**AEROPROYECTO** IL-62M  
Freeware release2.0 for FS9, with FSX compatibility  
By Edgar Guinart López  
Revised 1.1



*In our modern jetliner age, of high automatic systems, the essence of the high altitude flying may pass hidden for inexpert simmers, however trying this kind of old jets can show us many useful things in that way…*

This FS9 model was intended to fulfill most of the simmers expectations trying to settle at some middle way between simulation and simplicity; this means that not every system works as real one does. I try to offer a model FSX compatible but the complexity of some systems make me hard the task of double programming, so I prefer to release this as FS9 model with some FSX compatibility for now.

For more aircrafts visit: <http://aeroproyecto.freetzi.com>  
Don´t hesitate to contact me: [guinart@aeronav.ecasa.avianet.cu](mailto:guinart@aeronav.ecasa.avianet.cu)

**Special thanks.**

I like to thanks to everyone that help me, in any way, to make this FS9/X aircraft because any help, for small that appears to be, have a huge importance for me. As usual, I will list some of the guys, and girls, that have a special impact on this particular project.

To my friend Ramsel: This guy is, in first place, the responsible for my decision to retake this long abandon project. Besides he contributes to this project in so many ways that is impossible to say in few lines.

To my friends Eddy and Adrian: They were involved in the first version of this project many years ago which, unfortunately, don´t comes to light as planned. Now I have used a big quantity of that material in this new version. They are part of this project too.

To Igor “Drunkflyer”: For his texturing error reports and advices.

To my friend Mely: The flyer; there is no FS model of mine that he doesn´t like to try, and advise me back in the process.

To my daughter: For the first time, she let me know her concern about FS model appearance; she is 6 years old! ☺

To my wife…

**INDEX**

1. [**AIRCRAFT WEIGHT & SPEED LIMITS**](#_AIRCRAFT_WEIGHT_&)
2. [**PLANNING TAKEOFF & LANDING RUNS**](#_PLANNING_TAKEOFF_&)
3. [**PLANING THE FUEL FOR TRIP**](#_PLANING_THE_FUEL)
4. [**TAKEOFF &CLIMBING THE IL-62M**](#_TAKEOFF_&CLIMBING_THE)
5. [**CRUISE LEVEL VS TAKEOFF WEIGHT**](#_CRUISE_LEVEL_VS)
6. [**DESCEND, APPROACH & LANDING**](#_DESCEND,_APPROACH_&)
7. [**REFUELING AND LOADING THE AIRPLANE**](#_REFUELING_AND_LOADING)
8. [**ELECTRIC SYSTEM**](#_ELECTRIC_SYSTEM)
9. [**AIR BLEED AND AIR-CONDITIONED SYSTEM**](#_AIR_BLEED_AND)
10. [**DOORS & GROUND EQUIPMENT**](#_DOORS_AND_GROUND)
11. [**REVERSER SYSTEM**](#_REVERSER_SYSTEM)
12. [**FUEL DUMPING**](#_FUEL_DUMPING)
13. [**FUEL CONSUMING AND CROSS FEED (X-FEED)**](#_FUEL_CONSUMING_AND)
14. [**FUEL LEVEL READINGS**](#_FUEL_LEVEL_READINGS)
15. [**WARNING SYSTEM**](#_WARNING_SYSTEMS)
16. [**ENGINES AND APU OPERATION**](#_ENGINES_AND_APU)
17. [**THE RADIOS & THE SOUND PANEL**](#_THE_RADIOS_AND)
18. [**THE AUTOPILOT OPERATION**](#_THE_AUTOPILOT_OPERATION)
19. [**SPECIAL INSTRUMENTS**](#_SPECIAL_INSTRUMENTS)
20. [**SOME FSX COMPATIBILITY PROBLEMS**](#_SOME_FSX_COMPATIBILITY)
21. [**ABOUT FSUIPC**](#_ABOUT_FSUIPC)

# **AIRCRAFT WEIGHT & SPEED LIMITS**

OEW - Operative empty weight: 74,500 kg  
MTOW - Max takeoff weight: 167,000 kg  
MLW - Max landing weight: 107,000 kg  
Max ramp weight: 168,000 kg  
Max payload: 23,000 kg  
Max cero fuel weight: 97,500 kg  
Max fuel weight: 1,053,000 l (x 0.825 kg/liter) ~ 86,870 kg

VMO - Max operative airspeed: 605 km/h  
MMO - Max operative Mach: 0.83 Mach  
VLO - Max speed with gears extended: 552 km/h  
VLE - Max speed for extending or retracting gears: 500 km/h  
Max airspeed for Flaps 15º: 402 km/h  
Max airspeed for Flaps 30º: 360 km/h

All VREF are measured at ISA at sea level and dry runway

V1 - Decision airspeed

279 km/h with 167000 kg  
242 km/h with 100,000 kg

VR - Rotate airspeed

287 km/h with 167,000 kg  
273 km/h with 100,000 kg

V2 - Airborne airspeed

301 km/h with 167,000 kg  
288 km/h with 100,000 kg

Secure takeoff climb airspeed

404 km/h with 167,000 kg  
328 km/h with 100,000 kg

Normal climb airspeed

560 km/h all weights

Approach airspeed

285 km/h with 110,000 kg  
270 km/h below 99,000 kg

Stall airspeed with Flaps 30º

270 km/h with 167,000 kg  
210 km/h with 100,000 kg

Stall airspeed with Flap 15º

291 km/h with 167,000 kg  
225 km/h with 100,000 kg

Stall airspeed with Flaps 0º

326 km/h with 167,000 kg  
253 km/h with 100,000 kg

Gs limitations

3.0 to -1.0 without flaps   
2.0 to -0.5 with full flaps

# **PLANNING TAKEOFF & LANDING RUNS**

Finding the needed runway for taking off or landing may be a real headache. So, here I try to simplify the tables,obtaining acceptable approximations. This FS model may have better performances that real one because the FS engines have not wears.

First, the runway for takeoff must be 2500 meters minimum whatever the TOW are despite the table numbers; and I use a max of 5000 meters, because beyond that is simply ridiculous. All references were made for cero wind; every 10 KIAS wind against the length of the runway will be reduced in about 200 meters in a 4000 meters long run. All takeoff and landing in IL-62M must be made with Flaps 30º, Flaps 15º is only for transition.

Length for takeoff at nominal power:

Sea level 0 Celsius  
160 t = 4530 / 150 t = 3780 / 140 t = 3150 / 130 t = 2580  
120 t = 2110 / 110 t = 1800

Sea level 15 Celsius  
160 t = 4830 / 150 t = 4030 / 140 t = 3360 / 130 t = 2710  
120 t = 2220 / 110 t = 1910

Sea level 30 Celsius  
160 t = XXX / 150 t = XXX / 140 t = 4300 / 130 t = 3540  
120 t = 2800 / 110 t = 2400

2000 feet 0 Celsius  
160 t = 4530 / 150 t = 3780 / 140 t = 3150 / 130 t = 2580  
120 t = 2110 / 110 t = 1800

2000 feet 15 Celsius  
160 t = XXX / 150 t = 4390 / 140 t = 3360 / 130 t = 3430  
120 t = 2700 / 110 t = 2330

2000 feet 30 Celsius  
160 t = XXX / 150 t = XXX / 140 t = XXX / 130 t = 4530  
120 t = 3480 / 110 t = 2890

Length for landing, max spoiler and full reverser:

Sea level 0 Celsius  
110 t = 2640 / 100 t = 2540 / 90 t = 2460

Sea level 15 Celsius  
110 t = 2720 / 100 t = 2600 / 90 t = 2520

Sea level 30 Celsius  
110 t = 2810 / 100 t = 2660 / 90 t = 2580

2000 feet0 Celsius  
110 t = 3040 / 100 t = 2910 / 90 t = 2810

2000 feet15 Celsius  
110 t = 3120 / 100 t = 2980 / 90 t = 2890

2000 feet30 Celsius  
110 t = 3220 / 100 t = 3090 / 90 t = 3000

It is clear that higher temperatures are impossible at higheraltitudes but there are cases that hot grounds, due to the intense sun action,raises the temperature near the surface of the field, like some countriesin Africa.

# **PLANING THE FUEL FOR TRIP**

The veteran pilots of the IL-62M says that fuel calculations for a trip in this machine is simple, multiply the hours planned by 7 tons. Of course that is a roughly simplification but it works, even in this FS model I have successfully tried by years that this simple calculation works pretty fine. However, here is a table for estimate the trip fuel needed for certain flight time.

* 0:30 hours from takeoff 🡪5.3 tons
* 1:00hours from takeoff 🡪 6.2 tons
* 1:30hours from takeoff 🡪 11.2 tons
* 2:00 hours from takeoff 🡪14.2 tons
* 2:30 hours from takeoff 🡪 17.4 tons
* 3:00 hours from takeoff 🡪 20.7 tons
* 3:30 hours from takeoff 🡪 24.1 tons
* 4:00 hours from takeoff 🡪 27.6 tons
* 4:30 hours from takeoff 🡪 31.4 tons
* 5:00 hours from takeoff 🡪 35.3 tons
* 5:30 hours from takeoff 🡪 39.2 tons
* 6:00 hours from takeoff 🡪 43.1 tons
* 6:30 hours from takeoff 🡪 47.0 tons
* 7:00 hours from takeoff 🡪 51.0 tons
* 7:30 hours from takeoff 🡪 55.0 tons
* 8:00 hours from takeoff 🡪 59.2 tons
* 8:30 hours from takeoff 🡪 61.9 tons
* 9:00 hours from takeoff 🡪 64.3 tons
* 9:30 hours from takeoff 🡪 67.2 tons
* 10:00 hours from takeoff 🡪 69.8 tons
* 10:30 hours from takeoff 🡪 72.5 tons
* 11:00 hours from takeoff 🡪 75.1 tons
* 11:30 hours from takeoff 🡪 77.7 tons

This data is calculated for optimum flight level depending on gross weight of aircraft, including the climb time. These optimum levels are explained in the next section. Remember that this is trip fuel only, for a complete calculation of fuel you must add alternative airport time, holding time and some minutes of reserve. This data is, normally, provided by the airline but here is a guide for you:

* Alternative airport = Hours by 5 tons
* Holding = 0.25 hours by 5 tons
* Reserve = 0.5 hours by 5 tons

An easy way to calculate the duration of the flight based on the distance between two points is dividing the total flight distance in km by 850km/h, which is the normal ground speed of this aircraft at cruise, ignoring the winds speed on route. Off course, this is a happy approximation only but works quite fine for a long range airliner like this. If you include the wind speed component in the whole route you will get a more realistic ground speed but is a very complex task due to the random behavior of high altitude winds.

A good practice for beginning any flight is taking note of your Payload and the initial fuel weight, in this case in kilograms; you will need this numbers for weight calculations at climbing and landing.

# **TAKEOFF &CLIMBING THE IL-62M**

For taking off the IL-62M you must set the proper angle forthe horizontal stab between -2 and 12 degrees; this instrument is right over the flaps indicator. For TOW with more than 150 tons you must set values around 6º, for minor weights you can set minor values at will, but remember the airfield altitude and temperature will affect the results. In any case I always recommend setting 2º at least.

For normal takeoff the throttles must be set to 100%UPRTavoidingthe overheating, especially in hot days. The UPRT is the instrument that says where the throttles are positioned respect the engine thrust. Now, if you are too heavy or the runway is very short or is very high you must use the full thrust available; if the red HOT appears try to reduce the climb as soon as you can, in order to reduce the thrust, and cooling the engines. The full thrust must be used also on three engine takeoff. If engine is overheated a red HOT message appears in the engine boards.

For all takeoff weights full flaps (30º) will be used, the middle 15º flaps setting is in only for a smooth transition.

After takeoff, once the aircraft is “clean”, which means gears up and flaps retracted, the climbing stage begins. The first step is set the throttles for climb, depending of TOW, however in any case this setting cannot be superior to 90% UPRT.

These instruments are two, showing needles by pars, 1-2 and 3-4, and can be found in the Throttles Panel, between the throttles levers. The UPRT get values between 10 and 110 percent of engine thrust when engines are running, otherwise the UPRT gets 0%.In addition, you can see, and modify, the UPRT settings with the mouse wheel over the engine N1/N2 RPM gauges. After takeoff the full thrust is only acceptable for emergency cases, and for 5 minutes max.

When the TOW is less than 150 tons, you may need to set the UPRT below 90%.Since the right way to keep the proper airspeed at climbing stage is controlling the vertical speed (V/S), not the thrust, lesser gross weights can force you to set very higher V/S resulting in excessive pitch values that may create a lot of hazardous conditions. The V/S can be controlled by hand or in AP regime, as recommended, this method is explained ahead in The Autopilot Operation section.

If you are climbing below 90% UPRT due to the low TOW you will note a lack of thrust while climbing to higher altitudes so, in that moment you must set the recommended 90% UPRT for finish the climbing to a suitable flight level.

Now, the proper airspeed for climbing the IL-62M is about 560 km/h, unless the ATC, or another situation, demands minor speeds. This airspeed at about FL300 is near to 0.8M, the normal MACH for the cruising stage.

When the V/S for keeping the right airspeed, or MACH, shows values below 2 m/s (300 f/m)is the moment to check the table of weight vs. cruise level, explained in the next section. That is the clear signal that your aircraft is too heavy to climb higher levels; so is time for leveling and burning some fuel.

# **CRUISE LEVEL VS TAKEOFF WEIGHT**

This aircraft is one of few heavy types that can lift more than twice it empty weight, about 2.3 times, as comparison a Boeing 777-300 can lift only 1.8 times its empty weight. This was forced by the need of make a long range airliner with the Russian old jets engine tech. This fact carry a problem, the fully loaded IL-62M can´t reach more than FL310 initially, until the fuel burned permits climb to upper and economics flight levels. Here is a simplified table that will permit you to handle this problem successfully. These references were makes for ISA conditions.

* TOW 167 t to 165 t 🡪 Initial FL310
* TOW 165 t to 145 t 🡪 Initial FL330
* TOW 145 t to 135 t 🡪 Initial FL350
* TOW 135 t to 115 t 🡪 Initial FL370
* TOW 115 t to 095 t 🡪 Initial FL390 (Max)

For knowing when you can level up the aircraft you must subtract the weight of the fuel burned in the trip from the TOW. In fuel indicators the scales are in kilograms of fuel so the operation must be easy. Use the table showed before as a reference for changing level. The fuel consumed up to initial FL varies with the aircraft TOW, but for MTWO is about 4 tons up to FL310.

A very simple method for estimate if the aircraft is able to climbing to upper levels is by checking the angle of attack in AOA instrument, that is located just next to the secondary horizontal indicator. A good AOA values for cruising are between 3.5 and 4.5 degrees. For example, if your AOA is about 5 degrees on leveled flight you must not attempt the climb; by the contrary you are too heavy for the current altitude.

Of course, you must try to fly as high as possible for better (lesser) fuel flows, but the V/S will be too low when you reach your altitude limits for the actual gross weight, so you will burn excessive fuel trying to reach a few more feet due to the high effort of engines. In this case abandon the climb and consume more weight/fuel before a new trying.

# **DESCEND, APPROACH & LANDING**

As reference you need about 100 nm to descend from FL390,or 80 nm to descend from FL300, to an initial approach altitude for a sea level airfield. Out there are many methods for calculate the descend rate and all grossly works for all jetliners.

The descending begins retarding the throttles to IDLE; if the AT is connected you must disconnect it before, obviously. Then you must set the V/S at about -15 m/s (3000 f/m)for commencing to descend however, the real target is to maintain airspeeds between 460 and 500 km/h. If the airspeed goes out these limits you must adjust the V/S to correct the problem. Do not use the spoilers in flights, is a too violent maneuver! The V/S corrections can be doing via AP, adjusting the orange AP pitch wheel, or manually. Avoid the use of thrust for gaining speed as long as you can, actually adjusting the V/S is the best practice for controlling the descending. Check The Autopilot Operation section for more information.

In leveled flight you must keep 460 km/h with the aircraft clean, otherwise the angle of attack will rise dangerously. About 6º AOA is fine for traffics, with or without Flaps. In leveled flight you must apply the thrust manually, but the AT usage is permitted if it is for a long flight time.

Once you are reaching the approach stage you need to reduce the airspeed to 400 km/h in order to extend Flaps to 15º, for Flaps 30º you must reduce to 360 km/h. The gears can be extended at any time below 500 km/h; however the Russian methods extend the gears before flaps, using gears as spoilers for reducing airspeed to 400 km/h.

On landing stage you must reduce the airspeed to 300 km/h, trying to make the touch at about 250 km/h. Despite the real possibility of landing with gross weights over 110 tons in FS that is not recommended because the attitude of the airplane will becomes uncomfortable for a secure landing, furthermore the gears could be broken easily.

At about 5 meters AGL you be able to arm the reverser plates, and at touching extending the spoilers. Once the nose gear is down apply full reverser. If reverser thrust is insufficient to slow down the plane, use the wheel brakes. If necessary you can use reverser thrust until the aircraft is stop. Be careful, this proceeding may roll back the aircraft crushing the tail against the ground.

Keep the taxiing speed into nice limits, this aircraft have a pretty hard “waist” ☺

# **REFUELING AND LOADING THE AIRPLANE**

With a MTOW of 167 tons, the IL62 is the biggest aircraft in the world that uses cables, wheels and pulleys for moving the control surfaces direct from the pilot physical action. For that reason the engineers move forward the main gears position for provide a bigger tail arm increasing the rotation moment at takeoff. This decision brought a problem knows as “heavy tail” that was compensating adding a tail wheel support that is needed when the aircraft is loading or unloading. So, before you can refuel or load this machine you must to deploy the tail gear. In the Main Panel is a caped switch for this purpose. Be careful, this stuff really works, if you forget to retract the tail support at takeoff the aircraft will not rotate! I used the water rudder for simulate the tail wheel support, the wheel don´t roll but still is there as support. Just before start the engines you must to retract this gear.

Refueling the aircraft is a bit complex due to the same balance reason and must be done before loading any payload. Due to MSFS fueling characteristics I don’t use the main tanks in this aircraft, instead off I configure the fuel tanks as follow:

* Left tip as 1 main
* Left aux as 2 main
* Right aux as 3 main
* Right tip as 4 main
* External1 as 5 left
* External2 as 5 right
* Center as 6 center
* Center2 as 7 tail

You can use the FS9/X refueling tool but I recommend to usea specific refueling tool that can be acceded from a menu in the upper-left in the Main Panel but you need the FSUIPC installed in your system because this system is based in a gauge developed by Douglas Dawson. This tool is explicit and only works on ground under certain conditions; the menu will inform you about it state.

Anyway, no matter the tool used for refueling, you need to proceed in this order: Main tanks first as needed, same quantity for all the four mains, and tip tanks with 10% of mains. If you need more fuel, use the center tank. Only if you need all the fuel capacity, and the rest of tanks are already full, you can fill the tail tank, or 7. This procedure grants the proper fuel balance, but if you plan to flight with cero payload you must fill a water ballast tank that can be acceded via FS loading tool and is listed as WB. In the same way you can fill the center fuel tank for balancing but in this case this fuel must not be consumed.

Once the fuel is loaded you can mount the payload without any specific order, but trying to distribute the weight between the load stations. The process for cargo is similar but the rear bay is much littler than the front bay, so keep the COG (center of gravity) near ¼ of MAC (medium aerodynamics chord) and all will be fine. Keep an eye on the MTOW limit!

The passenger zones are listed as follow:

Station\_load.1= ob-36 ~ 5940 lbs >> Normal pax  
Station\_load.2= oc-36 ~ 5940 lbs >> Normal pax  
Station\_load.3= od-42 ~ 6930 lbs >> Normal pax  
Station\_load.4= oe-42 ~ 6930 lbs >> Normal pax  
Station\_load.5= wr-4 ~ 616 lbs >> Special pax on rear cabin

The cargo zones are listed as follow:

Station\_load.6 = wb (max 7000) >> Water ballast  
Station\_load.7 = c1 (max 13640) >> Aft cargo  
Station\_load.8 = c2 (max 7260) >> Aft cargo  
Station\_load.9 = c3 (max 4400) >> Rear cargo  
Station\_load.10= c4 (max 2948) >> Rear cargo  
Station\_load.11= c6 (max 2948) >> Special cargo, on upper deck.

As you see every zone shows the max pounds of weight you must load.

Finally, if you load fuel with engines running, that is a bad procedure by the way; never loads less that 1% in the fuel tank that is currently used by engines, otherwise the engines will stop. If you are not clear what are the tanks in use avoid loading less than 1% in any tank except in main ones.

# **ELECTRIC SYSTEM**

The electrical system is very simplified here, in fact was reduced to few elements that must be operated in a proper way, otherwise the things will goes wrong.

The first element is the ONGROUND/AIRBORNE switch that provides electrical power from ground power plant or from aircraft systems. This issue can be found in the Engine Panel. When you open the panels for first time you must connect this switch to Ground, which grants unlimited power for the aircraft systems; however this power source do not recharge the batteries. The ONGROUND position depends to certain conditions as follow: Aircraft on ground and stopped, parking brakes on and engines off. When any of these factors is out the switch will up to Airborne position automatically. There is another icon that shows the state of these conditions in a menu at the left/upper corner of the main panel. If any condition is out the icons turns off, if conditions are ok but the switch is in Airborne position the color is yellow, and if all conditions are ok and the switch is on Ground the icons light turns green.

The second element is the battery switch, just next to ONGROUND/AIRBORNE switch. The battery switch is caped so must be operated with the right click of the mouse, like the other caped switches on the panels. The real aircraft have four batteries but in this panel are reduced to one. The power offered by the battery is limited depending on the power demanded by the main consuming elements, like lights, starters, heaters, avionics, etc. If many of this element are on the battery will down very quickly, so you must not abuse of this. For recharging the battery you must use the APU or the engine generators. The battery must be connected immediately you board the plane. In this panel, just for practical reasons, the gyros will start when you set on the battery, otherwise the two horizontal indicators don´t work.

The APU and engine generators are engaged automatically when it motors are running, no switches, nor gauges was including here. The only sign of generators state is the red lights in the signal boards associated with APU and engines, if the generator is running you´ll see nothing; otherwise you will see red GEN signal.

# **AIR BLEED AND AIR-CONDITIONED SYSTEM**

The air system was simplified, but it has a very important work to do, start the engines.

Without the air pressure supplied by the APU system the engines can´t start, so in the Engine Panel is an indicator and two switches for this function. There is no ground air supplier in this version.

The two switches work together rerouting the APU air pressure between the air-conditioned system and the engine starting system. The indicator shows the air pressure for the engines starting system, when the air is routed to the air-conditioned system this instrument shows nothing. The switches will go up only for engines starting; the rest of time the switches goes to down position. The air-conditioned system has not an indicator in this version.

# **DOORS & GROUND EQUIPMENT**

I use the same var for all doors animation, so passenger service and cargoes will function together, with some de-synchronization. Only two passenger, one service and one cargo door was animated. I include two ground stairs that will be triggered by an icon at upper/left corner of main panel. The icon has three conditions, off, yellow, and light green. Off means that all conditions for calls the stairs are not ready, yellow means that conditions are ready but the stairs remains un-triggered and light green appears when you call the stairs and is attached to passenger doors. If any of required conditions fails, for example you start one engine, the stairs automatically will be retired and its icon will turn off. In similar way works the ground power plant and the baggage cars, but suitable conditions changes a little.

# **REVERSER SYSTEM**

This aircraft have a classic reverser system but have a particularity, the system is armed on air, just before take, and then on ground the reverser thrust is applied. In FS is impossible to apply jet reverse thrust on air so I programming the system in two steeps, arming and applying. Arming lets you set on the reverse plates on air but is only an animation, non aerodynamic effect will occur. For some FS reasons the plates animation can´t be seeing on replays. The second stage is applying reverse thrust as normal, once on ground.

The way for arming the system is by a lever action in the throttle panel, however this action can be triggered hitting on the reverser indicator lights in the main panel, case you decide to hide the throttle panel for better background view.

I´m using the tail hook var as reverser lever action and this action takes a second in transit, be patient in the mid time. The reverser thrust does not engage if the lever is off, so is a good practice set on the lever before the touch, like in the actual procedure.

Finally, only the external engines, 1 and 4, have reverser systems mounted. So only these engine indicators and levers will show the reverser behavior, in addition the reverser thrust will take place in those engines only.

# **FUEL DUMPING**

Fuel dumping is impossible with normal FS vars, so I use the same gauge used for refueling the aircraft, explained above, so it needs the FSUIPC installed in your system as well. You must know that this aircraft needs to lose about 55 tons of fuel in case you have to return to origin field short after takeoff, if you are full of fuel, otherwise the safe landing in such a heavy conditions can´t by granted. The MLW (max landing weight) of this machine is about 110 tons, and it can take off with a max of about 165 tons; the dumping tool is essential.

In this version the fuel dumping can be made with two individual valves in the Overhead Panel submenu that can be reached dropping a couple of red arrows. The dumping valves must be open together avoiding the one heavy wing, unbalancing the plane. Besides, the dumping process needs the activation of two fuel pumps in the Fuel Panel as well; these pumps provides the proper fuel pressure in the Drain Tank for begins the leaking.

In this version the fuel dumping panel was simplified, like other ones, so the fuel will be dumping only in the main tanks that sums about 60 tons of fuel, five tons more that needed for reach the MLW, however I recommend you, once on good weight, to save this 5 combined tons in the main tanks for longitudinal balancing reasons. Next is explained how must be performed the fuel consuming for keep the proper aircraft balance.

# **FUEL CONSUMING AND CROSS FEED (X-FEED)**

As I said this machine must be balanced properly for best performances, and not only on ground. For keep the COG within good margins of 27-35 percent of MAC you must consume the fuel, in the 7 possible tanks, in the following order:

1. Tail tank - 7
2. Center tank - 6
3. Tip tanks - 5L and 5R
4. Main tanks - 1,2,3 and 4 tanks

As you see the feeder process is coherent with the form that tanks are filled, explained before. The main tanks are left for final usage because are around the proper COG margins and the engines consume directly of it, in normal procedure.

For assure the good consuming of fuel you must use the Fuel Panel. It looks more difficult what really is, in true is very easy to understand and operate once you know its operational philosophy.

The first thing you must understand is the meaning of colors light. The Reds are bad; all switches with red lamps on must be set on. This is the case of main tanks pumps, upper ones, and feed reservoir pumps, lower ones. These last valves are essential, due to the position of the four engines in the plane the fuel is forced to climb, to reach the engines. If these pumps are turned off, with the engines running, the engines will shut down!

The Greens means pumps are already fueling and the Yellows mean fuel waiting for fueling. The rest of tanks, which must be empty before commencing the mains, warn you with yellow lamps, that there is fuel that must be consumed. When the fuel is over the yellow lamp is off as well as it corresponding fuel pumps. It means that is not mandatory to turn off the fuel pumps once its tank is empty.

Resuming, in normal procedure, you must set on all the fuel pumps in tanks with fuel you want use; the fuel will be consumed in the right order automatically, described before. In this model the valves and pumps acts by pars for saving time.

A different situation is when certain problem, like fuel tank leak, force you to use the cross feed. In that case you will proceed with caution; otherwise you can shut off an engine by error. This process is always a combination of cross feed valves and booster fuel pumps; check the examples bellow for better understanding.

Eng1 will use the fuel system 2:

1. Turn on the booster pumps in main tank 2
2. Turn on the left X-Feed valve
3. Turn off the booster pumps in main tank 1.

Eng1 will use the fuel system 4:

1. Turn on the booster pumps in main tank 4
2. Turn on the left X-Feed valve
3. Turn on the center X-Feed valve
4. Turn on the right X-Feed valve
5. Turn off the booster pumps in main tank 1

Now, in this last example the eng1 will be feed by the system 4 if, and only if, the rest of booster pumps in the mid way, the boosters of 2 and 3 systems, are off. It works this way because I use a philosophy of “proximity priority” that means that if you turn on the system 2 boosters, with the same combination before, the eng1 will fed by this one instead of system 4 due to its proximity.

It´s probably that the same case in real live works quite different; the fuel flow is shared depending of an equation where the power of the booster pumps action is divided by the distance, or something like that, I´m not a mathematician expert, and is for that reason that I simplify through this philosophy.

Of course I´ll not explain here every combination for solve the multiple problems of cross feeding, so you must try some of this until you understand it, I only can assure you that there is not fuel balance problem you can´t solve with this X-Feed system ☺

Finally, you must keep in mind that when I say fuel system “n” I´m saying the whole fuel system, not only the main tanks, which have the booster pumps connected. For example, and using the first case, if you have fuel in the tank 6 (center tank) and its pumps are actives, the fuel consumed by the eng1 will be from this tank, if its pumps are turned off then the system will “look” to the 5 left tank, if 5L pumps are on the fuel received by the eng1 will came from this tip tank, if not the fuel will flow from the main tank 2, following the normal fueling process explained at the beginning of this section.

# **FUEL LEVEL READINGS**

The fuel reading will be made via fuel indicators in the upper/right corner in the main panel. Actually these indicators are in a special panel that hangs from the Overhead Panel, in front of Main Panel. I reduce its size, for saving space, hiding the fuel flow gauges behind fuel quantity ones so, you can read both types by clicking on the scales. There are fives gauges, the center one have two needles that shows the tank 6 fuel (6) and the sum of wing tanks (C). This sum includes the left and right 5 tanks. The two sides gauges shows the tip tanks fuel and the other two, inners, have two needles that shows the main tanks fuel by pairs, 1-2 and 3-4. In the hidden gauges, the center one shows the tail tank fuel and the others shows the four engines fuel flow and vibration readings. You must remember that Russian planes, as other European ones, shows volume as tons, not pounds.

# **WARNING SYSTEM**

Almost all the warning lights are included in boards that are distributed along the panels in a more or less real form. I change the letters on each warning light board tying to give a more readable message due to its low size appearance. Clicking on the boards will light all available signals for checking.

I begin with the takeoff warnings that are in the Overhead Panel. Any of these alerts must be eliminated before takeoff with the exception of VERTIC STAB (stabilizer) that warns about the low horizontal stab angle. The list appears left, ring and then bellow:

* VERTIC STAB: Low horizontal stab angle. The system assumes that less that -5 deg are insufficient for heavy plane takeoff. However if the takeoff weight (TOW) is less than 150 tons you can use less the -5 deg, in this case ignore the light.
* FLAPS NOT 30º: Insufficient flaps setting. There are no exceptions here; this aircraft must be the only one in the history of jet liners that use the same setting for takeoff and landing, no matter conditions and weight, 30 degrees (full flaps)
* AUX GEAR: Tail support deployed
* DOORS OPEN: Any door is open
* SPOILER OUT: Spoilers in non-cero position
* PARK BRAKES: Parking brakes is on
* REVERS ARMED: Reverser plates are armed

The gear warning is on the left side of the Main Panel gauge. The little red lights means gears up and secured, the greens gears down and secured. The left red shows gears transit, the right means that steering is not centered. In FS this has not major importance because FS system ever centers the nose gear when it is raised. The right green light shows that parking brake is off.

The approach warning lights is mainly for automatic maneuvers at low height, and is formed by six single lights in the center-up position on the Main Panel. The first light, reading from left to right, when an automatic approach glide slope is loosed, below 60 meters height. Second; lights when decision height is reached, and off below 18 meters height. Third; lights when your final path is different to NAV1 ILS localizer, between 150 and 60 meters height. Four is the same before but respect glide slope, this signals appears even if your approach is manual. Five lights in an automatic go around. This light is not working in this version. Six; lights when you lose the glide path having gears down, max flaps and the plane is over 15 meters over ground.

Just below the previous lights is a one row board. The corner lights warn you that are banking left, or right, over 7 degrees below 60 meters, or over 15 degrees over 60 meters and have full flaps. The lights show a yellow L BANK HIGH or R BANK HIGH message. The next is a red CRITIC ANGLE that bright when the angle of attack is over 10. Following appears a red STALL CONDIT indicating a stall condition. The next is a yellow GEARS RETRAC indicating that gears are retracted in landing conditions. It means aircraft below 300 meters AGL and flaps extended. The last signal is for over speed indications and is a red OVER SPEED message.

The OMI indicator is a four cell board in the center of Main Panel. Outer Marker is in upper position.

The autopilot have it own board of warning, is a long board over the engine gauges in the Main Panel, at the right. No all light works, so here is the list from left to right order of appearance:

* GLIDE PATH: The AP approach is engage and NAV1 has glide slope
* COURSE: The AP approach is engage and NAV1 has localizer
* COURSE HOLD: The AP heading is lock
* AUTO THROTT: The auto-throttle is lock
* AUTO STAB: The AP altitude is lock
* NAV CONTR: The AP NAV1 is lock
* TURN: The AP bank knob is non cero position
* 121: The AP main channels are on

The engine fire warning is on the Main Panel at right, next to radar position. The vertical ones are engines 1 and 4, the horizontal one are 2 and 3 engines. The round lights warn that both engines on each side are on fire. There is a button for checking.

Near Mach indicator is a round light that indicates the AT is engaged.

The engine warning boards are in the Throttle Panel. Will be listed in the same order that takeoff board:

* HOT EXHAUS: Exhaust temperature is over 750 degrees
* MAXIM RPM: N2 rpm reach the 105 percent, max for 5 minutes
* OIL PRESS: Oil pressure is low
* FUEL PUMP OFF: Engine fuel pump is off. Is joined with engines in this version
* FUEL PRESS: Fuel pressure is low
* LOW FUEL: Corresponding main tank is low of fuel
* GENER OFF: Corresponding generator is off. Is joined with engines in this version

The APU warnings board is on Engine Panel. If the APU main switch is off the warning are off too, so for check this lights you must turn on this switch. The order is like the engine and takeoff:

* SHUTT OFF: Shutter door is close, must be open for starting the APU
* ON FIRE: APU turbine is on fire
* OIL PRESS: Oil pressure is low
* FUEL PUMP OFF: The booster fuel pump is off, must be on for starting the APU
* FUEL PRESS: Fuel pressure is low
* FUEL EMPTY: Fuel level is low or the pump system that feed the APU are off. The APU fuel feed is the same that Engine 1, including the cross feeding performance
* GENER OFF: The APU power generator is off. Is joined with APU turbine in this version

# **ENGINES AND APU OPERATION**

You can find the starting system in Engine Panel; the left one is for APU and the right for the engines. Actually these systems are covered for protection but in this version I skip the covers to simplifying the access. The engines needs air pressure for starting and only the APU can provide this for starting the first engine. For starting the APU you must attach the ground power plant first, because the batteries may not supply sufficient power for this. For attaching the GPP you must use the first icon in the upper left corner of the main panel. See the Doors & Ground Equipments for more details.

Once the GPP is attached the first step is setting the ground power plant switch in ONGROUND position; if GPP is detached for unsuitable conditions the switch will rise up automatically. The second step is granting the fuel supply in the Fuel Panel by any combination of Booster pumps and X-Feed valves, if required. In normal procedure turning on the first Booster pumps (Eng1) will be enough. And then you must switch up the rest of switches as follow:

1. Main switch for electrify the system and getting reading from the APU warning panel. Right click here, as all caped switches on this panels
2. APU master pump for getting fuel pressure
3. Shutter for open the turbine hatch
4. Starting for powering the Starting button

At this point only two signals must appear in the warning board, OIL and GEN. The meaning of these is explained in the Warning System section. If any other light is on you must find the cause before beginning with the APU starting. Once ready, push the Starting button and hold the pressure until the RMP gauge readingreaches20%, at this point the turbine will start and revolutions will stabilize at about 63%. All the signals in the board will be off and the values in the rest of APU indicators will stabilize as well. Now the APU is running and generating electric power and air pressure. However whiles the ground power plan is still connected in ONGROUND position the power received by the plane comes from this device, not from the APU or any engine. This is optional but I recommend maintaining this situation until all the engines are running.

To start the first engine you must use the air pressure provided by the APU so the first step is turning up to START the both air pressure valves, a gauge will show you the air pressure impelled by the APU plus engines, once this is running. You must be sure that fuel pumps and valves in the Fuel Panel are setting in order to provide the fuel flow to the engines you will start. This is explained in the Fuel Consuming and Cross Feed section. I recommend you to check the fire valves state as well, that can be found in pairs following the red arrows in the Overhead Panel, near the dumping valves.

Once fuel is feed and air pressure is granted you must turn on the master start switches, a green light must appear, and then push and hold the starting button of the engine you want to start. In the Main Panel, the selected engine N1 and N2 rpm percent will grow up until 20% of N2, at this point the turbine must start and stabilize. Check the engines boards on the Throttle Panel, which was explained before. In the starting panel, are four red lights that bright if starting procedure exceeded the speed limits, but normally bright for one second during the spool up process.

Finally, there is buttons for stop the starting process in actual aircraft, but here it performs the stop of starting engines, since the starting abortion is simply releasing the stating button. In case of in-flight emergency shutdown you better use the fire valves.

Once all engines are running you must turn up the ground power plant to AIRBORNE position. All the electrics systems are depending on APU and/or engines generators now.

# **THE RADIOS & THE SOUND PANEL**

The radios here are allocated near each other to simplify it use and save space. Except the ADF the NAV and COM radios are very similar to the western types so I´ll skip the explanations. However this ADF radio was condensed to use both, ADF1 and 2 on the same gauge, left the ADF1 and at the right the ADF2. The other instrument that you must know is the KYPC (CURS = Course) 1 and 2, which are at the bottom of the Radio Panel. The course instruments are used for set the course that you will use with each NAV stations, CURS1 match with NAV1 and so on. It works the same for ILS or VORS radio stations. For example, if you want to make an ILS approach to 06 runway at the MUHA airport in the NAV1 you must set CURS1 = 057º and is it. The knob in the HSI is only for set a reference with the needle.

The audio panel is a bit unrealistic but works in the same way that the real system. Is formed by two scaled selectors, the first is to set the audio for VORs, ADFs and markers, only one can be set on. The second is for the COMs reception and transmission. To the left you can select the station you want to transmit/receive, to the right is the same but receiving on both stations. In OFF position you can transmit/receive on COM1 as default. However, once you set any station to right, and station 2 is receiving, you cannot stop the COM2 audio turning OFF, you need to set any station to left and the return to OFF position, is an error I must fix.

The remaining switch is for toggle the avionics circuit, so if you are running in battery mode remembers to turn it off.

I include an experimental feature in the ADF radios that permits to hear up to three AM broadcasts for better flying experience. For hearing these transmissions you must to set the ADF1 or ADF2 frequency as follows:

* Broadcasting 1: 601.0 to 603.0
* Broadcasting 2: 701.0 to 703.0
* Broadcasting 3: 801.0 to 803.0

Furthermore you must set the audio knob in ADF1 or ADF2 positions. If a valid ADF signal appears on one of these frequencies broadcasting will be stopped, avoiding the sound interference with the NDB ID; that is the reason to offering a range of frequencies.

You can change the volume using a knob in the left-up corner of the ADF receptor. This feature only works on the broadcasting not on the NDB ID sounds. Any tuning change will reset the sound, forcing it to start from the beginning; that socks, I know, but is the best I can do.

The broadcasts provided here are: a few songs in the first one and only static noise in the other two; however you can change it at will just keeping the same file names. The files are inside the folder \panel\XML\_sounds\ and are named broadcast01, broadcast 02 and broadcast 03.I recommend you to use very low quality WAV files for saving memory, and for more realism too; this ADF radios are not a HI-FI music players anyway. ☺

Be careful with the rest of files inside this folder, any unconscious change may result in undesirable sound malfunction.

# **THE AUTOPILOT OPERATION**

This AP is a bit complex to understand due to it differences with the modern western autopilots, but is not less effective for the age it was produced. Furthermore the scripts are in Cyrillic alphabet due to this part was made with text included; however I put tip text over the most confusing elements; read this help carefully and you will find the logics of it operation. Not all functions in this AP works like the real one do, by several reasons there is a few that performs by the best purposes of this model operation.

Powering the AP circuits:

There is a caped switch at the leftthat electrify all the AP circuits, and could be armed on ground. Non AP function will be triggered with this arming.

Control surfaces channels:

This AP has four control channels organized by four columns. Every channel column has three buttons, two green and one red: Engage main channel, engage secondary channel and turn off the function. Secondary channels are inoperative here, and the roll and pitch channels acts together.

The extreme left column is for holding altitude via elevator trimmer, actually horizontal stab; read Special Instruments section for more explanations. The yaw channel is in the fourth column. The next, fifth, is the roll channel and the last one, the extreme right, is the pitch channel. The pitch can be adjusted by the orange wheel just below the pitch channel, it has no scales so must be used carefully, watching the V/S indicator.

There is a button for turning on the yaw, roll and pitch channels at once. Is a kind of shortcut and is right below the power caped switch, in the left-down corner.

Holding airspeed:

This system is perhaps the most difficult to understand, so pay attention please. The “reference airspeed” in this AP can´t be changed manually; there is no number you can set for establish the desired airspeed. This feature works following the red arrow in the airspeed indicator. When the airspeed holding system or the AT is off the little red arrow follows the airspeed needle like a dog. If any of the airspeed holding systems or the AT is activated the red arrow holds it position forcing the airspeed to follow this mark, by auto-throttle action or modifying the V/S.

The airspeed holding systems are formed by two columns the second and the third, this last is the auto-throttle channel. The second column has three on/off buttons; the first, blue, is for holding the current altitude; the second, yellow, is for holding the Mach in climb conditions; and the third, white, is for holding the IAS in climb conditions too. These three functions depend on altitude channel activation.

In practice these three buttons are used from down to up order, an example may be the best way to explain this:

You are climbing below 10,000 feet and your airspeed is about 460 km/h IAS, limited by the ATC. You have setting the AP as required, that means the four control channels on, and now you want to hold your airspeed to maintain 460 km/h up to 10,000 feet.

You simply push the white button and then an auto trimming procedure will commence, adjusting the vertical speed for holding the airspeed marked by the red arrow on the airspeed indicator. This function has a limit of 20 m/s (4000 f/m)so if you see that the airspeed goes long away of red arrow mark you will need to reduce the thrust.

Over FL100 you want to reach the normal climb speed of 560 km/h so you must to disconnect the white button and reduce the pitch for augmenting the airspeed until the red arrow match the airspeed of 560km/h, once there you can push the white button again for holding that new airspeed.

The procedure for holding the Mach is the same but only when you are near the cruise Mach speed (0.78-0.81) at about 30,000 feet. The IAS or Mach holding systems only works for climbing, not for descending! Check above for the descend procedure in Descend, Approach & Landing section.

Finally, when you are near the first cruising level you must push the blue button for leveling. This function levels the plane completely, capturing, and holding, the current altitude once the V/S is near to 0.

Once you are in cruise level you can turn on the AT function in the third column for holding the desired airspeed marked by the red arrow. If you want to modify the current airspeed you must turn off the AT, adjust the throttles manually and then wait for the desired new speed. When the desired speed, Mach or IAS, is reached push the AT again and is it. Is not recommended the use of AT in climbing conditions because the proper usage of engines forbid the continuous and rapid change of thrust. In fact on climbing conditions the engines must be running steady between 80 and 90 percent of UPRT. When the AT is active a red light near the speed indicators will bright.

There is a particular feature that deserve attention for avoid climbing oscillations with airspeed holders. Before set on the white or the yellow button for holding speeds at climb try to keep the climb steady and the airspeed slightly increasing, not decreasing. Otherwise, the nose may down to near 0 V/S and then rise, finding the right V/S to hold the airspeed marked.

In the stabilization process the airspeed needle may take some difference respect the red arrow, don’t worry about that, there are limits that this difference will not surpass.

Horizontal navigation system:

The horizontal navigation here is divided in navigation 1, course (heading) and navigation 2. For selecting one of these options is the knob at the right of the power caped switch. In middle position works the heading, in left works the navigation 1 and approaching, and in right position works the navigation 2.

For make active this selection you must turn on the center button right below the knob, if you change the selection the button will turn off automatically. Once you push the button with course selection the HSI white needle will set right to front, matching the current heading of the plane, as reference. For changing the desired course you must to use the orange ring (course ring) at the right of the knob. This action will set the white needle as well, instead of the HSI knob that will turn inoperative while the course function is active. The orange ring selection may jump few degrees sometimes, be gentle with it.

The navigation function works as usual in western systems. But remember, the selection of the radial to follow must be set in the KYPC instrument on the Radio Panel explained before. At this point you may look out the NAV indication selector explained in the next section Special Instruments, before continue.

The knob inside the orange ring is for banking the aircraft at will, when you are banking by this way a near green light will bright for announcing the non-centered knob position, besides this action will turn off the course/navigation holding function, and the approach one if active.

ILS approaching:

In this AP is a single button for capturing both localizer and glide slope signals, it is the right one of three green buttons. This action is performed like the western AP, just push and wait. However this option only works when the navigation mode knob selector is in left position, and an ILS valid signal is received in the NAV1.Besides, the localizer and glide slop signals must be within certain range near the plane path or the ILS capturing may fail. When approach is captured, the center button will light on as well.

Remember, channels that have red buttons below only can be turned off pushing it, the rest are on/off buttons. If you want to turn off the whole AP you can switch off the power caped switch.

# **SPECIAL INSTRUMENTS**

Flaps indicator:

In the real airplane the flaps gauge is on the copilot panel so in order to simplify and bring this gauge to the Main Panel, so it shares the space with the elevators position and trim instrument. Flaps instrument appears first and clicking on it appears the elevators position and trim. Both gauges have two yellow lights below that acts depending of the gauge selected. In flaps case the lights announce the non-cero position of the flaps, in elevator case the lights announce that elevators position is over 3º. I´m assuming that flaps indication is more important, that is the reason that flaps gauge appears first. However knowing the position of elevators is very useful for two reasons: One, when you flight with keyboard instead of yoke and you turnoff the AP the aircraft may jump if the elevators are not near cero position. Two, the elevators of this machine has not much effect so is recommended it usage with the horizontal stab all together, keeping the elevator near cero may give you the possibility of better react margin in hard situations that demands fast pitch movement.

Horizontal Stab instrument:

This gauge shows the horizontal stab angle of attack, that has great importance for the most critical flight stages, takeoff and landing. In previous section was explained it proper usage, however, I include an additional feature within it, the auto trimming. This characteristic doesn´t exist in the actual aircraft. You can toggle this function clicking over the instrument; a yellow light will appear in it right-up corner indicating that auto-trimming is on. When is active you will control de pitch by trimming, this effect stops once your elevators stays near neutral position. This system works adjusting the elevator trimmer, but let you to trimming at will using any other trimming method. It doesn´t work fine if you are using the keyboard, instead of yoke. Any way this is an optional feature if not like it, don’t use it, but I recommend you to taste it before.

The auto trimming will be disconnected if you are on ground or the autopilot master is turned on. Besides, if you bank the plane over 35º the program will stop until you return to an acceptable bank position. As well, if you surpass 12º of AOA the mechanism goes to neutral position avoiding a deep stall trimming condition.

NAV indication selector:

This gauge defines how NAV1 or NAV2 bars will be displayed on HSI instrument and Horizontal indicator. The instrument is a black box in the Overhead Panel with three knobs, only the center-down knob works in this version. This knob has three positions 1, COMB and 2 that act as follow:

* 1: The HSI shows the NAV1 and the horizontal indicator NAV bars are off
* COMB: The NAV1 is displayed on the horizontal indicator and NAV2 in the HSI
* 2: The HSI shows the NAV2 and the horizontal indicator NAV bars are off

This instrument has four red lights that announce if selected NAV1 and NAV2 lose it signal. The upper lights announce the loosing of NAV or localizer and down lights the loosing of glide slope.

# **SOME FSX COMPATIBILITY PROBLEMS**

Due to the differences between two simulators, FS9 and FSX, I will explain here few of the identified failures and how to solve some of it. I´m sure that many other bug will appears in time so let me know via email please.

Horizontal indicators:

In FS9 once the battery switch is on the both horizontal indicators must be set for correct operation by pushing a round button with a script in the outer ring of the cage, a couple of times will be ok. This procedure doesn’t work in the same way in FSX, at first it will appear incorrect, but once the engines are running the problem is solved.

Fuel pumps noise:

In FSX a noise appears when the fuel pumps are on, this sound is not configure in any CFG in the model so I´m assuming that FSX puts the sound you want it or not. The only way to solve this stuff is finding this noise in FSX sound folder and erasing it, However, I´m not responsible for the result of this operation that is just in your hands.

Starting engines:

When ACE studios change from FS9 to FSX they change the way that starter variable runs. In FS9 you must keep the jet starter pressed until the engines start-up, in FSX you must to stop the action once the engines are running. In this model, over FSX, you just hit the starters one time and then wait for engine starting, if you hit the starters a couple of times the starting begins and then stop. Once the engine is running its warning red light will turning on because the engine starter remaining active, just hit the starter one more time and the light will turn off.

Tail support

Usually I’ve used the water rudder var for animate and perform the tail wheel support of this machine, but I´m notice that it did not work in FSX.

Groza and KLN90:

These are third developer gauges that were made for FS9 and don’t work in FSX. Maybe the author(s) have developed FSX updates but I´m not sure so you must try to contact the authors, if you want to solve the problem.

Douglas Dawson libraries:

I use a couple of libraries for sound cockpit and fuel dumping developed by Douglas Dawson that needs the FSUIPC installed in your FS system, and every FS version needs its own version of this software. The both libraries, and the systems that runs over it, must be FSX compatible but I´m not sure of that because I have not the FSUIPC for FSX. You must try it, I mean, cockpit sounds and fuel dumping.

TCAS library:

I include a TCAS library developed by Arne Bartels but in FSX is not working maybe because I´m not able to find the proper way.

# **ABOUT FSUIPC**

If you don´t want to install the FSUIPC software in your system some of this model stuff will not work, but still you can fly it. If you are running this aircraft on FS9/X without the FSUIPC installed the simulator will send you a warning about the strange detection. Canceling it must solve the problem but in some special conditions the problem persists crashing the FS. Then I recommend you to rename the file that uses FSUIPC here: “dsd\_fs9\_fuel\_dump.gau”. If you note that cockpit sounds are the problem then rename the file:“dsd\_fsx\_xml\_sound.gau”. You can find these files inside the “panel” folder, changing its names will deactivate it.

**END OF DOCUMENT…**