilot area, and is called Control_wheel_steer.
When the servos of the autopilot are on, even a simple HDG mode is selected, it will control the pitch of the plane. So to modify it, pilot has to press this CWS (TCS) button to exit momentarily from autopilot without disconnecting it. Once you unpress the CWS button, the plane will catch the old (or new) commanded autopilot mode.

2 B.C.ARM,CAP CAPTION -

Shows flight director/autopilot system armed to capture localiser back beam (arm mode). Shows capture of localiser back beam (cap mode).

3 HDG CAPTION / ALT CAP CAPTION -

- Shows engagement of heading mode (HDG)
- Shows capture of preselected altitude (ALT CAP).

4 NAV ARM / CAP CAPTION -

- Shows flight director / autopilot armed to capture beam of selected VOR or GPS route. (ARM)
- Shows capture of selected VOR or GPS route.(Cap)

5 APR ARM/CAP CAPTION -

- Shows flight director/autopilot armed to capture ILS and glideslope beam. (ARM)
- Shows capture of ILS and glideslope beam. (CAP).

6 ALT HOLD / GO AROUND -

- Shows engagement of altitude hold mode (HOLD)
- Shows T.O.G.A. mode selected. (go around). The plane won't exit from TOGA mode until it has one horizontal mode and one vertical mode active.

7 VOR APR ARM / CAP CAPTION -

- Shows flight director/autopilot is armed to capture selected beacon for a VOR approach (ARM)
- Shows beam capture of selecter VOR beacon (CAP).

8 I.A.S. / V.S. CAPTION -

- Shows engament of airspeed hold mode (I.A.S.)
- Shows engagement of vertical speed hold mode (V.S.)

9 GROUND PROXIMITY WARNING SYSTEM (GPWS)

Amber illumination alarm when the plane detect a close proximity to ground.

10 BELOW GLIDE SLOPE WARNING LIGHT.

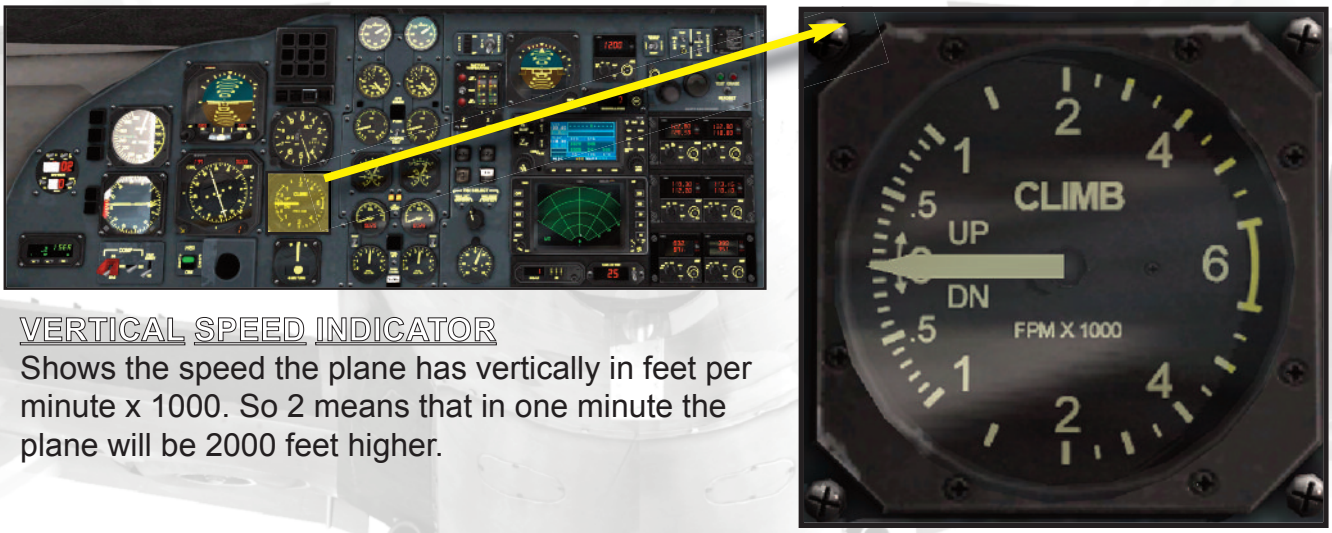
When set the plane to APR mode and it is flying below the GL, this amber warning will light.

MODE INDICATOR

Shows the indicated altitude in feet over sea level.

1 PRESSURE SET.

Calibrates the altimeter with pressure



VERTICAL SPEED INDICATOR

Shows the speed the plane has vertically in feet per minute x 1000. So 2 means that in one minute the plane will be 2000 feet higher.

TURN COORDINATOR

Shows the rate of turn the plane is. It has calibration marks for a 4 minute turn.

ENGINE TORQUE INDICATOR

Indicates the engine torque in percentage of design limits. Red line 104.5% indicates maximum permitted torque. Yellow arc (100-104.5%) indicates cautionary range. Green arc 0-100% indicates normal operating range.

The plane can be maximum 5 minutes over torque limit. In case exceding that time, the engines can break (and will).

ENGINE RPM INDICATOR

Indicates the rotational speed of the engine in percentage of design limits. Inner dial shows percentage in units. Outer scale shows percentage in tens.

Loss of power to indicator, pointer goes to lower end.

White triangle at 103% indicates lower setting of overspeed governor.

Red line at 100% indicates maximum permissible continuous RPM

Yellow arc 68-96% indicates cautionary operating range.

Green arc 96-100% indicates normal operating range in flight.

EGT INDICATOR

Indicates the gas temperature in the exhaust pipe.

At engine speeds greater than 80% with the SRL computer operating, the EGT displayed is that conditioned for single red line operation.

Red line at 650º indicates maximum permitted temperature. If the plane stays more than 5 minutes above this line, the engine can have a fire (and will have).

FUEL / OIL PRESSURE GAUGE

1 FUEL PRESSURE INDICATOR-

Shows the pressure output of the related engine first stage fuel pumps.
Red line at 15psi shows minimum permitted pressure.
Green arc 20 to 80 psi shows normal range.
Yellow arc 80 to 90 psi shows cautionary high range
Red line at 90 psi shows maximum permitted pressure.

2 OIL TEMPERATURE GAUGE -

Shows the temperature of the engine oil.
Red line at 127º shows maximum permitted temperature.
Yellow arcs at -40º to +50º and 110 to 127º shows cautionary ranges
Green arc at 55º to 110ºC shows normal operating range.
Red line at -20ºC shows minimum permitted temperature.

3 OIL PRESSURE GAUGE -

Red line at 120psi shows maximum permitted pressure.
Green arc 70 to 120psi shows normal operating range.
Yellow arc 40 to 70psi shows cautionary range.
Red line at 40psi shows minimum permitted pressure.

4 OIL COOLER FLAP LIGHTS-

Shows the related oil cooler. Light on, means flaps are open.

FUEL FLOW INDICATOR

Shows the fuel flow to the related engine. the number inside is the same value.

1 OIL COOLER FLAP LIGHTS-

Shows the related oil cooler. Light on, means flaps are open.

FUEL CONTENTS INDICATOR

Shows the fuel remaining in the related tank in units x 100 Kg.

1 CROSSFEED INDICATOR-

- **Normal (white) -** Shows the fuel crossfeed valve shut.
- **X-Feed (green) -** Shows the fuel crossfeed valve open.

PITCH SELECTOR / YAW DAMPER

1 PITCH SELECTOR -

Changes manually the pitch attitude of the plane in Autopilot V.S. mode.

2 YAW DAMPER -

Activates Yaw damper for Autopilot. The green caption that shows the activation of the mode is to the left of the RMI in pilot side (or right of RMI in copilot side).

AUTOPILOT SERVOS / FD / HSI SELECT

1 FLIGHT DIRECTORS-
Shows activation of flight directors in pilot and copilot sides.

2 AUTOPILOT ON -
Show connection of autopilot servos. The button can be pressed to activate / de-activate servos.

3 SIDE COMMAND-
This side commands which is the HSI that commands the autopilot. Pilot side or Copilot side.

4 HSI SELECTOR-
This knob selector will show HSI nav1 or nav2 depending of position.

- **Nav1 Left / Nav2 Right** - Will represent in the Pilot HSI the Nav1 information and Copilot HSI the Nav2 information.
- **Nav1 right / Nav2 Left -** Will represent in the pilot HSI the Nav2 information and copilot HSI the Nav1 information.

To let the pilot clearly know which information is reading and not look at the knob, both sides has a indication light, that will show in green which navigation source is selected in the HSI.
If both green captions are off, then means the GPS is commanding both HSI.

OUTSIDE TEMPERATURE

Shows the external temperature in degrees celsius.

ATC TRANSPONDER

1 MODE SELECTOR-

- **Off -** Powers off the transponder
- **Stby -** Powers the transponder but prevents it from transmitting a reply.
- **On -** Transponder is free to transmit and receive.

This knob is controlled in xplane by a click and drag manipulator. Grab it and move the mouse to the left or right.

2 IDENT PUSH BUTTON-

Gives an additional pulse reply for positive identification.

3 DIGITS CONTROL-

It has 2 knobs. One internal that controls the first 2 right numbers, and external the change of the 2 right numbers. The maximum ATC code is 7777.

The transponder will show a IDENT red caption under the number when transponder is beeing interrogated.

ALTITUDE SELECTOR

1 AUTOPILOT ARM MODE-

Pressing this button, the ALT ARM mode caption will come to light.

2 SET ALTITUDE KNOB-

This one has 2 knobs. The external one controls the first 2 numbers to the left. While the inner one controls the 2 on the right in increments of 50 feet.

GARMIN 430 GPS

1 POWER BUTTON.
Press this button to switch on the GPS. Remember that the avionics main AND avionics Essential has to be switching on also.

2 COM ACTIVE SWAP BUTTON-
This button will make active the preselected Com frequency.

3 NAV ACTIVE SWAP BUTTON-
This button will make active the preselected Nav frequency.

4 FREQUENCY SELECTOR KNOBS-
This one select the frequency preselect, nav or com depending on the selector. Pressing the outer knob it changes between Com and Nav to select which frequency the pilot wants to change. The outer knob changes the 1XX. units while the inner one changes the .XX units.

5 CDI SELECTOR-
It selects between GPS nav source or VLOC (nav1 or nav2) nav source for the HSI. GPS or VLOC messages will appear depending the mode selected.

6 OBS SELECTOR-
Shows observations of the air space flought if there are any.

7 MSG SELECTOR-
Show messages before entering or exit an airspace. If there are any.

8 PROCEDURES-
Shows the existing prodedures for the selected aiport destination. If they exist.

9 ZOOM MODE-
The down arrow makes zoom in while the up arrow makes zoom out.

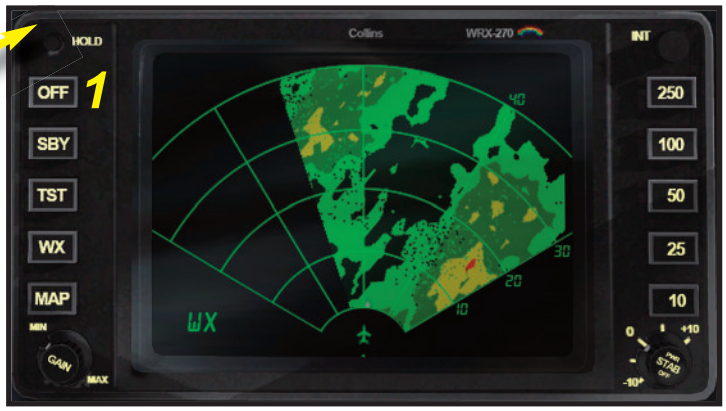
10 DIRECT MODE-
Selects a direct destination from the place the airplane is at that moment. The commanded air port has to be selected with the right knobs (13)

11 CLR MODE-
Clear mode. Cleans any information before entered in the GPS. Returns to map mode.

12 ENT MODE-
Enter mode. Enters the selected direct waypoint into the GPS.

13 RIGHT KNOBS-

The outer one controls the change of the pages the GPS shows, and the inner one the sub-pages of each page.
The control of this knob has to be done with short mouse strokes because is very sensitive.
This knob also controls the letter-number selection for the “direct mode”.



RADAR

This will represent the weather radar. Red areas must be avoided. The range of this radar (not the real one) is fixed to 40nm.

1 OFF -

This will switch off the Radar screen. Remember that to activate it, with this button you also have to press the avionics master AND avionics essentials switches in the overhead panel.

RADIO ALTIMETER / CABIN AIR TEMPERATURE.

RADIO ALTIMETER-

It shows from 0 to 2000 feet the altitude the plane has over terrain (or water).

1 DH KNOB -

Decision high can be selected in this knob.

CABIN AIR TEMP-

Shows the air temperature of the cabin-cockpit area.

2 CºFº SELECTOR -

Shows the information of temperature in Celsius or Fahrenheit degrees

RADIOS (COM1/2, NAV1/2, ADF1/2)

1 MODE SELECTOR-
Turn on the selected radio. Remember that Avionics main AND Avionics Essentials switches in the overhead panel have to be activated.

2 STO BUTTON-
Pressed, it storages in memory the frequency that the user pre-selects. This will be in memory only during the load of the plane in xplane. Once you quick that frequency will be lost.

3 XFR/MEM SWITCH-
(Springs back to center position)
- **XFR -** Transfers lower display preset frequency to upper display. Tunes receiver to new frequency.Previous active frequency is now preset frequency shown in lower display.
- **MEM -** Shows the preset frequency from the memory in the lower display.

4 FREQUENCY CONTROLS
- **Large knob rotated -** Changes left three digits. In ADF the first left one.
- **Smaller knob rotated -** Changes right two digits.

5 ACT PUSH BUTTON
It allows a direct change of active (upper display) frequency. Next to the active frequency will appear the word “ACT” in vertical align.
To return to normal mode, press it again.

6 ADF MODE SELECTOR-
- **Off -** Turns off the ADF radio.Remember that Avionics main AND Avionics Essentials switches in the overhead panel have to be activated to power the ADF radios.
- **ANT -** The receiver functions as an audio receiver.
- **ADF -** The receiver presents relative bearing to a station on the RMI’s
- **Tone -** Selects the receiver to enable morse code indentification of station.

CENTER PANEL

Not simulated.

ANNUNCIATORS PANEL

This pannel will represent warnings and cautions the plane may have. Once a warning appears (red captions) the red general warning will light up flashing. Pilot or copilot can push that button to cancel the warning.
Some captions are repeated in left and right side, meaning warnings or cautions in pilot or copilot sides. These are the warnings and cautions that may appear:

FIRE The temperature in the associated engine bay has exceeded 300ºC

DOOR The crew/passenger door is not locked.

AC The 115V ac essential busbar is not powered.

SMOKE Smoke has been detected in the baggage area.

OIL The associated engine oil pressure is less than 50 psi.

CABIN The cabin altitude is greater than 10,000 ft.

BUS FAIL Main dc busbar is not powered.

DETECT A fault has been detected on one of the twin loops of the associated engines fire detector

OTEMP Cabin air supply temperature has exceede 90ºC

INV One of the inverters is not supplying 115V ac.

BAT The associated battery is disconnected from the essential busbar.

GEN The associated generator is disconnected from the essential busbar.

CONTAM Metal has been detected in the oil system by the magnetic chip detector.

BUS TIE OPEN The main essential dc busbars are separated.

IGN Ignition system is ON.

DUCT The associated landing gear bay temperature has exceeded 135ºC.

W/S The associated main windshield panel is operating in the overheat region

STARTER The associated starter/generator is in the engine starting mode.

SRL The associated single red line computer is not switched on.

BETA Propeller pitch angle controlled by power lever behind flight iddle position.

STALL The associated stall warning system has failed or is switched off.

AIR OFF The associated cabin air supply has been cut by operation of emergency shut off valve

HORN The gear warning horn is inhibited

EMER LTS Emergency lighting has not been armed.

FUEL The associated engine first stage fuel pump pressure is less than 20psi.

REV Power lever is selected behind ground idling position. Reverse mode.

HYD Hydraulic system pressure is greater than 2,300 psi.

SERIES Aircraft batteries are in series to provide 48V potential for engine starting.

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FUEL Fuel quantity is less than 10% in associated fuel tank.

AUTOPILOT SELECTORS MODE

1 HDG PUSH BUTTON-
Provides input to ADI/GH and autopilot to command a turn to achieve heading set by HSI heading bug. When activated a ON green caption will appear in the button.
This mode overrides NAV, BC, APR and VOR APR modes.

2 NAV PUSH BUTTON-
Commands Autopilot to catch the VOR or GPS route. When outside the beam capture will appear an ARM amber caption and pilot has to direct the plane with HDG mode. When inside the beam capture will appear a CAP green caption.

3 APR PUSH BUTTON-
Commands Autopilot to catch the ILS beam and GlideSlope beam. When outside the beam capture will appear an ARM amber caption and pilot has to direct the plane with HDG mode. When inside the beam capture will appear a CAP green caption.

4 BC PUSH BUTTON-
Commands Autopilot to catch oposite course of the VOR beam. When outside the beam capture will appear an ARM amber caption and pilot has to direct the plane with HDG mode. When inside the beam capture will appear a CAP green caption.

5 VORAPR PUSH BUTTON-
Commands Autopilot to catch VOR selected course. When outside the beam capture will appear an ARM amber caption and pilot has to direct the plane with HDG mode. When inside the beam capture will appear a CAP green caption.

6 ALT PUSH BUTTON-
Provides inputs to ADI/GH and autopilot to hold the aircraft altitude at the time of engagement. An ON green caption will appear when activated.

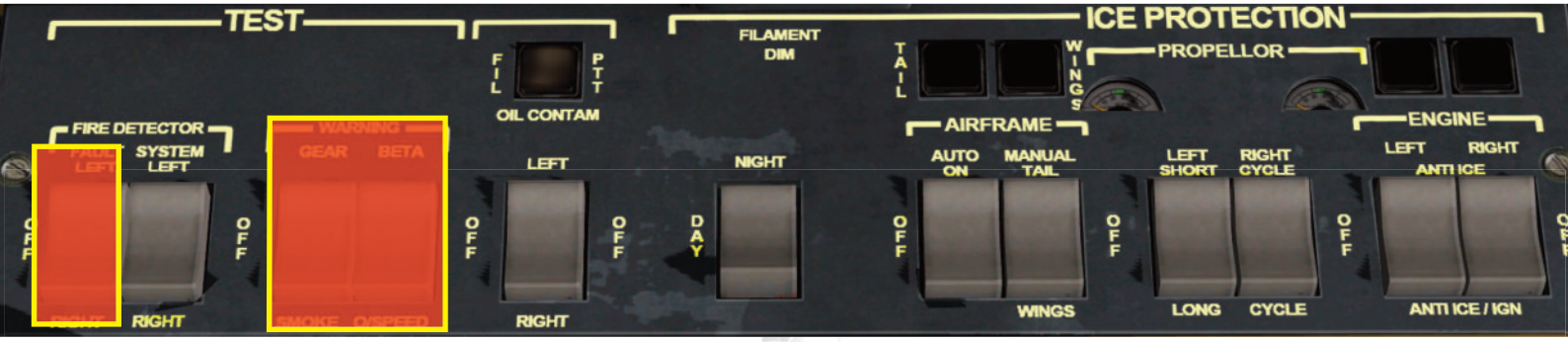
7 ALTSEL PUSH BUTTON-
Selects altitude acquired mode. ARM in amber will appear when sysem is armed to capture the preselected altitude. ON green caption shows capture of preselected altitude.
Once armed to change the altitude has to be done with VS mode or Speed mode.

8 VS PUSH BUTTON-
Provides inputs to ADI/GH and autopilot to hold the aircraft vertical speed at the time of engagement. An ON green caption will appear when activated.
To command the desired vertical speed while in Autopilot mode on, pilot can press the CWS (TCS) explained in the MODE indicator panel (in the front panel) while pitching up or down the

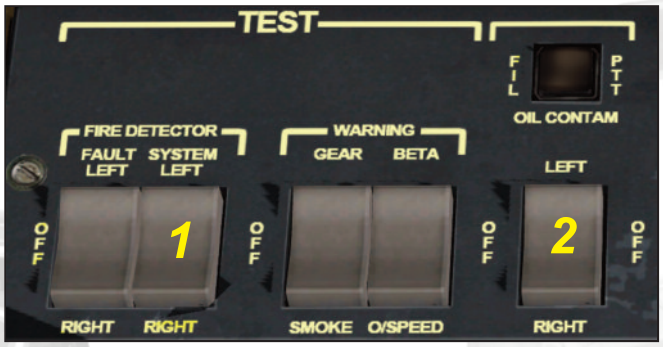
plane, or can command the desired pitch angle with the Pitch selector wheel.

9 SPEED PUSH BUTTON-
Provides inputs to ADI/GH and autopilot to hold the aircraft speed at the time of engagement. An ON green caption will appear when activated.
Have to take in consideration that this is not a horizontal mode but vertical one. The Jetstream 31-32 don't have autothrottle so the only way to achieve to maintain the desired speed is by pitching up or down the plane automatically. So if we want to climb pilot have to push throttles and the plane will climb to maintain speed. If we want to descent, pilot only has to pull throttles so the plane will pitch down to maintain the desired speed.

LEFT SKIRT PANEL



Not simulated.



TEST PANEL

1 FIRE DETECTOR SYSTEM TEST -
• **Left or right -** Test the fire detection circuit of the selected engine fire detection system acompanied by the attention light (red) caption FIRE in the center console and a audio warning (only in xplane10).

2 OIL CONTAM SELECTOR-
• **Left or right -** Test related engine oil sytem for metal particles.

ICE PROTECTION PANEL

1 FILAMENT DIM SWITCH -

- **Night -** Controls instensity of lights for night time conditions in the left hand skirt panel.
- **Day -** Controls intensity of lights for day time conditions in the left hand skirt panel.

2 AIRFRAME AUTO SWITCH -

- **On -** Sets in motion the ciclic control of the airframe de-icing system. System operation alternates between wing and tail system.

3 AIRFRAME MANUAL SELECTOR -

- **Tail -** Iniciates the de-icing boots of the selected system.
- **Wings -** Iniciates the de-icing boots on the wings.

The de-icing bugs consists of a surface that is inflated in the tip of the wings and tails to release and break the formation of ice.

4 PROPELLER ICE PROTECTION -

- **Short cycle -** Produces a 35 second heating cycle to each pair of blades.
- **Long cycle -** Produces a 70 second heating cycle to each pair of blades.

5 ENGINE ICE PROTECTION -

- **Anti-ice -** Allows hot air to flow through air inlet duct, compressed air inlet, and fuel control temperature / pressure sensor of related engine.
- **Anti-ice / IGN -** Engine with continuous ignitiion.

RIGHT SKIRT PANEL

Not simulated.

ICE PROTECTION PANEL

1 WIPERS SPEED SELECTOR

- **Fast or Slow -** Selects related windshield wiper on at selected speed.

2 WINDSHIELD SELECTOR -

- **On -** Related windshield panel is heated at maximum rate and automatically controlled at working temperature.
- **Warm up -** related windshield panel is heated at low rate.

The system indicator will be:

- **Cross hatch -** Power off.
- **White -** warm up selected
- **Black -** On selected.

3 STALL VANE/PITOT SWITCH -

- **On -** Electrically powers heaters in related stall vane and pitot head.

Upper captions will illuminate if heat is not beeing supplied to related pitot head (in case of failure).

SIDE PANEL

AUDIO PANEL

Not simulated.

1 COM AUDIO SELECTOR -
- **VHF1 -** Selects to listen the COM1 radio.
- **VHF2 -** Selects to listen the COM2 radio.

2 NAV AUDIO SELECTOR -
- **NAV1 -** Selects to listen the morse code of the Nav1 tunned radio aid.
- **NAV2 -** Selects to listen the morse code of the Nav2 tunned radio aid.

3 ADF AUDIO SELECTOR -
- **ADF1 -** Selects to listen the morse code of the ADF1 tunned radio.
- **ADF2 -** Selects to listen the morse code of the ADF2 tunned radio.

4 DME AUDIO SELECTOR -
- **DME1&2 -** Selects to listen the DME. Both switches activates together in xplane.

5 MARK AUDIO SELECTOR -
- **Mark1&2 -** Selects to listen the mark beacons. Both switches activates together in xplane.

YOKE & MENU PANEL

HIDDEN MENU

To activate some options of the plane, I have created a menu that appears with the yokes. To make appear the menu you have to just press on the lamp area of the yoke

But only you can access that hidden click area if the yokes are unhinden. To hide/unhide the yokes there is another hidden click area in the base of the yoke.

The menu comprises 5 on/off elements. On is drawn in a green frame, off with a amber frame.

• **CHOCKS -** It will put chocks in the landing gears to not let move the plane. When the plane is in cold and dark situation it does't have anykind of hydraulics in brakes, so this is needed to not move the plane, and be able to connect the GPU unit.

• **GPU CONNECT -** To connect the GPU you have to press this icon. You have to take into consideration that the plane must be stopped, so it is good if you put the chocks before plugin in.
The Jetstream battery can be drained too fast. Alwasy is a good idea to connect to a GPU to relax in cockpit preparation.

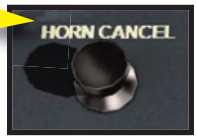
• **COPILOT TO TOILET -**
Sometimes you need a more clear view of an area. It is cool to have a mate near us, but you have the possibility to fly alone if you wish.

• **OPEN THE CABIN DOOR -**
The natural way to open the door is going to the back, where the door is and internally activating the switch we will see in the cabin-galley light panel. Or externally in the hidden click area, at the right-botton of the door.
But this icon gives more comfort.
Door won't open when the difference between cabin and exterior pressure is bigger than 0.1 psi.

• **CABIN LIGHT -**
Same as the door, the natural way to activate the cabin light is go to the rear cabin-galley light panel and activate it there. But if you wish also you can do it through this icon.

The hide of the menu or yoke don't deactivate the function done by the icons. So don't worry to hide them. But don't forget to leave the GPU or Door open while taxing!!

PEDESTAL PANEL



HORN CANCEL

It will deactivate the aural warning when not deployed the Landing gear near the ground.
In XPlane this button don't deactivate the horn. It just silent it until next time is produced the landing gear alarm.

Not simulated.

LANDING GEAR INDICATION LIGHTS

There are 3 lights, one per landing gear, that controls if the landing gear is unlocked or locked down.

- When the landing gear is locked down the green light will illuminate.
- When the landing gear is in motion deploying or retracting the red light will illuminate.
- When the landing gear is retracted none of these green or red lights will illuminate.

LANDING GEAR

Commands the deploy or retract of the landing gears.
Up for retracting and down for deploying.

FLAPS POSITION INDICATOR

The pointer in this gauge indicates the actual position of the flaps.

- **Retd -** Flaps are retracted
- **10º -** Flaps are in 10º degrees deploy.
- **20º -** Flaps are in 20º degrees deploy.
- **35º -** Flaps are in 35º degrees deploy. In this angle of flaps automatically the autopilot servos are disconnected
- **Dump -** Flaps are set to 75º to act like airbrakes.

They are only in this position when there is spring over the front landing gear, above 40 knots IAS and before the 35º angle has been selected. Dump cannot be selected manually.

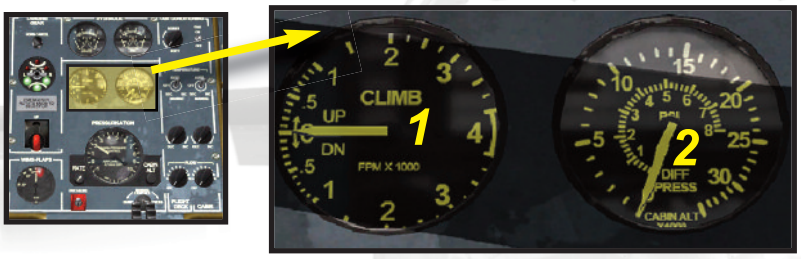
HYDRAULIC GAUGES

1 EMERGENCY SUPPLY (BRAKES)- Shows the pressure in the emergency braking system.

2 MAIN SUPPLY (BRAKES)
Shows the pressure in the normal braking system. Maximum permisible pressure 2400 psi.

3 BRAKES
Shows the pressure being applied to left and right wheel brakes when using the toe-pedals.

4 LEFT / RIGHT HYDRAULIC PUMP PRESSURE.
Normal at 2000 psi. Maximum permissible pressure is 2400 psi



CABIN PRESSURE GAUGES

1 CABIN RATE OF CHANGE IND.
Shows cabin rate of climb or descent

2 CABIN ALT / DIFF PRESS INDICATOR

- **Outer scale -** Shows actual cabin altitude.
- **Inner scale -** Shows differential pressure with exterior. Red line indicates maximum permitted differential of 5.5 psi.

To be able to open the cabin door or pilot window, the difference of pressure has to be less than 0.1 psi. When loading the plane even with cold and dark situation xplane always set a significative difference of pressure, but there is no instant way of setting the altitude of the cabin the same as the airport where we are.. so automatically (only on loading) the plane will dump pressure to match with ground. BUT sometimes it don't do dump.. so we need it manually with the Manual Control Rotary selector.

PRESSURIZATION

The pointer shows the cabin altitude we want to have.

1 CABIN RATE OF CHANGE (ROTARY) -
Sets rate of change of cabin altitude. Maximum is 2,000 ft/min. Changes can be see in the cabin rate of change indicator.

2 CABIN ALT. (ROTARY) -
Selects cabin altitude providing the MANUAL DUMP/PRESS rotary is at PRESS.

3 MANUAL CONTROL SELECTOR.
- **Press -** Valves closed.
- **Dump -** Opens the discharge valve that controls pressurization. The cabin pressure will match the exterior pressure.

AIR CONDITIONING

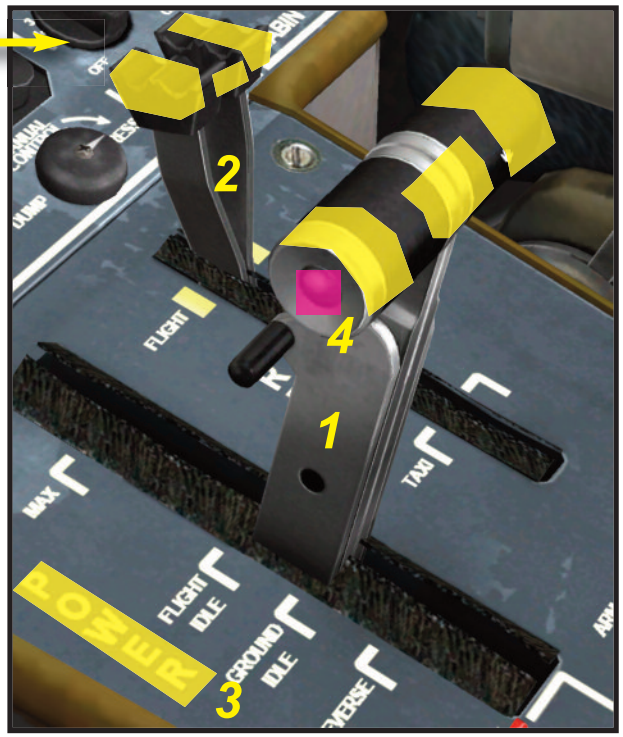
1 DEMIST/FOOT SELECTOR -
- **Demist -** Directs air to windshield panels (clean fog).
- **Foot -** Directs air to pilots feet area.

2 FAN SWITCH -
On - Recirculates cabin air through cabin air system. Necesary to start airconditioning.

3 TEMPERATURE AUTO/MANUAL -
- **Auto -** Selected temperature of (25ºC is maintained by the temperature control valve.
- **Manual dec/inc -** Manually controls the valve to decrease or increase the temperature of air to cabin.

4 TEMPERATURE SELECTOR -
Allows the cabin temperature to be set. Both rotaries rotates same time (cabin and flight deck are connected in this plane)

5 FLOW SELECTORS - • **Off -** Shuts off air to related system
• **0-10 -** Sets flow control valve to required level.



CONTROL COMMAND

1 POWER LEVER -

• **Flight idle - Max -** Controls fuel supply to engine and arms the propeller negative torque sensing system.

• **Ground - Flight idle -** Controls the propeller blade angle from a zero to positive setting. Near Ground idle activates Beta.

• **Rev - Ground Idle -** Controls the propeller blade angle from a negative to zero setting.

Reverse mode only can be obtain when engines are running, so throttle won't be far from Ground idle when the engines are stopped.

To activate reversers with the joystick hardware, please asignate a button of the joystick to the command **thrust_reverse_hold.** To do that, go to equipment menu, then "**joystick,keys and equipment**" and in **Buttons:adv tab** press your desired joystick button to asign the function. Then selects in the middle menu "**engines**", and then to the right "**thrust_reverse_hold**". That way everytime you press that button the reversers will come fully to the plane. Please don't do this in air.

You can manage reversers also with the manipulators. Press the area where you can read the word "**power**". That way you have activated manipulators in throttles mode. Grab with the mouse in the middle of both throttles and retard them until Reverse area. You have Reversers. The caption (REV) can be read in the central panel.

2 RPM LEVER

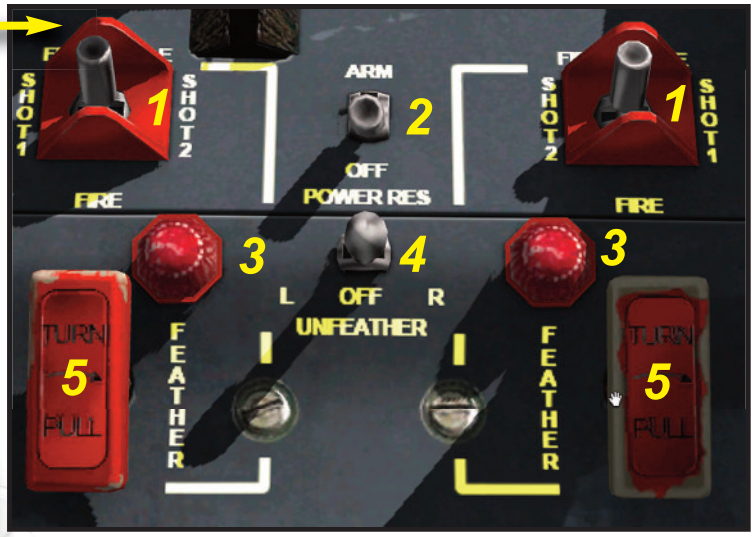
• **Flight -** Sets engine RPM at 100%.
• **Taxi -** Sets engine RPM at 72%

3 HIDDEN CLICK AREA - THROTTLE MANIPULATOR MANAGE MODE -

When managing throttles with a Joystick sometimes it interfere with programming, or if user wants to manage throttles separatelly, then is good to use this function.
User has to click over this area. At that moment any movement of the joystick won't produce any change in the thrust of the plane. The only way to change power, is with manipulators only accessible in this mode.
You can grab separatelly both levers if you grab the mouse in the end side of each lever, or both together clicking and grabing in the middle of them. The only way to obtain a reverse is retarding both power levers. Cannot be done separately.
IMPORTANT! if you deactivate joystick-throttle movement, DON'T quick x-plane in that stage. First reactivate the joystick movement again clicking another time in same click-area, or just load other plane and then quick xplane. If you don't do this, the joystick axis assigment can be lost.
Remember you cannot modify joystick hardware axis when the jetstream is loaded because plugin design.

4 TOGA BUTTON.
Activates T.O.G.A. mode (remember you have to switch on Autopilot servos in front panel.) But always is a good ide if you asign the function to a button of your joystick. The function is located same as Reverse mode button function, but in **Autopilot** middle menu, **take_off_go_around.**
Remember that TOGA mode won't exit until a new horizontal AND vertical mode are set or armed.

FIRE PANEL



1 FIRE BOTTLE SELECTOR -
• **Shot1 -** Discharges the first fire extinguisher bottle.
• **Shot2 -** Discharges the second fire extinguisher bottle.

2 FIRE BOTTLE ARM -
Arms the fire bottles to be Discharged.

3 FIRE LIGHT (RED) -
Shows that an engine fire has been detected accompanied by the FIRE caption in the central panel and an autio warning (Firebell) (Only in xplane10).
The light is brought on during fire detection system testing.

4 PROPELLER UNFEATHERING SELECTOR -
L or R - Powers the related unfeathering oil pump. The selector is spring loaded to the OFF position.

5 FEATHER LEVER -
Pulled for related engine:
• Shuts the HP fuel cock.
• Feather the propeller
• Shuts the LP fuel cock.
• Shuts the LP hydraulic cock.
• Inhibits engine starting circuits.

FLAPS / TRIMS

1 FLAPS SELECTOR -
Selects 4 positions for the flaps. Retd, 10º, 20º and 35º. It can be done via joystick buttons or with the manipulator. 2 click manipulators showing arrow (up-down) are at the top and botton of the flaps selector.
Remember that the DUMP position is automatically selected prividing the flaps selector is at 35º, a power lever is retarded below flight iddle, nose gear is compressed and hydraulics pressure is available.

2 ELEVATOR TRIM WHEEL -
Provides manual control of the elevator trim tabs. When the autopilot servos are on, any modifications in this wheel will make the autopilot disconect.
The Elevator tab indicator shows the amount of trim applied to the elevator tab.

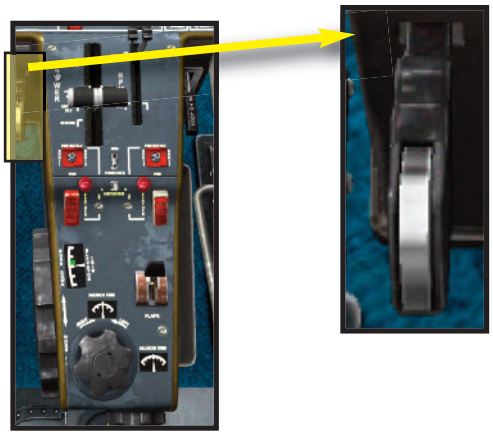
3 RUDDER TRIM WHEEL -
Provides manual control of rudder trim tab. The Ruder tab indicator show the amount of trim applied to rudder tab.

4 AILERON TAB WHEEL -
Provides manual control of aileron tab. The aileron tab indicator shows the amount of trim applied to the aileron tab. In take offs because both engines are CCW, it is always good to set the aileron trim tab 2 points to the left.

FLYING CONTROL LOCK HANDLE

- **In -** Control lock pins are primed to engage in flying control surfaces
- **Out -** Disengages the flying control lock pins.

VERY IMPORTANT: The function to lock the flying controls gives to zero the joystick pitch, roll, peddals and toe-brakes axis. That means that if you exit XPlane with controls locked you will loose your axis, and you will need to enter again IN OTHER PLANE - than the Jetstream (remember that when the jetstream is loaded, user cannot modify any joystick axis).
The way to exit is
1. Unlocking the controls, then exit.
or
2 .with controls locked, load other plane, and then exit xplane.



PARKING BRAKE.

Set and release parking brakes. IF there is not hydraulics (cold and dark situation) to maintain the plane stationary, you have to put the chocks (via yoke hiden menu).

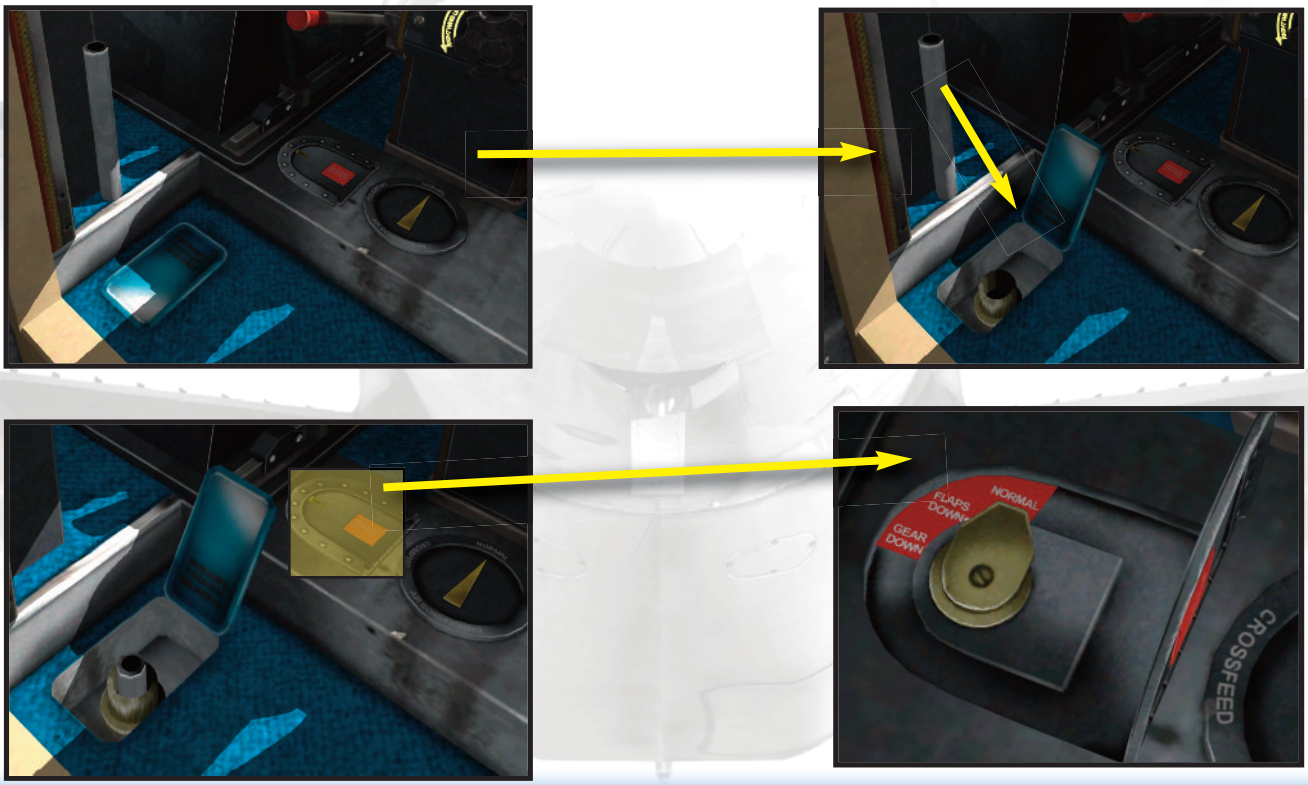
EMERGENCY HYDRAULICS

In case of hydraulics failure, there is a posibility of recovering controls, flaps and landing gear. In the rear of the flight deck, just on the pilot side, there is a handpump handle. Click over it once you have opened the Access panel labeled “Emergency hydraulic handpump”

It will be inserted in the hole.
Once done that, we will recover hydraulics for managing the flight controls, but not fully implemented.

To lower flaps and landing gear, please open emergency hydraulic selector panel next to the “Emergency Hydraulic handpump” panel and click over the first point.
That will lower the flaps at 20º.
Clicking over again will lower the landing gears.

Remember that none of the flaps or landing gears can be retracted after this. Only loading again the plane.



PROCEDURES GUIDE

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AUTOMATIC ENGINE START

1 When you want to start up engines, you must know that the plane needs at least 24 Volts. If you don't have enough volts, don't start engines, or you can run into a hot start.
The Jetstream has 2 batteries, but they run out fast, so if you run out of energy I suggest you to load again the plane, because a empty battery cannot be charged.
If you find that you have less than 24Volts maybe is a good idea to connect the plane into a GPU unit.

2 To connect directly the plane into self batteries, swith on the main battery into **INT** position
To connect the plane to a GPU unit, the plane must be stationary. To be secure put the **chocks**, then ask for the GPU unit. Once you see it outside in pilot side, turn on the Battery Master switch to **GND** position.

in Both situations if the plane has energy the back illumination central panel will light up, and warning-caution captions will appear in the annunciators panel.

3 Push to cancel the Warning flashing light.

4 If you are connected with internal batteries switch on the Volts indicator switch selector into **Vots battbus**
If you are connected via GPU, turn the Volts indicator switch to the **Ground Power** position.

5 Switch on the Avionics Master Main to On. Check that the primary. RMI and HSI will point to direction of plane. Before, they where pointing to the north.

6 Check out that the **Air/Ground** switches are in the situation the plane is. Because we are starting in the ground, put **GND** in both.

7 Check that the Manual Start knobs are both in the **Normal** position.

8 Check that the generators are in the middle **Off** position and make a **reset**. Switches will spring back. That way we avoid an overcurrent. Remember: Before starting engines, both generators MUST be in the **off** position.
If you forget and you have an overcurrent, reset the generator. That way you will have it back online.

9 Open the Left and Right **Low Pressure Hydraulic cocks**. Check that shut captions changes to green open.

10 Open the Left and Right **Low Pressure Fuel Cocks**. Check that shut captions changes to green Open

11 If Low pressure fuel warnings are in annunciators panels activate Left and Right **Boost** switches. After doing this check that the low pressure fuel warnings are off. Check that Fuel press indicator has more than 15psi.

12 Check that the Fuel XFeed switch is shut. (unless one tank have run out of fuel and wants to feed from the oposite tank)

13 Switch on both SRL computers. Check that SRL captions are gone.

14 Move both condition Levers to Taxi.

15 If we don't have the GPU connected we would start by engine 1 (left one) but because we are following the example with GPU connected:

16 Press the Right engine starter selector. If the Left one is not selected, it will turn into ambar.

17 Press once (not necesary to hold the switch) the Right Engine Starter. It will become red, and the full automatic process of engine start will begin.

18 Inmediatelly if we make a valid start (if we failed selecting or activating the previous switches then for security there won't be any start sequence) the EGT temperature will raise until 450º

19 Oil pressure will raise to 90 psi

20 RPM percent will raise from cero to a minimum of 52%

21 Oil temperature will raise slowly

22 Check that EGT don't passes 650ºC during start sequence. That would be a hot start. Press inmediatelly the STOP button if so. If you don't do it before the starting sequence ends engine will fire.

23 Check that the right red OIL caption in the annunciators panel is off.

24 Wait until the Right selector and starter switches becomes off.

25 Check how the Bus tie light is on.

26 Switch on the Right Generator. Check the amperemeter. Generator caption light should be off in the main annunciators panel. If the generator is not working reset it and turn it on again.

27 Switch on the AC Transfer switch.

28 Turn off the right boost pump switch. Fuel pressure will fall but maintain in normal conditions.

29 Press the bus tie light switch to reset. It will go off.

30 Now we have started the Right engine. Because we had energy from the GPU, but now the Right generator is powering the busbars, we turn the BATT MASTER switch to INT.
We see how the battery caution captions are off.

31 The voltemeter will show zero volts. Now is time to change it to VOLTs BATT BUS position. If Generator is powering the mainbusbar it should read 28volts.

32 Ask for remove of the GPU

33 We look at the hydraulics and see if we have pressure. If the brakes have, then we can retire the chocks.

Now for the left engine.

34 We check that we have the left condition lever in Taxi position.

35 Left fuel boost is on and we have more than 15psi pressure. ensure the Fuel pressure warning light in annunciators panel is off.

36 Switch on the left engine starter selector.

37 Switch on the left engine starter button.

38 Left Oil pressure will raise to 90 psi

39 Left RPM percent will raise from cero to a minimum of 52%

40 Left Oil temperature will raise slowly

42 Check that Left EGT don't passes 650ºC during start sequence. That would be a hot start. Press inmediatelly the left STOP button. If you don't do it before the starting sequence ends engine will fire. Wait 30 seconds between stop process and starting again. If not a wet start may happen.

43 Check that the left red OIL caption in the annunciators panel is off.

44 Wait until the left selector and starter switches becomes off.

45 Check now the Bus tie light is on.

46 Switch the Transfer AC switch to Normal.

47 Position the voltemeter switch selector to the normal position. Center one.

MANUAL ENGINE START

The manual engine start procedures starts with the same steps as the automatic one. In this case we are going to startup without GPU unit.
The process of starting manually the engine is going to be the same from step nº1 to 6. Lets then start with the 7.

7 Turn the Left Manual Start knob to "**Energise**"

8 Switch on fuel enrich button. It will light up. We need additional fuel in manual mode.

9 Checkout any low fuel press caption. If we have it checkout the fuel pressure indicator and if we don't have at least 15psi then we activate boost pump, on the left side. The annunciator will disappear.

10 Press once and not hold the left engine starter switch. It is not necesary to press the selector one.

11 Checkout EGT temperature. If it overpass 650ºC we have an hot start. Press immediately the stop button to stop process and wait 30 seconds until next try.

12 Oil pressure will raise. Check out to be in limits.

13 RPM % will start raising. It will stabilize at 25%, but when it pass 12% we can change the manual knob to **ignite**. That will produce the continuity of rpm increase.
If you don't change to ignite, the start process could produce a hot start, but sure would fail the starting process.

14 Once we have at least 45-50% turn the rotary to **60%** position. This will stop the ignition motor to prevent a hot start.

15 Turn off Fuel enrich.

16 Checkout how the OIL caption in the annunciators panel disappears.

17 Switch on the left generator. If amperemeter pointing to cero, make a reset and try again. The GEN caption will be off.

18 Switch on the AC transfer switch.

19 When the Bus-Tie reset light appears it is the moment to turn the rotary from 60% to **Normal** position. If we do before, we can end the starting process. If we wait 5-6minutes we can burn the engine.

20 Switch off the Bus-Tie Reset button.

21 Switch to normal the AC transfer switch.

The process to start the Right engine is the same but activating the right side switches.

CHECK LIST

PREFLIGHT
BEFORE START PHO.
AUTOMATIC START
MANUAL START
AFTER START
TAXI
BEFORE TAXI/OFF
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PREFLIGHT

Chocks	SET
De-ice switches	OFF
Doors	CLOSED

BEFORE START ENG.

Walk around	DONE
Cabin door	SECURE
Parking brakes	SET
Lights	OFF
Essential Avionics	OFF
Nonessential Avionics	OFF
Generator 1&2	OFF
Computers	OFF
Ignitions	NORMAL
AC transfer switch	NORMAL
Engine Firewall Levers	OFF
Electric Master Emerg	NORMAL
Power levers	IDLE
Condition Lever	DOWN
Fuel XFeed	SHUT
Fuel quantity	CHECK
Cool Flaps	AUTO
Prop Sync	OFF
Annunciators	TEST
Battery	ON
Voltmeter Mode switch	BATT V.
Main Avionics	ON
Navigation Lights	ON

AUTOMATIC START

Battery	ON
Beacon Lights	ON
Voltmeter	24v min.
Fasten seat belts	ON
No smoking	ON
Propeller area	CLEAR
Air/GND switch	SET
Left Generator	RESET
Left&Right generators	OFF
Ignitions	NORMAL
SRL computer	ON
LP hydraulics cock	OPEN
LP fuel cock	OPEN
Left Boost pump	ON
Left Condition Lever	TAXI
Left Fuel Pressure	15psi min
Left Engine Selector	ON
Left Engine Starter	ON
Left RPM	50% min
Left EGT	<650ºC
Bus Tie warning	ON
Left Generator	ON
AC Transfer	TRANSF

AUTOMATIC (cont..)

Bus Tie	RESET
Right Generator	RESET
Right Generator	OFF
Right Boost pump	ON
Right Condition Lever	TAXI
Right Fuel Pressure	15psi min
Right Engine Selector	ON
Right Engine Starter	ON
Right RPM	50% min
Right EGT	<650º
Bus Tie warning	ON
Right generator	ON
Bus Tie	RESET
AC Transfer	NORMAL

MANUAL START

Battery	ON
Beacon Lights	ON
Voltmeter	24v min
Fasten Seat Belts	ON
No Smoking	ON
Propeller Area	Clear
Air/GND Switch	SET
Left generator	RESET
Left&Right Generators	OFF
Ignitions	NORMAL
SRL computer	ON
LP Hydraulics cock	OPEN
LP Fuel cock	OPEN
Left Boost Pump	ON
Left Condition Lever	TAXI
Left Fuel Pressure	15psi min
Left Ignition	ENERGI
Fuel Enrich	ON
Left Engine Starter	ON
Left EGT	<650ºC
Left RPM	12%min
Left ignition	IGNITE
Left RPM	50% min
Left Ignition	60%
Fuel enrich	OFF
Left Generator	ON
AC Transfer	TRANSF.
Left Boost pump	OFF
Bus-Tie	ON
Left Ignition	NORMAL
Bus-Tie	RESET
AC Transfer	NORMAL

same for Right engine.

AFTER START

Essential NonEsential	ON
Navigation ligths	CHECK
De-ice	AsReq
Radios	AsReq
Trims	SET
Flaps	SET
SRL computer	ON
TTL computer	AsReq
Cabin Pressure	AsReq

TAXI

Brakes	SET
Chocks	OFF
Flight Controls	FREE
Taxi Lights	ON
Altimeters	SET
Autopilot	AsReq
Transponder	SET

BEFORE TAKEOFF

Parking brakes	SET
Flight Instrum	CHECK
Fuel Qty	CHECK
Engine Firewall	CHECK
Trims	CHECK
Engine Isntrument	CHECK
Power lever	IDLE
Pitot Heat	asReq
De-ice	asReq
Avionics	CHECK
Weather Radar	CHECK
Strobes	ON
Landing Lights	ON
Taxi lights	OFF
Transponder	ON
Flaps	T.OFF
TTL computers	AsReq
Prop Synchro	AsReq
Parking Brakes	OFF
Condition Levers	HIGH

TAKEOFF

Flaps	TakeOff
TOGA	ON
Autopilot servos	ON
Annunciators	CHECK

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AFTER TAKEOFF

Gear	UP
Flaps	UP
De-ice switches	AsReq
Pitot Heat	AsReq
Autopilot modes	>1200ft

CLIMB

Pressurization	CHECK
Landing Lighs	Off FL100
Seatbelts sign	AsReq
TTL Computers	Off FL140
De-ice	AsReq
Pitot Heat	AsReq
Altimeters	Standard

CRUISE

Pressurization	CHECK
De-ice	AsReq
Pitot Heat	AsReq

DESCENT

Pressurization	CHECK
De-ice	AsReq
Pitot Heat	AsReq
Seatbelts sign	AsReq

10.000 feet

Altimeter	SET
Seatbelts sign	ON
Landing Lights	ON
TTL computers	AsReq

BEFORE LAND

Altimeters	CHECK
Autopilot	OFF
Condition Levers	FLIGHT
Flaps	AsReq

LANDING

Flaps	Landing
Landing gears	DOWN
For Dump	Flaps 35º

AFTER LAND

Flaps	UP
De-ice	OFF
Strobe lights	OFF
Landing Lights	OFF
Taxi Lights	ON
Condition levers	TAXI
Brakes	CHECK
Transponder	Standby
TTL computers	OFF

CHUTDOWN

Parking Brakes	SET
Chockes	SET
Taxi Light	OFF
Seatbelts sign	OFF
Transponder Radios	OFF
Weather Radar	OFF
GPS	OFF
Voltmeter mode	Batt Volts
Generators	OFF
Power Levers	DOWN
LP Fuel Cocks	SHUT
LP Hydraulics	SHUT
Beacon Lights	OFF
Navigaction Lights	AsReq
Lock Controls	ON
Avionics	OFF
Battery	OFF
Electric Master	OFF

To exit XPlane load other plane then exit if Locks controls are ON. If are OFF, you can quick without problem. Ensure also that Throttles are not in manipulators mode or you would loose your assigned joystick axis.

ENGINE FIRE

Warning light	OFF
Autopilot	OFF
Condition Lever	DOWN
Power lever (single)	IDLE
Fuel Crossfeed	SHUT
Fuel Enrich	OFF
Propeller Sync	OFF
TTL computers	OFF
Electric Master	NORMAL
Generator	OFF
LP Fuel cock (single)	SHUT
LP Hydraulics (single)	SHUT
Fire bottles	ARM
Fire Bottles	SHOOT
Ignition	NORMAL
Fuel Quantity	CHECK

if restart of engine is imposible.

Engine Firewall	CLOSE

Emergency land.

BOTH ENGINE FIRE

Warning light	OFF
Autopilot	OFF
Condition Levers	DOWN
Power levers	IDLE
Fuel Crossfeed	SHUT
Fuel Enrich	OFF
Propeller Sync	OFF
TTL computers	OFF
Electric Master	NORMAL
Generators	OFF
LP Fuel cock	SHUT
LP Hydraulics	SHUT
Fire bottles	ARM
Fire Bottles	SHOOT
Ignition	NORMAL
Fuel Quantity	CHECK

if restart of engine is impossible.

Engine Firewall	CLOSE

If both engines are impossible to start again.

SRL Computers	OFF
Emergency Hydraulics	ON
Flaps	AsReq
De-ice	OFF
Non necesary instr.	OFF
Battery	OFF

When necesary turn battery on to use Nav instruments

FAILURES

• It is needed a minimum of 24V to start engines. If you are below 20volts don't start engines.

• Do not start the engines with the generator switch to On, that would produce an Overcurrent that can be resolved with a Reset of the Generator. Before start always make a reset to prevend the Overcurrent.

• After stop the starting engine process, wait at least 30 seconds before tying again. If not you will produce a wet start.

• While manual start move the igniter knob from Energise to Ignite when passed the 12% RPM. And when near 50% from Ignite to 60%.
In 60% wait at least 1 minute (when reset tie light appears) to change to Normal position.

• Never stay five minutes in the 60% position with engines running. It can produce a engine fire.

• No ignite when engines are running.

• Do never forget to switch off Fuel enrich after engine manual start.

• Always check oil temperature and open cowling flaps to prevent an engine failure.

• Do not pass Torque limit for more than 3 minutes or you will have an engine failure.

• Do not pass the EGT temperature limit for more than 3 minutes or you would have a fire in engines.

• If engines are not starting first see your situation if you chosed good the Air/ground switch, and check all necesary steps to be completed before the start in the checklist.

• If you have a hot (wet) start (notice it how the EGT temperature is raising quickly, stop the engine start process pressing the STOP button, or you will damage your engine.

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Credits

Main Idea and Design
Javier Rollón Morán

Graphics and Animation
Javier Rollón Morán

PlaneMaker Flight Dynamics
Javier Rollón Morán

Programming
Javier Rollón Morán

X-Aviation Support
Cameron Son
www.x-aviation.com

X-Plane.org Support
Nicolas Taureau
www.x-plane.org

Thanks for Support
Austin Meyer
Ben Supnik

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Javier Rollón Morán