flysimware

SIMULATION SOFTWARE

FLYSIMWARE's FALCON 50 PILOT MANUAL

*

Table of Contents

For detailed instructions on how to fly similar aircraft, see the Aircraft Information articles in the Learning Center. For standard procedures, see the Checklists tab of the Knee-board. For suggested speeds, see the Reference page of the Knee-board. More functions can be performed using the control panel and aircraft options panel. (Shift + 1) or (Shift + 2)

VISIT FLYSIMWARE.COM AND CHECK THE NEWS PAGE OR PRODUCT PAGE FOR THE LATEST UPDATES!

FSX
DXT10 PREVIEW ON:
INTERIOR MODEL CAST SHADOWS
NOTE: This can cause the Beacon, Strobe and Nav lights to not show in the exterior when viewed from a specific orientation. Move the hat switch and rotate to a new position to see lights.
DXT10 PREVIEW OFF:
INTERIOR MODEL DOES NOT CAST SHADOWS

P3D TCAS WARNING:

If you have the traffic slider off in settings for P3D we recommend not turning TCAS on by using the modes TA/RA or TA. This will cause the code to think there is traffic. FSX does not have this issue and we so far can't prevent this in P3D as it has something to do with their internal code.

THIS MANUAL IS FOR FSX AND P3D.
NOT TO BE USED FOR ANY REAL WORLD AIRCRAFT
DOES NOT, AND IS NOT INTENDED TO COMPLY WITH SFAR 108

I. A BRIEF SUMMARY OF THE FALCON 50

1. HISTORY

The Falcon 50 first prototype flew in November 1976 and deliveries of the trijet began in 1979. It had a new supercritical wing design and was the first business jet capable of crossing the Atlantic Ocean with legal fuel reserves. It had both a wing span and length of approximately 61 feet. It was originally equipped with three Garrett TFE 731-3 turbofan engines which gave it a range of over 3000 nautical miles, a typical cruise speed of 430 knots, and a ceiling of 45,000 feet. It could take off in slightly less than 4700 feet and land in less than 2700 feet. In the mid 1990s the Falcon 50 was updated with improved TFE 731 engines, new avionics and other improvements and the designation was changed to Falcon 50EX. The manufacturer produced 252 Falcon 50s and an additional 100 Falcon 50EXs. Production ended in 2008.

2. FLYSIMWARE INFORMATION

We have animated almost every function throughout the cabin and virtual cockpit. With custom coding we have accurate systems down to the smallest details. We have included 1 model for users who use the payware Flight 1 GNS 530 GTN 650/750 Reality XP GNS 530 GTN 650/750 or Milviz WX Advantage Radar unit and included is Flysimware's GNS 530 GPS unit with working VNAV system. If you do not own the radar it will be a static model. If you do own the weather radar it will come to life.

The Falcon 50 includes a custom sound set from Flysimware for an intense feeling of being in the real jet. The Falcon 50 uses the Collins APS-85 autopilot system with Collins flight instruments. Some new features like an active TCAS built into the VSI gauge and an external panel management tool that allows you to choose what type of GPS unit to load. We also included 2 popup windows for on the fly instructions to give you startup procedures. With 3DS MAX modeling program we have improved our AO effects throughout the interior and exterior models as Flysimware keeps improving the quality and overall product each project.

To learn more about our model please visit our main website product page for the latest manuals and detailed tutorial videos on a standard walk around to engine start up or shut down procedures.

II. INSTALLATION & PAYLOAD CONFIGURATION

1. INSTALLATION

Double Click the (Aircraft logo) installer.
Have your registration code copied into your mouse(clipboard). This will auto type your registration code for you. Type any name in the name box and leave the business name blank and click next.

This installer will auto find your FSX game no matter where it is! If it does not find your game, change the destination field or go to our help page at Flysimware.com

Once you start FSX you will find our models located under Flysimware as the manufacturer in the FSX select aircraft page.

After the Installer runs you will find a folder on your desktop called Flysimware Falcon 50 Info. Inside you will find a sub folder called PAYLOAD MANAGER INSTALLATION and the Flysimware Falcon 50 Management Tool for installing the GPS units of your choice. See the included Management Tool text file for instructions**.**

2. PAYLOAD MANAGER INSTALLATION

After the Installer runs you will find a folder on your desktop called Flysimware Falcon 50 Info. Inside you will find a sub folder called PAYLOAD MANAGER INSTALLATION.

Once you locate the PAYLOAD MANAGER INSTALLATION folder read the instructions included to figure out which installation is required for you simulator.

3. WEIGHT DISTRUBUTION

Passengers and luggage are set to “LIGHT LOAD” as default. Under aircraft fuel and payload you can change loads and save your flight. For example "Falcon 50 Loaded".

4. FUEL AND PAYLOAD

Left Wing Tank, 3745 lbs max fuel
Left Feeder Tank, 1407 lbs max fuel

Right Wing Tank, 3745 lbs max fuel
Right Feeder Tank, 1407 lbs max fuel

Center Wing Tank, 2747 lbs max fuel
Center Feeder Tank, 2459 lbs max fuel

Max Gross Weight = 38801 LBS
Empty Weight = 20172 LBS

station_name.0 = "Pilot" = 170 LBS
station_name.1 = "Co-Pilot" = 170 LBS
station_name.2 = "Jump Seat"= 170 LBS
station_name.3 = "Pass1 Row 1"= 170 LBS
station_name.4 = "Pass2 Row 1"= 170 LBS
station_name.5 = "Pass3 Row 2"= 170 LBS
station_name.6 = "Pass4 Row 2"= 170 LBS
station_name.7 = "Pass5 Row 3"= 170 LBS
station_name.8 = "Pass6 Couch 1"= 170 LBS
station_name.9 = "Pass7 Couch 2"= 170 LBS
station_name.10 = "Pass8 Row 4"= 170 LBS
station_name.11 = "Pass9 Couch 3"= 170 LBS
station_name.12 = "LUGGAGE" = 1000 LBS

Fuel:

To adjust the fuel, the fuel truck must be used. To activate the fuel truck the engines must be off and the parking brake (not the emergency brake position) must be on, then click in the fuel truck box.

Payload:

Max weight for crew members or passengers is 300lbs, adjustable in 25lb increments.
Max luggage weight is 2200lbs, adjustable in 50lb increments.

III.MOUSE CONTROL & TOOL TIP

1. TOOL TIPS

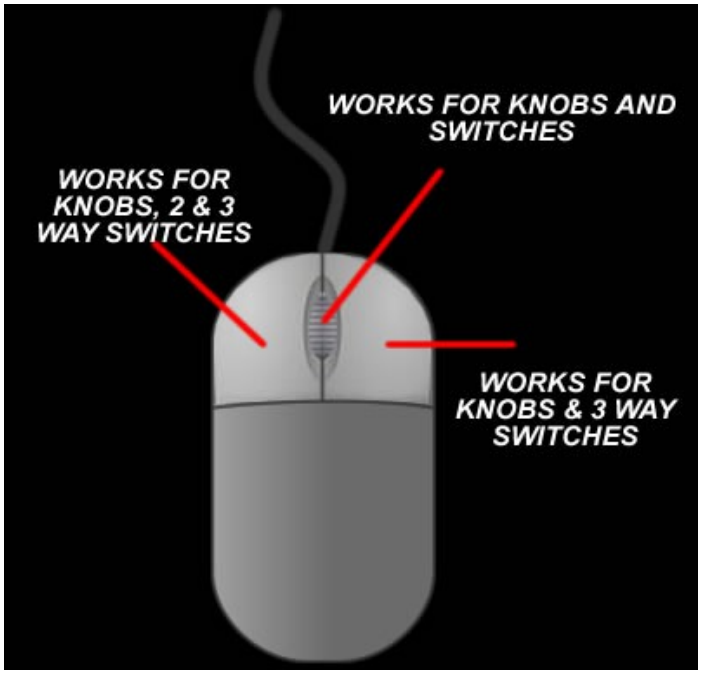
Almost all switches and levers are mouse controlled. Tool tips are added to a few switches, knobs and levers, for information that helps to tune or position with accuracy. Tool tips can be turned "ON" or "OFF"! Located in FSX aircraft settings page.

2. MOUSE CONTROL

If you hear a sound when clicking a switch that does not move try right clicking or using the mouse wheel. Here is a chart displaying all functions.

Radio and GPS knobs can be tuned by rolling mouse wheel. Clicking is for pushing a knob.

The power knob for the GPS requires that you roll your mouse up to turn on and increase brightness controls.



IV. 2D PANELS & KEY ASSIGNMENTS

1. 2D PANELS

Using the hanger control panel or aircraft options panel you can change aircraft options remove pilot or change pilot options and check that your using the fuel system correctly. All options listed below.

✔ **HANGAR PANEL = (Shift + 1)**

CABIN-DOME-RECOGNITION-PANEL LIGHTS / ALL SYSTEM OFF OR READY TO START / REFUEL / MAP / ATC / 2D GPS / KNEE-BOARD / AIRCRAFT SPECS

✔ **AIRCRAFT PANEL = (Shift + 2)**

WHEEL CHOCKS / ENGINE PLUGS & FLAGS / WINDSHIELD SHADES / OPEN MAIN EXIT / GROUND POWER UNIT / FUEL MAP / ADD AND REMOVE PILOTS / PAYLOAD MANAGER / ENGINE START INSTRUCTIONS

✔ **PAYLOAD PANEL = (Shift + 3)**

Quick fuel, passenger and baggage option.

✔ **START PANEL = (Shift + 4)**

Quick instruction on how to start the Falcon 50. Detailed instructions FALCON 50 SYSTEMS section a.

✔ **HCPPANEL = (Shift + 5)**

✔ **RADAR PANEL = (Shift + 6)**

✔ **GPS PANEL = (Shift + 7)**

✔ **GPS 2 PANEL = (Shift + 8) (If available)**

2. KEY ASSIGNMENTS

Use these default key assignments so you can easily change autopilot modes or engage reverse thrust for engine 2 only. Due to limitations F2 will cause all 3 engines to open reverse thrust. Spoiler/airbrake on the Falcon should be used in 2 positions. So we included 2 assignments from extending and retracking.

Go to setting/controls in the sim then click the tab buttons / keys to locate these events to assign to your keyboard or joystick.

"G1000_PFD_SOFTKEY1" = AUTOPILOT MODE ½ BNK

"G1000_PFD_SOFTKEY2" = AUTOPILOT MODE HDG

"G1000_PFD_SOFTKEY3" = AUTOPILOT MODE NAV

"G1000_PFD_SOFTKEY4" = AUTOPILOT MODE APR

"G1000_PFD_SOFTKEY5" = AUTOPILOT MODE ALT SEL

"G1000_PFD_SOFTKEY6" = AUTOPILOT MODE ALT

"G1000_PFD_SOFTKEY7" = AUTOPILOT MODE VS

"G1000_PFD_SOFTKEY8" = AUTOPILOT MODE MACH

"G1000_PFD_SOFTKEY9" = AUTOPILOT MODE IAS

"G1000_PFD_SOFTKEY10" = AUTOPILOT MODE BC

"G1000_PFD_SOFTKEY11" = ENGINE 2 REVERSER

"G1000_PFD_SOFTKEY12" = TCS BUTTON ON YOKE

"G1000_MFD_SOFTKEY1" = SPOILER / AIRBRAKE EXTEND

"G1000_MFD_SOFTKEY2" = SPOILER / AIRBRAKE RETRACT

"G1000_MFD_SOFTKEY3" = GO AROUND

"G1000_MFD_SOFTKEY4" = YAW DAMPER

THE BELOW ASSIGNMENTS ARE MOST LIKELY ALREADY ASSIGNED TO YOUR JOYSTICKOR OR KEYBOARD AS THESE ARE USED ALL THE TIME. SO IGNORE THESE CUSTOM ASSIGNMENTS UNLESS NEEDED.

“ELEV_TRIM_UP” =DISABLE AUTOPILOT

“ELEV_TRIM_DN=DISABLE AUTOPILOT

V. COLLINS HSI-85 & ADI-85A GAUGES

1. COLLINS HSI-85 GAUGE

Horizontal Situation Indicator (HSI)

Key Components

1. Aircraft symbol.
2. Compass Card. Compass headings displayed on a rotating card.
3. Lubber line. A fixed mark at the top of the HSI above the rotating compass card. The heading directly under the lubber line is the aircrafts current true or magnetic course (depends on the Mag/True switch on the center console).
4. Heading bug. A moveable marker which can be set by the Heading (HDG) knob on the HCP panel. If the autopilot is in heading mode, the aircraft will follow the heading bug.
5. Course Display (Lower right hand corner). Indicates the selected VOR/Localizer or GPS course as set by the CRS knob on the HCP (Heading Course Panel**).**
6. Course Arrow. Indicates the selected VOR/Localizer or GPS course. Can be set by the CRS knob on the HCP. If the autopilot is in NAV mode the aircraft will fly the indicated course.
7. Course Deviation Indicator (CDI). Lateral displacement of this bar from 'center' indicates the aircraft's deviation from the desired course indicated by the course arrow. The CDI bar represents the location of the desired course relative to the aircraft's current position (e.g., if the CDI is to the left, the desired course is to the left). With a VOR signal, full deflection of the CDI represents a 10 degree course error. With a localizer signal, full deflection of the CDI represents a 2.5 degree course error.

8. To/From Pointer. When the To/From pointer points in the same direction of the course arrow, the indicated course will take the aircraft towards the VOR station. If the To/From pointer points to the tail of the course pointer, the indicated course will take the aircraft From the VOR station.
   The To/From pointer does not operate with a localizer signal.
9. Bearing Pointer. When in VLOC mode the diamond (head) end of the red bearing pointer indicates the bearing to a VOR station or Non-directional Beacon (NDB). There is a toggle switch next to the pilot's and co-pilot's HSI that selects either the VOR or ADF mode for the respective bearing pointer. The pilot's bearing pointer uses the Nav2 and ADF2 radios. The co-pilot's bearing pointer uses the Nav1 and ADF1 radios. These Nav radio assignments permit the bearing pointers to be better used during VOR, LOC or ILS approaches to provide additional situational awareness. When in GPS mode the pointer points to the next GPS waypoint regardless of the VOR/ADF toggle switch setting.
10. Glideslope Pointer and scale. The pointer represents the aircraft's position relative to the glideslope. When the pointer is centered on the scale, the aircraft is 'on' the glideslope. If the pointer is above scale center, the aircraft is below the glideslope, and if the pointer is below scale center, the aircraft is above the glideslope.
11. Glidepath Mode. Displays GS or VNAV to indicate if the 'Glideslope' Pointer is responding to an ILS glideslope (GS) or GPS (VNAV) signal.
12. Distance Display. Indicates the DME slant distance in Nautical Miles to a VOR station or the distance to the next GPS waypoint.
13. Mag/True display. Indicates whether the HSI compass card value under the lubber line indicates magnetic or true headings as determined by the Mag/True switch on the center console.
14. TTG/SPD/ET display. Displays Time To Go (TTG) to the next waypoint, aircraft indicated speed (SPD) or Elapsed Time (ET) as selected by the three position switch on the Course Heading Panel (HCP).
15. ANG/LIN DEV (Angular/Linear Deviation) display and label. Indicates if the approach course narrows the closer the aircraft gets to the runway threshold (e.g., ANG for an ILS) or remains at a fixed width (e.g., LIN for some GPS approaches). Not simulated.

16. Orange Vertical Deviation flag. Indicates glideslope data is not valid.

17. Orange HDG flag. Indicates the heading data is not valid.
18. Striped flag indicates no active navigation signal.

2. COLLINS ADI-85A GAUGE

Collins FDS-85 Attitude Indicator (ADI)

Key Components

1. Yellow aircraft triangular shaped symbol. Indicates aircraft pitch and bank (attitude) relative to the ADI pitch and roll scales.
2. Flight Director Steering Command Bars. These command bars indicate desired pitch and bank. When aligned with the edges of the aircraft symbol the aircraft is in the desired attitude.
3. Artificial Horizon. White line between the blue sky and brown ground on the pitch card.
4. Bank Pointer. Indicates aircraft's bank attitude against the bank angle scale which has marking at 10, 20, 30, 45 and 60 degrees left and right of center (wings level).
5. Pitch scale. Indicated degrees of aircraft nose up and down. The scale is calibrated in increments of 5 degrees.
6. Inclinometer. The ball indicates slips and skids – uncoordinated flight.
7. Rate of Turn Indicator. Indicates aircraft turn rate against the scale of three white dashes. The outer dashes approximately represent a standard rate turn (3degrees/sec)
8. Localizer Deviation indicator. The fixed white vertical line indicates the aircraft's position relative to the localizer course which is represented by the associated runway symbol. When the white line is aligned with the runway symbol the aircraft is 'on' the localizer. If the runway symbol is to the right of the white line (aircraft), the aircraft is left of the localizer, etc.

9. Glideslope Pointer and scale. The pointer represents the aircraft's position relative to the glideslope. When the pointer is centered on the scale, the aircraft is 'on' the glideslope. If the pointer is above scale center, the aircraft is below the glideslope, and if the pointer is below scale center, the aircraft is above the glideslope.
10. Decision Height Indicator. Using the associated Decision Height (DH) knob, the pilot can set the approach decision height (0 to 950 ft). Pushing the Decision Height knob (mouse wheel click) tests the system by lighting the decision height annunciator and displaying 1000 ft on the Radar Altimeter.
11. Decision Height Annunciator. Lights up when the decision height is reached on an approach.
12. Radio Altimeter. Indicates the aircraft's height above the ground (0 to 2500 ft). Should indicate the landing gear height (4 ft) when the aircraft is on the runway.
13. Speed Deviation Pointer. Indicates if the aircraft IAS is up to 10 knots Fast or Slow relative to the airspeed pointer setting on the airspeed indicator.
14. Attitude Test Button. When pushed the ADI should indicate approximately 25 degrees nose up and 30 degrees of left bank (bank indicator to the right).
15. ALT flag.

16. Orange flags. Orange flags indicate the associated function is not valid.

    CMD (Flight director command bars flag)

    ATT (Attitude pitch and bank flag)

    GS (Glideslope indication flag)

    SPEED (Speed deviation flag)

    R / T (Rate of turn flag)

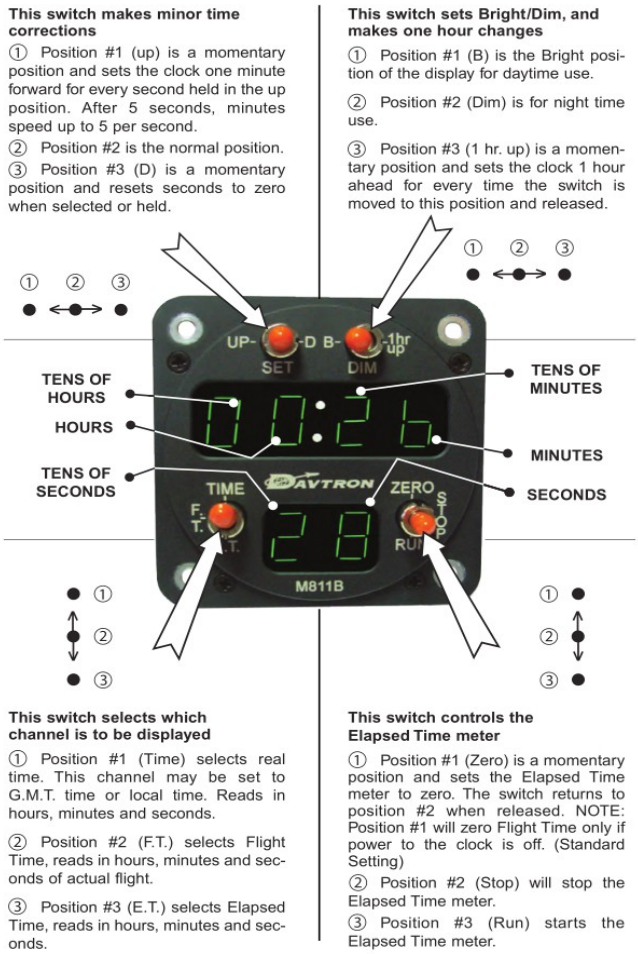
VI. DAVTRON CLOCK

1. DAVTRON CLOCK OPERATION

1. Flight time reset button is located to the left of the pilot clock and the copilots is located below the clock. Pressing the reset button in the F.T. position resets the flight time. Flight time starts automatically when the tires leave the ground.

2. The elapsed time switch in the up zero position will not reset the flight time with power off to the clock as mentioned in the instruction below as this setup includes a F.T. External button.

3. Clicking the flight reset button when the time mode is active swaps the time from local to GMT time.



VII. FALCON 50 SYSTEMS

For videos and detailed instructions on how to fly this aircraft please visit the product page at Flysimware.com

For suggested speeds, see the reference page of the Knee-board. The knee-board has step by step checklist procedures.

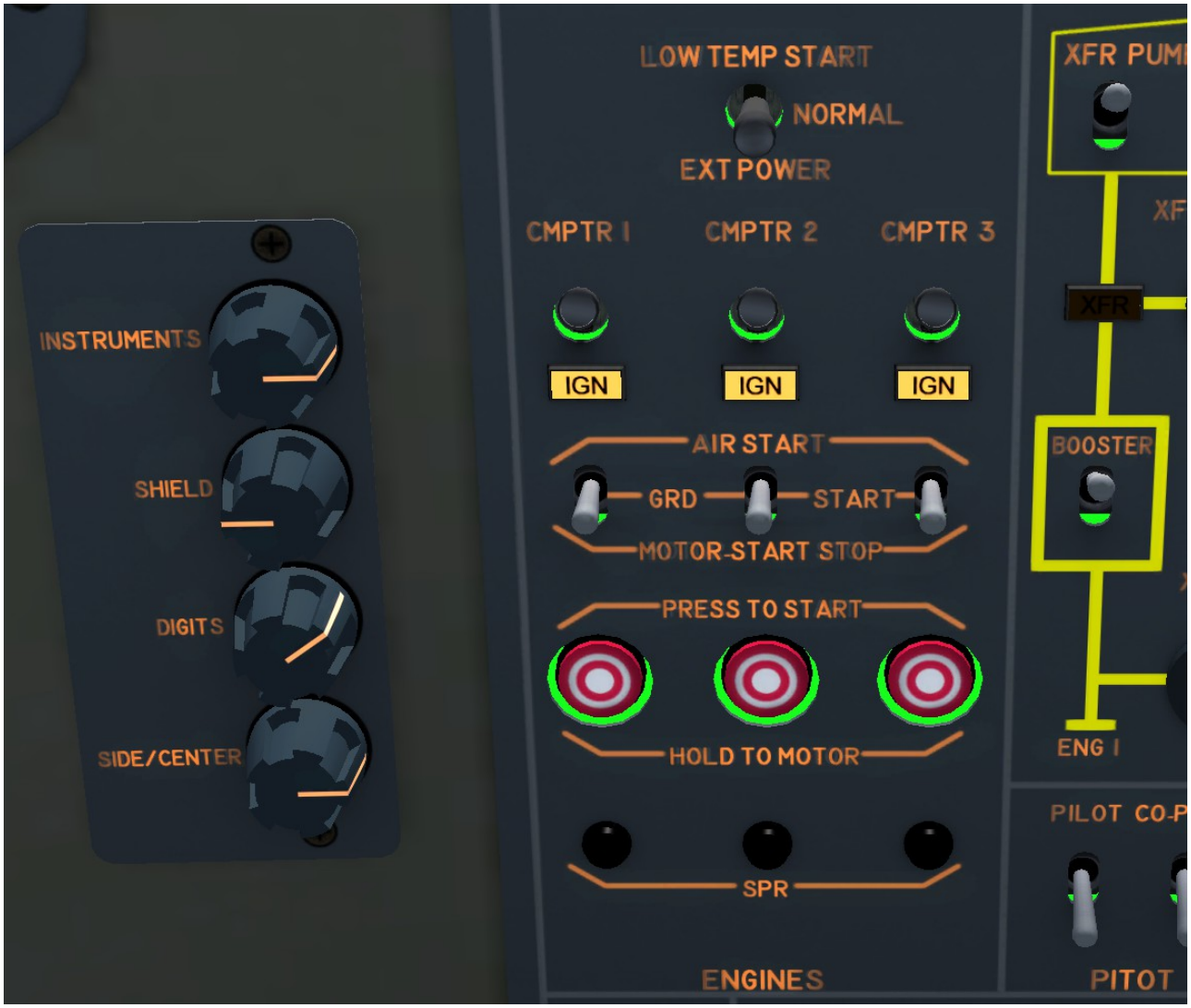
Open your knee-board located in our service hanger control panel. **(Shift + 1)** Then look for the logo located near the bottom right. Or use the sims option to open knee-board window.

AUDIO ANNOUNCEMENT CONDITIONS:

Announcement	Condition
TERRAIN, TERRAIN*	VERTICAL SPEED GREATER THAN 2000 FEET PER MINUTE & BELOW 1,000 AGL
SINK RATE, SINK RATE*	VERTICAL SPEED BETWEEN 1500 - 2000 FEET PER MINUTE & BELOW 1,000 AGL
MINIMUM, MINIMUM	At decision height.
TWO THOUSAND	2000 ft (Radio ALT).
ONE THOUSAND	1000 ft (Radio ALT).
NINE HUNDRED	900 ft (Radio ALT).
EIGHT HUNDRED	800 ft (Radio ALT).
SEVEN HUNDRED	700 ft (Radio ALT).
SIX HUNDRED	600 ft (Radio ALT).
FIVE HUNDRED	500 ft (Radio ALT).
CHECK GEAR*	Immediately after FIVE HUNDRED announcement if gear is not down.
FOUR HUNDRED	400 ft (Radio ALT).
THREE HUNDRED	300 ft (Radio ALT).
TWO HUNDRED	200 ft (Radio ALT).
ONE HUNDRED	100 ft (Radio ALT).
GLIDESLOPE*	1.3 to 1.5 dots below or above glideslope center.
LOCALIZER*	1.3 to 1.5 dots either side of localizer center.
ALTITUDE, ALTITUDE	Excessive deviation from altitude set on Altitude Alerter.
CHECK TRIM*	Aircraft out-of-trim.
AUTOPILOT	AP channel fails upon any AP disconnect.

1. ENGINE STARTING OPERATION

Starting the Engines



Major Engine Starting Components

1. **Start Push button:** A momentary switch used to start the normal automated engine start sequence when pushed for approximately 2 seconds provided the engine power lever is in the cutoff position, the

respective generator is on, both batteries are on, and the Start Selector switch is in the GROUND START Position. If the Start Selector switch is in the MOTOR-START-STOP position, holding the Start Push button down will dry motor the engine (the engine starter motor is engaged, but no ignition is provided to the engine so it will not start).

2. **Start Selector Switch:** A three position switch.

   A) In the GRDSTART position, the starting system is armed so power will be applied to the ignition system when the power lever is moved from the cutoff position to idle during the start procedure.
   B) In the MOTOR_START_STOP position, the engine can be dry motored without energizing the ignition system. This position can also be used to manually terminate the automated start sequence (IGN light does not extinguish or CMPTR in off position.) if the start sequence fails to terminate for some reason.
   C) In the AIR-START position, continuous ignition is available but power is not provided to the starter motor.

3. **CMPTR Switches** (Engine Computer Switches 1, 2, 3). When on, each switch provides power to the corresponding Electronic Engine Control (EEC) unit. The EEC provides the appropriate amount of fuel to the engine by monitoring engine parameters (such as N1, N2, and ITT temperature) and the power lever position set by the pilot. When the CMPTR switch is off, the EEC is also off, and engine fuel is controlled by the engine's power lever through a mechanical linkage.

4. **SPR Switches** (Start Pressure Regulator switches). These are momentary switches that can be used to add extra fuel (Not Simulated) to the engines during a cold weather start procedure. When held down they signal the EEC to provide the extra starting fuel.

5. **IGN** (Ignition) lights. On when ignition is active.

6. **DC Power Select Switch**:
   A) Set to Low Temp Start if temperature < 15° C
   B) Set to Normal if Temperature >= 15° C
   C) Set to EXT POWER if Ground Power Unit (GPU) used.

Normal Engine Start Procedure:

Recommended Engine Start Sequence: #2 - #3 - #1 (Middle – Right – Left, from pilot's prospective)

1. Generators and both batteries , On
2. C and D buses need to be connected.
3. Fuel Boost Pump, On
4. CMPTR switch, On

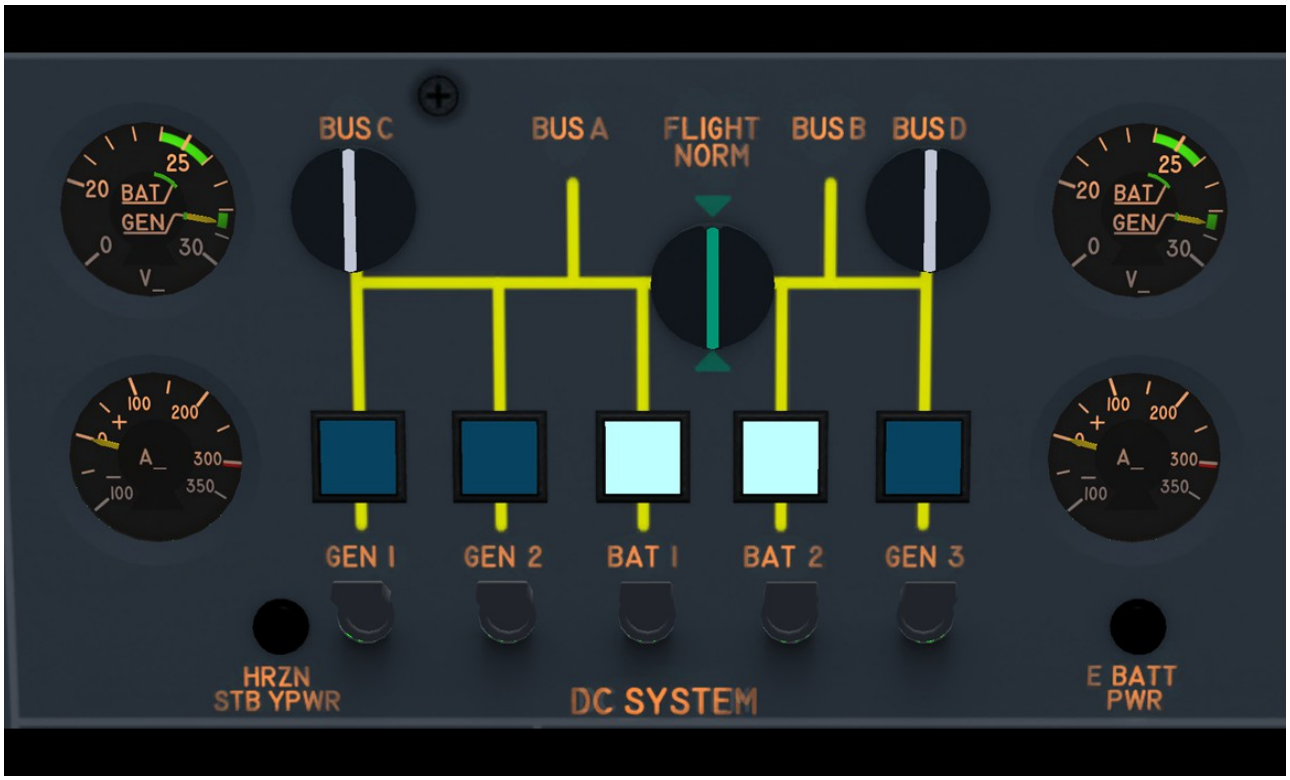
5. Start Selector Switch, GRD START
6. Power Lever, Cutoff (Move lever to idle position then click red tab below lever. Right click for all.)
7. Push Start Button for 2 seconds and release
8. At N2 > 12%, Power lever to Idle
9. IGN light should come on
10. At approximately 50% N2, IGN light and starter motor should go off
11. Engine Instruments,check

Air Start:

1. Power Lever immediately to idle
2. Start Selector Switch to AIR START
3. IGN Light check On
4. ITT should rise within 10 seconds
5. Power Lever, advance from idle
6. After engine relight:
   a. Start Selector Switch to GND START
   b. IGN light should go out
7. Engine Instruments, check

Note: Open the Aircraft options panel (Shift+2) and click engine start instructions for a quick onboard instructions.

2. ELECTRICAL SYSTEM



DC System Main Components

1. Three generators, one on each engine, that provide 28.5 Volts DC at 250 to 350 Amps depending on altitude.
2. One APU generator that provide 28.5 volts at 300 Amps max and which is only useable on the ground.
3. Two 24 volt batteries that can be operated in parallel (normal – provides max current or known as normal flight), or in series when additional voltage is needed such as when starting engines in cold weather.

Note: The sim only has 1 battery/series so parallel can't be simulated. Due to simulator limitations both batteries will charge/drain at all times. Flight normal is also simulated to convert from parallel to series.

4. Right Main DC Bus, made up mainly of the B and D buses, powered by generator 3 and battery 2.
5. Left Main DC Bus, made up mainly of the A and C buses, powered by generators 1 and 2, and battery1.
6. Three Rotary Bus Tie Switches that can be used to:
   A) Connect the Right Main bus to the Left main Bus (Flight Normal)

B) Connect the C bus to the A bus
C) Connect the D bus to the B bus

7. Two Emergency Power sources, HRZN ST-BY artificial horizon power, and E BATT power
8. Meters for monitoring voltage and current.

DC Panel Operation

The voltmeter and ammeter on the left side of the panel are used to measure the output of generators 1 and 2, battery 1, and the HRZN emergency power system. Likewise, the meters on the right side are for generator 3 and the emergency E Battery. Momentary push button switches connect HRZN power and the E Battery to their associated voltmeters.

The left voltmeter normally measures the voltage on the Left Main bus, and the right voltmeter normally measures the voltage on the Right Main bus (the exception to this is when the HRZN or E BATT push button is pushed). By connecting a single generator or battery to the Left or Right Main bus, the voltage of a particular generator or battery can be measured.
Switch lights (square shaped switches that light up when pressed on) are used to connect generators or batteries to their respective ammeter so the current load for that device can be measured. A battery with a negative current value indicates the battery is being charged.

In normal operation, bus tie C is in the vertical position to tie buses A and C together (Left Main bus). Likewise, bus tie D is in the vertical position to tie buses B and D together(Right Main bus). The center bus tie is also vertical (Flight Norm position) which separates the Right and Left main buses. However, these bus tie settings may be changed under certain conditions. For example, if generator 3, which drives the Right Main bus, should fail, the Right Main bus could be powered from the Left Main bus by using the center bus tie (Flight Normal) to connect the two main buses together. In addition, it may be useful to reduce the total power load by disconnecting (untying) either the C or D buses using the C or D bus ties, etc.

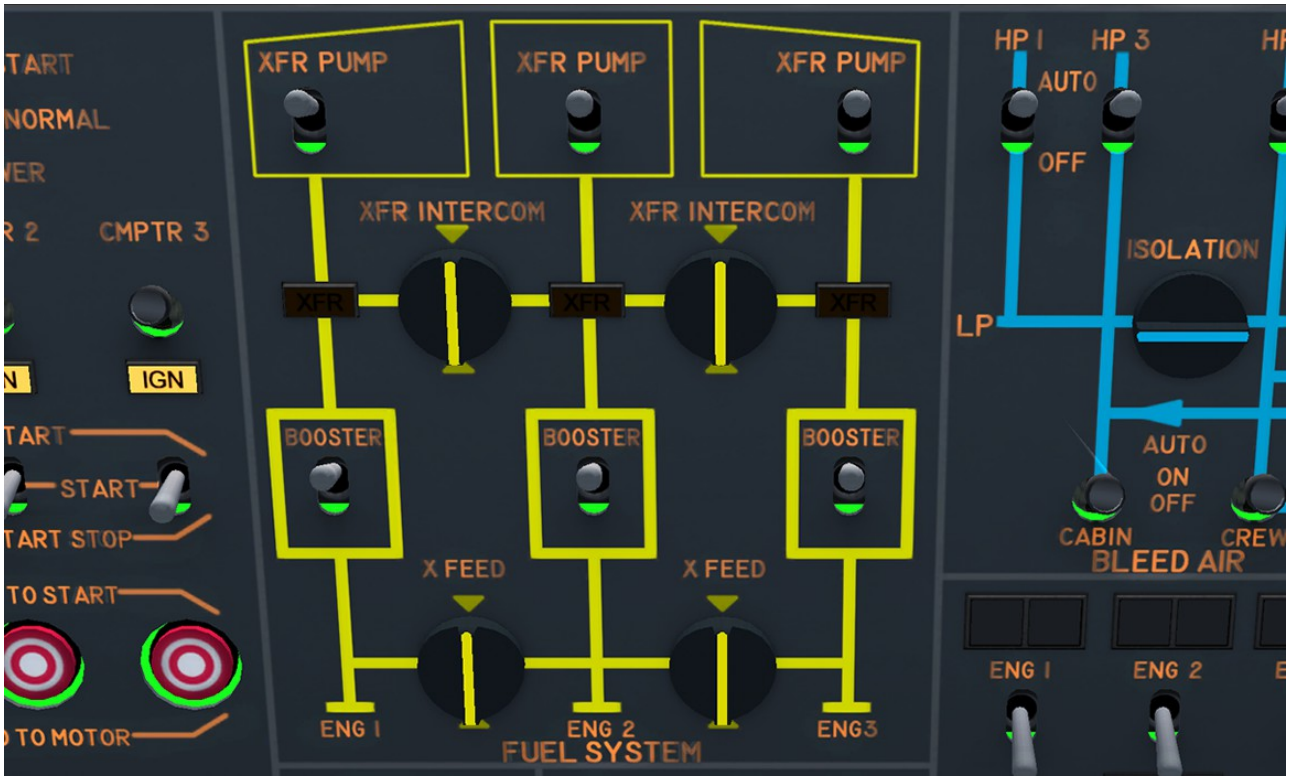
AC System Main Components

2. Two inverters (AC1 And AC2), and one standby inverter, that each provide 115 volts and 26 volts AC at 400Hz
3. Four AC buses, W, X, Y and Z. W and Y are 115VAC, X and Z are 26VAC.
4. AC1 supplies the W and X buses.
5. AC2 supplies the Y and Z buses
6. A standby inverter which can replace either of the primary inverters, but not both at the same time.
7. A voltmeter for measuring bus voltage

AC Panel Operation

AC1 or AC2 can be connected to the AC voltmeter through its associated switch light, and the standby inverter can be switched to either the AC 1 or AC 2 side by the STBY switch. In general, AC1 powers the pilot's instruments, and AC2 the co-pilot's instruments. With a few exceptions both RMI gauges are on AC2.

3. FUEL SYSTEM:



Major Fuel System Components

Left Wing Tank, 3748 lbs max fuel
Left Feeder Tank, 1404 lbs max fuel

Right Wing Tank, 3748 lbs max fuel
Right Feeder Tank, 1404 lbs max fuel

Center Wing Tank, 2749 lbs max fuel
Center Feeder Tank, 2460 lbs max fuel

Engine BOOSTER Pump: Transfers fuel from a feeder tank to an engine
XFR PUMP: Transfers fuel from a wing tank to a feeder tank
XFR LIGHT: Warning that the transfer pump is off
XFR INTERCOM system: Interconnects wing tanks and feeder tanks
X FEED system: Interconnects feeder tanks and engines

The Falcon 50 has three wing fuel tanks, one in each wing, and one in the 'center' wing. In addition, there are three fuel tanks in the aft fuselage called feeder tanks. Each wing tank normally feeds its corresponding feeder tank, and the engines can only receive fuel from the feeder tanks. When the Falcon 50 is fueled to capacity, the three feeder tanks hold approximately 33% of the total fuel, and the center wing/feeder tank combination holds about 57lbs more fuel then each of the left and right wing/feeder tank combinations.

Each feeder tank has a Booster boost pump to supply fuel to its corresponding engine, but it can also supply fuel to other engines through the XFEED crossfeed system. Each wing tank has a XFER PUMP transfer pump which aids in (speeds up) the transfer of fuel to its feeder tank whenever the fuel in the feeder tank drops below 600lb. A differential pressure bleed air system is used to insure fuel will flow from a wing tank to its feeder tank should a transfer pump fail. Transfer pumps should not be operated 'dry' so should be turned off when the wing tank is empty. If necessary, a wing tank can supply fuel to other than its normal feeder tank using the XFER INTERCOM interconnect system.

Under typical operation, each wing tank is connected to its respective feeder tank and the corresponding XFER PUMP is on. Likewise, each feeder tank is connected to its respective engine and the corresponding BOOSTER Pump is on.

4. ANTI ICE SYSTEM

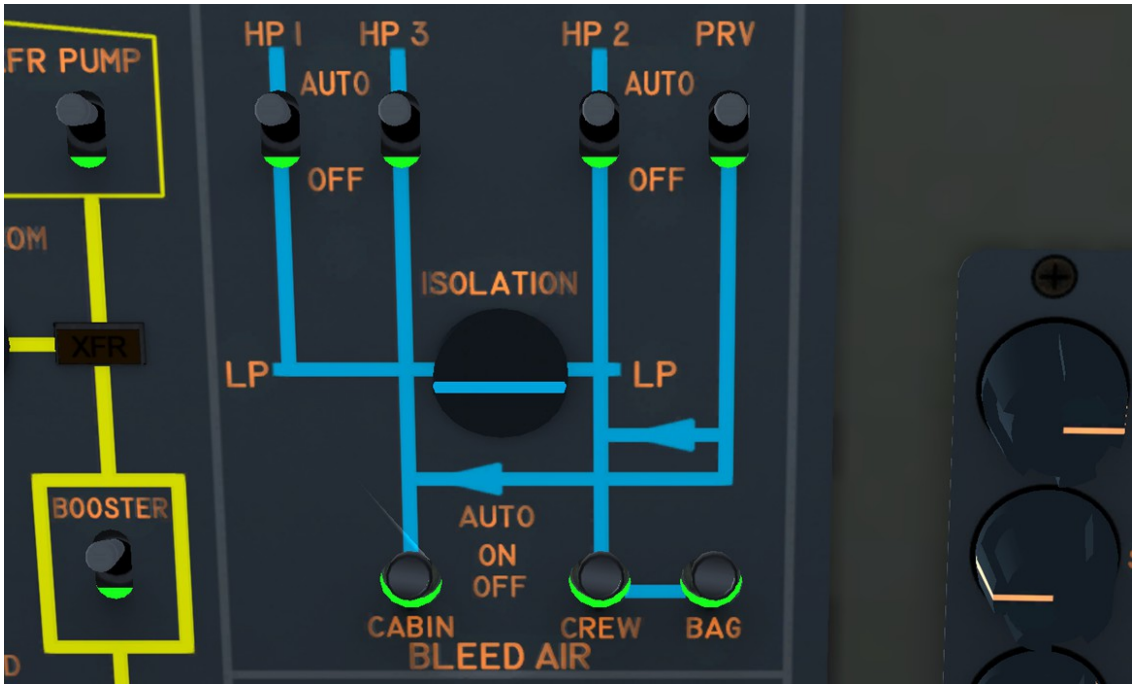
Anti-Ice System Control Panel

The four switches on the Falcon 50 ANTI-ICE panel control anti-icing of the engines and wings. When on, each engine (ENG) switch turns on both electrical heating of its engine's temperature probe, and bleed air anti-icing of the engine inlet lip if the corresponding engine's HP bleed air switch (on the Bleed Air panel) is on. In addition to the above, the ENG2 switch also turns on bleed air S-duct (air intake) anti-icing. The AIRFRAME anti-icing switch turns on wing bleed air anti-icing if the switch is in either the STBY or NORM position. Associated with each switch on the ANTI-ICE panel is a dual green/amber light. Green indicates normal operation and amber abnormal bleed air pressure (such as low bleed air pressure when the switch is on, or high bleed air pressure when the switch is off). Since the Falcon 50 anti-icing systems are designed to prevent ice buildup and not to remove ice, anti-icing should be turned on prior to entering potential icing conditions.

Electrical anti-icing or defogging is provided for the Falcon 50's seven windshield windows by three switches on the overhead panel. The three position PILOT and CO-PILOT switches provide NORMAL or MAX anti-icing for the three 'center' windows, and the SIDE switch provides defogging for the remaining four windows. The pilot's switch controls anti-icing for the pilot's windshield and the left half of the center

windshield. Likewise, the co-pilot's switch controls anti-icing for the co-pilot's windshield and the right half of the center windshield. If a malfunction is detected in either the pilot's or co-pilot's anti-icing circuitry, control is automatically transferred to the other working circuitry and the amber XFR annunciator light turn on. The PILOT and CO-PILOT switches should be put in the NORM position prior to taxiing even if icing conditions do not exist. In addition, the PILOT and CO-PILOT switches must always be set to the same position to prevent uneven heating and potential cracking of the windshield. The MAX switch position should only be used in extreme icing conditions.

5. BLEED AIR SYSTEM



Bleed Air System

Bleed air is provided by the Falcon 50 engines. Each engine has one HP (High Pressure) port and two LP (Low Pressure) ports (although only one LP port on engine 3 is used). LP bleed air from engines 1 and 2 pressurize the wing and feeder fuel tanks with the wing tanks at a higher pressure than the feeder tanks to ensure fuel flow into the feeder tanks. Engines 1 and 2 also supply LP bleed air for the hydraulic system.
Distribution of bleed air is controlled by the switches on the Bleed Air Control Panel. When in the AUTO position, the three engine HP switches are essentially On except the Falcon 50 air conditioning values are turned off for takeoff. The HP bleed air from engines 1 and 3 directly support wing anti-ice, and the HP air from engine 2 supports S-duct anti-ice (the S-duct supplies air to engine 2). The PRV switch (Pressure Regulating Valve) can be turned on to provide additional bleed air from engine 2 for cabin and crew air conditioning. The LP bleed air systems from the three engines are normally interconnected through a common bleed air manifold, but can be isolated into two sections (engines 1 & 3 one side, engine 2 on the other) with the rotary ISOLATION switch tie during abnormal situations such as a bleed air leak. The three switches on the bottom of the control panel supply conditioned air to the Cabin, Crew and Baggage compartments. The AUTO position is like the ON position except when in AUTO conditioned air is turned off when the Falcon 50 is on the ground and the engines are at high power settings (such as during takeoff). Once airborne, conditioned air slowly turns back on. On addition to the above, the APU can supply LP bleed air when the Falcon 50 is on the ground.

6. HYDRAULIC SYSTEM

There are two hydraulic systems on the Falcon 50, System1 and System 2 that normally operate at 3000 PSI. These systems support operation of the landing gear; brake system; nosewheel steering; airbrakes; thrust reverser; the leading and trailing edge wing flaps; and the aileron, rudder and elevator flight controls which are hydraulically boosted.

System 1 is powered by engine driven hydraulic pumps on engines 1 and 2. System 2 is powered by a single hydraulic pump on engine 3, and also by a standby electrically driven hydraulic pump that provides lower hydraulic pressure (about 1500 – 2000 PSI) than the engine driven pumps and can only be operated for about 60 seconds at a time, and only below 45,000ft.

Both System 1 and System 2 provide hydraulic boost to the flight controls. The amount of force required to operate the ailerons and elevator changes with airspeed. This is done by special hydraulic units called Arthur Qs. Since the flight controls are boosted by both main hydraulic systems, flight control boost is not lost if one hydraulic system fails. If both hydraulic systems fail the flight controls still work although unboosted and without the Arthur Q units.

In particular , System 1 hydraulic pressure supports the flight controls, Arthur Q units, landing gear, wing leading edge slats, brakes and thrust reverser systems.

System 2 hydraulic pressure supports the flight controls, trailing edge flaps, airbrakes, nosewheel steering, parking brake and emergency operation of the slats and brakes.

There is a Hydraulic System Control and Indication Panel below the weather radar unit on the Falcon 50 instrument panel.

Hydraulic System Control and Indication Panel Components

1. Two gauges that measure the hydraulic fluid quantity (QTY) and pressure (PSIx1000) for System 1 and System2. Normal readings are 2.6 gallons and approximately 3000 PSI, respectively.

2. A three position selector switch (AUTO ON OFF) for System's 2 electrically driven ST BY pump.

3. Seven amber indicator lights, three on the left side for System 1 (PMP1, PMP2 and TK.P1) and four on the right side for System 2 (PMP3, ST.PMP, #2P.BK and TK.P2). Note that the Failure Warning Panel TEST button illuminates all seven amber lights, and also the green L and R brake lights (see 5. below).

    a. TK.P1 and TK.P2 will turn on if the pressure in their respective hydraulic reservoir tank drops below 16 PSI (normal is approximately 23 PSI).

    b. PMP1, PMP2 and PMP3 turn on if the respective pump output pressure drops below 1500 PSI. The light will turn off once the pressure returns to at least 2150 PSI (normal is 3000 PSI)

    c. The ST BY light will turn on if the stand-by pump operates for more than 60 seconds at a time. The ST BY pump turns on if its selector switch is in AUTO or ON and System 2 pressure drops below 1500 PSI.

    d. The #2P.BK light will turn on when System 2 is supplying brake pressure, and will blink if the pressure is low in the System 2 brake accumulator which indicates there may be insufficient pressure for the parking brake.

    e. The green L and R brake lights turn on when brake pressure is applied to the corresponding main landing gear wheels.

4. A three position (#1ON #2OFF #1OFF) BRAKE selector switch. Note System 1 powers the main gear brakes.

    a. #1 ON position. System 1 pressure is available and the anti-skid system is powered ON.

    b. #2 OFF position. Used when hydraulic pressure from System 1 has been lost. Emergency hydraulic pressure is made available from System 2. Anti-skid braking is OFF.

    c. #1 OFF position. There is pressure from System 1 for braking, but anti-skid is OFF.

5. L (Left) R (RIGHT) green Anti-skid (ASKID) brake lights. Light green when the brake pedals are pressed.

6. Anti-skid brake TEST button. Tests (simulates) the anti-skid brake system. If pushed when the brake pedals are pressed and held, the L and R brake lights should cycle on and off.

7. MAIN PANEL GAUGE INFORMATION

Main Panel Information

1. PARKING BRAKE (Left click once over yellow areas for parking brake and click 2 times for emergency brakes. Emergency brakes requires anti-skid brake switch to be set to #1 position. See section #21 for green/red switch. Left click red area to retract.)

2. PILOT STATIC SELECTOR (Left click to engage backup static selector. Dummy switch, not simulated.)

3. PILOT FLOOR/WINDSHIELD AIR VENT (Move position to favor between floor or windshield to prevent fogged glass. Not simulated.)

4. PILOT ANGLE OF ATTACK GAUGE (Includes a settable reference maker.)

5. PILOT DAVTRON CLOCK (See Davtron Clock section V or page 10 for detailed operation. Copilots clock works independently.)

6. COMPASS DG (With magnetic active from the center pedestal select DG to manually tune the HSI compass card if the slave accuracy is. Pilot and copilots compass DG panels are linked to both HSI units due to limitations.)

7. APPROACH MARKERS (Inner middle and outer marker annunciator lights. Copilot panel includes the duplicate markers.)

8. AIRSPEED INDICATOR (Includes a settable speed reference marker. Setting the marker enables the attitude speed FAST/SLOW indicator. Same operation for copilot airspeed reference marker enables the copilot attitude speed indicator.)

   OVERSPEED WARNING: 350 KNOTS BELOW 5K; MACH 0.86 OR 370 KNOTS ABOVE 5K;

MACH 0.74 ABOVE 25K WITH NO AUTOPILOT

9. RMI GAUGE (Pilot's VOR yellow needle is for nav1 and green VOR needle is for nav2. Press the white buttons to swap from VOR to ADF “Automatic directional finder”. Yellow ADF needle is for ADF1 and green ADF needle is for ADF2. Copilot's RMI is the same operation.)

10. GPWS “GROUND PROXIMITY WARNING SYSTEM” (Press test for the GPWS and approach marker illumination test. Press BELOW G/S button to disable the glide slope warning which also illuminates the light. Test button illuminates “PULL UP” if your descent is more than 2000 fpm below 1000 AGL. This can't be disabled. WS and FAIL are not simulated. The far right annunciator “AP/GA” light illuminates “AP” when autopilot is enabled and “GA” when go around is enabled. Pressing any of the AP modes will disable the GA mode.)

    NOTE: Localizer and glideslope audio warnings: Must be below 1,000AGL. Gear must down. Flaps must be 20 degrees or more. 1.3 to 1.5 dots either side of localizer center. 1.3 to 1.5 dots above or below the glideslope center.

11. COLLINS ATTITUDE INDICATOR (See directory listing for detailed info.)

12. COLLINS HORIZONTEL SITUATION INDICATOR (See directory listing for detailed info.)

13. BACKUP AIRSPEED INDICATOR

14. ENGINE 2 FAIL WARNING (The ENG 2 FAIL light illuminates on ground when the No.2 power lever is greater than 84 degrees FCU and the No.2 engine power is not more than 85% N1.)

15. ALTITUDE SET PANEL (Dial the desired altitude for the ALTSEL hold mode to capture. Push the orange ALT ALERT button to cancel the capture tones. Resets once the ALTSEL mode is disabled.)

16. COLLINS ALTIMETER (Dial is for setting the barometer.)

17. TVI-900 VSI/TCAS INDICATOR (Press the white button for power on/off. With power on and master avionics off displays V/S and TCAS label displays a fail indication. With master avionics on the VSI is active. To activate the TCAS and disable the TCAS label rotate knob to TA/RA or TA from the TCAS/ATC panel.)

18. BACKUP ATTITUDE INDICATOR (L/R click to rotate knob to calibrate custom center line and wheel click to pull knob to cage.)

19. ELEVATOR / AILERON / RUDDER / TRIM INDICATORS

20. WX ADVANTAGE RADAR (This is a payware integration product sold by Milviz and REX Simulations.)

21. HYDRAULIC PANEL (See directory listing for detailed info.)

22. CREW / PASSENGER TEMPERATURE CONTROL PANEL (In AUTO position the temperature is regulated from on the white-dotted knob. In MAN position temperature is regulated by holding the COLD/HOT momentary switches. The vertical scale between the crew and passenger indicates the temperature of the passenger cabin.)

23. ENG / BAG / AFT / APU / FIRE SYSTEM (Engine fire will illuminate the orange engine fire handles. Pull the handle to distinguish the fire. Select the ENG switch that corresponds to the correct engine to select the bottle to be used. An APU fire will alert but due to limitations you need to click repair from the hangar panel and wait 5 seconds or reload aircraft.)

24. ENGINE GAUGES (Pressing the LBS button on the PPH gauge will reset the fuel burn counter. Clicking the switch between fuel quantity gauge 2 and 3 will indicate wing tank quantity or the feeder tank quantity.)

    The ITT engine 1 & 2 gauge will increase 100C when the structural deice is active. With the ITT below 100C and pressing any of the SPR buttons on the overhead start panel will show an increase of 50C to the respective ITT gauge.

    All Engine 1 & 2 gauges are powered by Bus A and all engine 3 gauges are powered by Bus B except for oil Pressure and oil temperature indicators. Engine 1 & 2 oil Pressure indicator powered by Bus C and engine 3 oil temperature indicators powered by Bus D. If Bus A & B are tied using the Flight Normal and there is a loss of power for Bus A or Bus B all gauges on these buses will remain powered.

25. THRUST REVERSER EMERG / INDICATORS (Reverse indicators are displayed by 2 labels. DEPLOYED illuminates green when engine No.2 thrust reverser is deployed. TRANSIT illuminates when engine No.2 thrust reverser is maneuvering. Neither stowed or fully open.)

26. SPERRY DME (Distance measuring equipment.)

27. FLAPS / SLATS/ GEAR / INDICATORS (Air brake / spoiler not fully closed will illuminate the AIR BRAKE label. The red arrow label will illuminate when the leading edge flaps/slats are in transition or not fully stowed or open. The green slat label will illuminate when the flaps/slats are fully open. Trailing flaps are indicated by the white flap label for 0 up 20 or 48 down. Gear up will have no indication. Gear in transition will indicate a red light. Gear lock down will illuminate a down green arrow. Pressing the test button will test the bulbs.)

28. GEAR HANDLE / EMERGENY GEAR HANDLE (Pressing the red button above the gear handle will disable the gear lock mechanism. This is discouraged from being used. When moving the gear handle the gear handle locking mechanism must be moved each time. Auto simulated. When gear is in transition the gear handle tip will flash red until all gear is fully down or stowed. In case of hydraulic pressure loss in both HYD 1 or HYD 2 move the emergency lock mechanism down then pull handle out to drop gear.)

29. TOTAL FUEL / GROSS WEIGHT (Click the mouse wheel to push knob to reset total fuel used. L/R click to set total gross weight.)

30. CABIN / FLIGHT ALT / PRESSURE PANEL (Alt knob sets the cabin altitude pressure. Baro knob adjust the Flight Altitude scale. Rate knob adjusts the rate at which the cabin pressure changes. See #34.)

31. PRESSURE SELECTOR / MANUAL CABIN PRESSURE KNOB / EMERG FUEL TRANFER (AUTO is the automatic electric pressurization controller. MAN position electric power is removed from the pressurization system. Pressurization is then controlled by the UP/DN knob. In the unguarded position power is applied and outflow valve is open. If either L/R feeder fuel tank falls below 650 LBS use the emergency fuel transfer to transfer fuel from the right wing to the right feeder or the left wing to the left feeder tanks.)

32. BACKUP ALTIMETER (Knobs tuns the barometer.)

33. TAT TAS PANEL (Pressing the black button will display ambient temperature for 5 seconds or it normally displays total air temperature. The TAS KNOTS displays true airspeed.)

34. CABIN PRESSURE INDICATOR (The cabin indicator indicates the cabin altitude pressure. Differential indicator displays the difference between the cabin pressure and the outside pressure. The rate indicator displays at what rate the cabin pressure changes. See #30.)

35. BATTERY TEMPERATURE (Displays the battery temperature in fahrenheit. Press the test button to display the 150F test indication.)

36. ELT / GPWS FLAP OVERRIDE (ELT is the emergency locator transmitter.)

37. COPILOT PITOT STATIC SLECTOR (Panel only position disables the cabin pressure indication.)

38. PANEL LIGHT SWITCH

8. SIDE/CENTER PEDESTAL INFORMATION

Center Pedestal Information

1. GPS UNIT (By default the aircraft comes with Flysimware's GNS 530 single unit. If you own Flight 1 or

Reality XP GNS 530 or GTN 650/750 GPS unit you can use our management panel tool located on your destop in a folder called “FLYSIMWARE FALCON 50 INFO”.)

2. HCP HEADING COURSE PANEL (Pilot and copilot heading knob and course knob. A 3 way switch toggles between TTG, SPD and ET. TTG stands for time to go and will display time in minutes to the next GPS waypoint or DME station. SPD stands for speed and displays the DME speed in knots to the next GPS waypoint or DME station. ET stands for enroute time and displays a timer the pilot or copilot starts. Select ET then press the button below to start. Press again to pause and again to reset.)

3. AUTOPILOT MODES (HDG, NAV, APR, BC, ½ BNK, ALT, ALTSEL, VS, IAS AND MACH.)

   a) HDG hold tracks the heading bug on the HSI. Typical maximum bank angle is 30° in response to heading bug rotation.

   b) The NAV mode is used to intercept and/or track the GPS course, VOR or localizer approach selected on the pilot's or co-pilot's HSI when valid data is available from the GPS or active navigation receiver. Typical maximum bank angle is 30° in response to heading course.

   c) The APR mode is used for ILS (instrument landing system) and GPS approaches with vertical guidance. Also can be used for a GPS or localizer only approach. Typical maximum bank angle is 30° in response to heading course.

   d) The BC mode is used to track a localizer back course inbound (or localizer front course outbound) when valid data is available from the active navigation receiver. This mode is functional only when NAV mode is selected.

   e) The ½ BNK mode is used to limit maximum bank angle to 15° in HDG, NAV or APR mode.

   f) The ALT mode is used to maintain the barometric altitude existing at the moment of mode engagement.

   g) The ALT/SEL mode is used to level off at the preselected altitude on the altitude set unit when the autopilot is engaged in any pitch mode. When the preselected altitude is reached, the ALT/SEL mode is disengaged and the ALT/HLD mode is engaged automatically.

   h) The V/S mode is used to maintain the rate of climb or decent set by the AP VS pitch wheel by commanding pitch attitude changes.

   i) The IAS mode is used to maintain the airspeed existing at the moment of mode engagement by commanding pitch attitude changes. At or above FL280 engage the MACH mode.

   j) The MACH mode is used to maintain the airspeed existing at the moment of mode engagement by commanding pitch attitude changes. At or below FL280 engage the IAS mode.

   NOTE:

Engaging the master autopilot with all AP modes off will hold current pitch angle and enable wing lever. Most AP modes on enables the flight director.

4. ADF 1 & 2 (Automatic directional finder. Fight sim never wrote an ADF2 standby only the active. We have custom wrote our own code. L/R click is for 100's and wheel is for 1's.)

5. TCAS/ATC (TCAS stands for traffic collision avoidance system. ATC stands for Air traffic control. ALT switch and XPDR 1 & 2 switch are not simulated.)

   a) For the transponder wheel clicking the large black knob will enable the first transponder digit. Use the mouse wheel to tune the value then wheel click to set that digit and proceed to next position. Continue until all 4 digits are tuned with 1 final wheel click to set transponder.

   b) For the TCAS use the far left knob. STBY is for standby, TA/RA is for traffic alerts and Resolution advisory and includes the transponder. TA only is for traffic alerts and does not include the transponder. XPDR is for transponder only.

6. NAV/COMM 1 RADIO

7. SWITCHES (Master avionics, ADC 1 & 2, MAG/TRUE for pilot and copilot. ADC 1 & 2 are not simulated. The pilot and copilot MAG/TRUE buttons swap the HSI compass card between magnetic to true. Due to flight sim limitations these buttons are not independent. Same for the compass card.)

8. NAV/COMM 2 RADIO

9. TEST BUTTONS (CAB, STALL 1, STALL 2, and VMO)

   a) CAB test illuminates a red light on the failure warning panel and activates horn sound.

   b) STALL 1 & 2 tests the pilots and copilots stall system. Testing must be on ground and activates the horn sound while moving the slats in the down position.

   c) VMO test will activate the overspeed warning sound.

10. AIR BRAKE/SPOILER PANEL (AIR BRAKE, EMERG AIR BRAKE, AILERON TRIM, RUDDER TRIM and EMERG AILERON TRIM)

    a) L/R click to move the air brake into the 3 position. Position 0 stows all 3 panels. Position 1 extends the center panel on both wings. Position 2 extends all 3 panels (inboard, center and outboard) on each wing. An illumination amber AIR BRAKE light indicates 1 or more panels are not stowed. The T/O CONFIG light on the failure warning panel illuminates if the inboard and center airbrakes panel are not retracted at takeoff.

    b) In the upper left corner is the aileron trim control. The red buttons are the emergency aileron trim control and not simulated.

c) Bottom left corner is the rudder trim control.

d) The red handle is the emergency elevator trim control and is not simulated.

11. SLAT/FLAP CONTROL HANDLE (The slat/flap control handle stop at each of the four detents:)

    a) CLEAN Flaps and slats fully retracted.

    b) SLATS extension of all slats.

    c) S + FLAPS 20°.

    d) S + FLAPS 48°.

12. HORN SILENCE (The horn silence will disable the warning horn sound for Fire, Cabin and Gear depending on which warning is present. Resetting each horn silence can be done by these conditions:

    a) All 3 fire handles are retracted resets the fire horn.

    b) Below FL100 resets the cabin horn.

    c) Airspeed above 160 knots or any throttle lever more than 64° and airspeed below 160 knots resets the gear horn.

13. AUTOPILOT PANEL (Far right is the yaw damper and master autopilot switch. With the master autopilot off the yaw damper switch is independent and can be enabled or disabled. If the master autopilot is switched on then by mechanical forced lever the yaw damper will move forward and enable. The master autopilot can be switched off and the yaw damper switch will remain on. The AP XFR switch off/white tracks the NAV 1 signal and when on/green enables the autopilot to track the NAV 2 signal. The TURB or turbulence switch reduces the autopilot trim control to prevent high oscillating and is not simulated. The vertical wheel is the autopilot vertical speed hold and is used for VS mode. When the autopilot is on and all modes are off the horizontal and vertical wheel control the elevator and aileron servos and are not simulated. **Manual operation of the elevator trim will turn off the autopilot.**

    NOTE: Autopilot on and all modes off will hold the current pitch and enable wing leveler.

14. MACH TRIM (Enable this switch to disable the light located in the failure warning panel. The Mach trim is not simulated.)

Side Pedestal Information

1. NOSEWHEEL STEERING KNOB

2. PILOT FLOOR LIGHT SWITCH (Controlled by the main panel switch since we a limited on independent lighting systems.)

3. PILOT AUDIO PANEL

4. COCKPIT VOICE RECORDER (Not simulated.)

5. OXYGEN PANEL (Besides the system showing oxygen pressure the lever and switches are not simulated. The large lever is for the nose fresh air vent. Also a copilot floor light switch. Controlled by the main panel switch since we a limited on independent lighting systems.)

6. COPILOT AUDIO PANEL

7. APU (To start the automatic power unit.)

   a) Bus A + B must be tied. (Flight normal off rotary knob off)

   b) #2 booster switch on

   c) APU master on.

   d) GEN on.

   e) Press START.

   f) Bleed air is optional.

   G) Press STOP to turn off the APU system.

   NOTE: Make sure the external power switch is on normal and not external power. This is for the GPU only.

8. HIGH FREQUENCY PANEL (This is not simulated for receiving and transmitting signals.)

   a) To program frequency's for other channels tune in any channel with the MAN switch on channel 1. Then move the OP to PGN and a light will appear near the load button to confirm your in program mode. Now move the MAN switch to another channel and press load to program channel 1 to your new channel. Repeat process for other channels.

   b) To test the HF headset or microphone put the mode in RF position. Then on the pilot or copilot audio panel turn on the HF1 headset or the HF1 microphone then press the mic button from either the pilot or the copilot yoke. You should hear a high frequency tone to confirm the mic or the headset tone can be heard.

9. OVERHEAD PANEL INFORMATION

1. MAP LIGHT SWITCH
2. INSTRUMENT LIGHT SWITCH (Includes Side/Center Pedestal lights)

   SHIELD LIGHT SWITCH / DIGITS / SIDE/CENTER PEDESTAL LIGHT SWITCH (Includes Instrument lights)
3. DC SYSTEM (See electrical system section for complete details)
4. INVERTERS (See electrical system section for complete details)
5. ENGINES (See engine starting operation section for complete details)
6. FUEL SYSTEM (See fuel system for complete details)
7. BLEED AIR (See bleed air system for complete details)
8. PITOT (Pilot and copilot pitot switches. Due to limitations both are synced together)
9. WINDSHIELD

   PILOT & COPILOT (The pilot switch controls heat for the pilot window and the left half of the center window. The copilot switch controls heat for the copilot window and the right half of the center window. When set to NORM power is connected to the corresponding regulator. Windshield anti-icing switches must be set to NORM prior to taxiing even if no icing condition exists to prevent cold soaking inflight. When in MAX power is connected to the regulator and also energizes the maximum power heating relay. MAX position should only be used for inflight severe icing for which NORM position is inadequate.)

SIDE (When the side switch is on power is connected to a control regulator for the sliding window and the right DV window and to a control regulator for the right aft window. An additional regulator is installed for the left aft window system if heated.)

10. ANTI-ICE (See anti ice system for complete details)
11. WINDSHILED WIPERS AND LIGHTS

    PILOT & COPILOT WIPER (When either wiper switch is set ON power is applied to the corresponding wiper motor. When either wiper switch is set to OFF, power is cut off to the corresponding wiper motor. The motor stops leaving the windshield wiper in the position at switch-off time. When either wiper switch is held to PARK the motor turns at a reduced speed. When the wiper arm in the low sweep position will then recess into the park position. When the switch is released, the switch returns to the spring loaded OFF position.)

    NAV (When forward the navigation lights on the wings and tail are turned on.)

    ANTICOL (When OFF both beacon and strobe lights are off. When RED the belly beacon light and vertical stabilizer beacon light are on. When ALL the beacon lights and the wing strobe lights are on.)

    LANDING (When forward both landing lights are on.)

    TAXI (When forward and the front gear is down the taxi light is on.)

    RECOG (When forward the wing/ground recognition lights turn on. Located in front of wings on both sides.)

    DOME (When pressed turns on the cockpit overhead light. Should not be used inflight.)

    EMERGENCY LIGHTS (When OFF no emergency lights available. When ON the dome lights and the recognition lights will turn on. The EMERG label above switch will illuminate. The cabin also would turn on emergency lights but they are not simulated. When ARMED the system will auto detect an emergency and enable system and not simulated.)

    CABIN (When OFF the passenger cabin lights are off. When ON the passenger cabin lights are on.)

    SEATBELTS (Pressing the seatbelt label switch illuminates the label light and illuminates 2 seatbelt lights from 2 locations in the cabin area.)

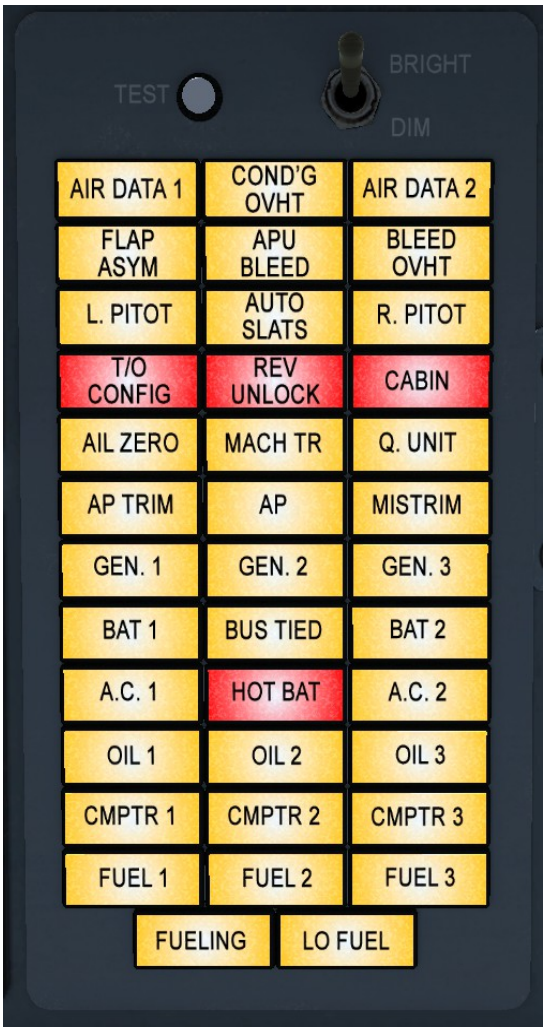
    NO SMOKING (Pressing the no smoking label switch illuminates the label light and illuminates 2 no smoking lights from 2 locations in the cabin area.)

12. WET COMPASS (A standard liquid-filled compass above the center windshield forward of the overhead panel. On the left is a compass correction card.)

10. YOKE INFORMATION

1. GA (Go around button)
2. ELEVATOR TRIM (Elevator trim. Moving the elevator trim when the autopilot is on will disable the autopilot master.)
3. MIC (Microphone)
4. TCS (Touch Control System. Pressing and holding while the autopilot VS mode or HDG mode is enabled temporarily disables both VS and HDG modes until the spring loaded switch is released. Once released will update the heading bug and the vertical speed bug. This switch is included on the popup panel to make it easier to press. Or see the keys section and use our custom key assignment. This key assignment can only toggle. So press once to temporarily enable TCS and press once gain to disable TCS. Use the popup panel as a visual to make sure you disable the TCS mode. When VS and HDG or master autopilot are off the TCS becomes disabled.)
5. AP DISC (Autopilot disconnect button hidden on the back side of the yoke. Click the text label to press disconnect the master autopilot.)
6. HIDE YOKE (Clicking the map clip will hide the yoke for better view of the main panel.)
7. ICS (Interphone is not simulated.)
8. RETURN YOKE (Clicking the return yoke will bring back the yoke.)

WARNING ANNUNCIATOR PANEL INFORMATION



Warning Annunciator Panel

1. TEST SWITCH (Press test switch to make sure all bulbs are working.)
2. BRIGHT / DIM (The dim position makes the illumination not as bright.)
3. WARNINGS: (NOTE: CUSTOM SIMULATIONS THAT ARE BASED ON THE REAL WARNINGS!)

A) AIRDATA 1 & AIRDATA 2 (Illuminates amber when AIR DATA ½ indicates internal failure or loss of power. Not Simulated.)

B) COND'G OVHT (Illuminates amber when the COND'G OVHT indicates higher than 39C temperature in the cockpit or cabin,)

C) FLAPS ASYM (Illuminates amber when an asymmetric condition is detected between the left and right wing. Not Simulated.)

D) APU BLEED (With a power lever above 54 FCU. Illumination of the amber APU BLEED annunciator indicates the APU is stopped or N, is lower than 95% and the bleed air valve is not completely closed, or the APU is in operation and the automatic closing of the bleed air valve has not occurred. Not Simulated.)

E) BLEED OVHT (Illuminates amber when one of the engine bleed air lines are above 300C. Not Simulated.)

F) L. PITOT & R. PITOT (Illuminates amber if the L or R PITOT indicates if the electrical current flow or the static port heating element is incorrect.)

G) AUTO SLATS (Illuminates amber during stall 1 or 2 test or when the aircraft airspeed is greater than 270 Kts and the autoslat system is not disarmed.)

H) T/O CONFIG (Illuminates red if aircraft is on ground and any power lever is greater than 84 FCU if any of the following condition exist: flaps greater than 22 percent; any slat not extended; horizontal stabilizer (elevator trim) outside of the -3 to -7 range; inboard or middle airbrake panels are not retracted; or the autopilot is engaged.)

I) REV UNLOCK (Illuminates red if the thrust reverser power lever is fully stowed (down) or the Emergency stow switch is in the stow, and any of the following conditions exist: either thrust reverser door is not stowed, the reverser actuater is not fully retracted, or the S latch solenoid is powered or stuck in the actuated position. Not Simulated.)

J) CABIN (Illuminates red and the warning horn sounds if the cabin pressure altitude is greater than 10,000ft. Illuminates red and the warning horn does not sound if: The passenger door locking handle is not latched or the passenger door latches are not engaged; or the Lavatory service door is not closed on the forward lavatory installation. Lavatory door is not simulated.)

K) AIL ZERO (Illuminates amber if the emergency aileron trim is not in the 0 or neural position. Not Simulated.)

L) MACH TR (Illuminates amber if the mach trim is inoperative or off.)

M) Q. UNIT (Illuminates amber if the Q. UNIT indicates a disagreement between the speed information from the air data computer and the position of either the elevator or the aileron variable bell crank arthur Q. unit or if the pitot/static selector is set to panel only.)

N) AP TRIM (Illuminates amber if the pilot coupler has failed. Not Simulated.)

O) AP (Illuminates amber if both the AP and flight director are off or indicates autopilot failure. Flashes 3 times on disengagement of the autopilot.)

P) MISTRIM (Illuminates amber if the horizontal stabilizer position does not agree with the position commanded by the autopilot. Not Simulated.)

Q) GEN. 1 & GEN. 2 & GEN. 3 (Illuminates amber if the corresponding reverse current relay is open. The corresponding generator is not connected to its respective Main bus.)

R) BAT 1 & BAT 2 (Illuminates amber is the corresponding battery is not connected to its respective Main bus.)

S) BUS TIED (Illuminates amber if the main bus tie rotary selector is in the tied position.)

T) A.C. 1 & A.C. 2 (Illuminates amber when the respective pilot or copilot 26 volt bus is out of tolerance or has a fault.)

U) HOT BAT (Illuminates red if either or both batteries have an internal temperature of 66C (150F) or more. This light is in parallel with the red (HOT) light on the battery temperature gauge. Not Simulated.)

V) OIL 1 & OIL 2 & OIL 3 (Illuminates amber if oil pressure of the respective engine has dropped below 25 PSI or a metal chip or chips is/are on the chip detector. The OIL 1/2/3 annunciator normally extinguishes when oil pressure rises above 30 PSI.)

W) CMPTR 1 & CMPTR 2 & CMPTR 3 (Illuminates amber if any indicate the control switch of the respective computer is off, or the corresponding computer has failed.)

X) FUEL 1 & FUEL 2 & FUEL 3 (Illuminates amber when the fuel pressure in supply line from the feeder tank to the associated engine is low. The switch activates the light with a decreasing pressure at 5.5 PSI and extinguishes the light with an increasing pressure at 6.5 PSI.)

Y) FUELING (Illuminates amber if one of the following occurs: if one of the three vent valves is not fully closed; gravity fueling switch is not in the OFF position; defueling valve is not closed; pressure refueling door is open; or the D bus is not powered. We simulate the D bus not powered.)

Z) LOW FUEL (Illuminates amber if the fuel level in any feeder is less thasn 300 lbs for a time duration of at least 15 seconds. The annunciator will extinguish when the fuel levels in the three feeder tanks are above 300 lbs.)

VIII. GROUND SUPPORT EQUIPMENT

1. Ground Power Unit

1. Engine generators can be on or off when using the GPU. If engines are running the engines generators will also charge the batteries.
2. The flight normal knob must be tied to charge the batteries when the engines are off.
3. To connect the GPU to the aircraft you must have the parking brake on.
4. The "EXT POWER" switch on in the down position will charge batteries.

2. Fuel Truck

1. Set parking brake.
2. Engines off.
3. Open the payload manager pop up panel.
4. Click the red rectangle below the fuel truck label to connect or disconnect.

There are 2 types of categories LO LEVEL and HI LEVEL.

HI LEVEL = Maxed wing fuel quantity and maxed feeder fuel quantity.

LO LEVEL = Partial wing quantity up top max wing quantity with side feeders at the minimum 600Lbs and center feeder at intermediate 1,750Lbs.

We also include a 50% LO LEVEL = This reduces wing fuel quantity by half.

When custom adjusting the wing fuel quantity select any of the 2 LO LEVEL quick selections. DO NOT remove fuel from wing tanks after choosing HI LEVEL to maintain a safe CG configuration.

IX. UN-INSTALL PRODUCT

Go to the add and remove programs from windows control panel.

Installing and removing this product has "NO EFFECT" on your sim!

X. TESTING

Tested on Microsoft Flight Simulator FSX Acceleration,FSX Steam and P3D V4.

FSX USERS:
Requires SP2 Update or Acceleration update to work properly with all the newest features included for Microsoft Flight Simulator X.

Installs for FSX / FSX:SE / Prepar3D All versions

Developer: Flysimware.com