REQUIREMENTS:

- ✓ PMDG 737 NGXu
- ✓ FS2Crew PMDG 737 NGXu Edition. Available at: https://www.fs2crew.com/
- ✓ This tutorial uses BUTTON CONTROL with SOP SET 2

INTRODUCTION:

SOP Set 2 is based on the same procedures used by a real-world airline. Their procedures are quite like stock Boeing procedures but there are some significant differences as every airline likes to do things "their own way" to a degree.

This tutorial uses **BUTTON CONTROL** as opposed to VOICE CONTROL. The big advantage to Button Control is that it's very easy to use, and you do not need to set your Speech Recognizer to **English-US**.

For the Flight Route, we'll leave that up to you. Pick your favorite airport and fly there!

DISCLAIMER: This tutorial is made for flight simulation purposes only and does not necessary reflect real world procedures to their fullest. FS2Crew 737 NGXu is an entertainment product. It is not meant for real-world flying or training. It is not affiliated or associated with any specific airline or company.

LET'S BEGIN:

- Load the PMDG 737 NGX from the Free Flight screen. The PMDG 737 should never be the default aircraft that loads or you WILL have problems. Do not used saved situation files!
- At this point, you should be sitting in the **2D cockpit** and the engines should be running. If the engines are not running, you are probably using a default panel state file, and we generally don't recommend using those as they can sometimes cause the aircraft to initialize improperly.
- We need to shut off the built in **F/O CALLOUTS** or you will get double call outs via the **PMDG – OPTIONS - SIMULATION** menu as shown below:

- We recommend that the F/O's altimeter and Standby altimeter syncs to the Captain's altimeter as shown below.

  SYNC CAPT AND F/O EFIS TO: BARO AND MINIMUMS.
  SYNC CAPT AND STBY BARO TO 'YES'.

Note: The other options, such as Service-Based failures, can be set at your discretion.

- This airline uses EGPWS auto-callouts for the "**MINIMUMS**" and "**PLUS HUNDRED**" calls during approach. Please ensure your PMDG Options are set accordingly as shown below:

- For added realism to make your flight specific to this airline, you may also use the following equipment options in the PMDG menu:

  STANDBY INSTRUMENTS to **ISFD**

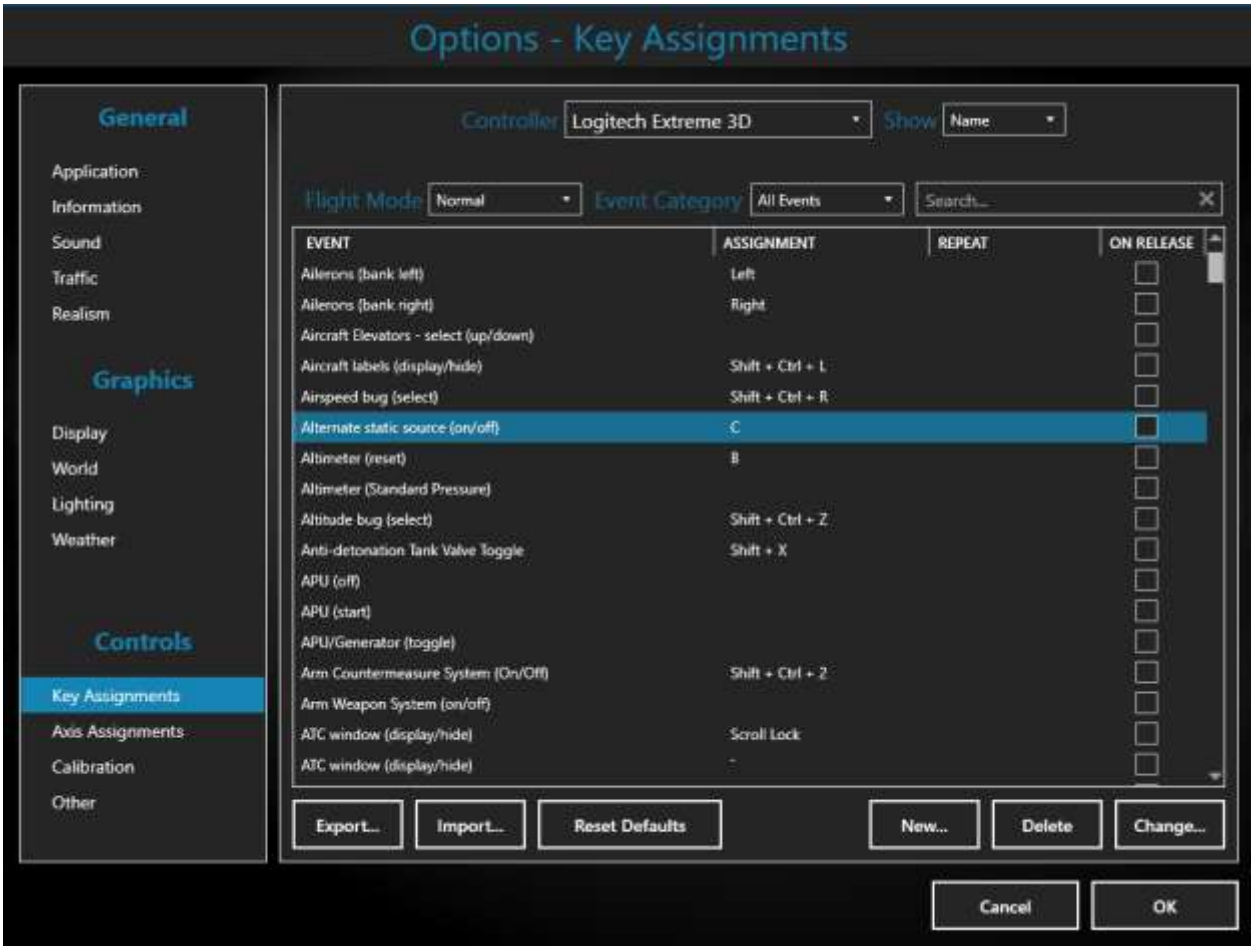
  SHORT FIELD PACKAGE to **YES**

TERRAIN PEAKS MODE to **YES**

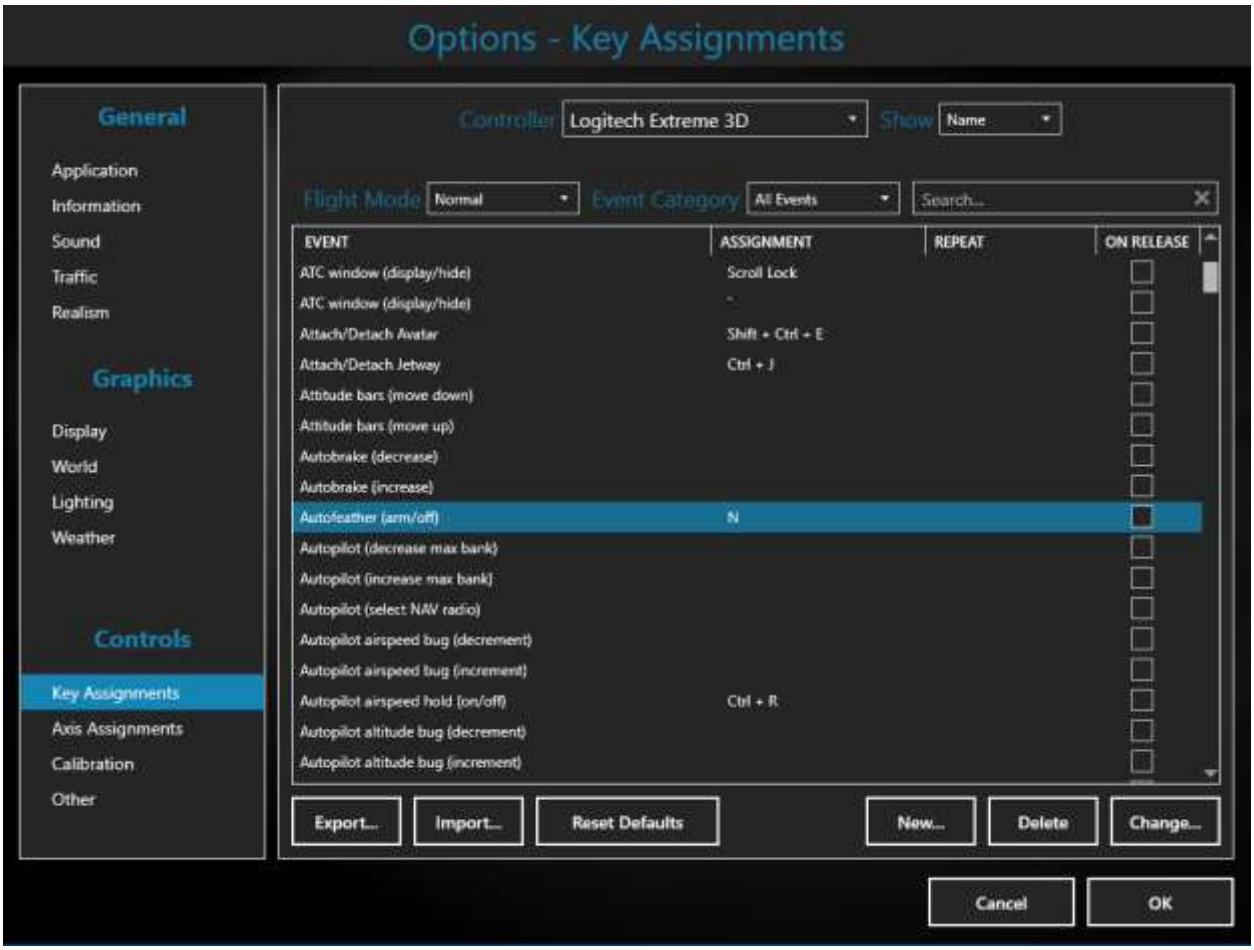
SATCOM ANTENNA to **YES**

AUTOLAND to **FAIL OP**

- Open the PMDG's FMC and select the stock **PMDG LONG** or **SHORT PANEL STATE** file. It's your choice. You don't need to do this for every flight. In fact, you can start with the engines running. But for the sake of this tutorial we're going to start with the engines off. These two panel states are generally the most realistic panel state files to use, since airline pilots rarely receive the aircraft cold and dark and most major airports supply ground power and air.
- Now we need to assign the **MAIN BUTTON**. You will use this button 99 percent of the time to progress through the simulation, and to trigger the commands displayed on the left side of the MAIN PANEL. Assign a button to **ALTERNATE STATIC SOURCE (ON/OFF)** in the **P3D KEY ASSIGNMENTS** menu.

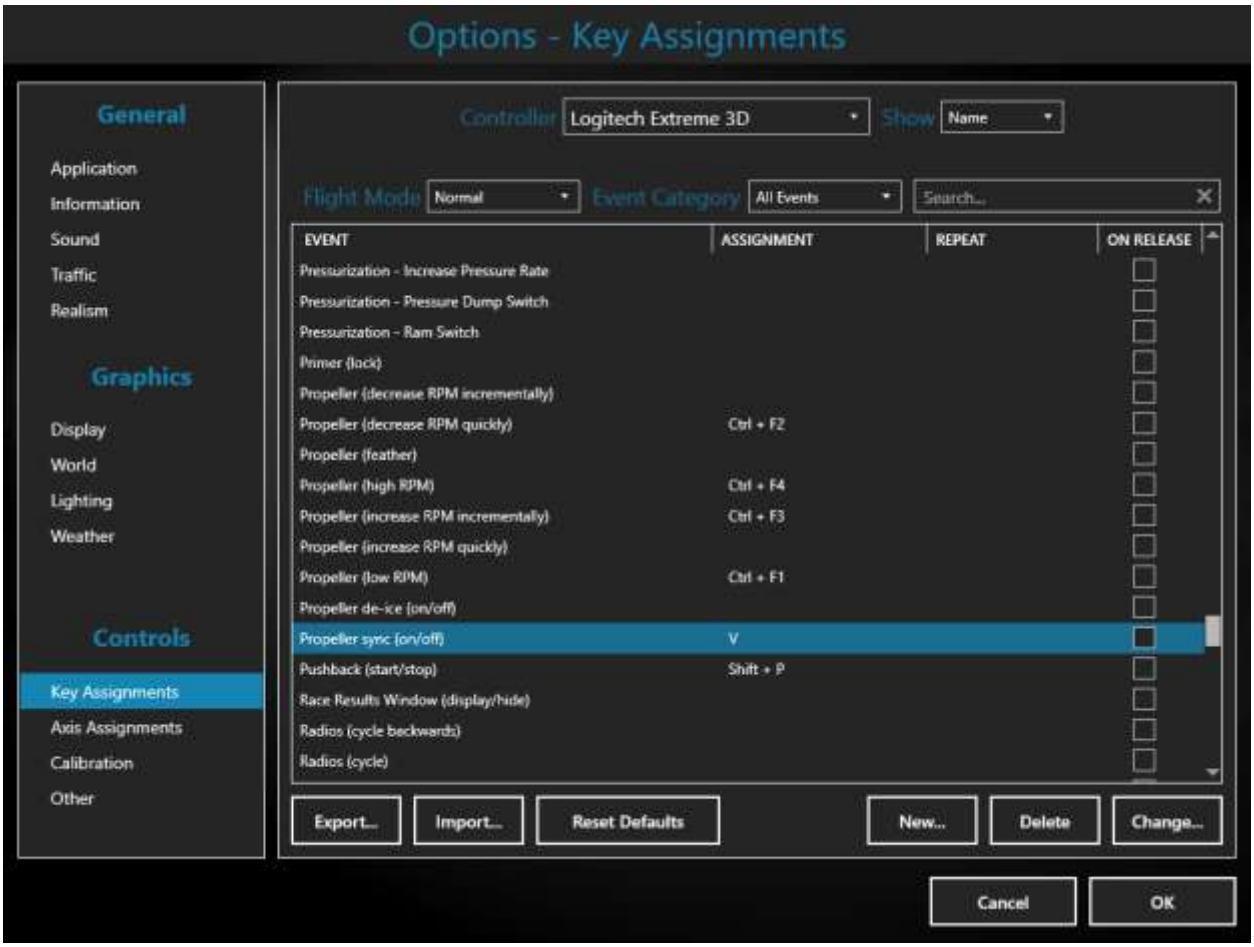


Do not use the same key assignment shared by a PMDG 737 command function, or the Main Button will not work. We recommend using the "C" key.



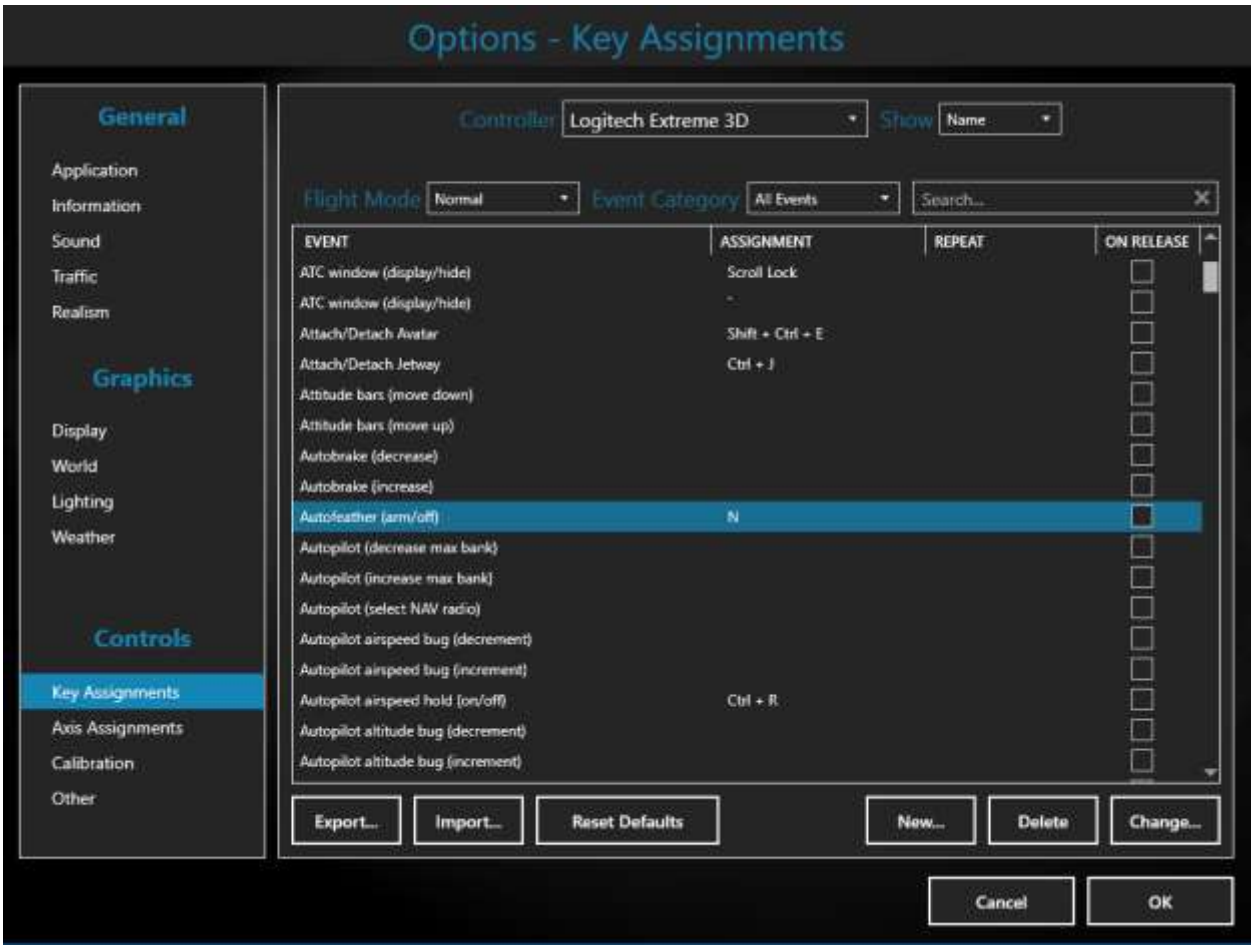
- Next, we need to assign a button the **SECONDARY BUTTON**. Assign a button to **PROPELLER SYNC (ON/OFF)** in the **P3D KEY ASSIGNMENTS** menu.

  Do not use the same key assignment shared by a PMDG 737 command function, or the Main Button will not work. We recommend using the “D” key.



- Now we need to open the **MAIN PANEL**. There is no click spot! Press the button you assigned to open the FS2Crew MAIN PANEL (namely the one linked to **AUTOFEATHER ARM/OFF**.) If you haven't already assigned a button to this event, do it now, or you won't be able to open the MAIN PANEL.

  Do not use the same key assignment shared by a PMDG 737 command function, or the Main Button will not work. We recommend using the "N" key.



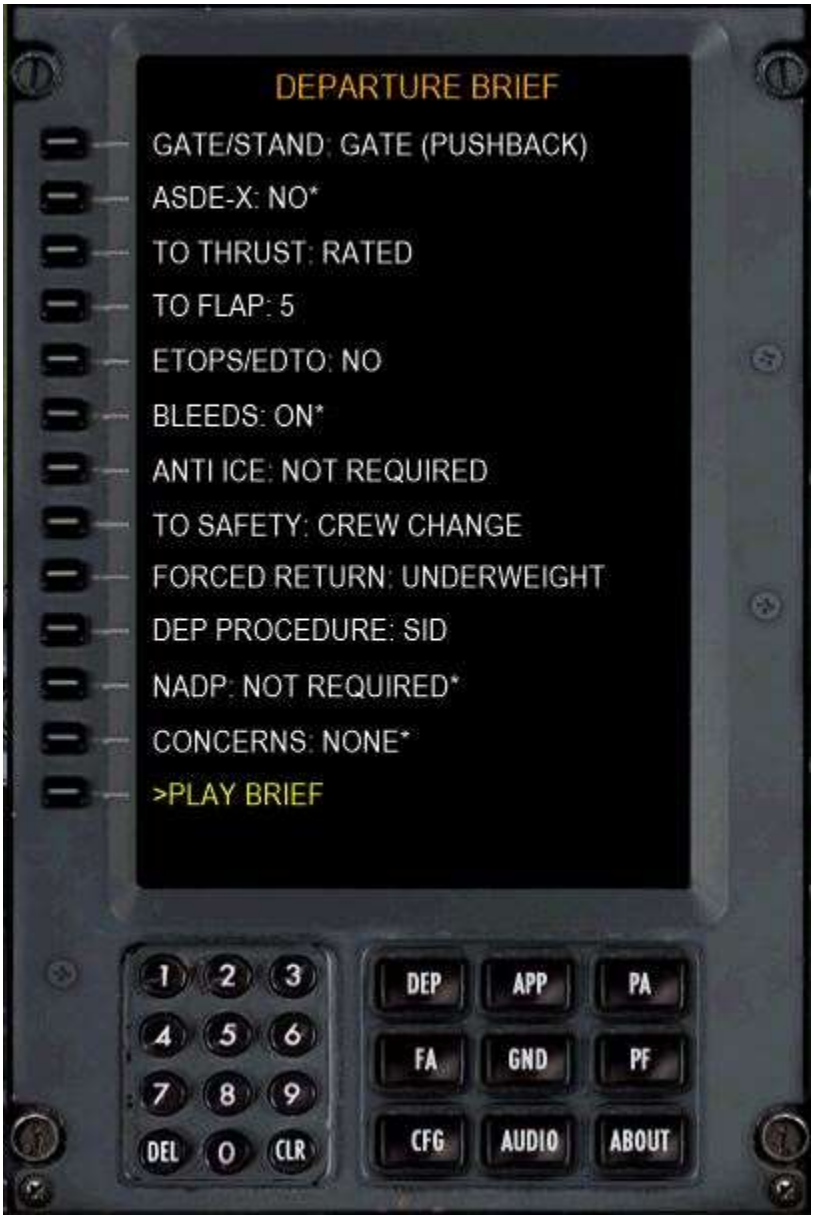
- The FS2Crew MAIN PANEL should open. It looks like this:

- If the Main Panel does not open, double check your keyboard assignment that you assigned to **AUTOFEATHER (ARM/OFF).** I personally use the "N" key on the keyboard. If the MAIN PANEL still doesn't appear, try assigning a different key. Also open the PMDG 737's panel.cfg file with Notepad. Make sure there are FS2Crew entries on it. If not, you forgot to Enable FS2Crew via the FS2Crew Configurator or you have a write permission issue.

  The PMDG 737 NGX's panel.cfg file is located here:

  Your Flightsim Folder\SimObjects\Airplanes\PMDG 737-800NGX\panel\panel.cfg

- Press the **SEC** button on the MAIN PANEL. A new panel should open that looks like an FMC. This panel is called the SECONDARY PANEL.



- Press the **CFG** button on the FMC to open the CONFIG menu.
- Press LSK 1 (Left Line Select Button) to open the **SETUP** page.
- By default, FS2Crew is running in **BUTTON CONTROL** mode. If the INTERFACE is set to VOICE CONTROL, press LKS 1 to change it to Button Control. Note that it takes about 10 seconds for the voice recognition system to unload, and your computer will appear to freeze during this time.

- Press LSK 4 to change the **SOPS** to **SET 2** if it's not already loaded.

VERY IMPORTANT NOTE: WHEN BUTTON CONTROL IS ACTIVE, YOU ARE LOCKED INTO SOP 2. YOU CANNOT CHANGE SOPS. BUTTON CONTROL ONLY WORKS WITH SOP 2.

- Press the **AUDIO** button on the SECONDARY PANEL.
- Select your **CREW REGION** by pressing LSK 1. This setting controls the regional accent of the crew.
- If you are using a headset, select the audio device associated with your headset by pressing LSK 4 (HEADSET AUDIO DEVICE).
- Press LSK 7 to play the audio test. From your main speakers, you should hear "*Left speaker test…. Right speaker test… Audio test complete*".
- Note the button that says **RESET AUDIO SYSTEM**. Only press that if you seem to lose FS2Crew audio; that can happen if your audio device momentarily disconnects from the system.
- Important Note : Don't forget to set you approach and 'minimums' altitudes under the Approach Briefing page **(APP)**
- You may have noticed that there are no options appearing under the 'GROUND 'menu. This is because you need to establish a communication link with your Ground Crew. This is enabled by turning on the 'Service Intercom' switch (located above you at the very back of the overhead panel) and then pressing the 'SVC' button on the Centre pedestal. You should now see options listed in the 'GND' panel for you to choose from.
- Now we need to run the Pre-Flight events. Running the Pre-Flight events is OPTIONAL, but we'll run it anyway for the sake of this tutorial.
- Press the **PF** button on the SECONDARY PANEL to open the PRE FLIGHT EVENTS page.
- Press LSK 4 to run the Preflight Events (your engines must be shutdown first).
- To close the SECONDARY PANEL, press the SEC button on the FS2Crew Main Panel, or click the right screw in the top right hand corner of the SECONDARY PANEL or press the button you assigned to toggle the SECONDARY PANEL.

PRE-FLIGHT EVENTS:

The Pre-Flight events are short and intense. These day quick turn arounds are the norm as airlines try to save money. Don't doddle or you will be behind the curve!

This tutorial only covers the key points. For specific details, please consult the FCOMs provided with the NGX. Furthermore, this tutorial assumes it's the first flight of the day for the crew.

Special Note: To **FAST FORWARD** the **PRE FLIGHT EVENTS TIME**, RIGHT CLICK the DOWN ARROW on the FS2Crew Main Panel.

Note: ALL TIMES BELOW ARE APPROXIMATE!

+25 Minutes: Pre-Flight Events start. Jetway connects if available. Door 1L, stairway and cargo doors open.

+24 Minutes: ONLY if using the **COLD AND DARK** panel state (the aircraft has no electrical power) the FO starts the **ELECTRICAL POWER UP SUPPLEMENTRY PROCEDURE** unless you've selected otherwise in the FS2Crew Options menu. Note that in real life, pilots rarely receive the aircraft cold and dark.

ELECTRICAL POWER UP SUPPLEMENATRY PROCEDURE

-CAPTAIN OR F/O.

TUTORIAL ASSUMES FO WILL PERFORM THIS PROCEDURE BASED ON DEFAULT CONFIG OPTION.

- *BATTERY ON*
- *GROUND POWER SWITCH ON (IF GROUND POWER AVAILABLE)*
- *FIRE TESTS (FAULT/INOP, OVHT FIRE, EXTINGUISHER).*
- *START APU IF GROUND POWER NOT AVAILABLE*
- *CONFIGURE FUEL PUMPS*
- *WHEEL WELL FIRE TEST*

+23 Minutes: You as the Captain should perform the **PRELIMINARY PREFLIGHT PROCEDURE**. By convention, the Captain will usually perform this procedure if the FO is doing the walk around. If you want the FO to perform this procedure instead of you, select the associated FS2Crew CFG option to enable this.

PRELIMINARY PREFLIGHT PROCEDURE

-CAPTAIN OR FO. TUTORIAL ASSUMES CAPTAIN WILL DO IT BASED ON DEFAULT CONFIG OPTION.

- *IRSs OFF, WAIT APPROX 30 SECONDS, THEN ON*
- *FLIGHT RECORDER TEST*
- *VOICE RECORDER SWITCH NORMAL*
- *SERVICE INTERPHONE SWITCH OFF*
- *ENGINE PANEL SET*
- *MACH OVERSPEED TEST*
- *STALL WARNING TEST (NOTE: REQUIRES AC TRANSFER BUSSES ARE POWERED FOR UP TO 4 MINUTES. YOU MAY WISH TO DELAY RUNNING THE FS2CREW PRE-FLIGHT EVENTS BY 4 MINUTES TO ACCOUNT FOR THIS CONDITION.)*
- *SET PARKING BRAKE (IF BRAKE WEAR INDICATORS WILL BE CHECKED DURING THE EXTERIOR INSPECTION)*
- *ATIS COPY (NOT SIMULATED)*

+ 22 Minutes: FO starts walk around. If it's night, the FO will turn on the wheel well light. Captain performs the CDU pre-flight using the estimated ZFW.

+19 Minutes: FA asks if she can start the boarding. Press the SECONDARY BUTTON to allow boarding to commence.

Actual boarding will commence approximately two minute later.

+18 Minutes: FO returns from walk around and starts his **PREFLIGHT** and **CDU PREFLIGHT PROCEDURE.** Capt starts his **PREFLIGHT PROCEDURE**.

PREFLIGHT PROCEDURE

-CAPTAIN

- *MASTER LIGHTS TEST AND DIM SWITCH TEST*
- *EFIS CONTROL PANEL SET (MINIMUMS REF SELECTOR BARO, MINIMUMS SELECTOR EFFRA, FLIGHT PATH VECTOR SWITCH AS NEEDED, BAROMETRIC REFERENCE SELECTOR IN OR HPA, BAROMETIC SELECTOR SET LOCAL ALTIMETER SETTING, VOR/ADF SWITCHES AS NEEDED, MODE SELECTOR MAP, WEATHER RADAR OFF)*
- *MODE CONTROL PANEL SET (COURSES SET , FLIGHT DIRECTORS ON, IAS TO V2, BANK ANGLE SELECTOR AS NEEDED, ALT SELECTOR TO 4900 FEET UNTIL AIRWAYS CLEARANCE RECEIVED)*
- *OXYGEN TEST AND SET*
- *DISENGAGE LIGHTS TEST*
- *FLIGHT AND STANDBY INSTRUMENTS CHECK*
- *PARKING BRAKE SET*
- *RADIO TUNING PANEL SET*
- *TRIMS CHECK AND SET*
- *VERIFY FLIGHT PLAN*

PREFLIGHT PROCEDURE

-FIRST OFFICER. TUTORIAL ASSUMES FO WILL DO IT BASED ON DEFAULT CONFIG OPTION.

NOTE: The various tests (CVR, WX RADAR, TCAS, GPWS) are not part of the normal Preflight Procedure, and are not usually run in during everyday operations. They are 'Supplementary Procedures'. However, if you want the FO to run the Supplementary Procedures during his Preflight flow, select the "PREFLIGHT SUP PROC to "YES" in the FS2Crew Config Options.

- *YAW DAMPER ON*
- *NAVIGATION AND DISPLAYS PANEL SET*
- *FUEL PANEL SET*
- *ELECTRICAL PANEL SET*
- *FIRE DETECTION TESTS IF NOT COMPLETED DURING ELECTRICAL POWER UP*
- *EMERGENCY EXIT LIGHTS ARMED*
- *WINDOWS HEAT ON*
- *PROBE HEAT OFF (ON IF COLD WX OPS)*
- *HYDRAULIC PANEL SET*
- *AIR CONDITIONING PANEL SET*
- *CABIN PRESSURIZATION PANEL SET*
- *IGNITION SWITCH RIGHT*
- *LIGHTING PANEL SET*
- *OXYGEN TEST AND SET*
- *DISENGAGE LIGHTS TEST*
- *FLIGHT INSTRUMENTS CHECK*
- *AUTOBRAKE RTO*
- *CARGO FIRE TEST*
- *RADIO TUNING PANEL SET*
- *WEATHER RADAR CONTROL PANEL SET*
- *TRANSPONDER CONTROL PANEL SET*

If "FUEL UPLOADED REQUIRED" selected to "YES" on the FS2CREW SETUP page, the ground crew will hand the FO the fuel receipt. The FO will write the numbers down in the book and then state: "**FUEL CHECKS WITHIN 3 PERCENT**". It takes about one minute for the FO to write the numbers in the book.

+11 Minutes or later: Run the Pre Flight Checklist. To run the Preflight Checklist press the MAIN BUTTON

Checklist Notes:

B = Responded by both flight crew members.
F = Responded by the FO only.
C = Responded by the Captain only.

Items in RED TEXT are to be 'spoken' by you, the Captain. Press the MAIN BUTTON to answer the FO's challenge for each of these items. Just a note here, DONT press the Main Button too quickly, just allow time for each of the spoken responses to be played or things can start to sound confused.

Press the MAIN BUTTON to progress to the next checklist item.

If the checklist item is in **'Black'** the FO will automatically respond to the challenge as it falls under his area of responsibility. You do NOT need to press any button!

PREFLIGHT CHECKLIST	
OXYGEN (B)	TESTED, 100%
NAV TRANSFER & DISPLAY SWITCHES (F)	NORMAL, AUTO
WINDOW HEAT (F)	ON
PRESSURIZATION MODE SELECTOR (F)	AUTO
FLIGHT INSTRUMENTS (B)	HEADING ___, ALTIMETER __*
PARKING BRAKE (C)	SET
ENGINE START LEVERS (C)	CUTOFF

- Just a note for your reference here: "**HEADING**" refers to the aircraft heading shown on the **PFD**, not the heading value dialed in the **MCP**.

+10 Minutes: Obtain your airways clearance if using ATC. (In FS2Crew, this is done by the Captain, but in real-life it's usually done by the FO). Once you've received the clearance, enter your cleared Altitude in the MCP Altitude Window, enter the ATC assigned transponder code in the transponder.

Next, run the **Departure Brief**. The departure briefing is enabled by opening the FS2Crew SECONDARY PANEL and press DEP to and play the Departure Brief. (You can make changes to the Departure Briefing by changing various scenarios within this panel to suit your own specific flight conditions.)

+7 Minutes: Load sheet arrives. If load sheet arrives in person and not via ACARS (as defined in the Config Options), Press the SECONDARY BUTTON to acknowledge.

+6 Minutes: The Capt and FO will start the BEFORE START PROCEDURE:

BEFORE START PROCEDURE

-FIRST OFFICER

- *CDU PREFLIGHT PROCEDURE COMPLETE (UPDATE ZFW AND ENTER CG)*
- *STAB TRIM SET (NOTE: THIS IS AN APPROXIMATION. FS2CREW CANNOT READ THE ACTUAL TAKEOFF TRIM VALUE FROM THE FMC. YOU MAY NEED TO SLIGHTLY RE-TRIM).*
- *PERFORMANCE DATA CHECK*
- *CDU DISPLAY (SELECT LEGS PAGE)*
- *FLIGHT DECK WINDOW LOCKED*

The FO will speak: "**VERIFY TAKEOFF SPEEDS**". Press the SECONDARY BUTTON to respond CHECKED. The FO will then delete the VERIFY TAKEOFF SPEEDS message in the FMC.

BEFORE START PROCEDURE

-CAPTAIN

- *TAKEOFF LANDING DATA CARD COMPLETE*
- *PERFORMANCE DATA CHECK*
- *CDU DISPLAY (SELECT TAKEOFF REF PAGE)*
- *MCP SET (ARM AUTO THROTTLE, IAS VERIFY V2 SELECTED, ARM LNAV/VNAV AS NEEDED, INITIAL HEADING AND ALTITUDE SET)*
- *FLIGHT DECK WINDOWS CLOSED AND LOCKED*

When the procedure is complete, press the MAIN BUTTON to start the 'Before Start Checklist to the line'

(Once again, press the Main Button each time to progress to the next FO challenge, unless the text is in black)

BEFORE START CHECKLIST TO THE LINE	
FUEL (F)	___ KGS/LBS PUMPS ON
PASSENGER SIGNS (F)	ON
WINDOWS (B)	LOCKED (LOCKED ON THE LEFT)
MCP (B)	V2____, HEADING____, ALTITUDE___
TAKEOFF SPEEDS (B)	V1____, VR____, V2___
CDU PREFLIGHT (B)	COMPLETED
RUDDER AND AILERON TRIM (C)	FREE AND ZERO
TAXI AND TAKEOFF BRIEFING (C)	COMPLETED

+4 Minutes: Start the APU now if desired and put the APU on the busses after it starts.

+3 Minutes: Cargo doors close

+1 Minute: Boarding is complete. FA will ask you if she is clear to close the cockpit door. Press the SECONDARY BUTTON to acknowledge.

The FO will turn on the Anti Collision light shortly after the cabin door is closed.

+1 Minute: If the Air Start Cart is not connected and the APU is running, the wheel chocks will be automatically removed. The Air Conditioning Cart will also be removed if it is connected. If those conditions are not met, you will need to manually remove the chocks via the PMDG FMC.

+ 0 Minutes: After the FA closes the cockpit door and after being cleared for engine start, run the: "BEFORE START CHECKLIST BELOW THE LINE" by pressing the MAIN BUTTON. The FO will turn on the Anti Collision light at the same time. Note: If a cabin or cargo door is open, the FO will not run the checklist.

(The checklist challenges will be automatically responded to …. Do not press any buttons)

BEFORE START CHECKLIST BELOW THE LINE	
FLIGHT DECK DOOR (F)	CLOSED AND LOCKED
ANTI COLLISION LIGHT (F)	ON

+0 Minutes: Pushback and Engine Start.

PUSHBACK AND ENGINE START:

- For pushback, use the built in PMDG pushback until Ultimate Ground Crew X is released.
- Press the MAIN BUTTON to announce the start sequence. That is the trigger for the FO to set the lower display to ENG.
- Command the FO to start Engine 2 by pressing the MAIN BUTTON
- At around 25 percent N2, manually advance the right fuel control lever to IDLE.
- The FO will call "**STARTER CUTOUT**" when the START VALVE LIGHT extinguishes.

Special Note: If you experience that the FO calls "Starter Cutout" before he should, ensure you have no hardware or other controls assigned to the stock FS "Mixture" control event.

- If it's a hot day and you delayed the APU start (if using the APU at all), command the FO to isolate a pack after engine two stabilizes. This will help get cool air to the passengers since the engines can cool the plane faster than APU bleed air. Press the SECONDARY BUTTON to: "ISOLATE A PACK".
- Start Engine 1 using the same procedure.

BEFORE TAXI PROCEDURE:

- The FO will automatically start his BEFORE TAXI PROCEDURE after you have called for the Takeoff Flaps. To ask for the Takeoff Flaps, press the MAIN BUTTON, which tells the FO to set the flap lever to "FLAPS FIVE".

- (Note: you can press the SECONDARY BUTTON at this point if you want to select a "Flaps Up Taxi" if the taxiways are heavily contaminated.)

BEFORE TAXI PROCEDURE

-CAPTAIN

- *COMMAND THE FO TO SET THE TAKEOFF FLAP AFTER THE FO SETS THE ENGINE START SWITCHES TO CONTINUOUS*
- *FLIGHT CONTROLS CHECK PERFORM*

BEFORE TAXI PROCEDURE

-FIRST OFFICER

- *BLANK LOWER SCREEN. NOTE: THIS AIRLINE DOES NOT HAVE THE 'FLIGHT CONTROLS' PAGE OPTION, SO IT WILL NOT BE DISPLAYED.*
- *EAI/WAI ON IMMEDIATELY AFTER ENGINE START IF REQUIRED*
- *ENGINE GENERATORS ON*
- *PROBE HEAT ON*
- *PACKS AUTO*
- *APU OFF*
- *ENGINE START SWITCHES CONTINOUS*
- *TRANSPONDER AS REQUIRED*
- *RECALL*

- After you've called for the Takeoff Flaps, It's time to run the flight controls check. Press the MAIN BUTTON to commence the "FLIGHT CONTROLS CHECK."

- Press the MAIN BUTTON after each of the following Flight Control Checks:

  ✓ Column Full Left
  ✓ Column Full Right
  ✓ Column Centered

- The FO will respond "**CHECKED**" after the checks are performed.

- Perform the same checks with the elevators also using the MAIN BUTTON as follows:

  ✓ Rudders Full Left ….. Centered
  ✓ Rudders Full Right ….Centered

- Now it's time to run the Before Taxi Checklist. Press the MAIN BUTTON to start the: "BEFORE TAXI CHECKLIST"

- If it's night, the FO will turn off the Dome Light at the end of the checklist.

BEFORE TAXI CHECKLIST

GENERATORS (F)	ON
PROBE HEAT (F)	ON
ANTI-ICE (F)	_____
ISOLATION VALVE (F)	AUTO
ENGINE START SWITCHES (F)	CONT
RECALL (F)	CHECKED
AUTOBRAKE (F)	RTO
ENGINE START LEVERS (C)	IDLE DETENT
FLIGHT CONTROLS (C)	CHECKED
DISPATCH CLEARANCE (B)	CHECKED

TAXI:

- Speak "CLEAR LEFT" even though it's redundant.
- Turn on the Taxi and Runway Turnoff lights as desired.
- Taxi to runway.

APPROACHING RUNWAY:

- Run the BEFORE TAKEOFF CHECKLIST when ready by pressing the MAIN BUTTON.

BEFORE TAKE OFF CHECKLIST

FLAPS (C)	FLAPS 5 GREEN LIGHT
STABILIZER TRIM (C)	5 POINT ZERO 4 UNITS

Note: The Stabilizer trim will only accept a trim setting to one decimal place. So 5.0 Units will work, but not 5.55 units. You are supposed to be looking at the trim handle, not the CDU for the trim setting.

- The FA will notify the cockpit that the cabin is secure. You will hear two chime sounds. The FO will then announce "**CABIN SECURE".**

RUNWAY ENTRY PROCEDURE AND TAKEOFF:

- Press the MAIN BUTTON to start the "BEFORE TAKEOFF PROCEDURE".

BEFORE TAKEOFF PROCEDURE

-PILOT FLYING

- *LDG LIGHTS ON (FIXED ON. RETRACTS ON WHEN T/O CLEARANCE RECEIVED)*
- *TAXI LIGHT OFF*
- *WXR ON (EFIS)*

BEFORE TAKEOFF PROCEDURE

-PILOT MONITORING

- *CYCLE FASTEN BELT SIGNS*
- *STROBES ON*
- *SELECT TERRAIN IF REQUIRED*

- When cleared for takeoff by ATC, set the **FIXED** and **RETRACTABLE LANDING LIGHTS** to **ON**.
- Set the **TAXI LIGH**T to **OFF** if it's still on.
- Advance the thrust levers to 40%, wait for the engines to stabilize, then press TOGA. (A handy keyboard shortcut to activate **TOGA** is the 'clickspot' just below the 'Course' knob on the MCP).
- Press the MAIN BUTTON to announce: "SET TAKEOFF THRUST".
- PM will call "**THRUST SET**" and "**80 KNOTS**".
- Press the SECONDARY BUTTON if you need to reject the takeoff.
- The FO will call "**V1**" if V1 is not selected an aircraft auto-callout.
- When the FO calls "**ROTATE**", pitch the nose up.
- After the FO calls "**POSITIVE RATE**", press the MAIN BUTTON for the FO to action 'GEAR UP'
- Note: The FO will not announce "GEAR UP" because it's Boeing practice not to say anything between V1 and 400 feet except for "ROTATE" and 'POSITIVE RATE", even if you have a failure. At 400 feet.
- **Note:** If you reject the takeoff, ensure you don't stow the speed brake while the mode displays 'Okay to Clean Up' or you may trigger the FO's After Landing procedure if you want to return to the runway.

CLIMB:

- If **LNAV** was not armed on the ground, engage a lateral mode at 400 feet. If the autopilot is on, press the SECONDARY BUTTON to activate 'LNAV'. If the autopilot is off, press the MAIN BUTTON to: "ENAGE HEADING SELECT'.
- If **no**t using **VNAV and the autopilot is off**, press the SECONDARY BUTTON to enable 'BUG UP' mode passing the acceleration altitude. The FO will then set the Flaps Up Speed in the airspeed window. However, if the autopilot is on, then you control the autopilot panel and you would set the Flaps Up Speed manually and then announce BUG UP.
- **Retract the flaps on schedule** by pressing the MAIN BUTTON (assuming takeoff was conducted at a Flaps 5 setting): "FLAPS 1" followed by "FLAPS UP"

- **The FO will start his AFTER TAKEOFF PROCEDURE automatically when the flaps are up and the aircraft is <u>above the clean speed.</u>**

AFTER TAKEOFF PROCEDURE

-PILOT MONITORING

- *ENGINE START SWITCHES OFF (UNLESS ANTI ICE IS ON)*
- *RUNWAY TURN OFF & RETRACTABLE LIGHTS OFF*
- *AUTOBRAKE OFF*
- *GEAR OFF*

- Press the MAIN BUTTON to start the "AFTER TAKEOFF CHECKLIST"
- The FO will perform entire checklist on his own.
- If VNAV was **not** armed on the ground, engage VNAV when desired. (If the autopilot is on, press VNAV on the MCP panel.)
- A few moments after completing the After Takeoff Checklist, the PM will ask you if you want to release the Cabin Crew so they can start their inflight service. Use the MAIN or SECONDARY BUTTON to respond.
- At 10,000 feet, the FO will turn off the fixed landing lights unless otherwise selected in the FS2Crew CFG Options. (Some airlines, for example, only turn off the landing lights at the Transition Altitude).
- Shortly after passing 10,000 feet above the departure airport elevation, the PM will ask you if you want to release the Cabin (the passengers this time, not the crew) so they can leave their seats. Use the MAIN or SECONDARY BUTTON to respond.
- Above 10,000 feet, press the SECONDARY BUTTON to "DETUNE THE NAVS". The FO will set 108.0 in Nav 1 and 2.
- Passing FL300, set the bank angle selector to 10 degrees.

TRANSITION ALTITUDE:

- Passing the Transition Altitude (as defined in the PMDG FMC), the FO will call "**TRANSITION**".
- Press the STD button on your EFIS panel.
- The FO should de-select Terrain on his display at 10,000 feet or the Transition Altitude, whichever is higher.

CRUISE:

- When reaching cruise level, Press the MAIN BUTTON to announce: "MAINTAINING FLIGHT LEVEL XXX ON STANDARD".
- If you wish to communicate with the FA, press the **CALL ATTD** button on the overhead panel or open the **FA PAGE** in the **SECONDARY PANEL**.
- In cruise, there is not much to do other than monitor the instruments.

DESCENT PROCEDURE

- Approximately 150 miles back of the Top of Descent, press the MAIN BUTTON: "YOU HAVE CONTROL".
- The First Officer is now the Pilot Flying and you are the Pilot Monitoring, and you now are responsible for all areas in the aircraft that fall under the Pilot Monitoring's area of responsibility.
- Start setting up the aircraft for the descent.

DESCENT PROCEDURE

-PILOT MONITORING (THAT'S YOU NOW!)

- *VERIFY PRESSURIZATION SET TO LANDING ALTITUDE*
- *ENTER VREF ON APPROACH REF PAGE*
- *SET RADIO/BARO MINS*
- *SET OR VERIFY NAVIGATION RADIOS AND COURPSE FOR THE APPROACH*
- *CHECK LANDING PERFORMANCE*
- *SET THE AUTOBRAKE*
- *PERFORM APPROACH BRIEF*
- *PRESS RECALL*

Note: VREF doesn't account for a change in landing weight, so adjust the landing weight to below the current weight listed on the APP REF page. For example, if the current fuel is 4.2 and the landing fuel is 3.2, adjust the landing weight to 1.0 tons below the current weight. This is very important to do at max landing weight.

Note: FS2Crew cannot setup the PM's EFIS panel. You will need to do it manually if desired.

Note: VERY IMPORTANT: YOU MUST MANUALLY ENTER THE TRANS LEVEL IN THE DESCENT FORECAST PAGE. FS2CREW NEEDS THAT VALUE TO COMPUTE THE TRANSITION CALL IN THE DESCENT.

- After you have pressed RECALL and completed the PM's descent flow, press the MAIN BUTTON: "I HAVE CONTROL".
- You are now back to being the Pilot Flying.
- The Descent checklist should be completed prior to leaving the cruise altitude.
- Press the MAIN BUTTON to start the: "DESCENT CHECKLIST"

DESCENT CHECKLIST

PRESSURIZATION (PM)	LAND ALT___
RECALL (PM)	CHECKED
AUTOBRAKE (PM)	___
LANDING DATA (B)	VREF__, MINIMUMS__FEET*
APPROACH BRIEFING (PF)	COMPLETED

- At the TOD, set the bank angle selector to 25 degrees.

- Passing 20,000 feet, the FO will make a PA: "**CABIN CREW PREPARE FOR LANDING".**

- Passing 10,000 feet the FO will turn on the fixed landing lights, the logo lights as required and set the seatbelts signs to on. Terrain should be selected on the PM's ND when below the transition level or 10,000 feet AFE, whichever is higher. The PF should always have radar on during the descent unless required by specific approach procedures. If AUTOLAND was selected in the APPROACH BRIEF for the APPROACH TYPE, the FO will turn on the APU for electrical redundancy.

PASSING THE TRANSITION LEVEL:

- Ensure that you entered a TRANSITION LEVEL value on the PMDG 737's FMC's DESCENT FORECAST PAGE. That value is used to trigger the FO's transition level call.
- When the PM calls "**TRANSITION**", press the STD button on your EFIS panel.
- During this procedure, set QNH on your PFD and standby altimeter/ IFSD.
- For an ILS/LOC approach, select the ILS frequency if it is standby and identify.

APPROACH:

- After passing the Transition Level, Press the MAIN BUTTON to start the "APPROACH CHECKLIST"

APPROACH CHECKLIST

ALTIMETERS (B) ____ SET

- At 5000 AFE, the PM will call: "**FIVE THOUSAND**" and cycle the fasten belts switch twice to alert the cabin crew that landing.

- Note: The cabin crew does not phone the flight deck to inform the flight crew that the cabin is secure.

SHOOTING THE APPROACH:

- Use HDG SEL or LNAV to intercept the final approach course. If using LNAV, ensure the localizer is captured as it might parallel the approach course.
- Arm APP Mode. If dual channel approach desired, arm second autopilot to enable 'Auto landing'.
- Press the MAIN BUTTON to select "FLAPS 1".
- Press the MAIN BUTTON to select "FLAPS 5".
- The PM will call "**LOCALIZER ALIVE**" and "**GLIDESLOPE ALIVE**".
- When the Glideslope comes alive, Press the MAIN BUTTON to select "GEAR DOWN FLAPS 15".
- **Arm the speed brake**. (There is a special 'clickspot' beside and to the right of the handle of the speed brake lever to assist you in setting this).
- The PM will warn you if the speed brakes are still up with Flaps 15 set.
- When the Radar Altimeter comes alive, the FO will make a PA: "**CABIN CREW TAKE YOUR SEATS**."
- At Glideslope capture, Press the MAIN BUTTON to select "FLAPS 30/40".
- Set the Missed Approach Altitude in the MCP at Glideslope Capture.
- Set VREF plus additive.
- After the final landing flap has been selected, Press the MAIN BUTTON to start the "LANDING CHECKLIST".

LANDING CHECKLIST

ENGINE START SWITCHES (PF)	CONTINUOUS
SPEEDBRAKE (PF)	ARMED
LANDING GEAR (PF)	DOWN
FLAPS (PF)	FLAPS 15/30/40 GREEN LIGHT

- When passing 1000 feet, the PM will call "**STABLE**" or "**NOT STABLE**".
- If the weather is bad, the FO will call "**RUNWAY/ APPROACH LIGHTS**" when the runway comes into view.
- At minimums, Press the MAIN BUTTON to speak: "LANDING" if the required visual reference is established.
- If you need to "GO AROUND", Press the SECONDARY BUTTON to commence this procedure and check the **GO AROUND SECTION** below.

GO AROUND PROCEDURES

- Push the TO/GA switch
- Press the SECONDARY BUTTON to command "GO AROUND FLAPS 15".
- After the PM announces "**POSITIVE RATE**", Press the MAIN BUTTON to command "GEAR UP CLIMB THRUST".
- The PM will set the landing gear up, verify thrust set and call "**THRUST SET**".
- At or above 400', select or call for a lateral roll mode.
- At the acceleration altitude, Press the SECONDARY BUTTON to command "BUG UP" if VNAV is not engaged.
- Retract the flaps on schedule and Press the MAIN BUTTON to start the "AFTER TAKEOFF CHECKLIST".

ROLLOUT

- The PM will announce the status of the speed brakes and reverses. "SPEED BRAKE UP/ NOT UP/ REVERSES NORMAL".
- If doing an auto land, the FO will call **100** and **80 KNOTS**.
- The PM will call **60 KNOTS**.
- The PM will call auto brakes disarmed.

AFTER LANDING

To trigger the FO's after landing flow, position the speed brake down, Press the MAIN BUTTON to allow the FO to "CLEAN UP" the aircraft after you have exited the Runway.

AFTER LANDING PROCEDURE

-CAPTAIN

- *SPEED BRAKE DOWN*
- *LANDING LIGHTS OFF*
- *TAXI LIGHT ON*
- *RUNWAY TURN OFF LIGHTS AS REQUIRED*
- *WX RADAR (EFIS PANEL) OFF*

AFTER LANDING PROCEDURE

-FIRST OFFICER

- *PROBE HEAT SWITCHES OFF*
- *STROBE LIGHT OFF*
- *ENGINE START SWITCHES OFF (UNLESS ANTI ICE REQUIRED)*
- *WEATHER RADAR (FO'S EFIS PANEL) OFF*
- *AUTOBRAKE OFF*
- *FLAPS UP (FLAPS 15 IF CONTAMINATED)*
- *START TIMING FOR 3 MINUTE ENGINE COOL DOWN*
- *APU AS REQURED (FO ACTION BASED ON APPROACH BRIEF SELECTION)*

Note: If, in the APPROACH BRIEF, you selected **POWER/AIR: APU (DELAYED START)**, the FO will NOT start the APU on his own.

If, in the APPROACH BRIEF, you selected **POWER/AIR: APU (A.LDG PROC)**, the FO will start the APU on his own during his After Landing flow.

Note: When the FO turns off the probe heat, he will announce "**MASTER CAUTION ANTI-ICE**".

TAXI IN

- If you require APU power, and if you did not select the FO to automatically turn on the APU during the AFTER LANDING PROCEDURE in the APPROACH BRIEF, press the MAIN BUTTON to "START THE APU" when desired. Turn it on as late as possible to save fuel.
- If desired, shut down engine number two to save fuel. See the Engine Shutdown procedure described after the TAXI section in this tutorial.
- Just prior to turning into the gate or stand, press the MAIN BUTTON for "LIGHTS AND DOORS". The FO will turn off the taxi and runway turnoff lights and make the following PA: "**CABIN CREW DISARM DOORS AND CROSSCHECK**."
- If the APU is running, he will put the generators on the APU and state: "**DOORS DISARMED, APU ON THE BUS**". If the APU is not running, he will state: "**DOORS DISARMED, NO APU**."

SINGLE ENGINE TAXI:

- If you wish to shut down an engine during taxi to save fuel, follow this procedure.
- Wait three minutes for engine cool down prior to shutting down the number two engine. The FO will announce when three minutes are up.
- Note that the area of responsibility for the engine fuel lever depends on if the aircraft is moving or stationary.
- FSX has a ground friction problem that can make single engine taxiing very difficult. You may wish to use this solution.

✓ Install FSUIPC if you do not already have it (www.schiratti.com)
✓ Go to this folder in your FS directory: **/Modules/FSUIPC Documents/Example LUA Plugins.zip**
✓ Copy "DynamicFriction.lua" from that zip file and put it in your **FS/Modules folder**.
✓ Open your **FSUIPC4.ini** file with Notepad.
✓ Add these lines:

- **[Auto]**
- **1 = LUA DynamicFriction**

IF AIRCRAFT MOVING:

- Press the SECONDARY BUTTON to "SHUTDOWN RIGHT ENGINE / SHUTDOWN NUMBER TWO ENGINE"
- The FO will place his virtual hand on the engine two start lever.
- The FO will speak: "**ENGINE START LEVER NUMBER TWO CONFIRM**".
- Press the SECONDARY BUTTON to "CONFIRM".
- The FO will then set the FUEL LEVER to CUTOFF for engine two.

IF AIRCRAFT STATIONARY:

- Put your mouse on the number two start lever and press the SECONDARY BUTTON to announce "ENGINE START LEVER NUMBER TWO CONFIRM".
- The FO will respond "**CONFIRMED**".
- Manually set FUEL LEVER #2 to CUTOFF.

GATE/STAND ARRIVAL

- When you park at the gate or stand, set the parking brake and ensure the **taxi light is off**.
- THE TAXI LIGHT MUST BE OFF as it is a necessary condition for the FO's shutdown flow to initiate.
- If the three minute engine cool down time has been reached, the FO will announce: "**THREE MINUTES**", otherwise he'll announce that three minutes have not been reached. If the APU is not on the busses or no Ground Power is available, the FO will announce that no power is available.

GATE/STAND ARRIVAL SHUTDOWN

SHUTDOWN PROCEDURE

-CAPTAIN

- *PARKING BRAKE SET*
- *ENGINE START LEVERS CUTOFF (ENSURE POWER SOURCE AVAILABLE FIRST AND THREE MINUTE COOL DOWN TIME REACHED!)*
- *NOTE: IF TAXIING IN WITH GND PWR AND NO APU, CUTOFF NUMBER 2 ENGINE, WAIT FOR THE GROUND POWER TO BE APPLED, THEN CUTOFF NUMBER 1 ENGINE.*
- *FLIGHT DIRECTOR OFF*

SHUTDOWN PROCEDURE

-FIRST OFFICER

- *APU OR GPU ON THE BUSSES*
- *SEATBELTS OFF*
- *ANTI COLLISION LIGHT OFF*
- *FUEL PUMPS OFF (UNLESS APU RUNNING)*
- *ENGINE START SWITCHES OFF*
- *ANTI ICE OFF*
- *ELEC HYDRAULIC PUMPS OFF*
- *PACKS AUTO*
- *ISOLATION VALVE OPEN*
- *APU BLEED ON (IF USING APU)*
- *FLIGHT DIRECTOR OFF*
- *STAB TRIM 4 UNITS*
- *MCP ALT 4900*
- *MCP IAS 100*
- *XPONDER 3000*
- *TRANSPONDER STANDBY*
- *RESET TIMER*

When the shutdown procedure is complete, press the MAIN BUTTON to start the SHUTDOWN CHECKLIST.

SHUTDOWN CHECKLIST

FUEL PUMPS (F)	OFF
PROBE HEAT (F)	OFF/AUTO
HYDRAULIC PANEL (F)	SET
FLAPS (F)	UP
PARKING BRAKE (C)	SET /RELEASED
ENGINE START LEVERS (C)	CUTOFF
WEATHER RADAR (B)	OFF

If you want to make a second flight, you do NOT need to reload the aircraft. Instead, press the down arrow button on the FS2Crew Main Panel, skip over the SECURE CHECKLIST. You will be returned to the PRE-FLIGHT CHECKLIST.

SECURING THE AIRCRAFT

If you wish to secure the aircraft, use the following procedure:

- Press the MAIN BUTTON to start the "SECURE THE AIRCRAFT" flow.
- After the FO completes his flow, press the MAIN BUTTON to start the "SECURE CHECKLIST".

SECURE PROCEDURE

-FIRST OFFICER

- *IRS'S OFF*
- *EMERGENCY EXIT LIGHTS OFF*
- *WINDOW HEAT OFF*
- *PACKS OFF*

SECURE CHECKLIST

IRSs (F)	OFF
EMERGENCY EXIT LIGHTS (F)	OFF
WINDOW HEAT (F)	OFF
PACKS (F)	OFF

-TUTORIAL END-