

PC CD-ROM

FS2Crew

PMDG 747 Edition

Designed for Flight Simulator X

FS2Crew has received many rave reviews and awards including the coveted AVSIM Gold Medal and the PC Pilot Magazine 5-Star rating!



DESIGNED FOR
Flight Simulator

X

Manual

Copyright: © 2008/ **Aerosoft GmbH**
Flughafen Paderborn/Lippstadt
D-33142 Büren, Germany

Tel: +49 (0) 29 55 / 76 03-10
Fax: +49 (0) 29 55 / 76 03-33

E-Mail: info@aerosoft.de
Internet: www.aerosoft.de
www.aerosoft.com



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FS2Crew

Manual

Add-on for

Microsoft Flight Simulator X



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Important FSX Upgrade/ Differences Notes for previous FS9 Users

1. The upgrade and associated enhancements work in FSX version of the PMDG 747 only.
2. Keyboard/joystick assignments for the Main and Secondary Buttons are now controlled via the FS2Crew Start Center and use DirectX (Direct Input).
3. New FSX functionality: Automatic jetway connection/disconnection.
4. Mini-Panel can now be used by the FO to control the APU, Start and Fuel switches. This means that the 'big' overhead panel will no longer need to be loaded from time to time.
5. Two buttons were added to the Flight Planning page so that you can manually control the Main Exit and Cargo doors should they accidentally come out of sequence.
6. Minor bug fixes throughout the code (improved Go Around logic).
7. Click spot areas over the BARO STD, APP and LOC buttons removed as a precaution against losing their functionality should another application intercept associated keypresses transmitted by FS2Crew.

QUICK START

1. Run the FS2Crew Start Center. Make sure the Keyboard Assignments for the PMDG 747 are set to FS2Crew.
2. There is an FSX option that allows you to load the Virtual Cockpit (VC) by default. UNCHECK this option. You must start using the 2D cockpit or you may get a crash to desktop!



3. Create a flight that puts you at a gate position at RKSI (Incheon, South Korea)
4. When the aircraft is loading, you will be asked to trust each individual FS2Crew gauge. The easiest option is to select 'Always Trust' in the More Options tab.
5. After the aircraft loads, import the FS2Crew Panel State via the Add-Ons -> PMDG -> Load Panel State menu.
6. Follow the tutorial in this manual line-by-line slowly and carefully.
7. Unless you change the Green and Red Button assignments in the FS2Crew Start Center, the Main button is set to: Numeric Keypad Minus and Joystick Button 3. The Secondary button by default is set to: Numeric Keypad Plus and Joystick Button 4.

Important: Ensure your desired joystick button or keypress is not also tied to an FS Event (like flaps down, gear up, etc). You may need to delete pre-existing FSX joystick/key assignments.

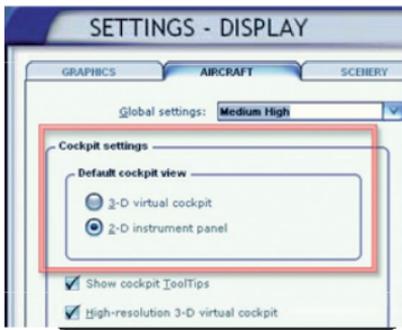
QUICK TROUBLESHOOTING

Situation: FSX crashes when I try to load FS2Crew.

Solution:

1. Via the FS2Crew Start Center, restore the Gaugesound.dll. Sometimes other add-ons will overwrite the updated version of the Gaugesound.dll that FS2Crew requires when you install them.

Also, please ensure that the 747 loads in the 2D cockpit by default:



Situation: I'm running Vista and I get a CTD when I load FS2Crew.

Solution: To disable DEP (Data Execute Protection) globally, please see this thread to disable it via the Command Prompt:

http://vista.beyondthemanual.com/2006/11/vista_tip_turn_off_data_execut.html

Situation: I get an error with 'DCrew0.gau'.

Solution: This gauge handles the DirectX input used for the Green and Red Buttons. Things to try: Make sure your joystick is plugged in prior to loading FSX, try reinstalling the latest version of DirectX, and ensure that your O/S is authentic. Sometimes other programs or mods or cracks can alter the required DirectX files, which may cause problems.



Situation: I'm getting stuttering.

Solution: Running memory managers in the background can cause stuttering with FS2Crew and other FS add-ons. Disable your memory managers before running FS2Crew.

Situation: FS2Crew overwrote my custom edited panel config file. Where is my original?

Solution: FS2Crew creates a backup of the pre-existing panel config file located in the PMDG 747's panel folder.

Situation: How do I uninstall FS2Crew?

Solution: You can uninstall FS2Crew by selecting 'uninstall' in Start -> All Programs -> FS2Crew -> PMDG 747 FSX Edition. If you uninstall FS2Crew, the FS2Crew uninstaller will automatically restore your original panel config file.

Situation: I cannot change the Main and Secondary button assignments via the Start Center.

Solution: The 747 cannot be loaded while changing the Main and Secondary button assignments. Exit FSX before changing the assignments. Do not forget to click 'save' when done.

Situation: I'm using a CH yoke and the Green and Red buttons do not work.

Solution: Download the latest version of the CH Manager from: <http://www.ch-hangar.com/>.

Remove any assignments that will be used for the Main and Secondary buttons. Re-calibrate the joystick in the CH manager program, not FSX.

Situation: The FO is starting the engines improperly.

Solution: Be sure to use the FS2Crew panel state file. Also, your joystick may be firing multiple times even though you only press the joystick button once. Try using the keyboard instead.

INTRODUCTION

FS2Crew PMDG 747 Edition for FS9 was the fourth major release in the FS2Crew series. The FSX Edition builds on its success and incorporates some new features that are unique to FSX, and makes other general improvements (such as DirectX integration).

FS2Crew adds a new layer of realism and depth to your PMDG 747 by adding a virtual flight, cabin and ground crew to the simulation. Rather than simply piloting your 747 solo, you will now be required to fly in a team environment, and in a much more structured manner using real-world procedures.

Please note that FS2Crew 747 is a very realistic simulation, and while every effort has been made to minimize the learning curve, please be prepared to make mistakes while you learn the software.

Please read the manual at least twice before attempting to use the software.

In FS2Crew, you are the Captain and the PF in most instances. Your job will be to learn the Captain and PF's role in the larger role-play.

NOTES ABOUT THE SOP'S MODELLED & TRANSITIONING FROM THE ATR AND LEVEL-D 767 EDITION OF FS2CREW

The 747 Version of FS2Crew closely models the SOPs of a real-world 747 Operator. Even though the equipment may be the same, every airline has its own unique procedures and way of doing things. Therefore, do not expect the procedures from the Level-D 767 version of FS2Crew to match the procedures modeled in the 747 version of FS2Crew. In other words, do not jump into the 747 Edition of FS2Crew thinking you can fly it properly the first time without first reading the manual!



One important difference to note is that, at the airline whose procedures FS2Crew modeled, the crews typically only call abnormal. So for example during engine start, the crews do not call oil pressure rising or start valve closed, unless there is a problem. Moreover, when retracting the flaps, the FO/PNF in FS2Crew responds to the Capt's flap commands silently. Unlike the 767 version of FS2Crew, the FO will not call for example: "Flaps 5... running... Flaps 5 set". This in my view is actually a good thing as it results in less distractions in busy terminal environments. At the same time, the crew in FS2Crew 747 do not call mode announce changes, although at the airline FS2Crew is based on they may be changing that in the future.

REPLACEMENT KEYS AND RE-INSTALLING

If you ordered FS2Crew 747 through the FS2Crew website, your software will be wrapped with the Flight1 E-Commerce Wrapper.

Replacement Keys for the Flight1 Wrapper can be obtained via the automated Flight1 customer support pages at:

<http://www.flight1.com/view.asp?page=service>

If you lost your Key or Order Number, please visit the above page.

If you want to re-install FS2Crew 747, simply download the software again if required and then select "Re-Install" on the credit card screen that is built into the original setup file.

REQUIREMENTS

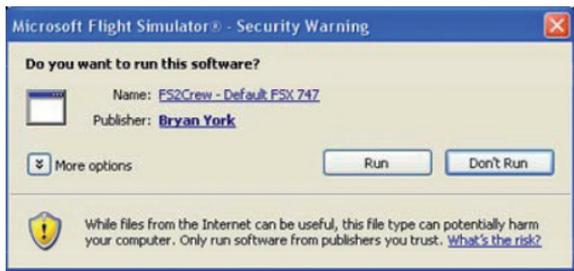
- PMDG 747 for FSX with the latest PMDG Updates installed.
- An original copy of FSX with no cracks.
- An authentic copy of Windows XP or Vista.

IMPORTANT MESSAGE ABOUT FSX GAUGE SECURITY WARNINGS

With FSX, add-on programs should ideally be code signed. This is to help prevent users from running malicious code from unverified sources and publishers. Previous versions of MSFS did not have this requirement.

FS2Crew's gauge files are code signed.

When you load the FSX 747 for the first time with FS2Crew installed, you will be asked if you want to trust the publisher of FS2Crew.



The publisher of FS2Crew is the developer, "Bryan York".

It is suggested that you open the "More options" menu and select "Always run software from Bryan York". That's your choice though. If you don't do this, you will need to consent to each file that FS2Crew loads one at a time.

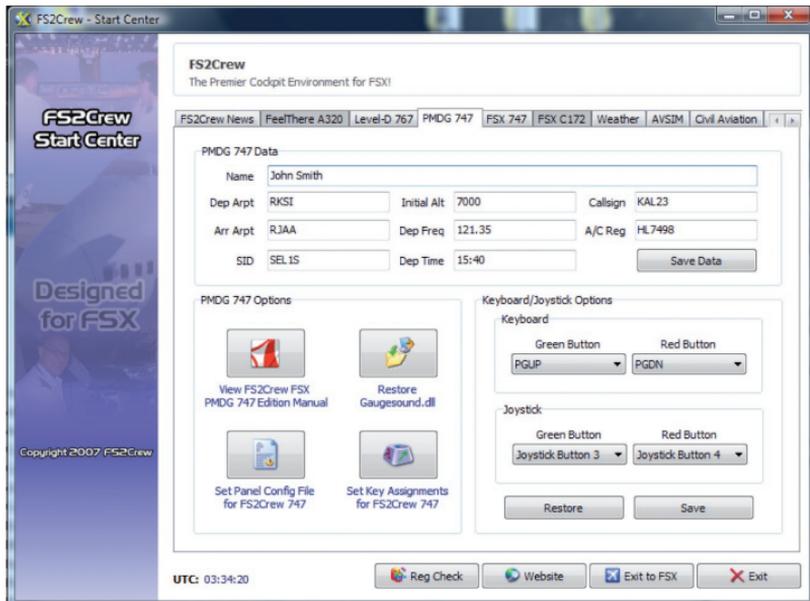


END-USER SUPPORT

Support may be obtained via the FS2Crew Support Forum, which is accessible via the FS2Crew website at: **www.fs2crew.com**.

Please allow up to 24 hours for a response owing to time zone differences.

THE FS2CREW FSX START CENTER



The FS2Crew Start Center is a utility that allows you to easily obtain the latest FS2Crew news, launch FSX, read the manual and manage the PMDG 747's panel.cfg file.

The Start Center can be accessed via the new FS2Crew shortcut icon that is placed on your desktop during the installation.

The default weather link is for the Weather Channel showing the U.S.

Note: You may change the link to a different site by editing the FS2Crew Configuration file located in: Microsoft Flight Simulator X\FS2Crew\FSX Start Center.

Note: The "Panel.cfg" button allows you to switch back and forth between the FS2Crew modified LVLD panel.cfg files located in LVLD's Panel Options folder, and the original LVLD panel.cfg files.



Note: Reg Check: This button is used to confirm that the FSX Registry Entry is functional. If the Registry entry is not functional, the FS2Crew installer will have difficulty locating FSX on your system.

CONFIGURING THE MAIN & SECONDARY BUTTONS

Important: FSX must not be running when you save the assignments for the Green and Red button!

In the simulation, you will use the Main Button the majority of the time to interface with the simulation. You will use the Secondary Button on fewer occasions. By default, FS2Crew uses the following assignments for the Main and Secondary Button:

Main Button: Joystick Button 3
Keyboard Minus Key (Numeric Keyboard)

Secondary Button: Joystick Button 4
Keyboard Plus Key (Numeric Keyboard)

The joystick buttons use DirectX. All joysticks should work except Xbox controllers.

When you select and save your joystick and keyboard assignments via the FSX FS2Crew Start Center, the "fifth parameter" associated with the FS2Crew gauge that controls Joystick and Keyboard functions in panel.cfg will be automatically updated. If desired, you can manually edit the panel.cfg by hand to update the Green and Red button assignments.



Important: Ensure your desired joystick button or keypress is not also tied to an FS Event (like flaps down, gear up, etc). You may need to delete pre-existing FSX joystick/key assignments to avoid unintended FS events from triggering when you press the Main or Secondary Button!

TUTORIAL STARTS HERE

Is Your PMDG 747 Airworthy?

Before installing FS2Crew, your PMDG 747 must have any available PMDG Service Updates installed.

If you are not sure if your PMDG 747 has the latest Service Updates installed, please consult PMDG for assistance.

PMDG Service Updates are available at:

<http://www.precisionmanuals.com>

STEP #1 – Understanding changes to the PMDG 747 Panel Config and Keyboard Assignment File

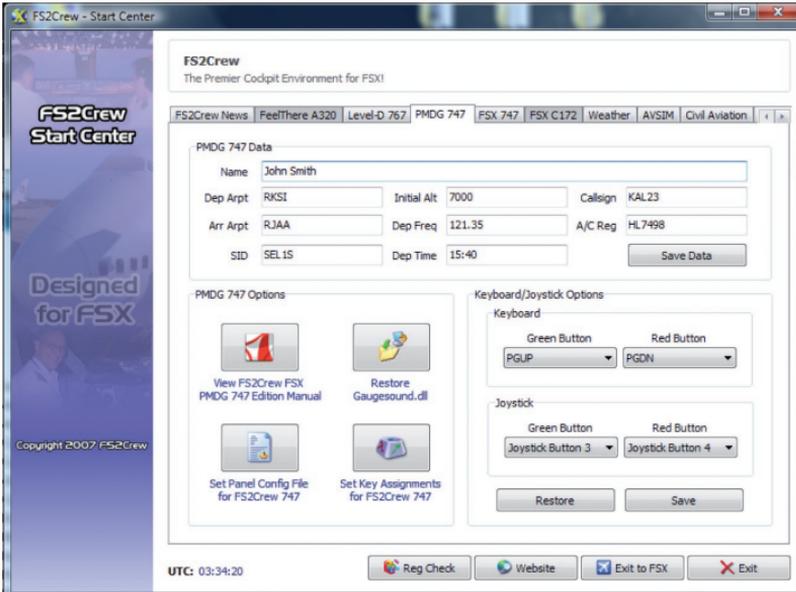
The PMDG Panel Config File:

The FS2Crew 747 code consists of individual gauge (.gau) type files that only get loaded when the PMDG 747's panel.cfg is loaded.

Accordingly, new FS2Crew entries must be made to your PMDG 747 panel.cfg in order for the FS2Crew to load. It's that simple.

When FS2Crew was installed, FS2Crew automatically overwrote the existing PMDG panel.cfg and updated it with the appropriate FS2Crew entries.

However, the FS2Crew installer also made a backup of your pre-existing panel.cfg file, and you can switch back and forth between your pre-FS2Crew panel.cfg and the FS2Crew modified panel config via the FS2Crew Start Center.



Note that if for whatever reason you want to revert to your original pre-FS2Crew panel.cfg file, just press the “Restore Original PMDG 747 Panel Config File” button to restore your original PMDG 747 panel.cfg to the one you had prior to installing FS2Crew. As mentioned, FS2Crew will not get loaded should you restore your original pre-FS2Crew Panel Config file.

Also note that should you uninstall FS2Crew using the FS2Crew uninstaller located in the Control Panel or Start Menu, your panel.cfg will automatically be restored to its original, pre-FS2Crew state.

 *Reminder: If the PMDG 747's panel.cfg file is not set to include the proper FS2Crew entries, FS2Crew will not load.*

Configuring the PMDG Keyboard Assignments File:

To interact with the PMDG 747, FS2Crew utilizes many of the available PMDG keyboard assignments.

To automatically setup your PMDG keyboard assignments so they match what is required by FS2Crew, click the **"Set Keyboard INI File for FS2Crew 747"** button.



If you set the Keyboard INI file to FS2Crew, your pre-existing PMDG 747 keyboard assignments will be lost.

Note that you can also restore the Keyboard INI file to its original, pre-FS2Crew state by clicking the same button again.

**Required FS2Crew-PMDG Keyboard Assignments:**

*If you want to add FS2Crew entries by hand, below are the required FS2Crew Keyboard Assignments. Note the Key Combinations for FS2Crew cannot be changed as FS2Crew makes these same key presses to perform associated functions; this is hard-coded in the simulation.

*These assignments make extensive use of the 'TAB' key. The FO will be pressing 'TAB' in conjunction with other letters frequently. If you have assigned 'TAB' to any other FS functions (such as reset weather), you should re-assign that command.

[EICAS Panel]

Press ENG=Ctrl+Tab+B

Press STAT=Ctrl+Tab+F

Press DRS=Ctrl+Tab+A

Press CANCEL=Ctrl+Tab+H

Press RECALL=Ctrl+Tab+E

[MCP]

Press AT Arm=Ctrl+Tab+N

Press HDG SEL=Ctrl+Tab+G

Press CMD L=Ctrl+Tab+D

Press CMD R=Ctrl+Tab+M

Set TO/GA=Ctrl+Tab+I

[Autobrakes]

Decrease Position=Ctrl+Shift+F

[Doors]

Entry 1L=Ctrl+Shift+A

All Cargo=Ctrl+Shift+V



STEP #2 – Entering Dispatch Information

Many of the pre-departure events in FS2Crew involve receiving paperwork (such as the Load sheet and Pre-Departure Clearance) via the ACARS printer.

To avoid using generic information as much as possible, FS2Crew gives you the option to input dispatch data that will be used to create more accurate looking pre-flight paperwork.

The screenshot shows the FS2Crew Start Center window. The title bar reads "FS2Crew - Start Center". The main window has a header "FS2Crew - The Premier Codepit Environment for FSX!". Below the header is a navigation bar with tabs: "FS2Crew News", "FeelThere A320", "Level-O 767", "PMDG 747", "FSX 747", "FSX C172", "Weather", "AVSIM", and "Civil Aviation". The "PMDG 747" tab is selected.

The "PMDG 747 Data" section contains the following fields:

Name	John Smith				
Dep Arpt	RKSI	Initial Alt	7000	Callsign	KAL23
Arr Arpt	RJAA	Dep Freq	121.35	A/C Reg	HL7498
SID	SEL 1S	Dep Time	15:40	<input type="button" value="Save Data"/>	

The "PMDG 747 Options" section contains four icons with labels:

- View FS2Crew FSX PMDG 747 Edition Manual
- Restore Gaugesound.dll
- Set Panel Config File for FS2Crew 747
- Set Key Assignments for FS2Crew 747

The "Keyboard/Joystick Options" section contains two sub-sections:

Keyboard

Green Button	Red Button
<input type="text" value="PGUP"/>	<input type="text" value="PGDN"/>

Joystick

Green Button	Red Button
<input type="text" value="Joystick Button 3"/>	<input type="text" value="Joystick Button 4"/>

At the bottom of the options section are and buttons.

The bottom of the window shows a status bar with "UTC: 03:34:20" and four buttons: , , , and .



The various 747 Data fields generally supply information that is used for visual effect only. If you do not input correct information, nothing bad will happen to the simulation except your pre-flight paperwork will display non-flight specific information.

For the tutorial flight we are going from RKSI to RJAA. The 747 Data fields for this flight are set-up for you automatically by default, however it is suggested that you change the name from John Smith to your own name.

STEP #3 – The Main and Secondary Button

The Main Button is used 99 percent of the time, to run checklists and perform tasks.



During a normal flight, the Secondary Button is rarely used. The Secondary Button is used to make the following the calls:

- During pushback to call clear of the ground equipment (pushback direction Tail Left only).
- To command the FO to engage Heading select during takeoff.
- To command the FO to engage the Left Autopilot during takeoff.
- To call Visual when the approach type is selected to Non-Visual.
- To call “Going-Around” at the DH.

STEP #4 – Loading the PMDG 747

Now we’re ready to start FSX and load the PMDG 747.

From the main FSX menu, create a flight with the following characteristics:

- **Starting Location:** RKSI.
- **Aircraft:** PMDG 747 (Passenger Version). Important: Select a model with GE-CF6 engines (we’ll be doing a full autostart).
- **Gate:** User discretion as it depends on your AFCAD. Try to start at location at the terminal building.
- **Time of day:** Day.
- **Weather:** Fair Weather.



Don’t forget to select a 747 with General Electric (GE) engines so we can use auto-start. In the tutorial we’re going to have the FO perform a full auto-start, which means that not only will the FO pull the start switches, he will also set the fuel levers to Run (normally the Captain would do that job.)



Unlike the 737 and ATR versions of FS2Crew, you do NOT need to load the default Cessna first and then shut it down prior to loading the PMDG 747.

You can load the PMDG 747 directly from the main FSX menu.

After the 747 loads, no FS2Crew windows will be visible. All FS2Crew windows start in the closed position.

SUGGESTION: When running the tutorial for the first time, it is recommended that you do not use Radar Contact, Squawkbox or any other program that will add to your workload. It is also recommended that you disable all AI traffic.

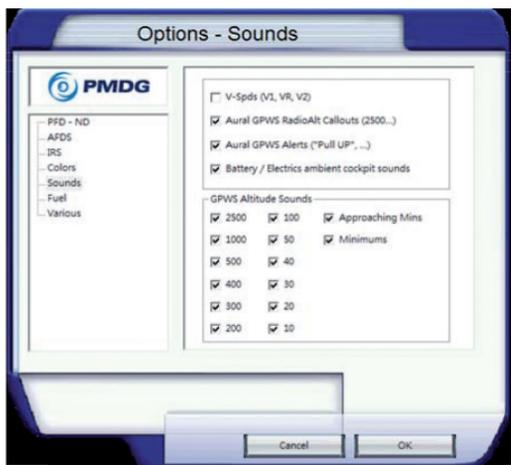
Try to keep things as simple as possible so you can concentrate on learning FS2Crew with minimal distractions. That makes learning the software easier.

 *Very Important: NEVER load the PMDG 747 from any external view or from the virtual cockpit of another aircraft. The PMDG 747 must be setup so it loads in the 2D cockpit. This is to ensure that everything initializes in the correct order. Failure to follow this rule may result in problems.*

STEP #5 – More PMDG setup

After the PMDG 747 has finished loading, open the PMDG menu (it's accessible via the PMDG menu in FSX menu on the top of the screen in windowed mode). Next, select General -> Options, and then select the Sounds sub-menu and un-check V-Speeds (V1, VR, V2).

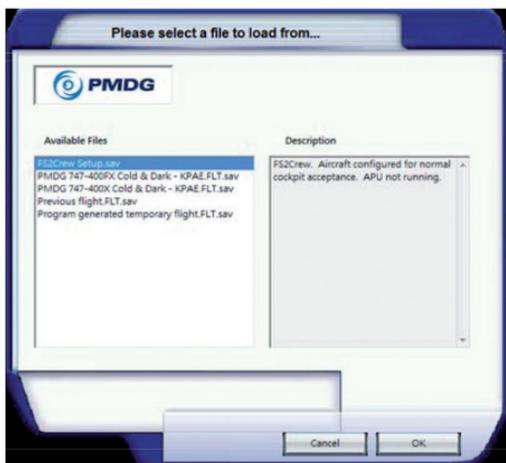
Un-checking V-Spds prevents FS2Crew and the PMDG 747 from making duplicate takeoff calls.



STEP #6 – Loading The Right Panel State

Next, we have to import the FS2Crew panel state so the aircraft can be set-up for use with FS2Crew.

To do that, open the PMDG menu from the menu bar on the top of the screen, and select Panel State -> Load Panel State. Next, select the FS2Crew Setup file depicted below:





 **IMPORTANT:** Generally you should load the FS2Crew Setup file every time you wish to use FS2Crew if you want to start from the gate and perform all pre-flight events. However, if you wish to skip the pre-flight events, then you do not necessarily need to load the FS2Crew Setup file.

This setup was created for FS2Crew by FS2Crew's real-world 747 pilot consultant and fairly accurately reflects the way the cockpit would be set-up when the crew arrives at the aircraft in the real-world at this airline*

 *In the real-world, however, the aircraft would usually have the APU already running or External Power connected when you arrive at the aircraft (very rarely do crews receive the aircraft cold and dark.) Given that some airports do not permit APU operation for noise abatement or other reasons, FS2Crew delegates responsibility to you to connect external power or bring the APU on-line.

There is another reason why, generally speaking, this setup file should be loaded before each flight if you want to start at the gate and perform all the pre-flight events: The FO in FS2Crew cannot read the position of most switches on the aircraft. **The FO is essentially blind.** This is due to programming/interface limitations with the PMDG 747.

Accordingly, the PMDG 747's switches must be in expected position for the FO to move switches correctly.

For example, prior to take-off, the FO will toggle the landing light switches regardless of whether they are on or off.

If, for whatever reason, the landing lights are in the on position prior to the FO starting his takeoff flow actions, the FO will still blindly toggle the landing lights even though they are already on, resulting in the landing lights being turned off.

However, do not be intimidated: If you load the FS2Crew Panel State and follow procedures correctly, you should not experience issues.

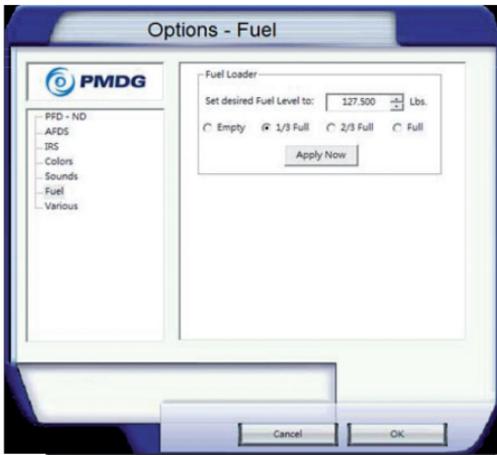
STEP #7 – All about Fuel

It's time to fuel the aircraft.

Open the PMDG -> General -> Options menu and select the fuel menu.

In fuel-loader select **1/3 Full** and then click **Apply Now**.

Note: 1/3 Full is not a 100 percent technically accurate fuel load for such a short flight, but it's a quick and easy way to give us enough fuel required for the flight.



There are some very important things to know about fuelling the aircraft and the way FS2Crew works.

1. When loading fuel, **always use the PMDG Fuel loader utility** depicted above. **Never** load fuel via the FSX Fuel and Payload menu or you will have problems.
2. When selecting a fuel amount from the PMDG Fuel Loader, the fuel pumps and cross-feeds will **automatically be configured** so the fuel pumps do not need to be configured prior to engine start. That being the case, the FS2Crew FO will not configure the fuel pumps during his Before Start Flow (as he would in real life) because the PMDG 747 Fuel Loader automatically does the job.
3. Most importantly, always select a fuel load from the PMDG



menu and press 'Apply Now' for each and every flight. If you do not do this, then you will need to manually setup the pumps before engine start.

! *Important Reminder: For each and every flight, always select a fuel load and press 'Apply Now' so the fuel pumps can automatically self-configure*

STEP #8 – FS2Crew Clickspots

Now it's time to open the FS2Crew Main Selector Panel. The Main Selector Panel is used to interface with FS2Crew and perform various FS2Crew functions.

There are two invincible click spots used to open and close the Main Selector Panel:

1. 2D cockpit:



2. VC cockpit:



 If you click these click spots and nothing happens (i.e., the FS2Crew Main Selector Panel does not open), it means your PMDG's panel.cfg file has not been updated with the appropriate FS2Crew entries. The solution: Open the FS2Crew Start Center, go to the PMDG 747 sub-page, and press the button that sets the 747's panel.cfg to FS2Crew, then reload the 747.

There are two invincible click spots used to play miscellaneous conversations. Both are located over the airspeed indicator in the VC and 2D cockpit:





STEP #9 – Understanding the Main Selector Panel

Open the Main Selector Panel now.

The Main Selector Panel looks like this:



How does the Main Selector Panel work?

- For the most part, the buttons on the Main Selector Panel are setup so that throughout the flight you will work from left to right. The exception is the FO, FA and PA buttons. They are in their own separate section as you will be using them at irregular times.
- A red underscore means the button is associated with a user controlled checklist.
- Buttons ending in a 'B' indicates the button will produce a briefing page. B stands for briefing.
- Left clicking a button associated with a checklist or a mode (such as Engine Start (ES), will result in a yellow dot appearing in the top middle portion of the associated button. The yellow dot means that the associated checklist is active. Click the button again de-activate and reset the checklist. The yellow dot will then disappear.
- Clicking PM will show and show the Performance Manual, which sits on the top of the Captain's instrument panel (2D cockpit only).
- The white pin (extreme left) is used to Pin and Unpin the main selector panel. It operates the same way the Pin icon works on the PMDG selector panel. If unpinned, the FS2Crew Main Selector panel will close automatically after approximately 5 seconds.
- The toggle switch (extreme right) is used to toggle the FS2Crew night lighting on and off.



Pre-Flight Checklist Active



Very Important: Yellow dots will automatically extinguish when the associated checklist or actions are completed. Under normal circumstances, you should never need to manually extinguish a yellow dot.



Also Important: Never activate another checklist while another checklist is active as indicated by an illuminated yellow dot. In other words, do not switch checklists half way through completing a checklist, or you will get erroneous calls. Complete your checklists in full. Before activating a checklist, all yellow dots must be extinguished!

What does each button on the Main Selector stand for?

FP: Opens Flight Planning Page

O2: Opens Oxygen Test Panel

PM: Closes and Opens the Performance Manual

PF: Pre-Flight Checklist

DB: Departure Briefing Page

BS: Before Start Checklist

PB: Opens Pushback Panel

ES: Engine Start Procedures

BTX: Before Taxi Checklist

BTO: Before Takeoff Checklist

T/AT: Takeoff and After Takeoff Procedures (Note: FO performs the After Takeoff Checklist silently, so there is no red underscore)

CB: Cruise Briefing Page

AB: Approach Briefing Page

DS: Descent Checklist

APP: Approach Checklist

LDG: Landing Procedures and Checklist

SH: Shutdown checklist



FO: FO Commands Page

FA: Open Intercom Panel (used to contact the FA)

PA: Public Announcements Page

STEP #11 – The Flight Planning Page

Let's open the Flight Planning Page, so press the FP button on the Main Selector Panel.



The Flight Planning Page must always be opened first because it is on this page that FS2Crew can be activated. Until FS2Crew has been activated, none of the other buttons on the Main Selector will work.

Generally, you can use the left and right mouse button to change selections, although with certain click spot areas you can only use the left mouse button. Click spot areas are located over the black rectangular area associated with each selection. A few click spots are also located directly over the white text.



FLIGHT PLANNING			
TIME TO BLOCKS OFF	+45	SKIP PRE DEP EVTS	NO
START			
FLT TIME	5.00	AUTOSTART	YES
FLT LEVEL	FL330	FREIGHTER VERSION	RESERVED
ATC CALLSIGN	RRL	ARR AP ELEV	0
TA	18000	MON FA ANN	NO
TL	18000	FO CALLS FOR PUSH	YES
DEST FOR PAS	AMSTERDAM	T/O RWY	15 RIGHT
FO T/O HDG SEL	NO	APU FOR START	YES
T/O PERFORMANCE			
R. THR	YES	T/O POWER	103.0
A. TEMP	44	V1	130
		VR	140
		V2	150
EXIT 1L CARGO			

TOP SECTION

TIME TO BLOCKS OFF:

Countdown Timer. Left clicking on the number can be used to rapidly bring the time to departure down. However, be careful when doing this as you will likely experience the crew talking over themselves as many calls and events are triggered by the time remaining value.

SKIP PRE-DEP EVENTS:

Yes or No. Used to configure FS2Crew so all pre-departure events are skipped. This must be select prior to pressing Start. You would typically select 'yes' if you want to start FS2Crew in flight, or with the engines already running.

MIDDLE SECTION

START/CONTINUE/PAUSE:

Press to activate FS2Crew. After activating FS2Crew you will hear a verbal confirmation that FS2Crew has been activated, and the icon will change to PAUSE.

If you press PAUSE, the pre-departure events will pause. Note that you must pause FS2Crew using this method; you cannot use FSX internal pause command.

If you press PAUSE, the icon will change to CONTINUE. Press CONTINUE to un-pause FS2Crew's time to blocks off counter.

FLIGHT TIME:

Use the left and right mouse button to increase/decrease the flight time.

FLT LEVEL:

Select the cruise level.

ATC CALLSIGN:

Select the ATC callsign using the right and left mouse button.

TA and TL:

Transition Altitude and Transition Level.



DEST FOR PA's:

Use the left and right mouse button to select your destination; this selection will be used during the Cruise PA announcement.

FO T/O HDG SELECT:

Only relevant if letting the FO perform the Takeoff. If letting the FO perform the Takeoff, this selection is used to make the FO call for Heading Select at 400 feet AFE. If 'no' is select the FO will call for LNAV by default.

AUTOSTART:

If selected to 'yes', the FO will set the fuel control switches to run after pulling the starter switches; if selected to 'no', you as Capt must position the fuel control switches to run. In the tutorial flight, we're going to have the FO move the fuel levers to run by himself.

FREIGHTER VERSION:

Reserved for future updates.

ARR AP ELEV:

Arrival airport elevation. You must never forget to set this value as it is used to determine many important, internal calculations by FS2Crew.



There is a hidden click spot located over the ARR AP ELEV text that can be used to quickly increase the arrival airport elevation value by 1000 feet. Left click = -1000. Right click + 1000.

MON FA ANN:

Select 'yes' to monitor FA cabin announcements. Technically, you cannot hear the FA's cabin announcement through the door, but you can hear them through the cockpit speakers.

FO CALLS FOR PUSH:

If using on-line ATC such at VATSIM or IVAO, you may not want the FO to call for Push and Start Clearance. In that case, set this option to 'no.'

T/O RUNWAY:

When entering the runway, the FO will call the TO N1 setting and confirm the runway you're lining up on.

There are two hidden click spots (one over the number -15- and one over the runway –left, right, center or N/A). Use the left and right mouse buttons to select your departure runway so the FO can make a correct call.

APU FOR START:

If not using the APU for start, select this option to 'no'.

TAKEOFF PERFORMANCE SECTION**R. THRUST:**

Reduce thrust, yes or no.

A TEMP:

Assumed temperature.

TO POWER, V1, VR and V2:

Used for takeoff calls. After setting up the FMC, you will need to manually transfer the relevant numbers from the FMC to this section.

DOORS SECTION**EXIT 1L:**

Manually toggle Exit 1L. Note: Model must have an available keyboard doors entry. At the time of writing, some 2D cockpit models do not have an available door keyboard assignment. Keypress transmitted when this button press: CTRL + SHIFT + A. Be mindful of programs that may "intercept" the transmitted keypress.

CARGO:

Manually toggles all Cargo Doors. Keypress transmitted when this button pressed: CTRL + SHIFT + V.



LETS GET ROLLING!

SECTION 1: PRE-DEPARTURE EVENTS:

1. We'll assume that the 747 has loaded, you're sitting at the gate in the 2D cockpit at RKSI, the skies are clear, you've set everything up as previously described and you're ready to go. No AI Traffic is visible because hopefully you disabled all AI traffic: you want no unnecessary distractions for your tutorial flight that will impede learning.
2. Let's double that we're ready. Please check that you have:
 - Setup the Main and Secondary Button;
 - Set the PMDG Panel Config and Keyboard Assignments files to FS2Crew via the FS2Crew Start Center;
 - Set the fuel load to 1/3 fuel; and,
 - Loaded the FS2Crew Panel State.
 - If you haven't done any of these things, stop and do them now!
3. If you're in the 2D cockpit, press the hidden click spot located on the compass to open the FS2Crew Main Selector panel. If you're in the VC click the hidden click spot located over the chronometer to open the Main Selector Panel.
4. Note that the only button that works on the Main Selector panel is the FP button, which is used to open the Flight Planning Page. The other buttons will not function until FS2Crew has been activated.
5. On the Flight Planning Page, using the left and right mouse buttons as required, setup the following:
 - **Time to Blocks off:** 45 minutes
 - **Skip Pre-Dep Events:** No
 - **Flight Time:** 2 hours
 - **Flight Level:** FL310
 - **ATC Callsign:** KAL23
 - **TA:** 14000
 - **TL:** 14000

- **Destination for P.A.'s:** Tokyo
 - **Auto-start:** Yes
 - **Arrival Airport Elevation:** 140
 - **Monitor FA announcements:** Yes
 - **FO Calls for Pushback:** Yes
 - **Takeoff Runway:** Leave at 15R
 - **APU for Start:** Yes
6. Don't worry about setting up the remaining Takeoff Performance data now; we can't fill those fields in until the FMC gives us the required information.
 7. Once everything has been setup, press "START" to activate FS2Crew. You will hear a female voice say: FS2Crew Activated.



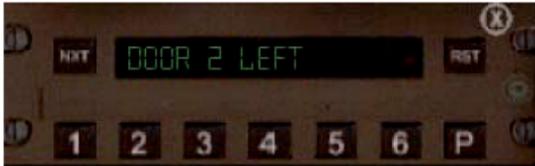
The time to blocks off starts at 45 minutes. You can bring that number down very fast by left clicking it. Note that if you do that it is very possible that you will have voices playing over top of each other as many of the voices are triggered by reaching certain times as indicated on the Flight Planning page. Once you get more experienced with FS2Crew, you will know when you can quickly bring the time down

8. We now need to setup the electrical power. Although the FO would typically do this in the real-world (as rare as it would be to receive a Dark cockpit if the first place!), responsibility to setup the initial electrical power FS2Crew delegates to the user.
9. Start the APU and put the APU on the busses when APU electrical power is available.

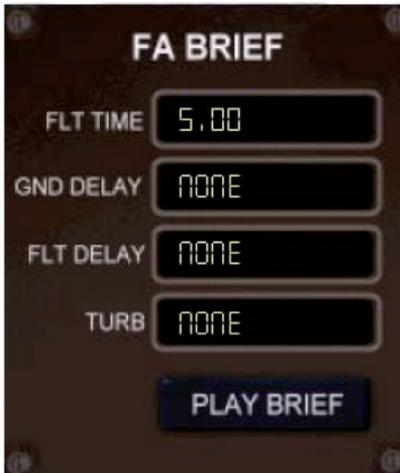


If you are new to the PMDG 747 and are not sure how to perform this task, please consult the PMDG 747 manuals. FS2Crew presumes that you have a basic familiarity with the PMDG 747. You can also review the Expanded Electrical Power Setup at the end of this manual.

10. At approximately time to blocks off plus 40, the FA will phone the flight deck using the interphone. You will hear a chime and see the interphone panel pop-up in the lower right hand corner of the screen:



11. DOOR 2 LEFT is the station that the FA is calling from. Left click directly on the green DOOR 2 LEFT text to respond to the FA's call.



12. The FA BRIEF panel will then pop-up. Using the left or right mouse buttons to change the values for the brief. For our tutorial flight to Tokyo, please set the FLIGHT TIME to 2 hours. Note that operation of the Briefs is slightly different from previous versions of FS2Crew. In the 747 version of FS2Crew you will configure the brief, and once everything is setup you will click "PLAY BRIEF" to play the full brief.



Important note about Doors: FS2Crew controls all the exterior doors and hatches on the PMDG 747, and opens and closes them at pre-determined times. If you are running FSPassengers or any other utility that attempts to control the doors, disable them or the doors will be thrown out of sequence. Prior to activating FS2Crew, all of the PMDG 747's exterior doors must be in the closed position. If the doors get thrown out of position, you can manually control them via the door buttons on the Flight Planning Page.

13. At time plus 38, the FO will start his external walk around. This is when you as the Captain should start your pre-flight procedure. In this tutorial flight we will only mention what switches, etc., you need to physically move. There isn't much to do as most of the switches should already be in the correct position if you loaded the FS2Crew Panel State file.

14. **Abbreviated Captains' Pre-Flight Procedure:**

- **IRS Mode Selections:** OFF for 10 seconds then NAV
- **CDU:** Setup



- **Departure Airport:** RKSI
- **Arrival Airport:** RJAA
- **Company Saved Route:** Enter "RKSIRJAA001" and the route from Seoul to Tokyo will automatically load.
- **Flight #:** KAL23
- **Cruise Alt:** FL310
- **Fuel Reserves:** 10
- **Cost Index:** 50



Charts for RKSI and RJAA are available on the Internet:

RKSI:

<http://tfc.rwy12.com/docs/rksi.pdf#search=%22rksi%20sel15%22>

RJAA:

<http://www.twin.ne.jp/~watanabe/satjpn/files/RJAA.pdf>

If you don't want to load the saved route in the FMC, you can enter the route in full: Departure runway at RKSI: 15R. SID: SEL1S. Route: SEL – G597 – VENUS. STAR at RJAA: VENUS 1S. Arrival Runway: 34L.



 The Transition Altitude in Korea is 14,000 feet. Do not forget to enter the correct TA in the TRANS ALT line.

15. **MCP:**

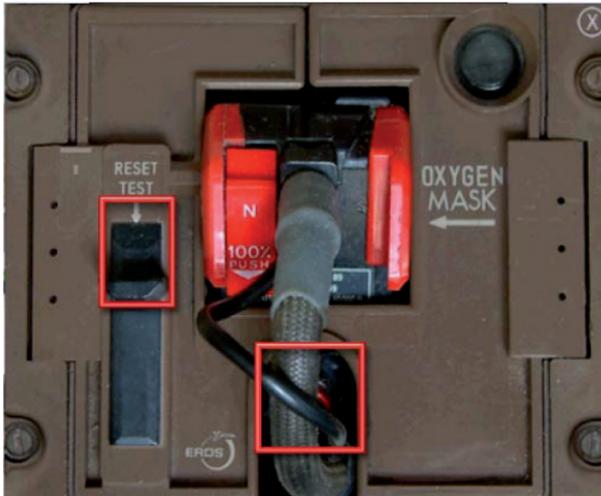
- Enter V2 in the airspeed Window.
- Set the Heading to 152.
- Altitude in the Altitude Window to 7000 as per the SID. Arm LNAV and VNAV.

16. Flight Director and Auto throttle: ARMED.

17. Barometer: We're in Asia, not the US or Canada, so set the Barometer to HPA.

18. Seatbelt Switch: Set to AUTO.

19. Oxygen: Check. To check your oxygen, press O2 on the Main Selector Panel. The oxygen panel will appear.



To run the Oxygen Test, hold down the left mouse button over the hidden click spot area marked by the red rectangle on the left for a couple seconds, then hold down the left mouse button over the red rectangle in the bottom center position for a few seconds. It's important that you hold the mouse button down and not just click it.

A short video of how to perform the Oxygen test is available at:
http://66.135.39.111/fs2crew/FS2Crew_747_Preview1.zip

20. At time plus 26 minutes, the FO will return from his walk-around. Shortly there after he will check the Maintenance Log for a Daily.
21. The FO will then do his pre-flight procedure. He will get his charts ready and calculate the TO performance.



You can view the TO performance sheet by clicking the Green Book. Note: The Green book is only visible in the 2D cockpit. Also note that the V-Speeds displayed on the TO Performance Card are taken directly from the Flight Planning page, so make sure you've entered the correct takeoff information on the Flight Planning Page first, otherwise some of the info on the TO Performance Card will be wrong.

B747-400(GE) ZK- [] Trip Number **KAL23**

Airport **RKSI** ATIS **D** Runway **02L** W/V **01 0** Vis **>10** Temp **15** QNH **1013**

10 Cross 20 wind 30

Position Shift **POB**
m **416**

Slope (if more than UP/DN 0.3%)
- %

Comp used **-3**

Lower of RWY & CLB Limit **3967**
+ QNH
- 7.0
3897 Max BRW

Basic V1 **157** Tailwind
for Final BRW
5 kt +17.0
10 kt +30.0
15 kt +42.0

Planned **3568** BRW
+ 102
3670

Final **3568** BRW
+ 102
3670 Max BRW for Temp

Wet or Red Thr Red Thrust or RWY not Dry

Wind **-2** Equiv BRW **3670** Assumed Temp

V1 (mgs) **120** use higher

PACKS MAX TAKEOFF REDUCED
ON OFF **1057** N1

22% **6.3** **20** **12** 3 ENG PITCH

ENGINE INOPERATIVE TURN

AT ALT of FIX TURN LEFT/RIGHT Max Bank 15° HEADING or SID
1500 Three Eng Acq/ht

Handwritten notes:
ZFW ACT 234.996 TOW 356.796 FUEL 123.000
ZFW 2800kg
399 PAX
DEP OF WEIGHT 18000
48916

Note that the writing in dark black is coming from FS2Crew. The remaining (lighter) writing is generic. The data is not available to make the entire card non generic.

Click in the upper section of the card to close the card.

Click in the lower section of the card to flip the card over.

22. The FO will then start his Preflight procedure. The most important things to note are that the FO will set the Autobrake to RTO, turn on his Flight Director and perform his oxygen test.
23. Once the FO completes his pre-flight procedure (anytime after he has finished his oxygen test), you can call for the Pre-Flight Checklist.
24. To call for the Pre-Flight checklist, open the FS2Crew main selector panel and left click the PF button. A yellow dot will appear above PF indicating that the PF checklist is active.
25. To run the checklist, press the Main Button to go through the checklist. Important: Go slow with the Main Button. Do not click it rapidly. Be deliberate.



When clicking the Main Button, go slow and deliberate. Wait for the talking to finish before clicking again. No rapid fire clicks. FS2Crew is not a first person shooter!



The yellow dot over the PF button on the FS2Crew Main Selector Panel will automatically extinguish when the Pre-Flight Checklist is complete. If you use FS2Crew properly, you should never need to manually extinguish a yellow dot.

26. With 14 minutes remaining, the Pre-Departure Clearance (PDC) will come in over the ACARS printer. To close the PDC, simply click in the upper portion of the printout. Note that much of the data on the PDC is not generic; in fact, a good portion of the data is derived from the data you entered in the Start Center.



```
PRE-DEPARTURE CLEARANCE
KAL23 DEPART RKSI AT 15:40 FL310
ESTCLR Z
H/B744/Q TRANSPONDER 7253
ROUTE SELIS
RKSI FLIGHT PLANNED ROUTE... RJAA
?TCAS EQUIPPED-CPDLC-AGCS
MAINTAIN 7000
DEPT FREQ 121.35

PDC ISSUED AT 120015

HL7498 002/04 RKSI / RJAA 3: 06
```

27. After receiving the PDC, you can brief the FO for the Takeoff and Departure. To do that, click DB on the FS2Crew Main Selector Panel, then configure the brief the same way you did for the FA briefing. After you've made your selections, click PLAY BRIEF to play the brief.

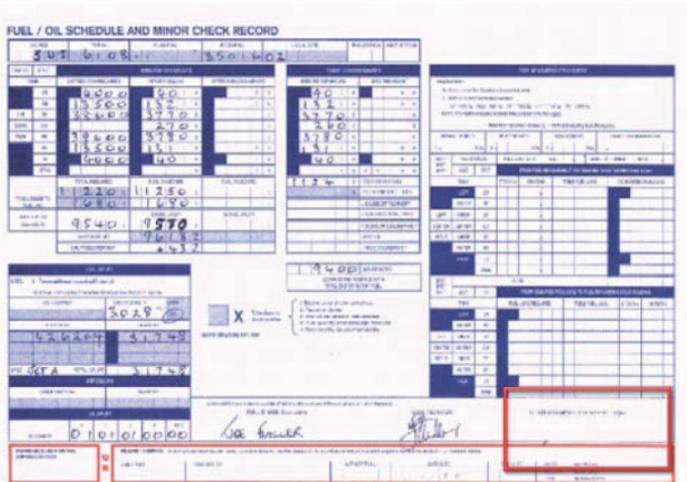


! For the Takeoff Briefing, ensure that the PF for the Takeoff is selected to CAPT, Flaps are set to 20 and the Packs are On. For the SID, use the right mouse button until RSKI is displayed.

28. With 9 minutes left, the engineer will contact you to tell ask you if the fuel load is okay. Left click on the GND CALL text to answer the engineer.



29. A few minutes later he will enter the cockpit to give you the fuel sheet.



30. When the fuel sheet pop-up, click in the area in the lower right hand portion of the sheet shown above by the red rectangle. When you click there your name will appear, and the fuel sheet will close a few moments later.

! Reminder: To close the fuel sheet, left click in the area marked by the red rectangle as depicted above



31. Between 8 and 2 minutes left to go, you will receive the load sheet over the ACARS printer. Note that a lot of the information on the load sheet is not generic, in particularly the weights. The Pax/Cargo loads and C of G data are however generic. The in-flight fuel burn is based on guesstimates that take into consideration your flight time.

```
LOADSHEET EDNO 01 (3501)
CSHARE FLTS AC UA
KAL23 / 12 -7- 2006
RKSI RJAA HL7498 2/14
ZFW 466688 MAX 542500
TOF 126333
TOU 593021 MAX 873164
TIF 110000
LAU 483021 MAX 630000
UNLD 75812
PAX /311 /27 4 TTL 342
LIZFW 515.6
LITOW 509.5
TOMAC 24.9
STAB TO 6.0
NOT FOR T/02 DERATE
BW 181394 BI 458.0
DOW 186883 DOI 432.3
HST 0
TERRY URIGHT 1024
ENDLSS

HL7498 1035/21 RKSI /RJAA 3: 06
-----
```

32. There is also a random chance that you will receive various ACARS messages from Crewing and Operations. Ramp may call you to inform you of late passengers, among other things.

**KAL23 CREW. FOR YOUR INFORMATION
AN AIRWORLD FLIGHT REPORTED MOD TURB WITH CAT
BETWEEN FL280 AND FL330 ON A TRACK JUST TO THE LEFT
OF YOUR FILED ROUTE. MOST TURB EXPERIENCED ABOUT
40 MIN AFTER TO AND LASTED ABOUT 10 MIN.**

**RGDS
JOHN
OPERATIONS**

HL7498 0135/21 R KSI RJAA 3: 7

33. There is also a chance the FA may contact you to request that you radio operations to obtain more crew meal, blankets, etc. To radio Operations and pass the FA's request, set COMM 2 to 131.70 and press the Secondary Button.



Reminder: The frequency for Operations is 131.70. Set that in COMM 2, make sure the frequency is active, then press the Secondary Button.

34. With two minutes remaining, the FA will contact you and tell you the cabin is ready. The FA dialogue panel will pop-up and you can tell her if the taxi time will be short or not.





35. A few moments later the Engineer will contact you to tell you that all the external doors are closed. You will then ask him if you can pressurize the aircraft.

36. The Engineer will always respond yes. This is the FO's cue to pressurize the hydraulic system. Note that you will see a mini-pop up panel appear in the lower right hand section of the screen. This is how the FO interfaces with the PMDG 747; basically he makes simulated mouse clicks. After the FO has pressurized the hydraulics, set the Stabilizer Trim to the takeoff position as indicated by the FMC. Note that the load sheet will give you a TO Stab Trim position, but it is not accurate.

FO's Flow when he hears "Cleared to pressurize":

Hyd demand pump 4: AUX

Hyd demand pumps 1, 2 and 3: AUTO

Fuel pumps: As required *

Doors: Checks closed and armed on the EICAS display, then selects the secondary engine page for the start.

* The FO in FS2Crew will not configure the fuel pumps for the before start phase of the flight. Why? It assumed that the fuels pumps will already be in the correct position. Remember that when you selected your fuel load via the PMDG fuel sub-menu, the PMDG fuel-pumps automatically self-configured based on the selected fuel load.



Things to know about the Mini-Panel pop-ups:

- *In the absence of an SDK, using simulated mouse clicks on mini-panels are the only way the FS2Crew FO can flip switches on the aircraft.*
- *The two black areas visible in the mini-panel for the Overhead are deliberate. They represent two PMDG gauges that are not loaded by the Overhead mini-panel. These two gauges cannot be loaded in the mini panel because it upsets the PMDG's system logic.*

- *Do not switch views when a mini-panel is open or it may not automatically close when it should. In other words, don't flip flop back and forth between the 2D and VC cockpit.*

37. Shortly after completing his flow, the FO will call for start and push clearance. When the start clearance is received the FO will set the beacon to the on position. That is your cue to call for the Before Start Checklist.



Reminder: When the FO turns the beacon on, that is your cue to call for the Before Start Checklist.

38. But before we perform the Before Start Checklist, let's make sure we're setup properly before we continue.

Are we setup properly before we can continue?

Please make sure:

The MCP is set up with V2 in the airspeed window, 152 in the heading window and 7000 in the Altitude window.

LNAV and VNAV are armed.

The Flight Director and Auto throttle are armed.

The outer doors are closed.

The Takeoff Stab trim is set.

The Seatbelt switch is in the Auto position.

The APU is running with APU on the busses (APU Gen On)

The Barometer should be set to HPA.

The Performance manual should be hidden from view. If it's still open, click PM on the Main Selector to close it.

* Assuming you loaded the FS2Crew Panel State file at the beginning of the simulation, everything else should be setup properly.



39. Let's now call for the Before Start Checklist. To do that, open the FS2Crew Main Selector panel and click the BS button. You'll note the yellow button appears over the BS text indicating that the Before Start checklist is active.
40. The Before Start checklist is run the same way as the Pre-Flight Checklist. You use the Main Button to run through the checklist. There is one interesting thing to note about the Before Start Checklist. For the MCP challenge, you are expected to read back the values set in the MCP window. FS2Crew cannot read those values directly, so an alternative system was devised. A panel will pop up allowing you to vocalize the MCP set-up.



41. Vocalize the MCP setup is easy. First, click the V2 button, then press the numbers to vocalize the airspeed in the Airspeed Window. Next, click the HDG button, then click the numbers to create the heading. Same thing for the Altitude. When you're done, press FINISHED. You will use the Main Button to complete the remainder of the checklist.

SECTION 2: PUSHBACK AND ENGINE START

1. We'll assume at this point that you've completed the Before Start Checklist. Again, note how the yellow dot over the BS text on the Main Selector panel extinguished automatically. It's now time to pushback and start the engines.
2. Open the Main Selector panel if it's not already open and arm the ES button. ES stands for Engine Start. Do NOT press the Main Button until instructed.
3. Next, press the PB button to open the Pushback Panel.



Make sure the parking brakes are set to Park before contacting the Pushback/Start Crew!

4. Leave the settings on the Pushback Panel where they are; DO NOT modify their values (later on if you want to modify their values on other flights you will use the right and left mouse buttons to change the pushback settings).



Do not modify the Pushback selections for the tutorial flight. Later on you can play with them!

5. Click the Contact Ground button on the Pushback Panel once you're ready to contact ground to start the push.
6. The Start Crew will clear you to start all four engines.



Here's hint: If using the 2D cockpit, set the INBD CRT to EICAS. When the FO blanks out the EICAS after you've complete the controls check (done later), you can set the INBD CRT back to NORM.



7. After being clear for engine start, press the Main Button once to ask the FO to start engines 4 and 3. (If the engine start doesn't appear to work right, try using your Keyboard for the Main Button as your joystick may be incorrectly firing multiple times per single button press).
8. The FO will confirm the command, and then he will:
 - Turn off Packs 2 and 3.
 - Press Recall
 - Check the duck pressure (done silently)
 - Pull the start switches for 4 and 3.

Note: If using Auto Start (and you should be if you're been following the tutorial properly), the FO will immediately set the fuel levers to run. If Auto Start is select to 'no' on the FS2Crew Flight Planning page, the FO will not move the fuel levers to Run; that job the Captain would perform.



When the FO pulls the start switches for 4 and 3, the main overhead panel will briefly open, not the mini-panel. Note that the FO cannot use the mini-panel to pull the start switches because the Start Switches cannot be loaded in the mini-panel, hence the black square in the overhead mini-panel where the start switches would be.

In short, don't be shocked when the big overhead panel briefly opens!

9. During the start, both pilots monitor for oil pressure increasing, EGT rising and N1 rotation.



At the airline whose procedures FS2Crew models, only abnormal indications are called. Starter cutout is not called as it is picked up by the EICAS.

10. After engines 4 and 3 have stabilized, press the Main Button one more time to ask the FO to start 1 and 2.
11. When the FO announces "Good Starts", that is your cue to ask the FO to turn off the APU and set the engine anti-ice"
12. The FO will then perform the following actions:
- APU to Off;
 - Hyd Demand Pump to Auto;
 - Nacelle Anti Ice to as required;
 - Packs 2 and 3 to Norm; and
 - EICAS to STATUS.
13. After the FO finishes his flow, press the Main Button again to tell the Start Crew that they are cleared to disconnect.
14. When the ground equipment is clear (normally 30 seconds), the FO will call "All clear on the ground" if the pushback was tail right.
15. If the tail was set to left for the pushback, then you as Captain would have to announce "All clear on the ground". You do that press the Secondary Button.
16. After it has been announced that the aircraft is clear of the ground equipment, press the Main Button to select Flaps 20. The crew then performs the following actions:
- FO sets the flaps;
 - The Pilot Flying (that's you!) check for full and free movement of the ailerons, elevators and ruder and confirms correct movement on the status page. This is done silently;
 - FO presses the Recall Switch;



- The FO will blank the lower screen approximately 20 seconds after you've called for the takeoff flaps.
17. When the FO blanks out the lower screen, the Green Dot above ES will extinguish. That is your cue to call for the Before Taxi Checklist.



Reminder: Don't call for the Before Taxi Checklist until the yellow dot on the ES button has automatically extinguished!!!!



Let's re-cap what the Main Button does when the ES mode is activated as indicated by the yellow dot above the ES text:

1st press: Command FO to start engines 4 and 3.

2nd press: Command FO to start engines 1 and 2.

3rd press: Inform the Start Crew that engine start is complete and they're cleared to disconnect. Only do this after the FO announces: "Good Starts."

4th press: Command FO to shut-off the APU (if it was used for the start) and set-up the nacelle anti-ice as required.

5th press: Command the FO to set the Takeoff Flaps. Only do this after either you or the FO have announced that you're clear of the ground equipment.

*The Secondary Button is only used to call clear of the ground equipment if the tail was to left for the pushback.

SECTION 3: The Taxi

1. Okay, the FO has just blanked the lower screen and the yellow dot over the ES text has self-extinguished. Let's call for the Before Taxi Checklist now.
2. Click the BT button on the Main Selector Panel, then click the Main Button to run through the Before Taxi checklist. The Before Taxi checklist is very straightforward.
3. Once the Before Taxi checklist has been completed, release the parking brake and turn on the taxi light.



The FO says he's going to get the Taxi Clearance from ATC, but he doesn't. You'll have to get the taxi clearance depending on what you're using for ATC: Default, VATSIM/IVAO or Radar Contact.

4. Let's start taxiing to Runway 15 Right. If you started at the terminal building just taxi north and on the taxiway that parallels 15R.
5. If you select MON FA ANN to 'yes' on the Flight Planning Page you should hear the FA perform her safety briefing.
6. A few minutes after starting the taxi, the FA will dial a code in the interphone to send a message to the flight deck that the cabin is secure and ready for takeoff. You will see the associated message briefly pop-up on the intercom panel.
7. The FO will also state that the cabin is secure. That is your cue to call for the Before Takeoff Checklist.



If desired, you could have pre-armed the Before Takeoff checklist by pressing the BT button after completing the Before Taxi checklist. This would save you the hassle of opening the Main Selector panel while trying to taxi.

8. To call for the Before Takeoff Checklist, open the Main Selector Panel and press the BT button so the yellow dot appears above the BT text. Next, press the Main Button like before to run the Before Takeoff Checklist.



9. It's a long taxi to the 15R so let's do a taxi PA. Open the PA panel by pressing PA on the Main Selector. Next, select your takeoff sequence using the left or right mouse button, then make a taxi PA. (If you've been following the tutorial to the letter, you should always be #1 for takeoff because you disabled the AI traffic. You don't need any unwanted distractions such as AI traffic when you're trying to learn FS2Crew!)



10. When you're ready, arm the Takeoff Mode by pressing the T/AT button on the Main Selector Panel.

SECTION 4: The Takeoff

1. Assuming that T/AT is armed (as indicated by the yellow dot over the T/AT text on the Main Selector Panel), press the Main Button when you enter the runway to call: "Runway Entry Procedure." The FO will then turn on the strobes and transponder, and confirm the takeoff power setting and the departure runway.



Prior to entering the runway, make sure the landing and strobe lights are off. They should be if you've been following the tutorial properly. If they are in the on position, the FO will turn them off. Remember: The FO is blind in many ways. He just flips switches regardless of their position! Given that the PMDG is so heavily "custom coded," it's not possible to read the position of most of the switches. The information is just not available.

2. When you're lined up, press the Main Button one more time to call: "All set. Here we go."
3. At this point, advance the throttle levers to 70% N1, then engage TOGA by clicking the little screw on the MCP that engages TOGA mode in the PMDG 747.
4. The FO will call power set, 80 knots, V1 and Rotate.
5. When the FO calls Rotate, slowly rotate to the 3 engine takeoff pitch attitude written on the Takeoff Card.



You may notice during the takeoff roll that the FO calls 80 knots, V1 and VR at speeds that don't always exactly match up with the speeds as indicated on the Primary Flight Display. Sometimes the calls are off by as much as 5 knots. This is a known issue that FS2crew is looking into. The suspicion is that the PMDG 747 is slightly modifying the airspeed value that Flight Simulator feeds it, hence the slight discrepancy given that FS2Crew reads the airspeed through FS directly and does not modify it.



How to have the FO perform the takeoff

To have the FO be the PF for the takeoff, follow these steps:

1. On the Departure Briefing Page, ensure that TAKEOFF (PF) is set to FO.
2. Everything else is the same as a regular takeoff up until the point where you take the runway.
3. When you're lined up on the runway, and when you press the Main Button as second time to say "All Set Let's Go," instead of saying that you will tell your FO that he has control.
4. The FO will then become the PF.
5. The FO will advance the throttle and then press TOGA.
6. The FO cannot track the centerline. You will need to assist him as necessary.
7. Press the MAIN button successively to call (in order of Main Button presses):
 - Power Set
 - 80 Knots
 - V1
 - Rotate
 - Positive Rate
 - Aircraft Clean
 - After Takeoff Checklist Complete
8. The FO will rotate the aircraft when you call rotate. It's important that the takeoff trim have been set properly prior to takeoff, or the FO may crash the plane.
9. The FO will call for HDG at 400 feet above the runway if you configured the FO to call for HDG SEL on the FS2Crew Flight Planning Page.
10. At 1000 feet the FO will call for you to engage the right autopilot.
11. The FO will call for the flaps on schedule, and you should retract the flaps on his command.
12. When the aircraft is clean, press the Main Button to call "Aircraft Clean" and then set the Gear to off. The FO will then call for the After Takeoff Checklist. Press the Main Button one last time to call: "After Takeoff Checklist Complete". You will then revert to being the PF.

SECTION 5: The Initial Climb

1. After rotation, the FO will call positive rate. You will automatically call for the gear, and the FO/PNF will raise the gear.



In FS2Crew, you as Captain are always the PF (unless you elected to let the FO perform the Takeoff).

2. Passing 400 feet above the runway, LNAV will automatically engage. You did arm LNAV on the ground I hope!



If you want to command the FO to engage Heading Select press the Secondary Button at an altitude greater than 400 feet and less than 900 feet above the runway during the initial climb.

3. At 1000 feet above the runway, press the Secondary Button to command the FO to engage the left autopilot.
4. At this point, you should be climbing with the gear up, the autopilot is tracking the magenta line in LNAV and VNAV and you are heading west toward Japan.
5. There is an altitude restriction of 7000 feet. Let's pretend that ATC has just cancelled the altitude restriction, so reset the altitude in the airspeed window to FL310.
6. The 7000 foot altitude restriction is still programmed in the FMC, though, so you will need to clear that restriction from the FMC. Easiest way to do that is to press the ALT selector knob on the MCP.
7. We still have the flaps out though. At any altitude greater than the flap retraction speed, press the Main Button to command the FO to bring up the flaps.
8. If you took off with flaps 20, the first Main Button press would call for Flaps 10, the 2nd press of the Main Button would call for Flaps 1, and so on.
9. When the flaps are all the way up, the FO will call "Aircraft clean." The FO will then set the gear to off. That is your cue to call for the After Takeoff checklist.



10. Press the Main Button to call for the After Takeoff checklist.
11. The FO will perform the After Takeoff checklist silently and the yellow dot over the T/AT button on the Main Selector panel will self-extinguish.



Reminder: Wait for the FO to call "Aircraft Clean" before calling for the After Takeoff Checklist.

SECTION 6: From Climb to Cruise

1. From here on, it's going to be pretty smooth sailing. The aircraft should be clean. The autopilot is engaged. The airplane basically flies itself for the rest of the trip.
2. At 10,000 feet the FO/PNF will turn off the landing and taxi lights.
3. The Transition Altitude in Korea and Japan is 14,000 feet. At 14,000 (the value for TA as set on the FS2Crew Flight Planning Page), the FO will set his altimeter to Standard and call "Transition."
4. This is your cue to press the STD button on your side to set the Altimeters to Standard Pressure.
5. If you feel like engaging your FO is some casual dialogue, click the hidden click spot located over the airspeed indicator.



What if you think the FS2Crew voice set is too loud or too quiet?

If you think the FS2Crew crew voices are too loud or too quiet, the best way to adjust them is to alter the volume of the background engine and environment noises via the FSX Sound Menu. It's difficult to create a voice set whose volume will please everyone because more than one sound set is available for the PMDG 747 (resulting in different background sound volumes), and because everyone's taste is different.

If you want to make permanent changes to the volume of the FS2Crew sound set, you can manually amplify the volume of each individual wav file used by FS2Crew 747 with a Wav Editor program. FS2Crew's wav files are stored in the FSX/Sounds/FS2Crew.

SECTION 7: In Cruise

1. Once you're in cruise, you should brief the FO for the cruise.
2. Open the FS2Crew Main Selector Panel and press the CB button to open the Cruise Briefing Page.



 *If you do not play the Cruise Brief, cruise mode will not become active and cruise related events will not occur.*

3. The cruise Briefing Page operates the same way as the other briefing pages: Using the left and right mouse buttons, you make your selection, then you press the PLAY BRIEF button.
4. Every 30 minutes the FA will contact you to see if you want anything. When that happens the intercom panel will pop-up and you will see the DOOR 2 LEFT text. Left click on the Door 2 LEFT text answer the FA. A new FA Dialogue Panel will pop up and you can make your selections there.



The 30 minute FA contact interval time for the cruise portion of the flight is tied to flight simulator time, so if you pause FS the cruise timing will pause as well. If you boost the sim rate by 4X, the cruise timing will go up by 4X as well.

 *If you want to boost the Sim Rate, go up to a maximum of 4X only.*



What if you want to contact the FA?

1. Press the FA button on the Main Selector button.
2. The Intercom Panel will pop up.
3. The display will be blank.
4. Press the NXT button until you see the DOOR 2 LEFT text on the screen.
5. Click on the DOOR 2 LEFT text. You will hear a ringing tone (like a telephone). The FA will answer a few moments later.
6. Note: If you try to call any station other than DOOR 2 LEFT, you will get a busy signal.



Who configures Tank-to-Engine?

The FS2Crew FO will configure the pumps for tank-to-engine at the appropriate time. Once the Tank to Engine EICAS message appears, the FO will make the appropriate changes to the fuel pump system about one minute after the EICAS message first

5. Regarding special needs passengers: You can ask the FA if you have any specials. Note however that you would relay the information via ACARS, not over the radio. Neither the PMDG 747 nor FS2Crew model sending ACARS messages.
6. One fun thing to do is cruise is to make a Cruise PA. To do that, open the PA Page via the FS2Crew Main Selector Panel.



How can I issue special commands to the FO?

To issue special commands to the FO, press the FO button on the Main Selector Panel.



- CONT: Commands the FO to set Continuous ignition, and to set it back to normal. Used in rough weather.
- GEAR DN: Commands FO to drop the gear. If you're coming in hot for landing and you want to drop the gear before calling for Flaps 20, use this button.
- EAI: Commands the FO to set Engine Anti Ice On and Off.
- WAI: Commands the FO to set Wing Anti Ice On and Off.
- WX RAD: Audio effect only. Use it when approaching storms to simulate a conversation associated with weather radar.
- CONTROL: Used to pass control to the FO. Note that in reality that when the FO is the PF the right autopilot is used and if the SO if the PF the center autopilot is used. Due to a limitation with the PMDG 747, the autopilot switch cannot be set the right or center if the left autopilot is engaged using keypresses.
- SICK PAX: If the FA informs you that you have a sick passenger, press this button to ask the FO to radio First Call for medical advice.
- RAW DATA: Only used during a Non Precision Approach when you want the.



SECTION 8: Approach Briefing

1. As you near the TOD, you need to setup the FMC for the arrival.



 *The Transition Level in Japan is FL140. Make sure FL140 is entered on the DES FORECASTS PAGE as indicated above.*

2. Once that has been completed, you need to brief the FO for the arrival. To do that, open the Approach Briefing Page by clicking the AB button on the Main Selector Panel.

APPROACH BRIEF (X)

STAR RJAA VS

IAP RJAA 34L

RWY 07V

BRAKE 2

FLAP 30

PLAY BRIEF

TYPE PRECISION

VREF 140

ADDITIVE 5

DA/DH 340

DESCENT MODE NOT ACTIVE



You should perform the Approach Briefing as close to the TOD as possible, but don't cut it too close. It is suggested that you perform the Approach Briefing approximately 30 to 100 miles back of the TOD.

The Approach Briefing is setup and run the same way as the other briefs.



Like with the Cruise Briefing, if you do not play the Approach Brief, Descent Mode will not become active, and many descent related events will not occur.

- Do not forget to setup the Approach Type and Landing Data on the Approach Briefing page. For the approach type, leave it at Precision ILS. VREF information can be transferred from the FMC. Set the DA field to 340 feet.



Do not forget to set DA to 340 feet. You can alter the values in the DA field by using the left and right mouse button. FS2Crew uses the DA value to compute numerous approach calls. If you enter an inaccurate DA/DH, incorrect calls will be generated!

Also, do not forget to set DA/DH on your MINS selector (Radio & Baro) on the PMDG 747 panel as appropriate!



4. For the STAR and IAP, make sure you select the available RJAA briefs. Note however that if you select the wrong brief, nothing bad will happen to the simulation.
5. A few moments after the brief has been completed, the FO will press recall. That is your cue to call for the Descent Checklist.



Who sets the Autobrake? The Captain. In other words – You! You can actually set the Autobrake during the brief itself during the Autobrake Challenge.



Don't call for the Descent checklist until the FO has pressed the Recall button. The FO will press the Recall button shortly after the Approach Briefing has been completed. He will announce "Recall" when he presses the button and you will say "Checked".



Can you play the brief more than one time? Yes, but you will have to click directly on the Approach Brief Page title text itself first to reset the brief. You can also reset the Cruise and Takeoff Briefing the same way..

SECTION 9: The Descent Checklist

1. After the FO announces "Recall," open the FS2Crew Main Selector Panel and press the DS button. The yellow dot should appear above the DS text.
2. Using the Main Button, run the checklist. Note that the values for the Landing Data challenge are based on what you entered in the Approach Briefing Page.
3. After announcing "Descent Checklist Complete", the yellow dot on the DS button will self-extinguish.
4. We should now be pretty close to the TOD.

SECTION 10: TOD to 10,000 Feet

1. At 20,000 feet the FO will set the Seatbelt signs to on and make a PA announcement instructing the FA's to prepare the cabin for landing.
2. At the Transition Level, the FO will announce "Transition."
3. At this point you should set your altimeters to local pressure.
4. After you have set the altimeters to local pressure, call for the Approach checklist. The approach checklist is very short.
5. To call for the Approach checklist, press the APP button on the Main Selector Panel to arm the Approach Checklist, and then press the Main Button. The Approach checklist only consists of confirming that the altimeters have been set.



Reminder: Call for the Approach Checklist after descending through the Transition Level and after the altimeters have been set to local pressure.

6. At 10,000 feet, the FO does the following automatically:
 - Turns on the landing lights;
 - Double chimes the seat belt sign; and,
 - Checks for GPS updating and calls "GPS Updating checked."

SECTION 11: Approach and Landing

1. After descending through 10,000 you should pre-arm the Landing Events and Checklist. Better to do it now than when you're really busy down in the terminal environment.
2. Open the FS2Crew Main Selector panel and press the LDG button.
3. Do not hit the Main Button until you are ready to call for Flap 1 with the LDG button armed!!!
4. If you stay in LNAV and VNAV the autopilot will take you right to the approach course for the ILS 34R at RJAA.
5. As you get closer to the airport, you should bring out some flap, so press the Main Button to call for flap 1. The FO will then select flap 1. As the Pilot Flying, you will bug back the speed in the airspeed window because the autopilot is on (well, the autopilot should be on if you've been following this tutorial!)



6. Basically at this point start slowing the plane down. Press the Main Button again to call for Flaps 10 as required.
7. When appropriate, arm or activate Approach Mode on the MCP.
8. At approximately 1800 feet, press the Main Button again to call: "Gear Down, Flaps 20."
9. Calling for the Gear Down is your cue to arm the Speed Brake.
10. The gear must be select down by no later than 1500 AGL.
11. Press the Main Button again to call for the landing flap (99 percent of the time this should be Flap 30).
12. Landing flap must be select by 1000 feet.
13. Press the Main Button again to call for the Landing checklist. Run the Landing checklist using the Main Button the same way you would run the other checklists.
14. The FO will call 300 and 100 above the DA.
15. When the FO calls "Decide," click the Main Button to call "Landing" or click the "Secondary Button" to call going around.

 *When the FO calls "Decide," press the Main Button to call "Landing". The weather during the tutorial flight is good so you should be able to land. If you needed to go around, you would press the Secondary Button. Please refer to the section on Go Around Procedures in this manual for more information.*

16. Disconnect the auto throttle and autopilot by 50 feet. You can disconnect the auto throttle by "right clicking" on the TOGA screw located on the MCP.
17. On touchdown, the FO will monitor the speed brake. If it's not up he will call "No Speed."
18. The FO will call 70 knots during the roll-out, this is your cue to stow the reverses.



Other Approach types and Relevant Notes:

- **Monitored Approaches:** FS2Crew 747 models Monitored Approach procedures. In simple terms, Monitored Approach procedures would be used when landing conditions are below CAT 1 minima. Unlike many other airlines, at the airline whose procedures FS2Crew modeled for the 747, the Captain does not become the PM and the FO the PF. In FS2Crew the Captain is the PF, and during a Monitored Approach he will remain as the PF. The FO will remain "heads-down."
The only thing difference from a FS2Crew operational point of view between a Monitored and a standard ILS approach is that there is one extra call: At 1500 feet the Captain will call "LAND 3".
Note: All Monitored Approaches are flown with the autopilot engaged.
- **Non Precision Approaches:** Although very rarely done in the real-world in a 747, you can perform Non Precision approaches in FS2Crew. The callouts are exactly the same as the callouts for a Precision approach.
- **Calling Visual while on a non Visual Approach:** If you press the Secondary Button at an altitude greater than the DA/DA, you can call "Visual." When you call "Visual," the FO will announce the descent rate. The FO will not call 300 or 100 above the DA.
- **Visual Approach:** If a Visual Approach was selected on the Approach Briefing Page for the approach type, the FO will not call 300 or 100 above or make calls associated with the DA.



- All about Going Around:
- When the FO calls “Decide” and you do not have the required visual reference to land, press the Secondary Button to call “Going Around!”
- Configure the MCP as necessary and ensure go-around thrust is achieved.
- Calls for Flaps 20 and gear up are automatic.
- At 400 feet above the runway, engage HDG SEL or LNAV.
- At 1000 feet above the runway, engage VNAV or FLCH.
- Clean up the flaps on schedule the same way you do for a normal takeoff by using the Main Button.
- There is one important thing to note: During the go around the Captain –that’s you- will call for the After Takeoff Checklist with the Flaps at 5. The flaps will be left in the 5 position while you circle back for the approach.
- Next, click the LDG button on the FS2Crew Main Selector to re-arm Landing Mode. Continue the approach normally.

SECTION 12: After Landing Procedure

1. When the speedbrake is moved to the down position (you might do it manually or it might happen automatically depending on the position of the thrust levers), you will automatically call for the After Landing checklist”; the FO will then perform his After Landing flow. If possible, try to delay moving the speed brake lever to the down position until you are clear of the active runway. The FO’s after landing flow is as follows:
 - Strobes off;
 - Landing lights off, taxi light on;
 - Wx Radar and Terrain switches off;
 - Flaps up;

- Wx Radar power off;
- Stab trim to 6 units (for tail refueling);
- Transponder to standby;
- Auto brakes off; and
- APU start and verify APU power available.

SECTION 13: Shutdown Procedure at the Gate

1. When you get to the gate, set the parking brake. Important! Do not set the parking brake until the FO has announced that the After Landing checklist has been completed and the APU is available.



Important reminder: Do not set the parking brake until the FO has announced that the APU is available!

2. When you set the parking brake you will command the FO to put the APU on the busses. The big overhead panel will then open up briefly while the FO makes his simulated mouse clicks. The FO will then perform the following actions:
 - APU on the busses;
 - Turns off all hydraulic demand pumps;
 - Turn off the anti-ice (if it was on);
 - Selects ENG display on the EICAS; and,
 - The FO will then announce: "Ready for Shutdown."
3. After the FO calls "Ready for Shutdown," you as Captain should then move all the fuel levers to cutoff.



Reminder: Do not set the fuel levers to cut-off until the FO has called "Ready for Shutdown."

4. Next, you should call for the Shutdown checklist.
5. Open the FS2Crew Main Selector Panel press the SH button to arm the Shutdown checklist.
6. Press the Main Button to call for the Shutdown checklist.



7. Immediately after calling for the Shutdown checklist, the Ground Engineer will contact you and the FO will perform his shutdown flow. Click the text on the intercom panel to initiate the conversation with the ground engineer. The engineer will tell you that the chocks are in and ask you how your flight was.



8. During this shutdown flow the FO will:
 - Turn off the fuel pumps;
 - Turn off the aft cargo heat;
 - Turn the beacon off;
 - Select Status Display; and,
 - Select the seatbelt signs to off.
9. Once that conversation is over, the FO will challenge you on the first Shutdown checklist item. Use the Main Button to respond to and complete the checklist.
10. The simulation ends when the Shutdown checklist has been completed. Note that there is no Secure checklist as it's very rarely, if ever, done in the real world. FS2Crew does not model turn-arounds.

END of TUTORIAL FLIGHT

Checklist Usage and Verbage Section

General rules for checklists

- All checklists will be announced as complete when finished, i.e., “Pre-flight checklist complete.”
- FO reads Preflight, Before start and Before Taxi checklists.
- PM (pilot monitoring) reads Before TO checklist and it is responded to by the PF.
- After TO checklist is called for by the PF but is done silently by the PM.
- The PM will announce “After TO checklist complete.”
- Descent checklist is called for by the PF and read by the PM and responded to by the PF.
- Approach checklist is called for by the PF and read by PM and responded to by both.
- Landing checklist is called for by the PF and read by the PM and responded to by the PF with the exception of the arming of the speed brake.
- After landing checklist is called for by the PF and done silently by the PM. Announce when complete.
- Shutdown checklist is called for by the Capt and read by the FO and responded to by the Capt

Preflight Checklist

Read by the FO and responded to by Capt

OXYGEN	Both say “Tested, 100%” Capt first followed by FO
FLT INSTRUMENTS	Capt first followed by FO. Both say “Heading XXX and XXX (ND and ADI) Altimeters set 29.92 indicating 20 ft with 400ft SET”(or whatever emergency altitude is ...400ft QFE)
PARKING BRAKE	Capt says “SET”



FUEL CONTROL SWITCHES	Capt says "Cutoff"
FO	"Preflight checklist complete"
Before Start Checklist	
FLT deck door	"Closed and locked"
FUEL	"125,000kg indicated and signed for and is sufficient for the flight"
PASSENGER signs	"On and auto" (NO smoking and Seat belt sign respectively).
MCP	"V2 146HDG is 180..... and altitude set at 14000ft"
CDU pre-flight	"Completed"
TRIM	"6.5 units setzero and zero" (stab, aileron and rudder)
TAXI and TO brief	"Completed"
BEACON	"On both"
FO	"Before start checklist complete"

Before Taxi Checklist

ANTI ICE	"Off or Nacelle On"
RECALL	"Checked"
AUTOBRAKE	"R.T.O"
FLT CONTROLS	"Checked"
GRND EQUIP	"Clear"
FO	"Before taxi checklist complete"

Before TO Checklist

CABIN CLEARANCE	"Received"
FLAPS	"20, 20 set" (checking lever, TO Perf certificate and indication)
PM	"Before TO checklist complete"

Approach Checklist

ALTIMETERS	"SET"
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Descent Checklist

RECALL	"Checked"
AUTOBRAKE	"Set on 2"
LANDING DATA	"VREF is set 142. I will carry 5kts" (or whatever additive is appropriate for the wind conditions) "Target speed is 147. For the approach I've got 330 set on the baro and 300 on the radio"
APPROACH BRIEFING	"Completed"
PM	"Approach checklist complete"

Landing Checklist

CABIN CLEARANCE	"Received"
SPD BRAKE	Capt says "Armed" He will have placed it in the armed position when the gear was locked down.
LANDING GEAR	"Down"
FLAPS	"30, 30"
PM	"Landing checklist complete"

After Landing Checklist

As per the checklist and is done by the PM silently. The ~ symbol on the actual checklist denotes items done silently.

PM	"After landing checklist complete"
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Shutdown Checklist

PARKING BRAKE	"SET"
HYDRAULIC PANEL	"SET"
ANTI ICE	"Off"
FUEL CONTROL	"Off"
FUEL PUMPS	"Off"
AFT CARGO HEAT	"Off"