QualityWings SIMULATIONS

Ultimate 757 Collection

Users Manual

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Legal Stuff

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Repaint Policy
(This copyright policy is subject to change without notice)
Repainting is allowed using the provided repaint kit but subject to the following conditions:
- Modified textures may only be redistributed as freeware!!
- Modified textures may only be used on the QualityWings Ultimate 757 Collection
- Repaints maybe distributed to 3rd party site such as Flightsim.com or Avsim.com, however they must conform to the QualityWings format as prescribed in the Users Manual!
- If the repaint published at the third party web site, 'QualityWings' must be listed in the author credits.
- End users may contact a repaint artist directly with questions and/or comments.
- No textures whether from the repaint kit or not may be used in any other project regardless if it is commercial or freeware!
- Modification and/or distribution of any part of the product except the repainted/modified texture files is STRICTLY PROHIBITED!
- All repaints (free liveries) created using the QualityWings 757 Repaint Kit remain a property of QualityWings Simulations.

INTRODUCTION

INTRODUCTION

Thanks for purchasing The Ultimate 757 Collection from QualityWings Simulations. From all of us here, at QualityWings, we hope you enjoy this add-on as much as we've enjoyed developing it for you.

The Ultimate 757 Collection is the most extensive 757 Package ever created for Microsoft Flight Simulator. There is truly something for everyone. Every 757 ever to come off the line from Boeing has been reproduced for your enjoyment. And with Mid-Level systems programming, we've simplified the simming experience while providing you the look and feel that makes the Boeing 757 such a special airplane to fly.

PRODUCT FEATURES SUMMARY

This package includes:
- 15 Boeing 757-200/200F/300 Models
- 100+ Liveries
- Repaint Kit
- 2D Cockpit (Main panel and 7 Sub panels)
- 3D Virtual Cockpit (Semi Functional)
- Choice of either Standard EFIS or Retrofit EFIS cockpits
- Mid-Level Systems programming including Beginner and Advanced Modes.
- Flight Management System
- Autopilot with Autoland capability
- Incredibly realistic sound package featuring Rolls Royce and Pratt & Whitney Engine variants, EICAS Aural Warnings, GPWS and Flightdeck Environment Sounds

This manual outlines all product features and all of the procedures necessary to get you flying.

INSTALLATION

Flight One Wrapper

The QualityWings 757 installer utilizes the Flight1 Wrapper. Once the installation file has been un-wrapped, installation is pretty self-explanatory.

Flight1.com's e-commerce software "wrapper" system is designed to allow product to be delivered to you through a secure, convenient, and easy to use system of distribution that allows you immediate access to the software. The system was specifically designed to give you self-manageable access to your software, and since the system has "prepackaged" the software on your system, you do not need to worry about downloading your software after your purchase.

Once you download and initially run a Flight1.com E-Commerce enabled product you will be presented with a simple to use screen that will allow you to purchase software through our secure and encrypted e-commerce engine. Depending on the version of our E-Commerce Wrapper that is in use with the EXE you have, you will be presented with either of the following screens...

If using the newer type wrapper (with the 3 big buttons):

Button 1. You can enter your Flight1 account information behind button one. This would be an account you opened separately at our new account creation page. Accounts are totally optional and are NOT required. But if you have an account, you can reinstall without needing software keys. See this page for more info on Flight1 accounts.

Button 2. This is required, and it is your name, address, and contact info.

Button 3. This is required also, and it contains the method of purchase you will be using. In this case, you can use either of the 4 major credit cards, or Pay-Pal.

Once data is correctly entered behind at least Buttons 2 and 3, the purchase button will activate.

The Purchase Process

Once the credit card transaction has been validated and approved by our secure servers (we never save complete credit card information on our servers), the ESD system will "unwrap" the core program and create a unique and exclusive ".key" file for you to use for reinstalls (do not forget that if you associated your order with an account, you do not have to use keys for reinstalls). The ESD system also prompts you to backup a copy of the key file for safe storage in case you need to re-extract your software again later.

You will also be notified via e-mail of the successful transaction.

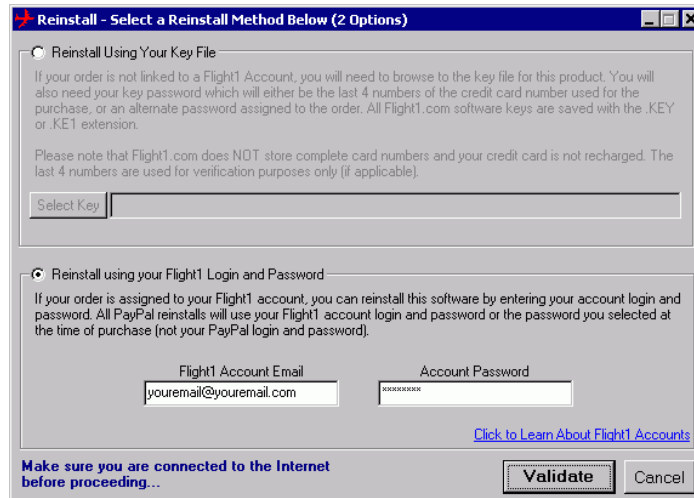To summarize the entire process (after you enter your information for a purchase):

- Once your purchase is approved, a Key file is saved to a folder on your main hard drive in the company's name. Since "Flight One Software" uses the wrapper, you will get a C:\Flight One Software folder (replace C:\ with your current boot drive if Windows is on another drive). Other companies will of course get a folder different than Flight One Software. Keys are used for reinstall, and are not required if your order is assigned to a Flight1 account.
- You will also get a Proof of Purchase Certificate in HTML format. This has special information that may be required by some vendors for you to access additional services. Never post your certificate information in public.
- Usually a Setup file is unpacked to the same location just listed above.
- In some cases, a license file will be created. This .lic file contains additional information that may be required by the software you are purchasing, and it ties your purchase to your current machine. Do note that this does not permanently tie your order to your machine, just this installation. If you go through the reinstallation process, a new license file will be generated for that machine.
- If you need to service your order (new keys, replacement certificates, lost orders, etc.) you can use our automatic service system at http://www.flight1.com/view.asp?page=wrapperservice.

Reinstallation

The ability to reinstall is fully implemented, and in many cases just takes a few moments. If you have your product key, or if your order is assigned to a Flight1 account, all you will need is the correct password (along with an Internet connection), to reinstall. In cases where you lost all information pertaining to an order, as long as you have access to your purchase email address, you can retrieve from our automated system all necessary information required for your reinstall. The goal is to allow you to feel confident with your purchase, even if you did not back up your original purchase information or files. Even if you do not have access to your original email address, you can contact FlightOne and we can try to help you get up and running again.

How to Reinstall using your Flight1 Account

In the main screen (as noted above in the interface pictures), press the button that says "Click Here to Reinstall". You will be led to a screen that gives you 2 options... to "Reinstall Using Your Key File", or to "Reinstall using your Flight1 Login and Password". If you have saved your login and password in the wrapper from a previous purchase, your data will have been automatically entered. All you need to do next is click Validate. If your login name and password are not entered, you may enter it, then select the Validate button.
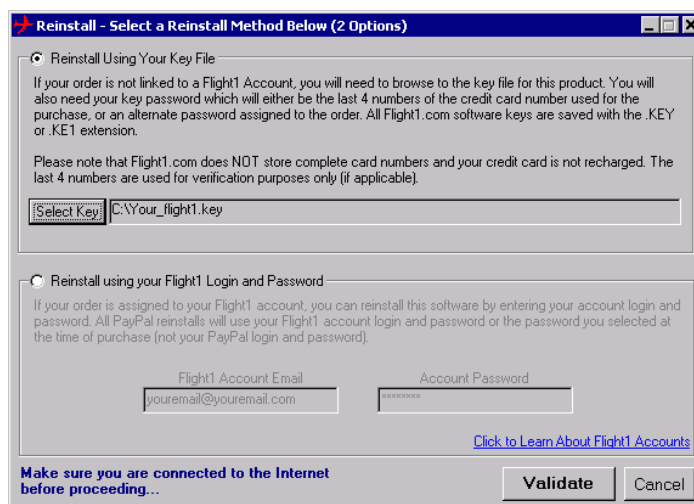
Reinstall Using Your Key File

If you need to reinstall using your key file, simply make sure the key option is selected. Then press the Select Key button. You can then browse to your product key file. After the key is selected, hit the Validate button. You will need to have the last 4 digits of your credit card handy (this is use for verification purposes only), or alternately, you may have a customer selected password. Once everything is ready and the Validate button is selected, the server will login and confirm your information, and then unpack the software.

If your wrapper version has the data-entry boxes in the main screen, instead of the 3 big buttons, then you will need to use your key file for reinstallation. Your password for this version will be the last 4 digits of the card used for the original purchase. After the Select Key button is pressed, you will browse to your key file, enter your password, and then the server will login and confirm your information.
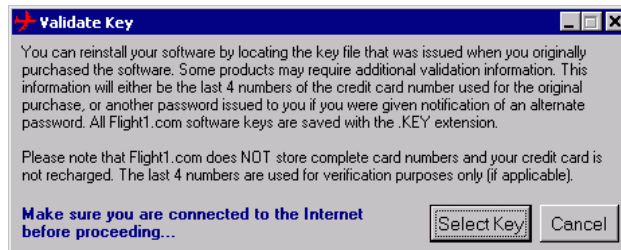
QualityWings Installer

Installation is fairly straight forward. Once you execute the installer file, just follow the on screen instruction.

This is the initial page of the Installer. Click NEXT
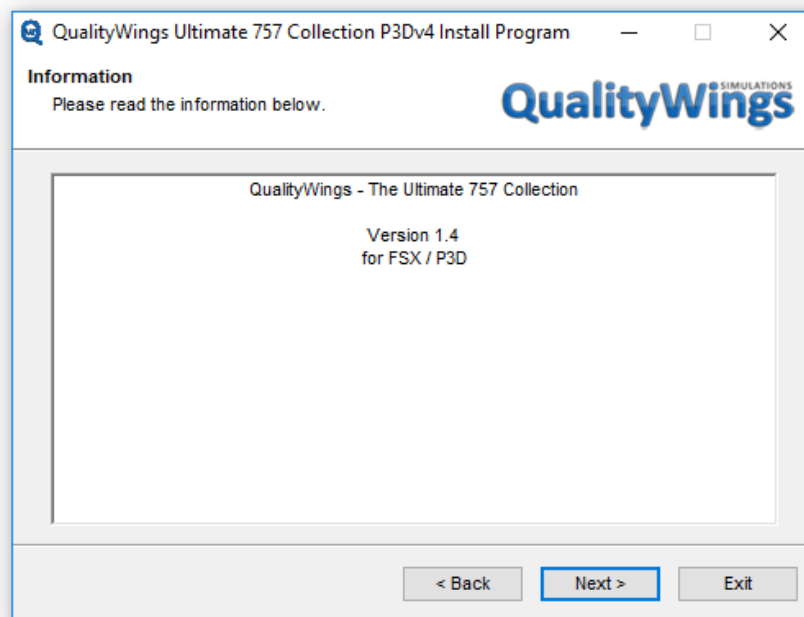
Any pertinent information will be shown on this page. Click NEXT
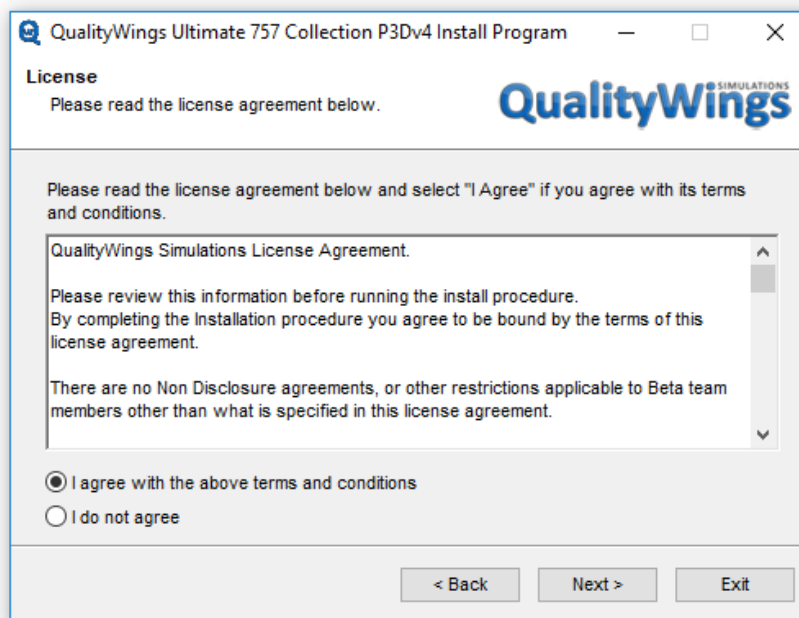
You must agree in order to install the product
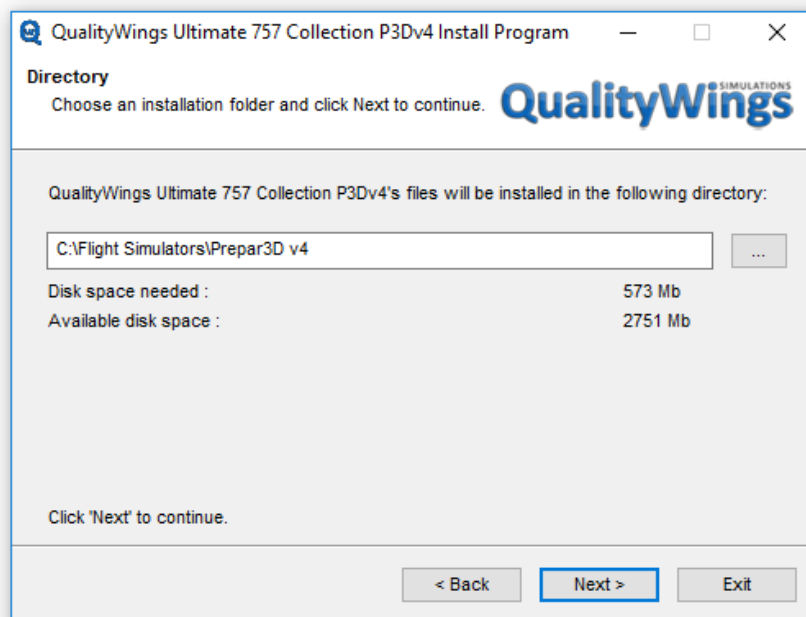
By default, your Simulator will show in the directory box. You can change as necessary. When you've chosen your installation directory, click NEXT
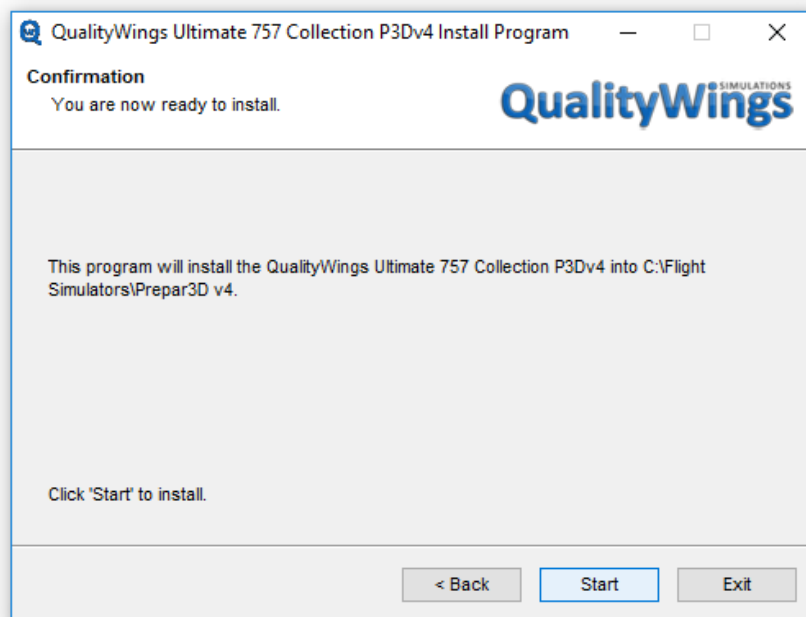
*This screen shows is confirmation before the installation begins.
If you're ok with your choices, click NEXT*
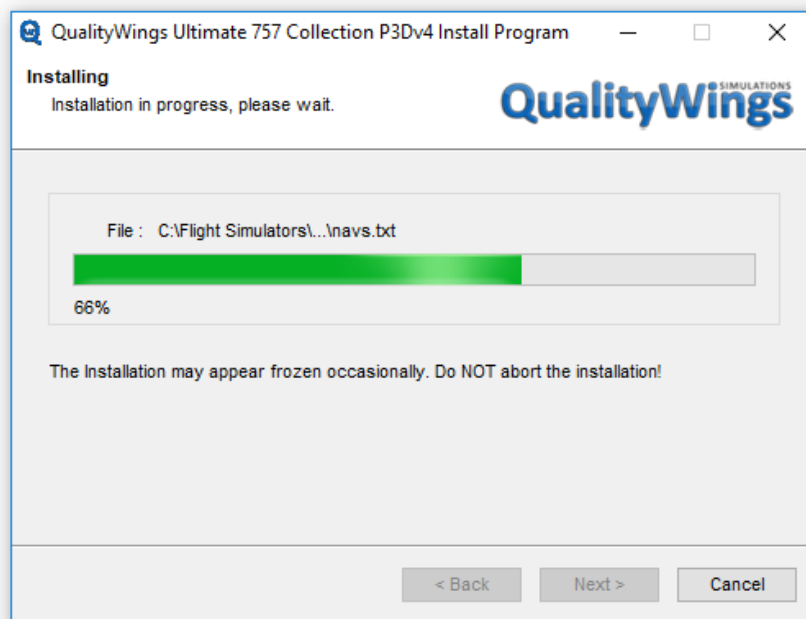
Please be patient while the installation process runs
This screen shows is confirmation before the installation begins.
If you're ok with your choices, click NEXT
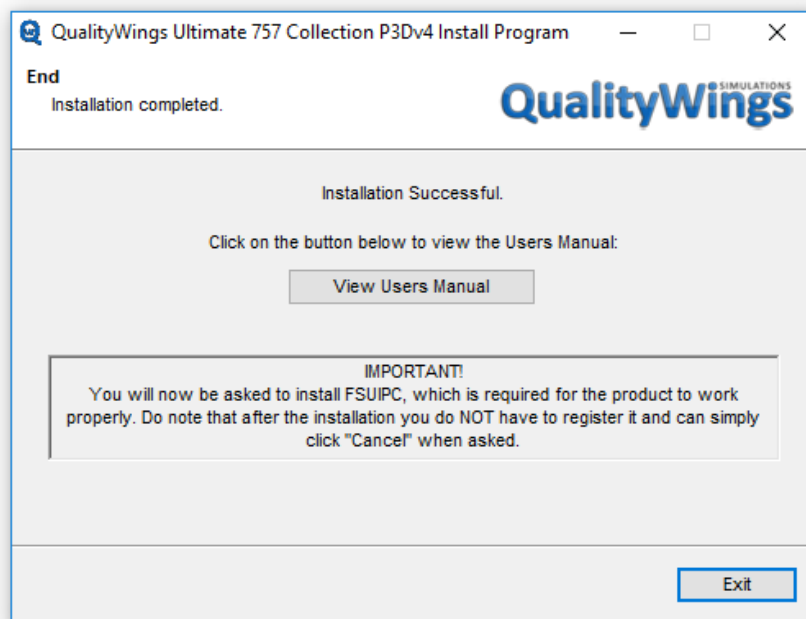
Installation Successful, BUT you're not done. It is IMPORTANT that you pay
attention to the message in the box regarding FSUIPC installation.
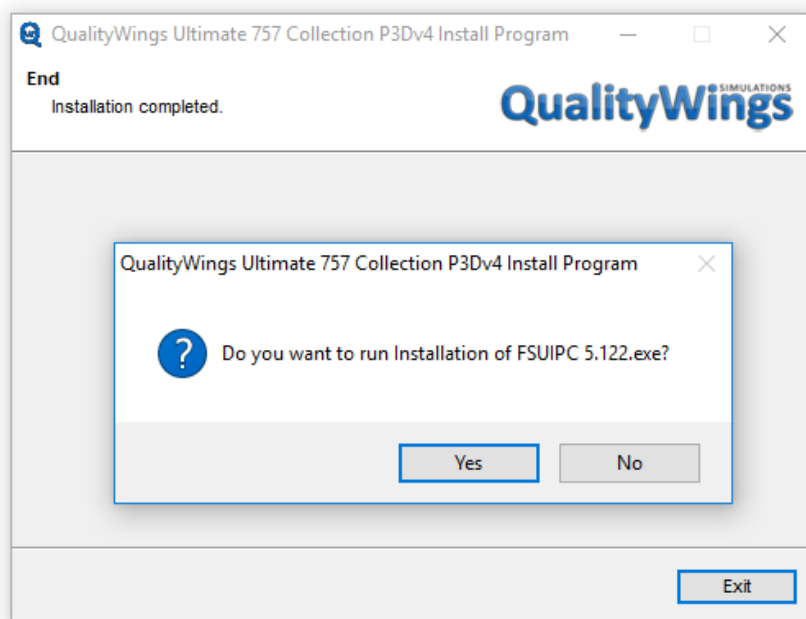
If you already have FSUIPC installed, this will not be necessary.
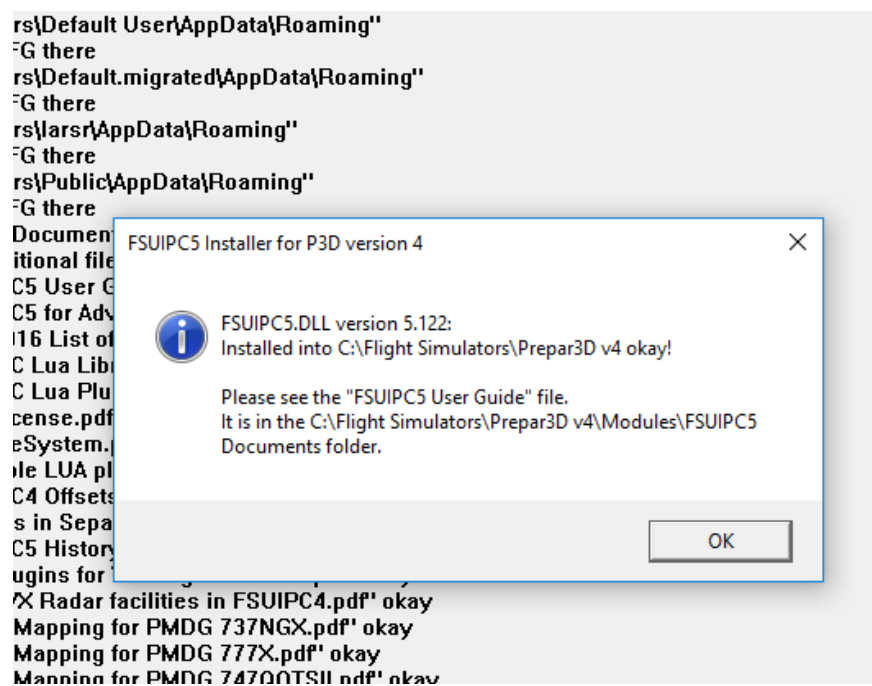
If you do elect to install, a successful installation is indicated as shown above.

QUICK START GUIDE

Quick Start Guide

This section of the manual is designed to get you flying as soon as possible. It is written in similar to a Frequently asked Questions Section

What are these dialog popups that I get on screen after FSX installation?
These are perfectly normal and are part of Microsoft's new software signature checking system. After installing the QualityWings 757, you will see three pop-up alerts asking if you wish to run gauges that are signed by QualityWings and Virtuali. Just select ok/allow/Trust for all of them and everything will work.

Where can I find the airplanes after install?
Aircraft Manufacturer: Boeing-QWSim. If you are using Flight Simulator X, you must ensure that "Show All Variations" is checked" at the bottom of the SELECT AIRCRAFT screen in order to view installed repaints.

I've downloaded liveries from the website but they are in a format that I don't recognize (QWL)
QWL is a format specifically designed to the read by the QualityWings Livery Manager. See more information about installing a livery in this manual

How do I access the Virtual Cockpit?
On the menu, select Views/View Mode/Virtual Cockpit.

How do I perform an Engine Start
Press Ctrl + E and an automatic start of both engines will commence. If you want to start manually, familiarize yourself with Start prerequisites [here.](here)

How do I Perform an Autoland?
Setup and preparation for Autoland is crucial. A stable approach is necessary for the most successful autolands. Autoland is initiated with (1) Autopilot already engaged.
- Start preparation between 2500-2000 feet
- Ensure correct ILS Frequency and Course tuned on both the VOR/ILS Panels on the glareshield and the Aislestand.
- Select MCP Approach Button before descending through 1500 feet
- Engage the remaining Autopilots
- Localizer and GlideSlope will Arm. They will capture and engage later during the approach
- Ensure Autothrottle engaged and speed set is correct approach speed as defined on approach page!! This is crucial to a smooth landing.
- At 1500 ft Radio Altimeter, Autoland Status Annunciator will annunciate 'LAND 3' and EADI/PFD will show FLARE armed. The aircraft will now perform the Autoland.
- After Touchdown, the A/T will disengage and the A/P will disengage around 80 knots. PLEASE NOTE: Rollout is NOT Simulated. You must steer the aircraft after landing!!

I advance my throttles for takeoff and loud warning sound goes off?
That is the takeoff configuration Warning System. This system warning you of an unsafe take-off condition. It could be that your Parking Brakes are set, the Stabilizer is not in Green takeoff range, the spoilers are raised or your flaps are not set in a Takeoff position. The Upper EICAS display screen will let you know which area is not in takeoff config by displaying a Red EICAS message. For more info about the Takeoff Config Warning System, Click here.

Where can I find a tutorial on loading the FMC?
Click here

Where can I find more information about the Virtual Cockpit?
Click here

How can I figure out how much fuel I will need for a flight?
Click here

How do I access 2D Panel Views?
Static 2D Panel views are available in FS9 only and only while using Wing View models by moving your joystick "hat" switch or by cycling through views (NUMPAD KEYS 1-8)
Static 2D Panel views are NOT viewable in the VC models since the views you see are of the actual vir-

Static 2D Views(Wingview Models ONLY)   VC Views while in 2D Mode (VC Models ONLY)

How do I access FSX Camera Views?
Access FSX Views menu and Select View Mode. Camera Views are available in 'Cockpit' and 'Aircraft'
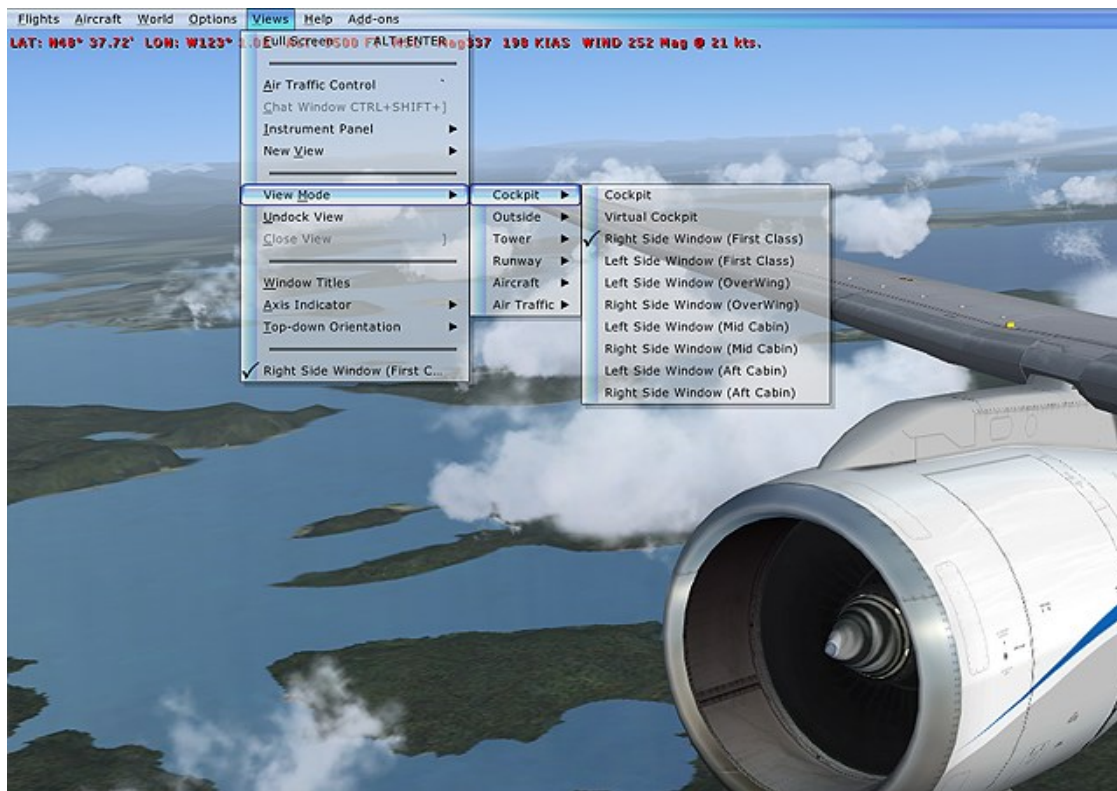
757 BACKGROUND

757 BACKGROUND

The Boeing 757-200/300 and Freighter aircraft are members of the popular 757/767 family. They are medium sized, twin-engine short-to-medium-range jetliners known for their exceptional fuel efficiency, low noise levels, incredible operating performance and unmatched versatility. That versatility allows the aircraft to fly both long and short range routes. Passenger versions of the 757 have a maximum range of 3,100 to 3,900 nautical miles (5,900 to 7,200 km) depending on variant and seating configuration.

Technical Features
The combination of an improved wing design and high-bypass-ratio engines make the 757 one of the most fuel-efficient aircraft in the world. Both Pratt & Whitney or Rolls-Royce supply engines for the 757 in thrust ratings from 36,600 (162.8 kilonewtons) to 43,500 pounds (193.8 kilo newtons). The 757 is unsurpassed in fuel-efficiency as it consumes up to 43 percent less fuel per seat than older tri-jets- such as the Boeing 727 which the 757 was to replace. And with the improved wing design, less engine power is required for takeoff and landing. In addition, the 757 can reach a higher cruise altitude more quickly than many other jetliners.

Flight Deck
The 757 flight deck, designed for two-crew member operation, pioneered the use of digital electronics and advanced displays. Those offer increased reliability and advanced features compared to older electro-mechanical instruments.

A fully integrated flight management computer system (FMCS) provides for automatic guidance and control of the 757-200 from immediately after takeoff to final approach and landing. The system links digital processors controlling navigation, the Autoflight computers and Thrust Management Computing system to assure that the aircraft flies the most efficient route and flight profile.

Each Pilot has a pair of electronic displays for primary flight instrumentation. The electronic attitude director indicator (EADI) displays the airplane attitude and autopilot guidance cues. The electronic horizontal situation indicator (EHSI) displays a video map of navigation aids, airports, and the planned airplane route information.

The engine indicating and crew alerting system (EICAS), provides full-time monitoring of engine parameters and airplane systems. EICAS offers improved flight compartment management by:
 Reducing the amount of panel space required for engine instrument displays.
 Reducing crew workload through effective monitoring of engine parameters.
 Displaying system STATUS messages through all phases of flight.
 Displaying color-coded ALERT messages (Warnings, Cautions, and Advisories) that communicate both abnormal conditions and their urgency to the crew.

Variants

757-200

The definitive version of the 757 family was launched in 1979 and entered service in 1983 wearing Eastern Airlines colors. The majority of 757s delivered were of the -200 variant. It is designed to carry 200 passengers in a typical mixed class configuration, but can accommodate up to 28 passengers in a single class configuration. While the program was a tremendous financial success, sales dwindled during the late 1990s, eventually forcing Boeing to cease production. The 1,050[th] (914 of those -200s) and last 757 was delivered to Shanghai Airlines.

The 757-200 was available in two different door configurations. One configuration used three standard doors per side with an additional, smaller door just aft of the wing on each side for emergency evacuations. The alternate configuration has the three standard doors per side (two towards the front and one at the aft of the cabin) with two "plug-type" over-wing exits per side replacing the smaller door aft of the wing.

The 757-200 takeoff weights range from 220,000 pounds (99,800 kilograms) up to a maximum of 255,000 pounds (115,660 kilograms) for greater payload or range.

The following engines options are available (or have been available) for use on the 757-200:
- Rolls Royce RB211-535E4   (40,200 lbs Thrust)
- Rolls Royce RB211-535E4B (43,500 lbs Thrust)
- Rolls Royce RB211-535C   (37,400 lbs Thrust)
- Pratt & Whitney PW2037   (36,600 lbs Thrust)
- Pratt & Whitney PW2040   (40,100 lbs Thrust)
- Pratt & Whitney PW2043   (42,600 lbs Thrust)

All above mentioned engine types for the 757 have 180-minute extended-range twin (engine) operation (ETOPS) approval.

Blended winglets are available as a retrofit to increase fuel efficiency and range. Winglets on the 757 have been approved for the 757-200 series as 757-200WL (757-200WingLets). Winglets offer improvements of 5% on fuel efficiency and 200 nautical miles (370 km) on range.

757-200PF
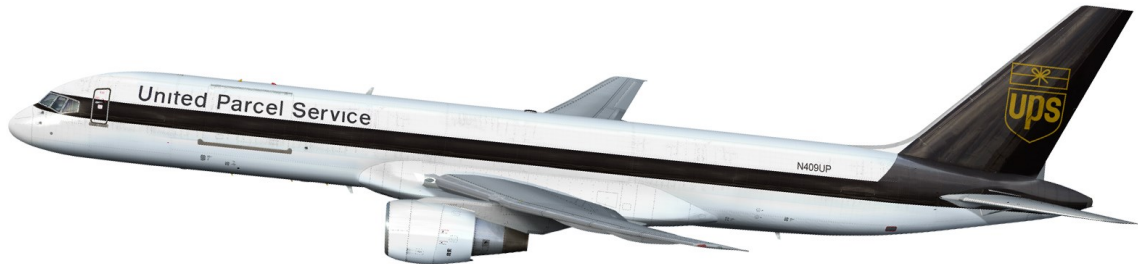
The first derivative of the 757 family was the 757-200 Package Freighter (PF). The PF was delivered to launch customer United Parcel Service, which ordered 20 of the variant.

The 757-200PF has no passenger windows or doors and no interior amenities. A large main-deck cargo door is installed in the forward area of the fuselage on the left-hand side. The flight crew boards the aircraft through a single entry door installed immediately aft of the flight deck on the left side of the aircraft. This single entry door is located slightly further forward than the normal location of the L1 door on the passenger 757 variant.

Up to 15 containers or pallets can be accommodated on the main deck of the 757PF. Total main-deck container volume is 6,600 cubic feet (187 cubic meters) and the two lower holds of the airplane provide 1,830 cubic feet (51.8 cubic meters) for bulk loading. These provide a combined maximum revenue payload capability of 87,700 pounds (39,780 kilograms) including container weight. When carrying the maximum load, the 757F has a range of about 2,900 nautical miles (5,371 kilometers). The basic maximum takeoff weight of the PF is 250,000 pounds (113,400 kilograms), with an option for 255,000 pounds (115,600 kilograms).

The following engines options are available (or have been available) for use on the 757-200PF:
- Rolls Royce RB211-535E4   (40,200 lbs Thrust)
- Rolls Royce RB211-535E4B (43,500 lbs Thrust)
- Pratt & Whitney PW2037   (36,600 lbs Thrust)
- Pratt & Whitney PW2040   (40,100 lbs Thrust)
- Pratt & Whitney PW2043   (42,600 lbs Thrust)

757-200SF

The Boeing 757 Special Freighter (SF) did not begin it's life as a freighter. Special Freighters started out as Passenger variants.

The 757-200SF has passenger windows removed and plugged, and all but the forward 2 Entry doors are deleted or plugged. It also has no interior amenities. There is also a SF configuration that adopts the PF design with the Left Fwd door relocated to just aft of the flightdeck. A large main-deck cargo door is installed in the forward area of the fuselage on the left-hand side.

Up to 15 containers or pallets can be accommodated on the main deck of the 757SF. Conversions which adapt the PF design can accommodate 15 pallets, while the non PF adaptations can accommodate up to 14 pallets. The SF has a basic takeoff weight of 240,000 to 255,000 pounds, a range of approximately 3,000 nautical miles, nearly 8,200 cubic feet of cargo space and a structural payload of up to 72,000 pounds.

The conversion can have any of the available 757 Engine types installed.

757-200M

The 757-200M was launched for Royal Nepal Airlines. It was a convertible version of the variant where the seats could be removed in order to place cargo on the main deck. Boeing saw this as an opportunity to showcase its 757. The 737 and 747 convertibles had proved popular and saw a market potential for the 757-200M. However only one example was ever ordered and delivered in 1988 to Royal Nepal .

757-300

The 757-300 is a stretched version of the -200. It is 23.4 ft (7.1 m) longer than it's smaller sister. The variant first flew in August 1998 and was delivered to Launch Customer Condor on March 10, 1999. The 757-300 has the capacity to seat 289 passengers in a typical single class configuration, though the highest configuration in airline service is 280 seats, as operated by Thomas Cook Airlines. The fuel capacity was not increased and therefore the range was reduced to 3,395 nmi (6,287 km). 55 were ordered and delivered.

This model has 8 standard doors, with 4 over-the-wing exit doors, 2 on either side. It has proved popular with charter airlines for its efficiency and dense capacity.

As a derivative, the 757-300 complements the 757-200; it is not a replacement. The 757-300 retains the simplicity and reliability of the 757-200. Both models have the same flight deck and operating systems, but some features have been changed. Besides a lengthened fuselage, changes on the 757-300 include new tires, wheels and brakes; a tail skid; and strengthened wings and landing gear.

The 757-300 maximum takeoff weight is 272,500 pounds (123,600 kilograms). It has a maximum range of 3,395 nautical miles (6,287 km)

The following engines options are available (or have been available) for use on the 757-200:
 Rolls Royce RB211-535E4B   (43,500 lbs Thrust)
 Pratt & Whitney PW2037   (36,600 lbs Thrust)
 Pratt & Whitney PW2040   (40,100 lbs Thrust)
 Pratt & Whitney PW2043   (42,600 lbs Thrust)

All above mentioned engine types for the 757 have 180-minute extended-range twin (engine) operation (ETOPS) approval.

Blended winglets are available as a retrofit to increase fuel efficiency and range. Winglets on the 757 have been approved for the 757-300 series as 757-300WL (757-200WingLets).

757-200 (C32A)

The C-32A is a military version of the Boeing 757-200 extended range aircraft, selected along with the C -37A to replace the aging fleet of C-137 aircraft. The contract was awarded for the C-32A in August 1996. The C-32A body is identical to that of the Boeing 757-200, but has different interior furnishings and 21st century avionics.

The C-32A provides safe, comfortable and reliable transportation for United States leaders to locations around the world. The primary customers are the U.S. Vice President, using the distinctive call sign "Air Force Two," the first lady, and members of the Cabinet and Congress. The C-32 replaces the C-137 air-craft.

The passenger cabin is divided into four sections:

The forward area has a communications center, galley, lavatory and 10 business class seats.
The second section is a fully enclosed stateroom for the use of the primary passenger. It includes a changing area, private lavatory, separate entertainment system, two first-class swivel seats and a con-vertible divan that seats three and folds out to a bed.
The third section contains the conference and staff facility with eight business class seats.
The rear section of the cabin contains general seating with 32 business-class seats, galley, two lavato-ries and closets.

Because the C-32A is a high-standing aircraft, it is easier to see under and around it -- an important se-curity factor for protecting the plane and its passengers.

The C-32A is more fuel efficient and has improved capabilities over its C-137 predecessor. It can travel twice the distance on the same amount of fuel, and operate on shorter runways down to 5,000 feet (1,524 meters) in length. Its 92,000-pound (41,731 kilogram) fuel capacity allows the aircraft to travel 5,500 nautical miles unrefueled.

PRODUCT PACKAGE OVERVIEW

PRODUCT PACKAGE OVERVIEW

<u>EXTERIOR MODELS</u>

Choose between 15 Highly accurate and detailed models.

Boeing 757-200 Passenger
- *Rolls Royce RB211-535E4B*
- *Rolls Royce RB211-535E4B w/Winglets*
- *Rolls Royce RB211-535C*
- *Pratt & Whitney PW2000 Series*
- *Pratt & Whitney PW2000 Series w/Winglets*

Boeing 757-200 Special Freighter
- *Rolls Royce RB211-535E4B*
- *Rolls Royce RB211-535C*
- *Pratt & Whitney PW2000 Series*

Boeing 757-200 Package Freighter
- *Rolls Royce RB211-535E4B*
- *Pratt & Whitney PW2000 Series*

Boeing 757-200 Air Force Variant (C-32A)
- *Pratt & Whitney PW2000 Series w/Winglets*

Boeing 757-300 Passenger
- *Rolls Royce RB211-535E4B*
- *Rolls Royce RB211-535E4B w/Winglets*
- *Pratt & Whitney PW2000 Series*
- *Pratt & Whitney PW2000 Series w/Winglets*

There are over 100 Custom animations on the exterior models including, but not limited to:
- *Shock Strut Compression with realistic animated bogey tilt behaviour*
- *All Flight Controls*
- *Detailed Thrust Reversers with Blocker Door animations*
- *Landing gear w/Nose wheel steering*
- *Passenger Doors with correct animation*
- *Cargo doors*
- *Freighter Door (Freighter models)*
- *Tailskid (-300)*

Realistic Wing Flex (Xml)
And Much, much more….

LIVERIES

Choose from over 125 High Quality real-world liveries for free from the QualityWings painters. We've even included every 757 livery ever produced for some airlines. Introduced in SP2 are QualityWings High Definition Textures (QWHDT) for the FSX Version of the product.
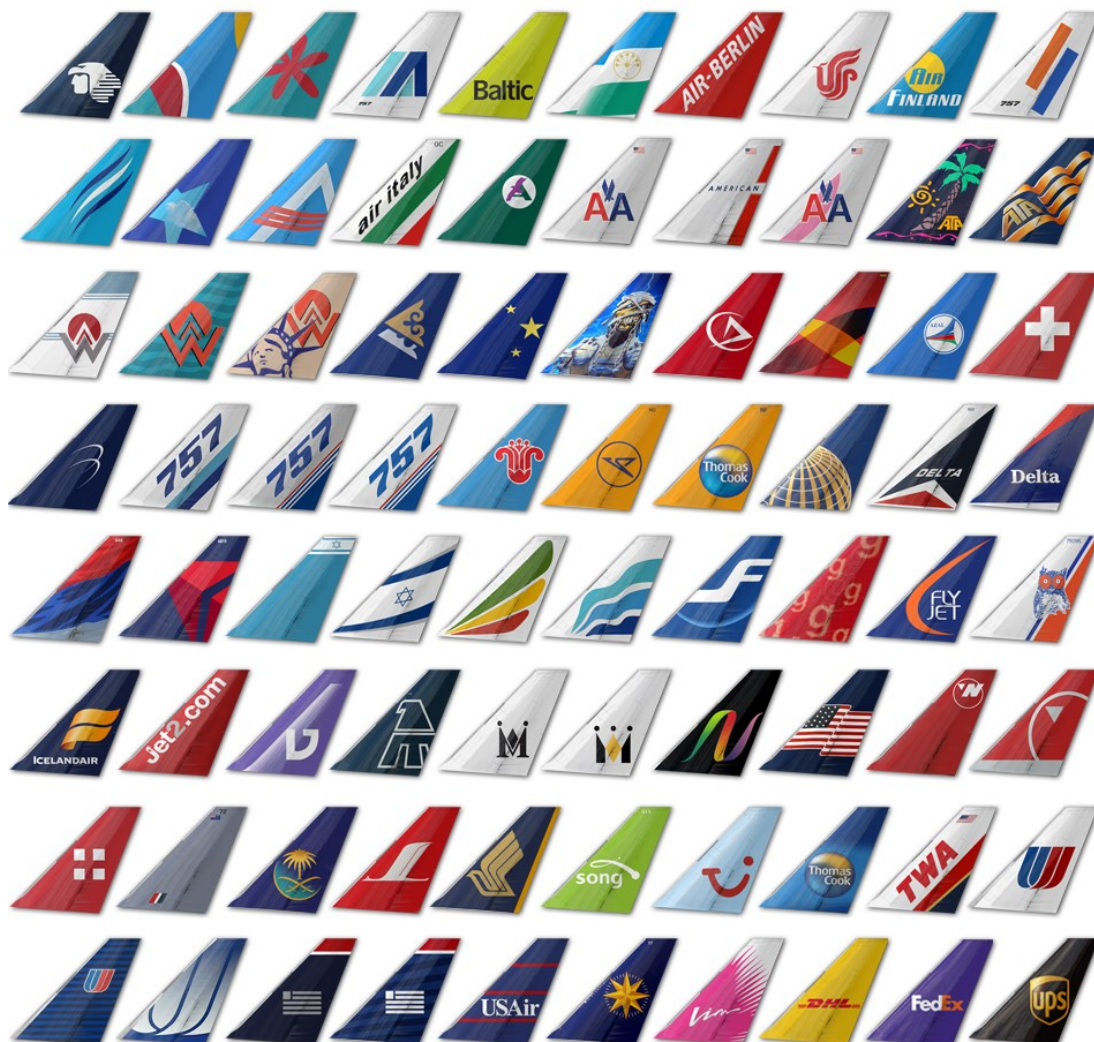
REPAINT KIT

We've provided a detailed paintkit for those who would like to paint their own liveries. There are many effects included to ensure that ANYONE can make great looking paints! It also includes MANY option layer sets allowing you to match several different airline configurations.

FLIGHTDECK

Both 2D and 3D (Virtual Cockpits) flightdecks are provided. Standard and Retrofit flightdecks are available. Standard includes the traditional EADI and EHSI and the Retrofit includes the LCD upgrade which is now available for the 757 aircraft. Widescreen 2D Panels are also available and are selected by default.

The 2D Flightdeck also has the following panels:
- Main Instrument Panel (Captains View ONLY)
- Overhead Panel
- Radio Stack
- Forward Aisle Stand/Control Stand
- FMC CDU
- EFIS Control Panel
- Aileron/Rudder Trim Panel
- Lighting Panel
- Landing View Panel

All 2D panel functionality is available in the 3D Virtual Cockpit.
More in-depth information about the 2D main panels and the 3D virtual cockpit can be found later in this manual.

FLIGHT MANAGEMENT SYSTEM
The FMS interacts and directs the autopilot to provide route Lateral and Vertical navigation (LNAV/VNAV). LNAV mode directs the Autopilot to fly the FMC flight plan route automatically and VNAV mode directs the Autopilot to meet the FMC climb, cruise, and descent targets and restrictions. Users can use the FMC to manually create flight plans, load stored flight plans or import the current active ATC/GPS flight plan created or loaded via the Flight Planning page of FS9/FSX. The FMC can also modify the active flight plan route while en route and insert stored routes such as SID/STAR's and En-route Airways.

SYSTEMS PROGRAMMING
The real-life 757 aircraft is a very complex aircraft. There is a high level of automation in the systems, but here at QualityWings—we've Simplified things for YOU to allow for a more efficient Flight Simming experience. Those familiar with the real 757 aircraft will be able to appreciate some of the characteristics of the 757 aircraft that we've included while those who are not familiar with the aircraft will not be overwhelmed by a Full level simulation. Also, QualityWings Options allows for even further simplification for those simmers who really just want to "Get in and fly".
Many systems simulated (Hydraulics, Electrical & Fuel Systems just to name a couple) and there is some limited interaction with others (Bleed system as an example). But, this is NOT a procedures type of simulation. The systems are designed for normal operation ONLY. Engine fires, in-flight emergencies and the effects on systems due to abnormal configurations are NOT simulated. Complexity, Simplified!

SOUNDS

High Quality soundsets are provided for both Pratt & Whitney and Rolls Royce Engine variants. We believe they are THE most realistic renditions of the powerplants ever available for the Microsoft Flight Simulator series. The exterior engine sounds were recorded in the vicinity of the powerplants during an engine run through the COMPLETE throttle range (Startup to Idle to Takeoff to Shutdown). Interior engine sounds were recorded on board during the same engine runs.

In addition to the engines, the soundest includes a carefully constructed mixture of flightdeck & cabin environment sounds. Hear the sound of the equipment cooling systems and the air conditioning pack noise of the Nose Landing gear being deployed and retracted. Spoiler rumble and Auto-speedbrake lever sounds are also simulated. Other sounds, you'll have to discover on your own!

Ground Proximity Warning System sounds warn you of the aircrafts proximity to the ground. From Altitude callouts to bank angle awareness, we've got you covered. QualityWings options allows you to adjust some of the callouts to give you more control of what callouts you want to hear.

Level A Warning and Level B Caution sounds generated by the EICAS and WEU systems are also provided.

The QualityWings Pre-Recorded Announcement System (QWPAS) promises to take your flight experience to another level by including of several commonly heard Announcements from Flight Attendants and Flightdeck crew.

Takeoff Callouts, landing checklists, it's all there!

FLIGHT DYNAMICS MODEL

You can't see it, but you sure can feel it.. Based on input from real-life 757 pilots and simulator experience - the flight dynamics promise to give you an authentic 757 experience!

OPTIONS

There are many options for you to choose from with the QualityWings 757. Many of them can be controlled on the fly via the QualityWings Control Panel. The panel is available via a SimIcon and also on the FS9 views menu.

In addition to the control panel, many more options can be set via a configuration file conveniently located in the QualityWings folder. In total there are more than 50 different options to choose from.

LIVERY MANAGER

The QualityWings Livery Manager allows for EASY installation of repaints payload adjustments and the ability to set cockpit panel view options to fit your Monitor aspect ratio.

FLIGHT MANUAL

INTRODUCTION

General

The purpose of this manual is to provide QualityWings 757 pilots with a document which serves as a training aid to become familiar with the QualityWings 757

This section of the manual provides general aircraft information and for all of the flightdeck panels which allow you to interface with the aircraft and it's systems. Each relevant panel is described in detail and a general description of the system is also provided. Information on Exterior features such as flight controls and doors is also provided.

The following areas are covered:

Aircraft General
- Principal Dimensions
- Flight Controls
- Doors
- Exterior Lights

Overhead Panel
- IRS Panel (Inertial Reference System)
- Yaw Damper Panel (Yaw Damper System)
- Hydraulic Control Panel (Hydraulic System)
- Misc Annunciator Panel (Door Warning System/Ice Protection System)
- Electrical Control Panel (Electrical System)
- APU Control Panel (APU System)
- Engine Start Control Panel (Engine Start System)
- Fuel Control/Quantity Panels (Fuel System)
- Passenger Signs Control Panel
- Air Systems Control Panel (Air Conditioning/Pneumatics Systems)

Control Quadrant
- Thrust Levers/Reverse Thrust Levers
- Fuel Cutoff Switches
- Flap Lever
- Spoiler Lever
- Stab Trim Control Switches/Indication
- FMCS Control Display Unit
- EFIS Control Panel
- EICAS Display Select Panel

Communications Cluster
- VHF Communication Panels
- ATC Control Panel
- ADF Control Panel

Main Instrument Panel (Standard)
- Mach/Airspeed Indicator
- Altimeter
- Standby Attitude Indicator
- Standby Airspeed Indicator
- Standby Altimeter
- Electronic Attitude Director Indicator
- Electronic Horizontal Situation Indicator
- Standby Engine Indicator
- EICAS Displays (Upper and Lower)
- Flap Position Indicator
- Landing Gear Control Lever
- Autoflight Control System MCP
- Navigation Control Panel

Main Instrument Panel (Retro-Fit)
- Primary Flight Display (LCD)
- Navigation Display (LCD)
- Standby Engine Indicator
- EICAS Displays (Upper and Lower)
- Flap Position Indicator
- Landing Gear Control Lever
- Autoflight Control System MCP
- Navigation Control Panel

Standalone EFIS Control Panel (Standard and Retro-Fit)
FMCS CDU

OPERATING LIMITATIONS / PARAMETERS

Limitations

1.   Operational Envelope
A.   Max operating pressure altitude:
         757-200   42,000 ft.
         757-300   42,000 ft.

B.   Max takeoff/landing pressure altitude:
         757-200   9,500 ft.
         757-300   9,500 ft.

2.   Maximum Airspeed Limitations:
         • VMO - indicated by max airspeed pointer on airspeed indicator.
         • MMO - 0.86 M
         • Maximum Gear Operating/Extended Speed: 270/.82M
         Maximum Alternate Gear Extension Speed: 250/.75M
         • Turbulent air speed: 290 knots/.78M
         • Flap Placard Speeds:

Position	757-200	757-300
1	240K	245K
5	220K	225K
15	210K	215K
20	195K	205K
25	190K	190K
30	162K	168K

3.   757-300: Flaps 1 takeoffs are prohibited.

Parameters

1.   Crosswind Guidelines
         • Max Recommended Takeoff Crosswind: 40 Knots
         • Max Recommended Landing Crosswind Component Guidelines (Not Autoland): 40 Knots

GROSS WEIGHT LIMITATIONS		

	757-200	757-300
Max Taxi Wt.	256,000 lbs	271,000 lbs
Max Takeoff Wt.	255,500 lbs	270,000 lbs
Max Landing Wt.	198,000 lbs	224,000 lbs
Max Zero Fuel Wt.	184,000 lbs	210,000 lbs

Maximum Design Taxi Weight (MTW).
Maximum weight for ground maneuver as limited by aircraft strength and airworthiness requirements. (It includes weight of taxi fuel.)

Maximum Design Takeoff Weight (MTOW).
Maximum weight for takeoff as limited by aircraft strength and airworthiness requirements. (This is the maximum weight at start of the takeoff run.)

Maximum Design Landing Weight (MLW).
Maximum weight for landing as limited by aircraft strength and airworthiness requirements.

Operating Empty Weight (OEW).
Weight of structure, powerplant, furnishing systems, unusable fuel and other unusable propulsion agents, and other items of equipment that are considered an integral part of a particular airplane configuration. Also included are certain standard items, personnel, equipment, and supplies necessary for full operations, excluding usable fuel and payload.

Maximum Design Zero Fuel Weight (MZFW).
Maximum weight allowed before usable fuel and other specified usable agents must be loaded in defined sections of the aircraft as limited by strength and airworthiness requirements.

Maximum Pay load.
Maximum design zero fuel weight minus operational empty weight. Payload is passengers and cargo on the Passenger variants and Total freight on the Freighter models.

SYSTEMS LIMITATIONS		

AUTOFLIGHT
Limitations
1.   On takeoff, do not engage autopilot below 1,000 feet AGL
2.   Max allowable winds for autoland:
        Headwind - 25 knots
        Tailwind - 15 knots
        757-300: Tailwind - 12 knots (Flap 30)
        757-300: Tailwind - 15 knots (Flap 25)
        Crosswind - 25 knots (15 knots when RVR is 2400 or less)
3. Autopilot use prohibited below 100' RA at airport pressure altitudes above 8,000 feet.

AIRCRAFT GENERAL

PRINCIPAL DIMENSIONS

44 FEET 6 INCHES
13.6 METERS

With Winglets   134 FEET 9 INCHES (41.1 METERS)

No Winglets   124 FEET 10 INCHES (38 METERS)

8 FEET 2 INCHES
(2.5 METERS)

24 FEET
(7.3 METERS)

155 FEET 3 INCHES (47.3 METERS)
757-200

178 FEET 7 INCHES (54.4 METERS)
757-300
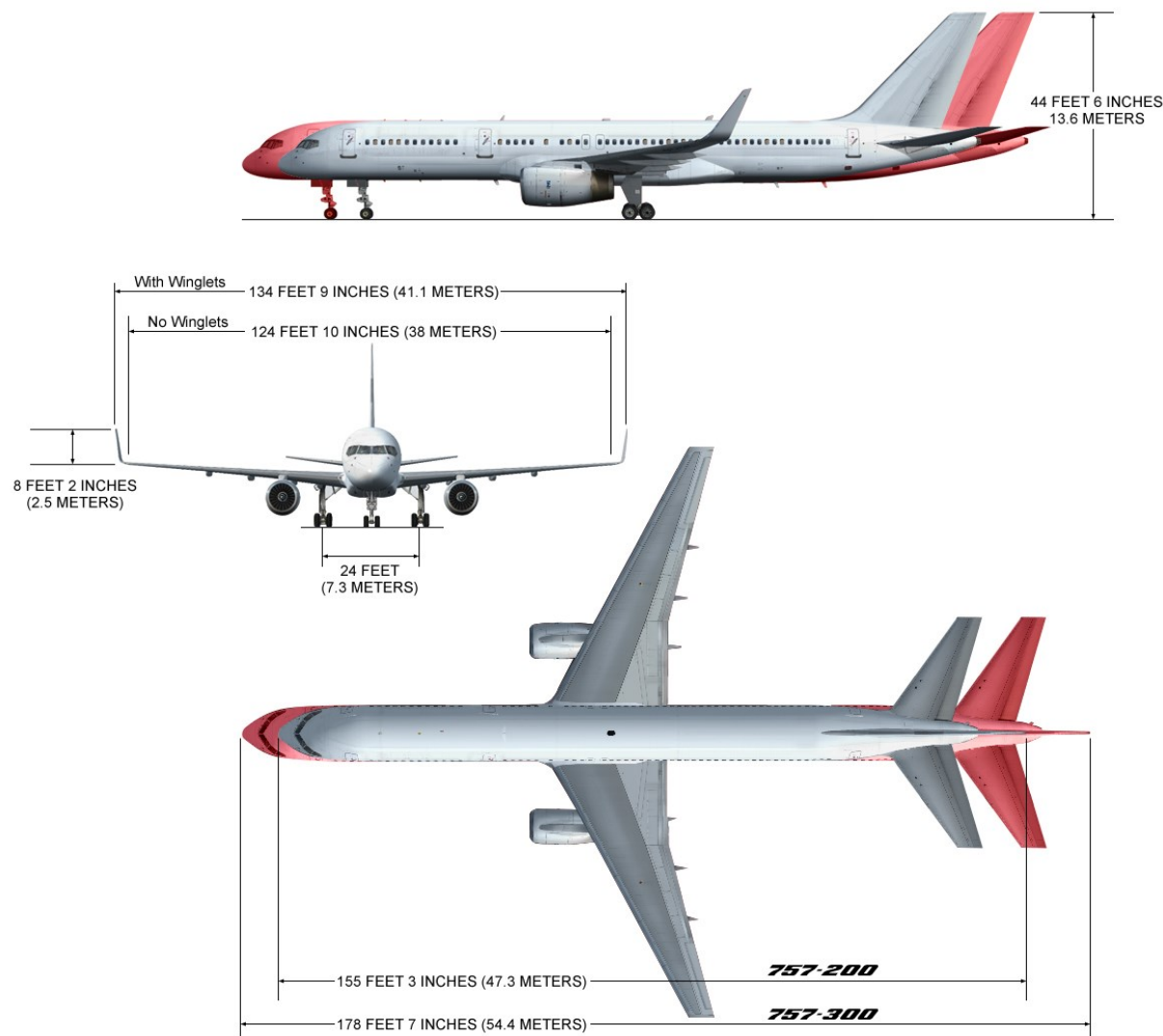
FLIGHT CONTROLS
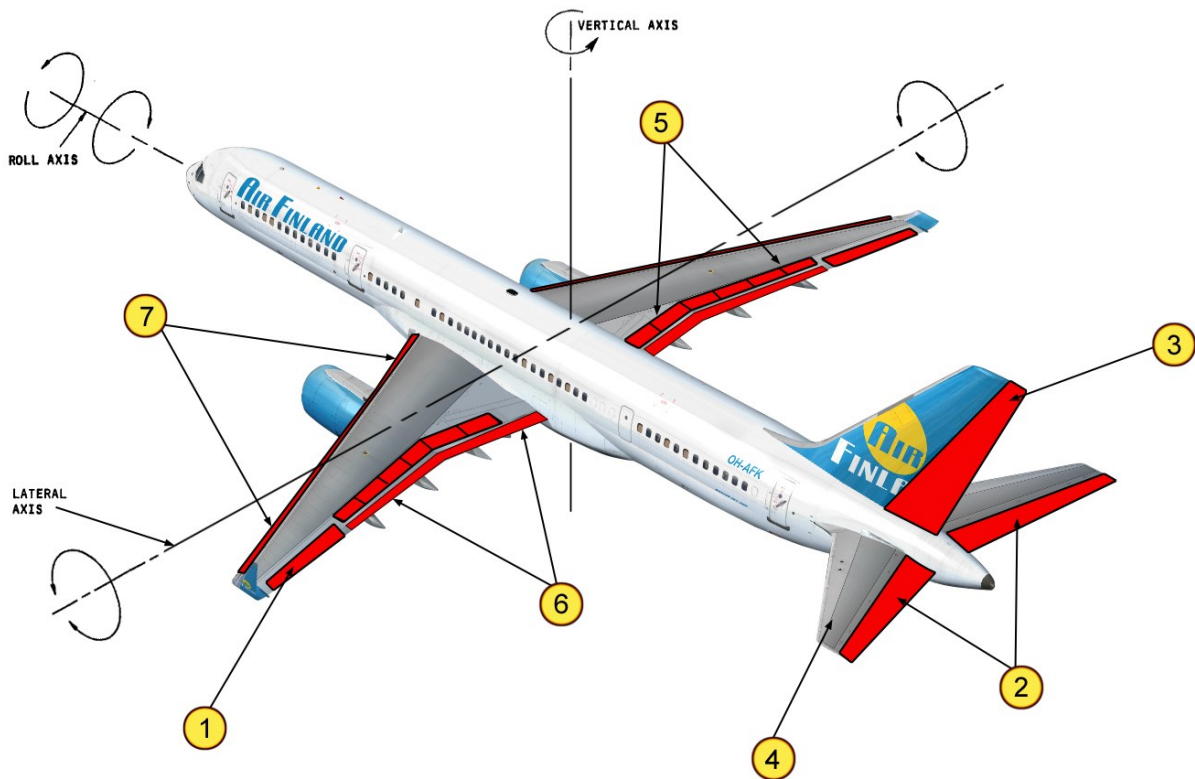
1 – Ailerons

Ailerons control the airplanes ROLL along the Roll Axis. There is one aileron on each wing. The ailerons move in opposite directions of each other to make the aircraft turn. For instance, when you turn your control wheel to the left to start a left turn – the left aileron will raise to "dip" the wing into the turn while the right aileron will "raise" the right wing. Ailerons can be controlled manually by the pilot or automatically by the Autopilot and are hydraulically powered. Aileron position can be monitored on the Lower EICAS display. Aircraft Roll can be monitored on the Attitude Director Indicator.
Read more about EICAS here.
Read more about the Autopilot here.
Read more about the ADI here.

2 – Elevators

Elevators control the airplanes PITCH along the Lateral Axis. Pitch is the Nose and Nose Down movement of the aircraft also referred to as the aircrafts attitude. The elevators are for short term pitch changes while long-term pitch changes are controlled by the Horizontal Stabilizer (more on the Horizontal Stabilizer later in this section). There is one Elevator on each Horizontal Stabilizer. The elevators move together UP and DOWN to make the aircraft climb or descend. For instance, when you push the control column forward, the elevators will move down and make the nose of the aircraft pitch downward. Pulling the column back causes the elevators to move Up and the aircraft nose to pitch upward. Elevators can be controlled manually by the pilot or automatically by the Autopilot .

They are hydraulically powered. Elevator position can be monitored on the Lower EICAS display. Aircraft Attitude can be monitored on the Attitude Director Indicator.
Read more about EICAS here.
Read more about the Autopilot here.
Read more about the ADI here.

3 – Rudder
A single Hydraulically powered Rudder controls the airplanes YAW along the Vertical Axis. Yaw is the Side to side movement of the aircraft. The rudder is located on the Vertical Stabilizer. The rudder moves side to side and is controlled by the Rudder pedals. For instance, pushing the left rudder pedal forward will move the rudder to the left causing the nose to turn towards the left. Keep in mind that rudder movements will induce rolls, so in the previous left turn example the plane would start to roll to the left. This is because the right wing speeds up just a bit and this causes more lift on that wing. The Rudder can be controlled manually by the pilot and automatically by the Autopilot and Yaw Damper systems. Elevator position can be monitored on the Lower EICAS display.
Read more about EICAS here.
Read more about the Autopilot here.
Read more about the Yaw Damper here.

4 – Horizontal Stabilizer
The Horizontal Stabilizer (Left and right are one piece) controls Long Term pitch changes along the Lateral Axis. The horizontal stabilizer pivots on the airplane structure at the rear spar and is hydraulically powered. Trim commands are initiated on the control wheel (not simulated in this package) or on the Control Quadrant. Trim Nose up commands move the entire stabilizer with the Leading edge going down. Trim Nose Down commands move the entire stabilizer with the Leading edge going up. Automatic trim commands are also generated by the Autopilot. Stabilizer position can be monitored on the Stab Trim position indicator located on the Control Quadrant.
Read more about the Autopilot here.
Read more about the Stabilizer Trim Position indicators here.

5 – Spoilers/Speedbrakes
12 (6-each wing) Hydraulically powered Spoilers help augment ailerons for ROLL control and also function as Speedbrakes to help slow the plane down in-flight. The speedbrakes are also deployed automatically during Rejected takeoffs and Normal landings to help ensure all aircraft weight is on the Main wheels to aid in braking. They are numbered from 1-12 from left wing to right wing. Spoilers 4 and 9 are electronically locked out in-flight and only serve as ground spoilers.
For Roll control, the spoiler deployment "mixes" with the ailerons to help the aircraft turn. The spoilers move AFTER the ailerons. For in-flight speedbrakes, the spoilers may be deployed to help slow the aircraft down. During takeoff, the spoilers deploy as Autospeedbrakes if a rejected takeoff is sensed. During landing, the autospeedbrakes deploy automatically when armed prior to touchdown.
Read more about the Spoiler Lever here.

6 – Trailing Edge Flaps
7 – Leading Edge Slats

The Trailing Flaps and Leading Edge Slats work together to form the High Lift Control System. The flaps/slats change the aerodynamic configuration of the airplane to improve performance during a particular flight condition. Takeoff and landing characteristics are improved, and greater maneuverability is provided to meet departure and arrival airspeed, climb and descent requirements.

The trailing edge flap system consist of four double-slotted trailing edge flap control surfaces that extend from the trailing edge of the wing. There are 10 leading edge slats: One inboard and four outboard slats are attached to the leading edge structure of each wing. The slats are numbered 1 to 10, from outboard left wing to outboard right wing. The Flap lever controls the entire High Lift system with the Slats/Flaps systems working together in a predetermined sequence. The system is normally powered by hydraulics with an electric backup (not simulated).

The Trailing Edge Flaps have seven positions: UP – 1 – 5 – 15 – 20 – 25 – 30. The slats have three positions. Up – Takeoff and Landing. In the takeoff position they remain sealed with the wing. In the landing position the slats separate (gap) from the wing.

Autoslat System
There is an Autoslat system that automatically extends the Slats from the sealed position to gapped in the event of a Stall. The Flap Load relief system retracts the Trailing edge flaps from 30 units to 25 if airspeed exceeds 170 knots. When the speed drops below 165 knots, the flaps return to the 30 unit position. Load relief is ONLY for Flaps 30.
Read more about the Flap lever here.
Read more about the Flap Position Indicator here.

DOORS

Doors can be controlled using Standard Flightsim key combos or via the QualityWings Control Panel. More information on the QualityWings Control Panel can be found here.

Passenger Variants
The **757-200** has 6 Main Entry/Service Doors (3 each side) and the number of emergency exits depends on aircraft configuration. Some configurations have 4 small overwing exit doors (2 each side) and others have 2 mid sized exit doors (1 each side) just aft of the wings.
The **757-300** has 6 Main Entry/Service Doors (3 each side) and 6 Emergency exits. It has both the overwing and aft wing exits that can be found on the -200 series.
Two cargo doors are available for loose baggage and loose/small freight. The forward and aft cargo doors are on the right side of the aircraft below the aircraft water line. There is a Bulk cargo door option that was available on some 757s are airline request. This door is shown on SOME airlines, but is not simulated on the QualityWings 757.
Only the Main Entry/Service Doors and Cargo Doors are simulated on the QualityWings 757.

Passenger Variant Door
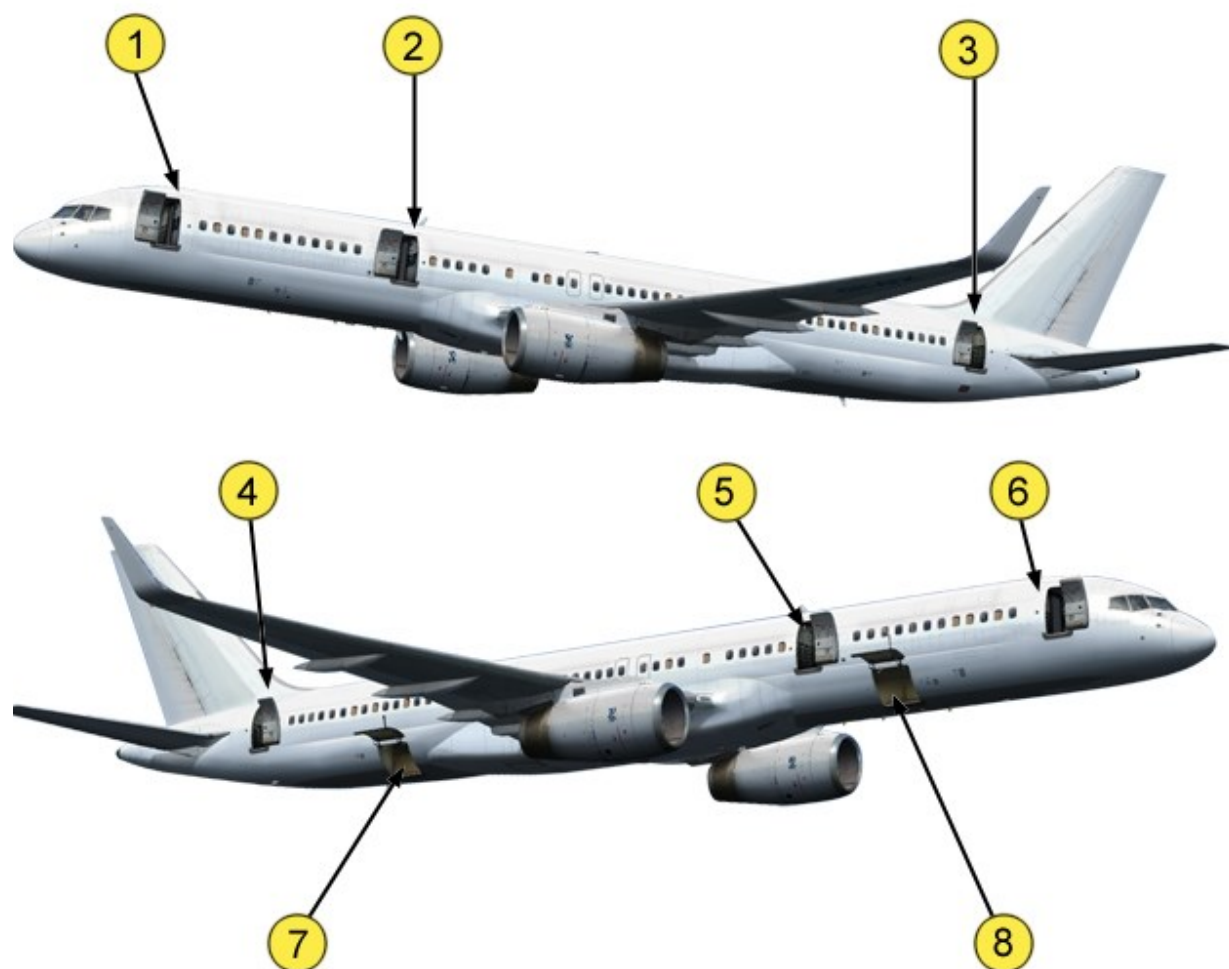
1 – L1 Main Entry Door   SHIFT + E
2 – L2 Main Entry Door   SHIFT + E + 2
3 – L4 Galley/Service Door   SHIFT + E + 4
4 – R4 Service Door   SHIFT + E + 4
5 – R2 Service Door   SHIFT + E + 4
6 – R1 Galley/Service Door   SHIFT + E + 4
7 – Aft Cargo Door   SHIFT + E + 3
8 – Fwd Cargo Door   SHIFT + E + 3

Freighter Variants
The 757-200 Special Freighters have all but the forward Entry doors deleted. Other door outlines may be visible, but these doors do not open. The 757-200 Package Freighter only has the 2 Fwd Entry Service doors. A Large Cargo door is located on the left side of the aircraft aft of the left Fwd Entry door. It has 2 open positions: Canopy (Half-open) and Full Open.

Annunciator Lights on the Overhead panel and EICAS messages on the Pilots Main panel give door indications.
Read more about the Misc Annunciator Panel (Door Warning Indication lights) on the Overhead here.
Read more about the Door Warning EICAS here

LIGHTING SYSTEMS

Exterior Lighting and flightdeck lighting systems are simulated in the QualityWings 757.

Exterior Lighting
Exterior lighting consists of these lights:
· landing
· runway turnoff
· anti-collision
· navigation (position)
· wing leading edge illumination
· taxi
· logo
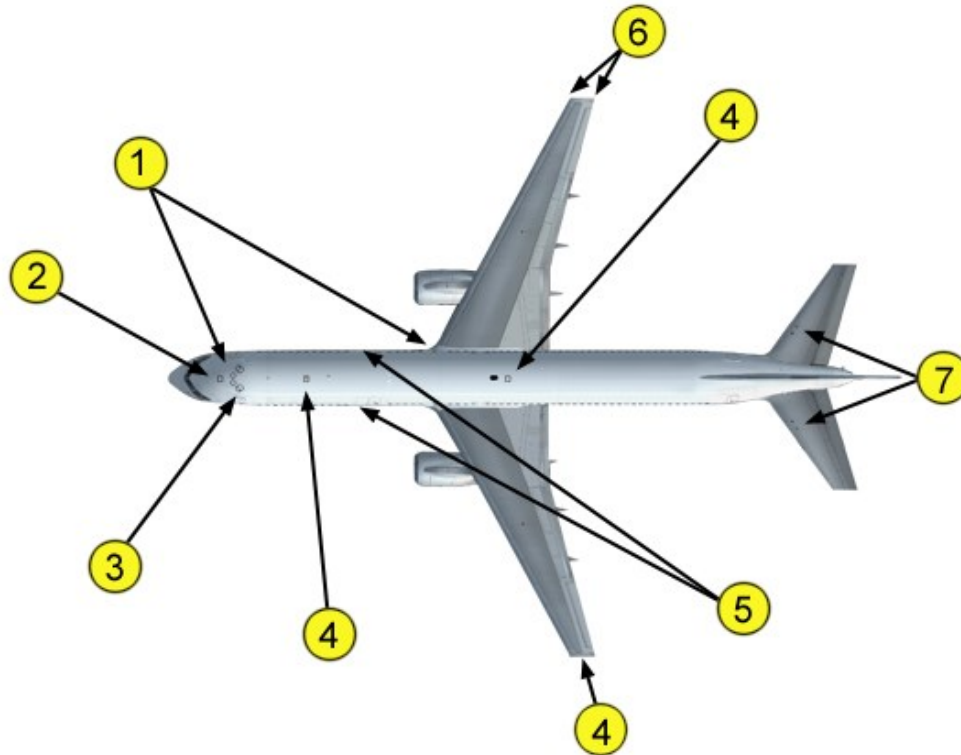
Boeing 757-200 Shown (B757-300 Similar)

1 - Landing Lights
The landing lights consist of the left, right, and nose gear landing lights. The left and right landing lights are located in the left and right wing root and two landing lights are on the nose landing gear.

2 - Taxi Light
One taxi light is installed on the steerable portion of the nose landing gear.

3 - Runway Turnoff Lights
Two runway turnoff lights are located on the upper portion of the nose landing gear strut.

4 - Anti–Collision Lights
The white anti–collision lights are strobe lights located on each wing tip. On aircraft with winglets, lights located near the top outboard tip of the Winglets. The red anti–collision lights are strobe lights located on the top and bottom of the fuselage.

5 - Wing Illumination Lights
Wing lights are installed on the fuselage and illuminate the leading edge of the wing.

6 - Navigation Lights
The navigation lights are standard red (left forward wingtip), green (right forward wingtip), and white (aft tip of both wings) position lights.

7 - Logo Lights
Logo lights are located on the stabilizer to illuminate the logo on the vertical tail surface.

Flight Deck Lighting
Flight deck lighting is provided for panel illumination
There are 2 stages of lighting in the Virtual cockpit and 2 Stage in the 2d Cockpit.
In both cockpits, the Light Override (LT OVRD) switch is used to control panel lighting.

Read more about the Light Control Panels here.

OVERHEAD PANEL
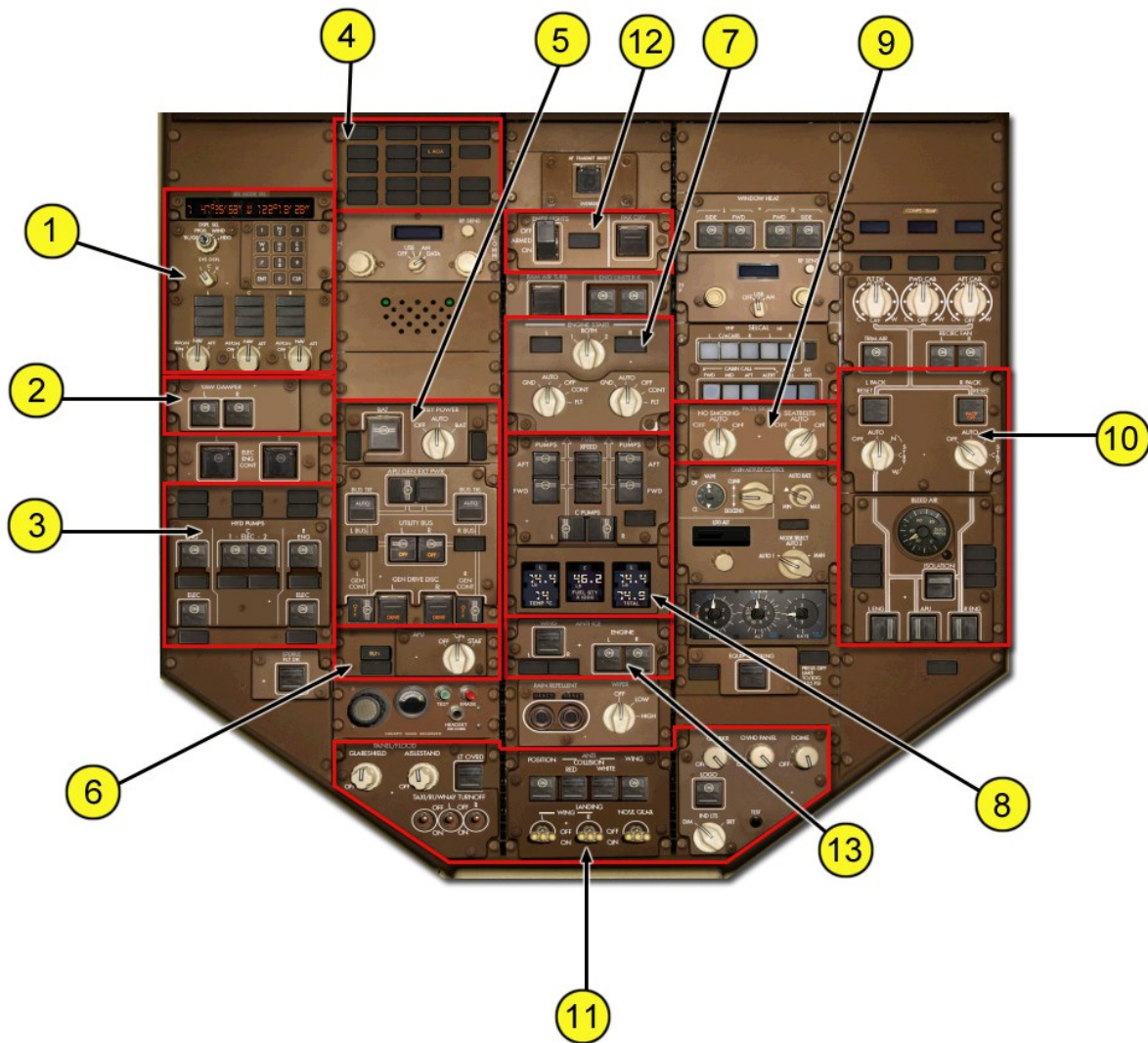
1 – IRS Mode Select Panel
2 – Yaw Damper Panel
3 – Hydraulic Control Panel
4 – Miscellaneous Annunciator Panel
5 – Electrical Power Control Panel
6 – APU Control Panel
7 – Engine Start Control Panel
8 – Fuel System Panels (Control & Quantity)
9 – Passenger Signs Control Panel
10 – Air Conditioning and Bleed Air Control Panels
11—Lighting Control Panel
12—Emergency Lights Control Panel
13—Anti-Ice Control Panel

IRS Model Select Panel
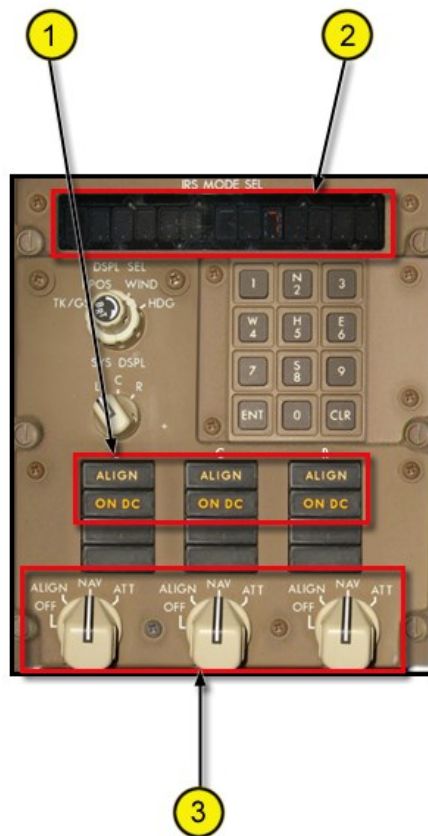
1 – IRS ALIGN/ON DC Lights
The ALIGN light turns on steady after turning on the IRUs for the initial alignment. The light extinguishes after IRS system is fully aligned.
The ON DC light turns on momentarily during the initial IRS alignment

2 – IRS Mode Display Window
Displays Aircraft present position when IRS system is aligned.

3 – IRS Mode Select Switches
Allows the IRS system to be turned on. Click all 3 switches from OFF to the NAV position and after a short wait for alignment, the system will be up and running in Navigation mode. IRS is aligned by default.
NOTE: No other steps are required for IRS alignment other than turning the switches to NAV.

Inertial Reference System Refresher
An Inertial Reference system is standard equipment on the 757. The Inertial Reference System is controlled by the IRS Mode Control Panel on the overhead panel. When operating in the navigation mode, the IRS provides attitude to the EADI or PFD and heading information to the EHSI or ND.

An IRS must be aligned before it can enter the NAV mode. Rotating the IRS mode selector from OFF to NAV begins the IRS alignment. The IRS performs a short power test, during which the ON DC light illuminates. When the ON DC light extinguishes the ALIGN light illuminates. Alignment requires approximately ten seconds, as we have speed up this process to get you flying quicker. It is NOT NECESSARY to enter Present position on the FMCS CDU to complete the alignment.

Alignment can be accomplished only when the airplane is not moving. Alignment stops if an IRU detects motion during alignment. When the motion stops, the alignment continues automatically.

The IRS is aligned when all IRUs enter the navigation mode. Alignment is lost if the selector is moved out of the NAV position.

Yaw Damper Control Panel
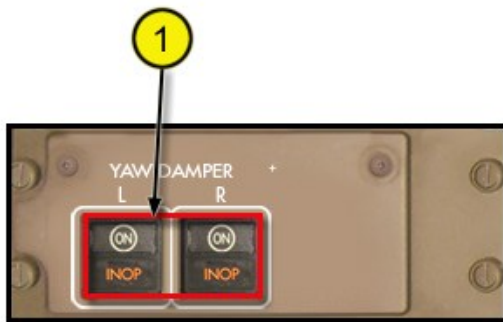
1 – Yaw Damper Engage Switches
The Yaw Damper switches control the engagement of the Yaw Damper System. The switches work in unison, meaning that clicking on one operates both switches. Click to turn the Yaw Damper On and OFF

The ON annunciation indicates that the system is functional. Click the switches to turn off the Yaw Damper and the ON annunciation will disappear.

The INOP annunciation shows when the Yaw Damper system is switched off, or when the switch is ON and the Inertial Reference system is not operating. When the INOP annunciation is present, the EICAS system generates Yaw Damper EICAS messages shown on the Upper EICAS display: L (R) YAW DAMPER Please Note that the ON annunciation DOES NOT tell Flight Simulator Yaw Damper status. The INOP lights are a only a light simulation of what happens in the real 757 aircraft. **We have disabled the use of Flight Simulator Yaw Damper on the QualityWings aircraft.**

Yaw Damper System Refresher
An inherent characteristic of all swept back wing airplanes is a yawing motion that induces sideslip and roll. The yaw damper systems improve turn coordination and dutchroll damping.
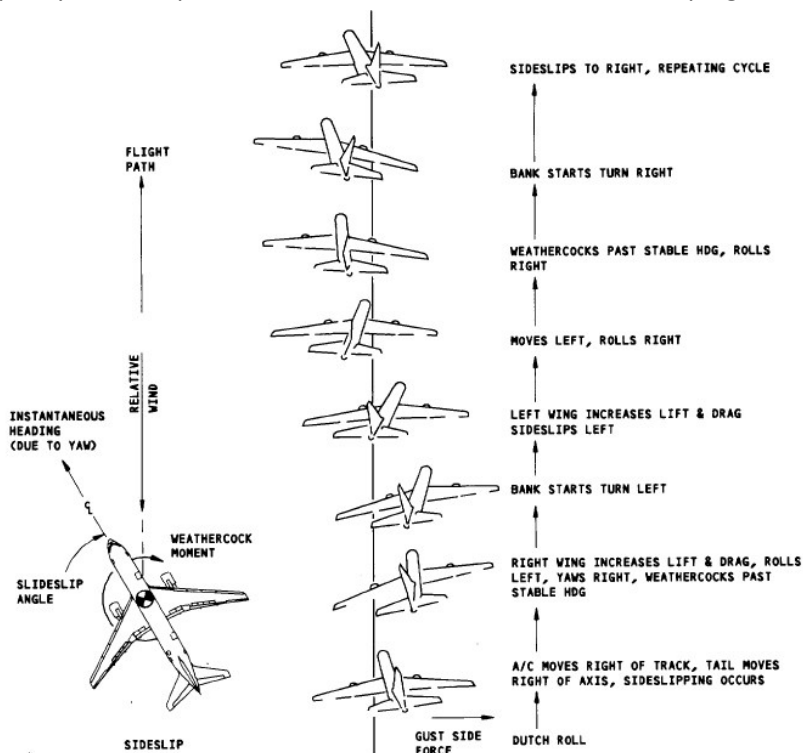
Hydraulic Control Panel
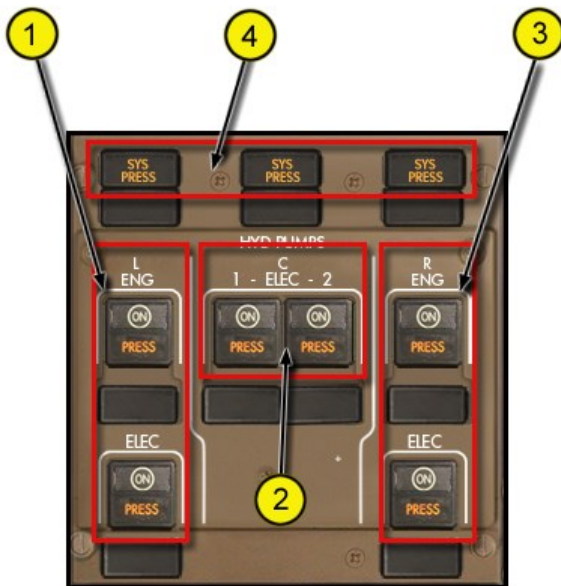
1 – Left System Pump Switches
Allows for control of the Left Engine Driven hydraulic Pump and the Left Electric Driven Hydraulic Pump. A PRESS light indicates that the respective pump has low output pressure. This can be because the switch is OFF or in the case of the Engine pump, it Illuminates when the left engine is shutdown since the engine drives this pump.

2 – Center System Pump Switches
Allows for control of the two Electric Driven Hydraulic Pumps for the Center system. A PRESS light indicates that the respective pump has low output pressure. This can be because the switch is OFF or the aircraft is in a Load Shed condition. Both engines are required to be running for the C2 Electric Pump to operate.

3 – Right System Pump Switches
Operation similar to the Left System Pump Switches

Hydraulic System Refresher
The 757 is equipped with 3 hydraulic systems labeled the Left, Center and Right systems. The hydraulic system provides the power to operate systems such as the landing gear and all flight controls.

There are 2 pumps available for each system for a total of 6 in the system. The left and right systems each have (1) Engine driven hydraulic pump and (1) Electric Hydraulic Pump. When the engines are not running, the pumps do not output any pressure. When the engines are running, the pumps provide approximately 3000 psi pressure as long as their respective switches remain in the ON position. The Electric hydraulic pumps operate as long as their switches are on and are available as long as the aircraft has AC power available. The Center system is equipped with 2 Electric hydraulic pumps that operate similar to the Left and Right system Electric pumps. The Center pumps are however subject to Load Shedding when the engines are not running. To prevent excessive electrical loads while using External electrical power or APU electrical power, only (1) center hydraulic pumps is available at a time. If both switches are on, then only the C-1 hydraulic pump operates.

On the QualityWings 757, hydraulic pressure is necessary for operation and the animation of the Flight Controls. The Ram Air Turbine is NOT simulated. If your hydraulics are not on, you will not be able to control the ailerons, rudder, elevator or the horizontal Stabilizer. Therefore directional control will be compromised as hydraulics are necessary for flight!

Miscellaneous Annunciator Panel
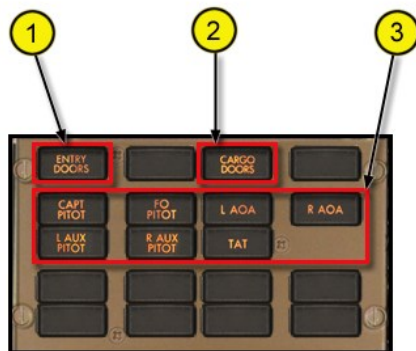
1 – ENTRY DOORS light
One or more Entry doors are open. Associated EICAS messages also show
2 – CARGO DOORS light
One or both Cargo Doors are open. Associated EICAS messages also show
3 – Probe Heat system lights
All probe Heat lights illuminate when the engines are shutdown. Extinguished when engines running.
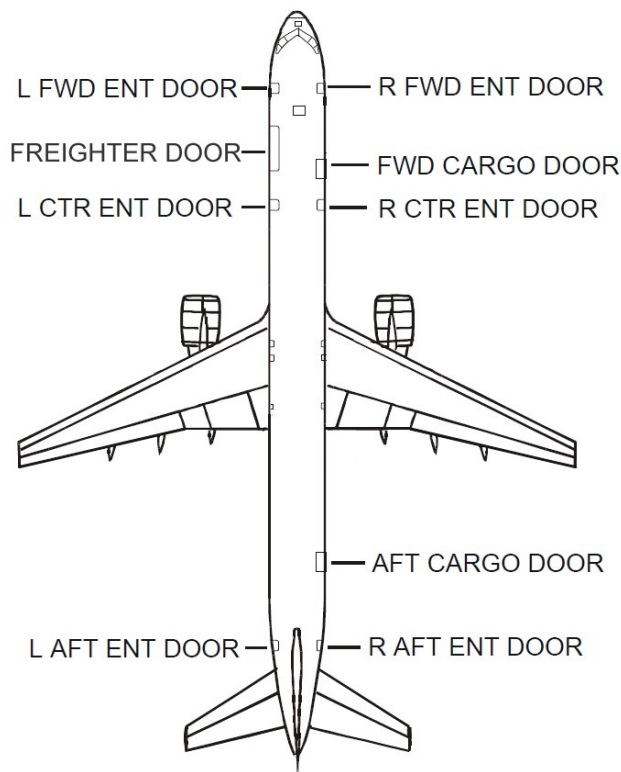
Door Warning System Refresher
The door warning system alerts the flightcrew of a door that is open. The system alerts the crew via the Miscellaneous Annunciator panel AND via the EICAS system in the forum of level C Advisory messages. EICAS messages for the doors are shown in Fig. 102 just to the left, but only represent the door nomenclature Not all EICAS messages are shown.

If any of the Left side entry/service doors are opened, the EICAS message L ENTRY DOORS shows. R ENTRY DOORS shows for any right side service doors. CARGO DOORS shows when the cargo doors are opened (Cargo doors cannot be opened individually)

They door key commands can be found here. More information on the QualityWings control panel can be found here.

Probe Heat System Refresher
The various Air Data probes/sensors on the 757 are electrically heated to ensure ice does not accumulate. Ice accumulation can prevent reliable data from these sensors which is a safety hazard. The probe heat system is automatically controlled on 757s. There is no manual control of probe heat. On engine start, all probes are turned on. They shutoff on engine shutdown.

Electrical System Control Panel
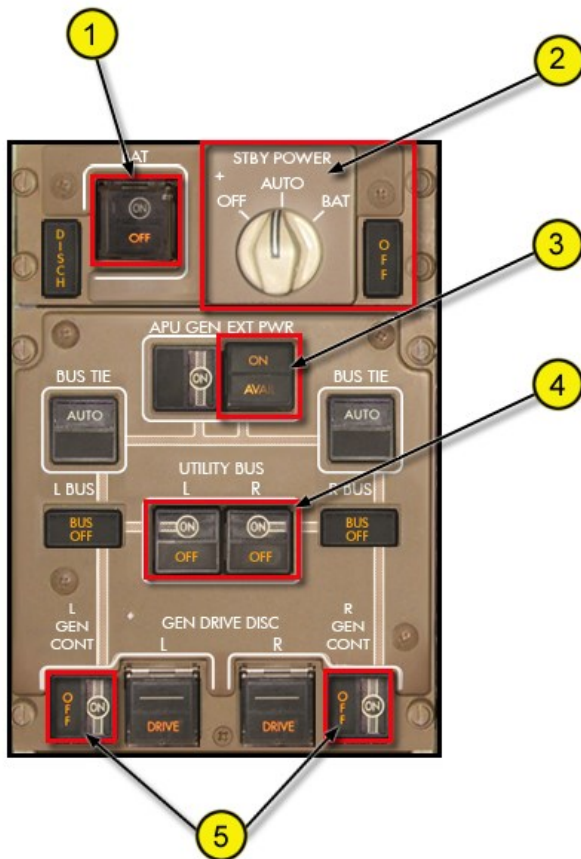
1 – Main Battery Switch
Right Click to lift the cover, then Battery switch selection is available. Normal position for the Main battery switch is ON. When switch ON, the OFF light is extinguished.

2 – Standby Power Switch and Standby power Status light
Turns Standby Power ON or Off. Standby Power Off light illuminates when standby power is off. Real-life standby system dependencies are not simulated.

3 – External Power Switch
External power becomes available automatically when the aircraft is on the ground, engines are shutdown and the parking brake is set. AVAIL means available. Push switch to turn on electrical power. ON means external power is powering the electrical system.

4—Utility Bus Switches
Allows selection of the Left or Right Utility busses.

5– Left and Right Generator Control Switches
Controls engine generators. The switches are normally left ON to allow the respective engine generator to come online and power the busses after engine start. The OFF light illuminates when engines not running. OFF light extinguishes when engines running (switch in ON position. Any one generator can completely power the aircraft

Electrical Power System Refresher
The 757 Electrical Power system is very complex. It consists on an AC (Alternating Current) system, a DC (Direct Current) system and a Standby system. The AC system consists of (3) powerplant (Engine and APU) driven generators and external power. The DC and Standby systems consists of many components - but is not at all discussed here. The Battery is the only DC power system component controlled in this simulation.

The QualityWings 757 simulates External power, APU generator power and Engine generator power. On the ground, when the engines are shutdown and the parking brake is set….External power will become available for use. When the APU is running, APU electrics is available. When the engines are running, the engines will power the electrical power system so long as their switches are on. **You will need to start your APU prior to engine shutdown if you do not want to lose power.**

APU Control Panel

1 – RUN light
Flashes twice during start of APU, simulating the APU Electronics unit prestart internal testing. Remains on steady once APU is up and running.

2 – FAULT light
Flashes once during APU start and shutdown to simulate the APU fuel valve transition to open (during start) and close (during shutdown).

3 – APU Master Switch
Three position switch (OFF-ON-START). Only one click required to start/shutdown APU.

How to Start/Shutdown APU
When the APU is off, the switch is in the OFF position. Click Once to turn on. The switch will automatically run through the ON position to START and then spring back to ON. The FAULT light flashes once, followed by 2 flashes of the Run light. After a sped up simulation of the APU spool-up time (10 seconds instead of the real-life 40-60 seconds) then RUN light turns on steady to simulate APU running.
To shutdown APU, click switch once, and it moves to OFF. The RUN light extinguishes and the FAULT light flashes twice.

The APU door (Fig. 1) on the exterior model is mounted on the fuselage just above the right horizontal stabilizer. It opens and closes in response to APU modes. It is open during APU operation and closed (faired with fuselage) when APU is off.

Fig. 1 - APU Door shown in the open position

APU System Refresher
The 757 is equipped with a single Allied Signal model 331-200 Auxiliary Power Unit (APU) installed in the aft tailcone of the aircraft. The APU is an engine that is capable of supplying electrical power and Pneumatics. The pneumatics are normally altitude limited, but on the QualityWings 757 Pneumatics and Electrical power are always available regardless of altitude.

Engine Start Control Panel
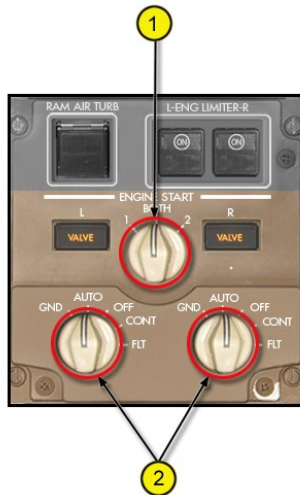
1 - Ignition Selector Switch
Allows for selection of One of a single of both Ignitor plugs to fire. Procedure is normally to use #1 Ignitor on Odd numbered days and #2 on even numbered days.

2 – Engine Start Switches
Two position switch: GND & AUTO
Used to initiated engine start. User places Start switch to GND to start engine and when engine approaches idle the switch automatically goes back to AUTO position. See How to Start engines (below) for more information.

How to Start Engines
AutoStart
FS default Key command Ctrl + E will automatically start the Left engine first and after that engine reaches idle, the right engine is started. The Fuel Control switch will automatically be placed to RUN at the precise moment for a perfect start.

Standard Start
The user can also initiate the engine start manually by placing the Start Switch to the Auto position. The fuel control switches will also be placed to the Run position for you at max motor. New for SP3 is a Config option that allows you to be in control of the fuel control switch. Standard start requires that the Air Conditioning and Bleed Air Control Panel be setup correctly. In order for engine start to commence:
- Both packs must be off,
- The Isolation Valve must be OPEN and the
- APU must be running with the APU Bleed Valve Open.

If these conditions are not satisfied, switch will not remain in GND. They will spring back to Auto 2 seconds later. If the on-side VALVE light illuminates, the start has started begun successfully.

Engine Start System Refresher
The 757 engine starting system consists of a start valve, pneumatic starter, the Start control panel and the Engine Fuel Control Cutoff switches (part of the Fuel & Ignition systems). The engines are started by using the Start switch on the Start Control Panel to open a pneumatic start valve on the engine. Bleed air from the APU, opposite aircraft engine or Ground Pneumatics carts supply the air that goes through the Start Valve to turn the engine Starter. The engine starter then turns the engine to suck in air. At a predetermined point, the pilot then moves the Fuel Control Cutoff switch to the Idle position. When the switch is placed to idle, fuel is supplied to the engine and ignition is started to create combustion to allow the engine accelerate to idle. At or around idle, the engine start valve closes and the starter disengages from the engine, as it is no longer needed.

Fuel Systems Panels

2 – Center Tank Fuel Pump Switches
Switches are selectable ON /OFF. Pumps must be ON in order to burn fuel from the center tank. The PRESS light on the switch indicates that the pump has no output pressure

Center Tank Pump output pressure light will illuminate for any of the following:
• The switch is OFF
• The switch is ON with no fuel in the center fuel tank
• If the Center tank switches are ON with the respective side engine OFF. The center tank pumps will only operate when the respective side engine is running.

3 – Fuel CONFIG light
Illuminates for either of the following:
• Total Fuel Quantity less than 2,200 lbs

4 – Fuel Quantity Display
Displays the fuel quantity of each tank and Total Fuel Quantity.

5—Fuel Crossfeed Switches
Allows for selection of Fuel Crossfeeding. To crossfeed, open either crossfeed valve and turn off the fuel pumps for the tank OPPOSITE of the tank you want to burn from.

1 – Left (Right) Main Tank Fuel Pump Switches
Allows for selection of the fuel pumps. The PRESS lights indicate that fuel pump has no output pressure. PRESS light will illuminate if respective tank is empty of the switch is OFF. Autorun of Left system fuel pump during APU ops not simulated. Engine operation not affected by pumps off. Engines will suction feed.

Fuel Systems Refresher
The 757 is equipped with 3 Fuel tanks: Left and Right Main tanks which are located in each respective wing and a Center Tank located in the center wing box. The Fuel capacity of the Wing tanks are 2236 gallons (14,980 lbs) and the Center Tank capacity for all versions except the C32-A is 7017 (47,013 lbs). The C32-A has an additional 2298 gallons (15,400 lbs) available in the Center Tank for a total fuel Quantity of 92,000lbs instead of the normal 76,000 lbs.

There are a total of 6 Fuel Pumps in the Fuel system: (2) for each Main tank and (2) for the Center Tank. The Center tank pumps are called Override Fuel Boost Pumps and operate at a higher output pressure than the Main Tanks boost pumps. Because of this, the center tank fuel quantity is used first. Once the center tank is depleted, then main tank fuel is used.

The Fuel Crossfeed valves allow the engines to use either fuel tank f necessary.

Passenger Signs Control Panel
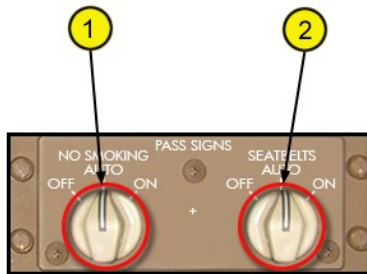
1 -No Smoking Sign Switch
Sounds No Smoking Chime. AUTO position has no function.

2 – Fasten Seatbelt Sign
Sounds Fasten Seatbelt Chime. AUTO position has no function.

Lighting Control Panel
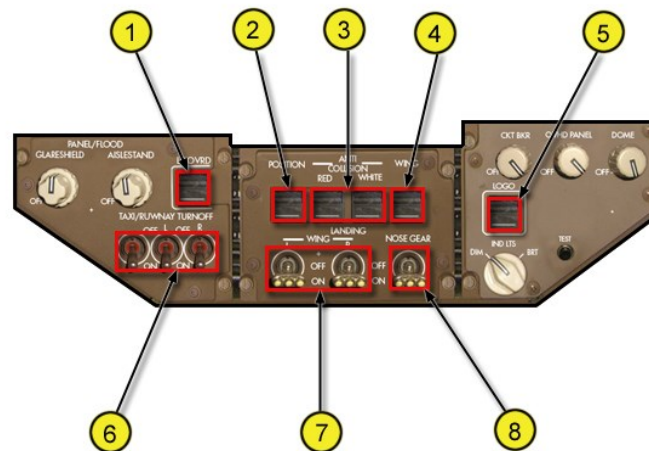
1 – LT OVRD Switch
Controls 2D Panel lighting (ON/OFF)
2 – Position Light Switch
Controls position lighting
3 – Anti-collision Light Switch
Controls Upper Lower Anti-collision lights
4 – Wing Light Switch
Controls Wing Lights

5 – Logo Light Switch
Controls Logo Lights
6 – Taxi/Runway Turnoff Light Switch
Controls Taxi/Runway Turnoff lights on nose gear
7 – Landing Lights (WING)
Controls Landing Lights on the wings
8 – Landing Lights (NOSE)

For more information on the exterior lighting, <u>click here.</u>

Anti-Ice Control panel

1—Wing Anti-Ice Switch and Valve lights
Switch Controls Wing Anti-Ice which is only available on the air.
Valve light remains on if WTAI is selected on the gnd.

2—Engine Anti-Ice Switches
Switch Controls selection of Engine Anti-Ice which is only avail-
with engines running.
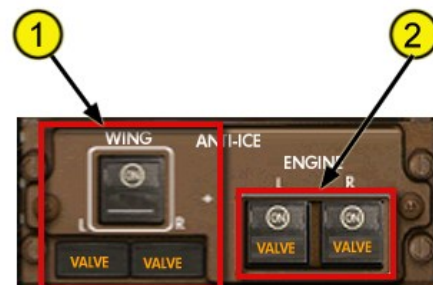
Air Conditioning and Bleed Air Control Panel
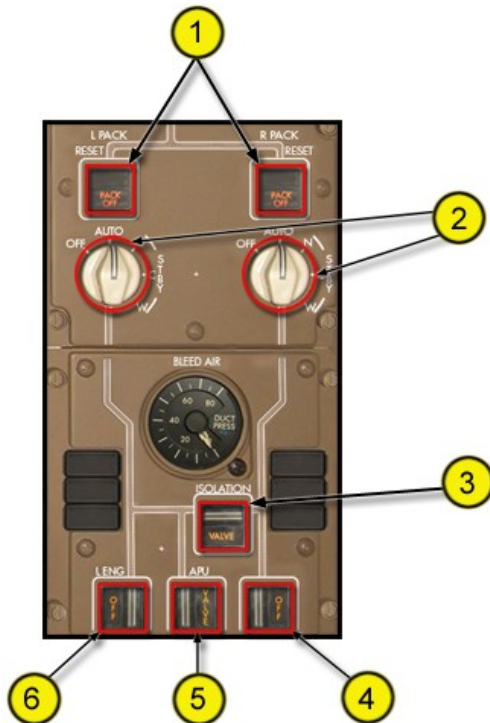
1 – Left (Right) Pack OFF Lights
Illuminate when the respective pack switch is placed to the Off position. Must be OFF for engine start via start control panels.

2 – Left (Right) Pack Control Switches
Controls the air conditioning packs.

3 – Isolation Valve Switch
Controls the Isolation Valve

4 – Right Eng BLD OFF Light
Illuminate when the right engine is shutdown

5 – APU Bleed Valve Switch
Controls the APU bleed air. Only available when the APU is running.

6 – Left Eng BLD OFF Light
Illuminate when the left engine is shutdown

Air Conditioning and Bleed Air System Refresher

Pneumatic bleed is available from the engines, the APU or external ground carts. This bleed air is used for several systems, most notable for the Air Conditioning Packs and the engine starting system.

Pneumatics is always available on the QualityWings 757 for automatic engine starts. When starting via the engine start control panel, the APU must be running and the Air conditioning packs must be turned off. On the real 757, start is not inhibited if the packs are on, but procedures are for the packs to be turned off since the volume of air going to the packs makes it difficult to start the engines as well.

Main Panels (Standard)
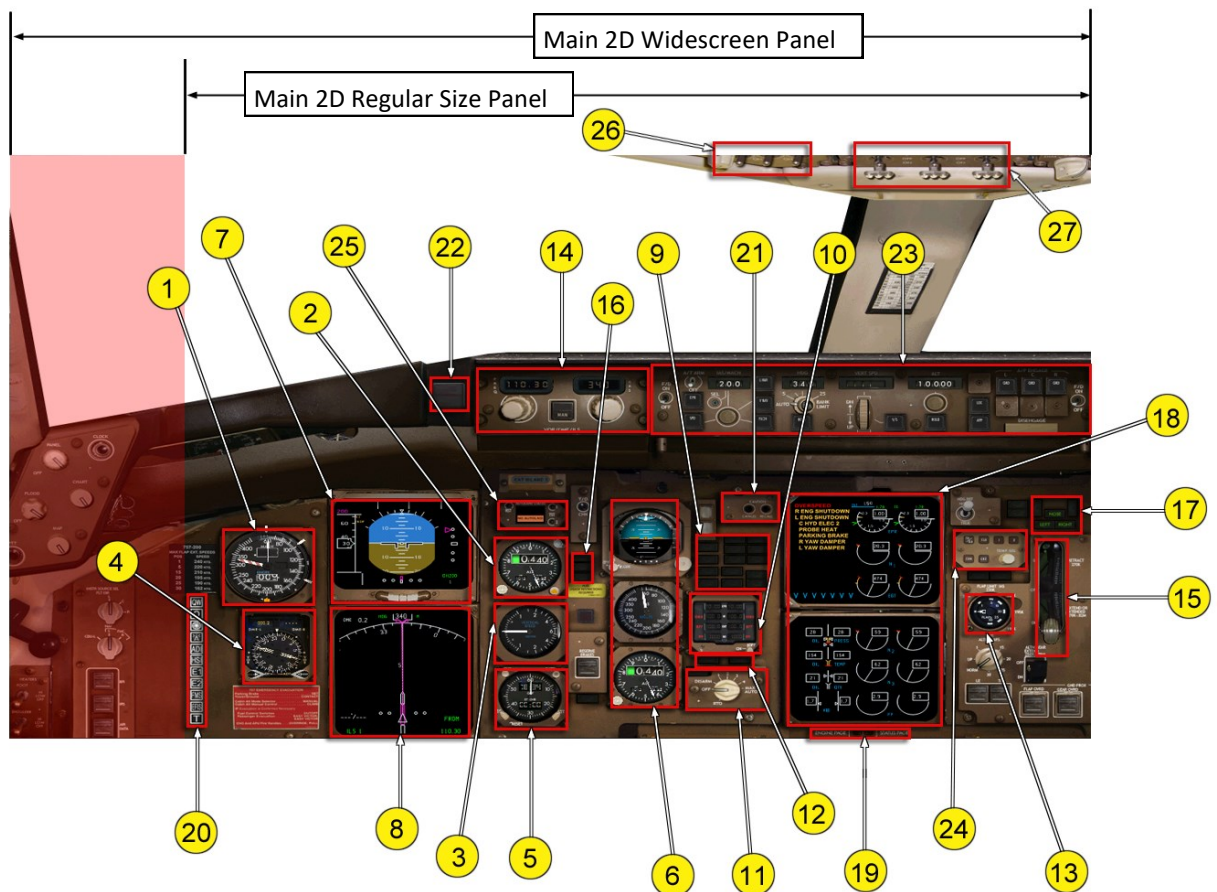
Main Panel (2D)

1 – Airspeed Indicator
2 – Altimeter
3 – Vertical Speed Indicator
4 – RDMI
5 – Clock
6 – Standby Indicator Stack (Attitude, Airspeed, Altimeter)
7 – EADI
8 – EHSI
9 – Caution/Warning Annunciator Panel
10 – Standby Engine Indicator
11 – Autobrakes Panel
12 – Engine Oil Pressure Lights
13 – Flap Position Indicator
14 – VOR/ILS
15 – Landing Gear Control Lever

16 – Marker Beacon Lights
17 – Landing Gear Position Lights
18 – EICAS Displays (Upper & Lower)
19 – EICAS Display Select Switches
20 – SimIcons
21 – EICAS Cancel/Recall Switches
22 – Master Caution/Warning Annunciator
23 – Autoflight Mode Control Panel
24 – Thrust Mode Select Panel
25 – Autoflight Status Annunciator
26 - Lighting Panel: Runway Turnoff/Taxi Lt Ctrl
27 - Lighting Panel: Landing Lt Ctrl

NOTE: The Lighting panel has controls for Strobes and Light Override switch. Neither are shown in this graphic.

Mach/Airspeed Indicator

3 - Command Airspeed Bug
Indicates airspeed as manually selected with the Mode Control Panel IAS/MACH selector.

4 - V1 Speed Bug
Automatically set by FMS when Takeoff page is accessed.

5 - V Speed Clickspots
Upper Right=V1   Middle Right=VR   Lower Right=V2/VRef
All bugs can be manually set via the V Speed Clickpoints

6 - VR Speed Bug
Automatically set by FMS when Takeoff page is accessed.

7 - V2/VRef Speed Bug
V2 is Automatically set by FMS when Takeoff page is accessed. Vref is set when Approach flpas are selected on the Approach pageon the FMC.

8 - Command Airspeed Bug
Indicates MCP Select Airspeed

9 - Airspeed Indicator and Flag:
Displays airspeed above 30 knots

1 - VMO Pointer
Indicates the maximum operating airspeed in knots.

2 - Mach Indicator
Displays Mach number. The Display range is .400 to .999 Mach. It is masked below .400 Mach

Altimeter

2 - Reference Altitude Marker
Manually positioned to the desired reference altitude using the reference altitude marker control.

3 - Altimeter Altitude (ALT) Light. Alerts when approaching MCP Selected altitude

4 - Barometric Setting Window
Displays barometric correction (in millibars and inches of mercury) as set by the barometric setting control.

5 - Reference Altitude Marker Control
Used to manually set the reference altitude marker.

6 - Altitude Pointer
Makes one revolution each one thousand feet.

7 - Barometric Setting Control
Rotate – adjusts barometric settings.

1 - Altitude Indicator
Indicates altitude in increments of twenty feet.
NEG flag in view – displays in the two left–hand windows when altitude below zero feet is displayed.

RDMI

2 - Narrow Bearing Pointer
Indicates left ADF/VOR magnetic bearing to selected station

3 - VOR/ADF Selector
Rotate – selects related VOR or ADF for the Narrow bearing pointer.

4 - Compass Card
Indicates airplane heading.

5 - VOR/ADF Selector
Rotate – selects related VOR or ADF for the Wide bearing pointer.

1 - Left/Right DME (DME –L/R) Indicators
Displays distance to VOR–tuned station or ILS–tuned station in nautical miles. Displays dashes when DME distance is not available.. Nav 1, Nav 2, ADF 1 and ADF 2 are now available.

6 - Wide Bearing Pointer
Indicates right ADF/VOR bearing to selected station

Vertical Speed Indicator

1 - Vertical Speed Pointer
Indicates rate of climb or descent from 0 to 6,000 feet per minute.

Clock

HLD – stops the elapsed time display.
RESET – (spring–loaded to HLD) returns ET display to zero.

4 - A Elapsed Time/Chronograph & Flight Sim Rate Window
Displays elapsed time in hours and minutes, or chronograph minutes. When selected, the chronograph display replaces the elapsed time display. Elapsed time continues to run in the background and displays after the chronograph is reset. Change Flight Sim rate by using click points in window

5 - SET Rate Selector
Toggles Flight Sim rate Mode.

1 - Chronograph (CHR) Switch
Initiates start, stop and reset functions of the CHR display and controls chronograph second hand.

2 - Chronograph Second Hand
Indicates seconds.

3 - Elapsed Time (ET) Selector
Controls the elapsed time function.
RUN – starts the elapsed time display.

6 - Time/Date Window
Displays time when time is selected with the date switch. Alternately displays date when date switch used. Change Flight Sim Time by using click points in window

7 - DATE Switch
Push – displays day and month, alternating with year. Subsequent push – returns display to time.

Standby Attitude Indicator

Displays airplane attitude full time

Standby Airspeed Indicator

Displays airspeed

Standby Altimeter

1 - Altitude Pointer
Makes one revolution each one thousand feet.

2 - Altitude Indicator
Indicates altitude in increments of twenty feet.

3 - Barometric Setting Window
Displays barometric correction as set by the barometric setting control.

4 - Barometric Setting Control
Rotate – adjusts barometric settings.

EADI

The EADI display is available in two configurations and can be changed using the QualityWings control panel.. The EADI on the left is the standard EADI. The EADI on the right is called the Speed Tape EADI. The EADI on the left is shown with a double cue flight director and the EADI on the right is shown with a single cue flight director. Both EADIs have the option to display a double cue flight director via the control panel.
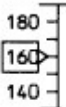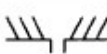
TIP: If your displays are blank (no horizon displayed), your IRS system is not aligned.
All available symbology on the EADI are shown on the following pages.
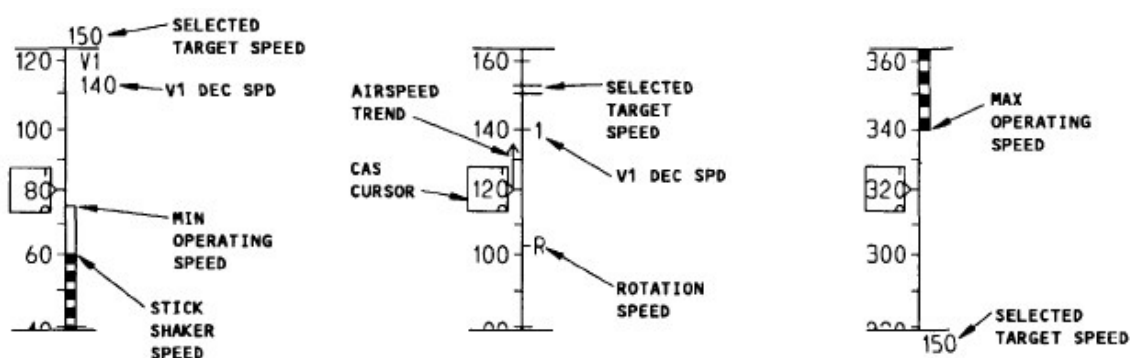
AIRSPEED DISPLAY SYMBOLS

SYMBOL	NAME	REMARKS
	AIRPLANE	WHITE AIRPLANE ATTITUDE REFERENCE
	SKY/GROUND/HORIZON LINE	CYAN SKY AND YELLOW GROUND PRODUCED BY EFIS SYMBOL GENERATOR. SKY/GROUND MOVEMENT AND WHITE HORIZON LINE.
	SPLIT AXIS FLIGHT DIRECTOR	MAGENTA SYMBOL DISPLAYED WITH FD SWITCH ON AND VALID STEERING COMMANDS AVAILABLE.
	PITCH SCALE	WHITE (±90°) 0° INDICATED BY HORIZON LINE
	ROLL SCALE, POINTER AND INDEX	WHITE SCALE (±60°), POINTER AND INDEX POINTER.
	STANDARD LOC SCALE AND POINTER	WHITE SCALE AND MAGENTA POINTER. POINTER DISPLAYED WHEN VALID ILS DATA IS RECEIVED. POINTER REMOVED FOR NCD
	GLIDE SLOPE SCALE AND POINTER	WHITE SCALE AND MAGENTA POINTER. POINTER DISPLAYED WHEN VALID ILS DATA IS RECEIVED. POINTER REMOVED WHEN NO VALID ILS DATA IS RECEIVED.
DH100 1750	NUMERICAL DECISION HEIGHT AND RA DISPLAY	GREEN DECISION HEIGHT SELECTED ON EFIS CONTROL PANEL. WHITE RA (+1000 TO +2500 FT) FROM RADIO ALTIMETER SYSTEM
GS 250	GROUND SPEED	WHITE DISPLAY OF CALCULATED GROUND SPEED (KNOTS)
FD	AFDS STATUS MODE	GREEN DISPLAY FOR ENGAGED MODE (AFDS)
LOC	ROLL MODE ARMED	WHITE DISPLAY FOR ARMED ROLL MODE (AFDS)
G/S	PITCH MODE ARMED	WHITE DISPLAY FOR ARMED PITCH MODE (AFDS)
LNAV	ROLL MODE ENGAGED	GREEN DISPLAY FOR ENGAGED ROLL MODE (AFDS)
VNAV	PITCH MODE ENGAGED	GREEN DISPLAY FOR ENGAGED PITCH MODE (AFDS)
SPD	A/T MODE	GREEN DISPLAY FOR A/T MODE (TMS)
A/T	TMS STATUS MODE	GREEN DISPLAY FOR ENGAGED MODE (TMS)

	MODE CHANGE HIGHLIGHT	GREEN BOX AROUND MODE ANNUNCIATION FOR TEN SEC AFTER CHANGE TO VALID MODE
180 160 140	AIRSPEED TAPE AND ROLLING DIGIT CAS CURSOR	WHITE AIRSPEED TAPE MOVES AGAINST FIXED WHITE CAS CURSOR WITH ROLLING DIGITS. SPEED SCALE NUMBERS ALSO ARE IN WHITE. SPEED SCALE BELOW 30 KTS IS BLANK. WHEN THE SPEED IS EQUAL TO OR LESS THAN 30 KTS (OR NCD), THE TAPE INDICATES 30 KTS. (ADC)
.765	MACH DISPLAY	CURRENT MACH NUMBER DISPLAYED BY WHITE NUMERICS. DISPLAYED FOR MACH $\geq$ 0.400.
= 250	SELECTED TARGET SPEED	MAGENTA INDEX PLACED AGAINST RESPECTIVE READING ON AIR-SPEED TAPE. REPLACED BY MAGENTA THREE-DIGIT DISPLAY WHEN SELECTED TARGET SPEED IS OFF-SCALE. DIGITAL DIS-PLAY IS PLACED IMMEDIATELY BELOW AIRSPEED TAPE FOR A VALUE LESS THAN THE CURRENT SPEED AND ABOVE AIR-SPEED TAPE FOR A VALUE GREATER THAN THE CURRENT SPEED. MOTION CONTROL IS FROM AFDS-MCP.
	MAXIMUM OPERATING SPEED	RED/BLACK SYMBOL PLACED ALONGSIDE UPPER PORTION OF AIR-SPEED TAPE. BOTTOM EDGE INDICATES MAX. OPERATING SPEED.
-1 V1 140	DECISION SPEED (V1)	GREEN SYMBOL "-1" IS PLACED AGAINST AIRSPEED TAPE. IF OFF SCALE, THIS INDICATION IS REPLACED BY DISPLAY "V1" AND V1 SPEED VALUE ON THE LINE BELOW, INSIDE THE TOP OF THE AIRSPEED TAPE.
-R	ROTATION SPEED (VR)	GREEN SYMBOL PLACED AGAINST AIRSPEED TAPE
	MINIMUM OPERATING SPEED	YELLOW BAND PLACED ALONGSIDE LOWER PORTION OF AIRSPEED TAPE. UPPER EDGE INDICATES MIN OPERATING SPEED.
	STICK SHAKER SPEED	RED/BLACK SYMBOL PLACED ALONGSIDE LOWER PORTION OF AIR-SPEED TAPE. TOP EDGE INDICATES APPROX STICK SHAKER SPEED.
↑	AIRSPEED TREND	GREEN SYMBOL PLACED LEFT AND ALONGSIDE OF AIRSPEED TAPE. LENGTH OF SYMBOL IS PROPORTIONAL TO TREND VALUE. ARROWHEAD TIP INDICATES PROJECTED AIRSPEED AFTER 10 SEC. ARROW POINTS UPWARD FOR ACCELERATION, DOWNWARD FOR DECELERATION. IF TREND IS < 3.5 KTS, SYMBOL IS REMOVED. IF TREND IS > 4.5 KTS, SYMBOL IS DISPLAYED. IF TREND IS $\geq$ 42 KTS, 42 KT TREND IS INDICATED.
↘↙ ↗↗	PITCH LIMIT	YELLOW SYMBOL. READOUT AGAINST PITCH SCALE. BOTTOM EDGE OF SYMBOL INDICATES APPROX PITCH MARGIN TO STICKSHAKER.

EFIS Control Panel

PLAN – Displays a true north oriented map of the current FMC route. The FMC LEGS page displays <STEP> to cycle through and display each waypoint in the route.

3- Map Display Switches
Toggle on/off extra information in the MAP mode.
NAV AID – Displays VORs within the selected range. Low altitude VORs are inhibited in the 80, 160, and 320-mile range displays.
ARPT – Displays airports within the selected range.
WPT - Displays waypoints within the selected range. Waypoint display is only available in the 10, 20 and 40-mile range displays.
DATA -

4 – Decision Height Reference Window
Displays Decision Height as selected by the Decision Height Select Switch

1 – Range Control
Selects the range for selected mode. TFC button displays TCAS targets Read more about TCAS **here.**

2 - Display Mode Control:
Selects desired display mode on the EHSI.
VOR and ILS – Displays VOR or ILS course needles on an expanded or full compass rose. The expanded mode displays only 70° of the compass rose. Expanded and Full Modes are controlled by pushing the CTR switch
MAP – Displays a track oriented display of the FMC programmed route. Displays data selected using the MAP buttons on the control panel.

5 - Decision Height Select Switch
Selects Decision Height

6—WXR Switch
Turns on Range marks

EHSI

The EHSI has several display modes, which are controlled via the EFIS Control panel. The available display modes are: VOR, APP, Map and Plan. The VOR and APP Modes are available in both FULL and Expanded modes while the MAP and PLAN modes are only available in Expanded mode. Read more about the EFIS Control panel here.

EHSI VOR-EXP MODE

EHSI ILS-EXP MODE

EHSI VOR-FULL MODE

EHSI ILS-FULL MODE

EHSI DISPLAY (MAP MODE)

EHSI DISPLAY (PLAN MODE)

All available symbology on the EHSI are shown on the following pages. There are different symbols depending on the mode selected

EHSI VOR/APP Modes (Full and Expanded Symbology)

EHSI VOR-EXP MODE   EHSI ILS-EXP MODE   EHSI VOR-FULL MODE   EHSI ILS-FULL MODE

SYMBOL	NAME	COLOR	APPLICABLE MODE	REMARKS
△	AIRPLANE SYMBOL	WHITE	VOR (EXP) ILS (EXP)	AIRPLANE POSITION IS INDICATED BY THE APEX OF THE TRI-ANGLE. THE APEX OF THE AIRPLANE SYMBOL IS THE CENTER OF ROTATION AND TRANSLATION FOR ALL THE BACKGROUND AND DYNAMIC SYMBOLS.
HDG ⌊263⌋ M	HEADING - ORIENTATION INDICATOR AND REFERENCE (MAG HEADING)	GREEN - (HDG AND M) WHITE -(HDG BOX)	VOR, ILS	INDICATES NUMBER UNDER POINTER IS A HEADING. BOX DIS-PLAYS ACTUAL HEADING.
DME 200	DISTANCE DISPLAY	WHITE	VOR, ILS	DISPLAYS DISTANCE TO NEXT TUNED NAVAID.
⌣ 24 27	EXPANDED COMPASS ROSE	WHITE	VOR (EXP) ILS (EXP)	COMPASS DATA IS PROVIDED BY THE SELECTED IRS. 360° ARE AVAILABLE BUT APPROXIMATELY 70° ARE DISPLAYED.
⌐	SELECTED HEADING MARKER	MAGENTA	VOR (EXP) ILS (EXP)	MANUALLY POSITIONED BY HEADING SELECTOR ON MCP. AUTOMATICALLY REPOSITIONED TO SELECTED LOCALIZER COURSE UPON LOCALIZER CAPTURE (ILS MODE).
%⁄ ° °	COURSE DEVIATION	WHITE - (SCALE)	VOR	WHEN THE VOR MODE IS SELECTED, VOR COURSE DEVIATION IS DISPLAYED.
	LOCALIZER DEVIATION	MAGENTA - (BAR)	ILS	WHEN THE ILS MODE IS SELECTED, ILS COURSE DEVIATION IS DISPLAYED.
° D□ ° °	GLIDESLOPE DEVIATION	WHITE - (SCALE) MAGENTA - (POINTER)	ILS	DISPLAYS GLIDESLOPE DEVIATION IN ILS MODE. ONE DOT EQUALS APPROXIMATELY 0.35 DEGREES. GS POINTER REMOVED FOR BACK COURSE OPERATION.
⟋⟋	COURSE SELECT POINTER	MAGENTA - (LINE)	VOR (EXP)	INDICATES SELECTED VOR COURSE.
	RUNWAY HEADING POINTER	WHITE - (POINTER)	ILS (EXP)	INDICATES SELECTED RUNWAY HEADING FOR FRONT COURSE APPROACH.
VOR 1	SELECTED NAV RADIO	GREEN	VOR	DISPLAYS SELECTED NAV RADIO BASED ON EFIS CP SELECTION.
ILS 1		GREEN	ILS	
110.10	FREQUENCY DISPLAY	GREEN	ILS	DISPLAYED SELECTED VOR OR ILS FREQUENCY
FROM ⟨TO⟩	TO/FROM ANNUNCIATOR	GREEN	VOR (EXP)	INDICATES AIRPLANE FLYING TO OR FROM THE SELECTED VOR STATION.
↘ 120°/20	WINDSPEED AND DIRECTION	WHITE	VOR, ILS	INDICATES WIND SPEED IN KNOTS AND WIND DIRECTION WITH RESPECT TO THE DISPLAY REFERENCE (MAGNETIC OR TRUE NORTH REFERENCE).
⥮ ⥅	VOR/ADF BEARING POINTERS	GREEN (VOR) BLUE (ADF)	VOR, ILS	DIRECTION TO/FROM SELECTED VOR/ADF STATION.
⊢⊣	AIRPLANE SYMBOL	WHITE	VOR (FULL) ILS (FULL)	AIRPLANE POSITION IS INDICATED BY THE SYMBOL. THE AIRPLANE SYMBOL IS THE CENTER OF ROTATION AND TRANSLATION FOR ALL THE DYNAMIC SYMBOLS.
⊙	FULL COMPASS ROSE DISPLAY	WHITE	VOR (FULL) ILS (FULL)	DISPLAYS 360° OF IRS COMPASS DATA.
3	SELECTED HEADING MARKER	MAGENTA	VOR (FULL) ILS (FULL)	MANUALLY POSITIONED BY HEADING SELECTOR ON MCP. AUTOMATICALLY REPOSITIONED TO SELECTED LOCALIZER COURSE UPON LOCALIZER CAPTURE (ILS MODE).
⟋	COURSE SELECT POINTER	WHITE	VOR (FULL)	INDICATES SELECTED VOR COURSE.
	RUNWAY HEADING POINTER		ILS (FULL)	INDICATES SELECTED RUNWAY HEADING FOR FRONT COURSE APPROACH.
▽ ⟨△⟩ FROM ⟨TO⟩	TO/FROM ANNUNCIATOR	WHITE	VOR (FULL)	INDICATES AIRPLANE FLYING TO OR FROM THE SELECTED VOR STATION.
TAS 210	TRUE AIRSPEED	WHITE	VOR, ILS	INDICATES TRUE AIRSPEED

EHSI MAP/PLAN Modes Symbology

EHSI DISPLAY (MAP MODE)   EHSI DISPLAY (PLAN MODE)

SYMBOL	NAME	COLOR	APPLICABLE MODE	REMARKS
△	AIRPLANE SYMBOL	WHITE	MAP	AIRPLANE POSITION IS INDICATED BY THE APEX OF THE TRIANGLE. THE APEX OF THE AIRPLANE SYMBOL IS THE CENTER OF ROTATION AND TRANSLATION FOR ALL THE BACKGROUND AND DYNAMIC SYMBOLS.
	CURVED TREND VECTOR	WHITE	MAP	THE THREE SEGMENT CURVE PREDICTS DIRECTIONAL TREND. IT IS BASED ON PRESENT POSITION, GROUND SPEED AND CROSSTRACK ACCELERATION AT THE END OF 30, 60 AND 90 SECOND INTERVALS.
80	PRESENT TRACK, STRAIGHT TREND, AND RANGE SCALE	WHITE	MAP	MAGNETIC TRACK WHICH WILL RESULT WITH PRESENT HEADING AND WINDS. DISPLAYED RANGE IS ONE-HALF THE ACTUAL SELECTED RANGE.
TRK ⌊252⌋M	TRACK – ORIENTATION INDICATOR AND REFERENCE (MAG HEADING)	GREEN – (TRK AND M)	MAP, PLAN	INDICATES NUMBER UNDER POINTER IS A HEADING. BOX DISPLAYS ACTUAL HEADING.
39.6 ʀ	DISTANCE DISPLAY	WHITE	MAP, PLAN	DISTANCE TO NEXT FMC WAYPOINT (NM).
0835.4z	ETA DISPLAY	WHITE	MAP, PLAN	INDICATES TIME TO NEXT ACTIVE WAYPOINT.
80	RANGE-TO-ALTITUDE ARC (NOT SHOWN)	GREEN	MAP	CURVED ARC REPRESENTS THE POINT WHERE THE REFERENCE ALTITUDE WILL BE REACHED IF CURRENT VERTICAL & LATERAL FLIGHT PATH ANGLES ARE MAINTAINED.
	EXPANDED COMPASS ROSE	WHITE	MAP, PLAN	COMPASS DATA IS PROVIDED BY THE SELECTED FMC. 360° ARE AVAILABLE BUT APPROXIMATELY 70° ARE DISPLAYED.
	SELECTED HEADING MARKER AND LINE	MAGENTA	MAP, PLAN	MANUALLY POSITIONED BY HEADING SELECTOR ON MCP.
120°/20	WINDSPEED AND DIRECTION	WHITE	MAP	INDICATES WIND SPEED IN KNOTS AND WIND DIRECTION WITH RESPECT TO THE MAP DISPLAY REFERENCE (MAGNETIC OR TRUE NORTH REFERENCE).
ACY WPT08 SBY	ROUTE	ACTIVE – MAGENTA CHANGES – CYAN	MAP, PLAN	THE ACTIVE ROUTE IS DISPLAYED WITH CONTINUOUS LINES BETWEEN WAYPOINTS. CHANGES TO THE ACTIVE ROUTE ARE DISPLAYED WITH SHORT DASHES BETWEEN WAYPOINTS. WHEN A CHANGE IS ACCEPTED IN THE FMC, THE SHORT DASHES ARE REPLACED WITH A CONTINUOUS LINE.
✦ HAR	WAYPOINT	——	MAP, PLAN	ACTIVE WAYPOINTS – MAGENTA. ROUTE WAYPOINTS – WHITE. IDENTIFIER LISTED BELOW – RIGHT
⎍⎍ ⍑⍑	VOR/ADF BEARING POINTERS	GREEN (VOR) BLUE (ADF)	MAP, PLAN	DIRECTION TO/FROM SELECTED VOR/ADF STATION.
	VERTICAL DEVIATION SCALE AND POINTER	WHITE – SCALE MAGENTA – POINTER	MAP	DISPLAYS VERTICAL DEVIATION FROM SELECTED VERTICAL PROFILE IN MAP MODE. FULL SCALE EQUALS 400 FEET DEVIATION.
◎	NONDIRECTIONAL BEACON (NDB) (NOT SHOWN)	GREEN	MAP, PLAN	NAVIGATION
	HOLDING PATTERN (NOT SHOWN)		MAP, PLAN	DISPLAYED WHEN FMC IS ACTIVELY ENGAGED TO FOLLOW A HOLDING PATTERN.
22L	AIRPORT AND RUNWAY (NOT SHOWN)	WHITE	MAP, PLAN	SELECTED ON FMC CDU; WHEN EHSI RANGE IS 10,20, OR 40 NM.
○ T/D ○ T/C	ALTITUDE PROFILE POINTS (NOT SHOWN)	GREEN	MAP	CALCULATED BY FMC T/D (TOP-OF-DESCENT), T/C (TOP-OF-CLIMB).
N ↑	NORTH-UP POINTER	GREEN	PLAN	NOTES PLAN MODE IS NORTH UP PRESENTATION.

Caution/Warning Annunciator Panel

Red Warning Annunciators indicate an abnormal condition requiring IMMEDIATE action. Red annunciations are also accompanied by an associated Level A EICAS message and Aural warning.

Amber Caution Annunciators indicate a condition requiring IMMEDIATE crew awareness and future action. Amber annunciations are also accompanied by an associated Level B EICAS message and Aural warning.

You can find more information about the EICAS system here.

CONFIG (Associated EICAS message depends on condition causing config problem. See below)
Indicates that the aircraft is in an unsafe Takeoff or landing condition. There are several conditions which may cause this annunciator to come Illuminate.
<u>For Takeoff</u>
Aircraft on the ground and N1 greater than 67 % and one of the following:
- Flaps not in Takeoff position. Red FLAPS EICAS message will show.
- Stabilizer not in green band. Red STABILIZER EICAS message will show.
- Parking Brake Set. Red PARKING BRAKE EICAS message will show
- Spoilers not stowed. Red SPOILER EICAS message will show
<u>For Landing</u>
Aircraft in-flight with the Landing Gear not down and one of the following:
- Flaps set to landing position (25 or 30 degrees)
- Thrust levers set to Idle and Radio Altitude below 800 feet

A/P DISC (Associated EICAS message: AUTOPILOT)
Illuminates for 5 seconds after Autopilot is disengaged.

OVSPD (Associated EICAS message: OVERSPEED)
Illuminates for the duration of an aircraft Overspeed condition.

SPEEDBRAKES (Associated EICAS message: SPEEDBRAKES)
Illuminates if speedbrakes are extended and Radio Altitude is below 800 feet

CABIN ALT (Associated EICAS message: CABIN ALTITUDE)
Illuminates if above 10,000 feet and No Air Conditioning Pack is on

A/T DISC (Associated EICAS message: AUTOTHROTTLE)
Illuminates for 5 seconds after Autothrottle is disarmed if operating in an autothrottle mode.

FMC
Illuminates when there is a FMC generated message on the FMC CDU

ALT ALERT (New for SP3)
Illuminates if aircraft altitude deviates more than 300 feet away from MCP Selected Altitude. Alert will extinguish if aircraft deviation continues greater than 700 feet from MCP altitude., Inhibited with landing gear down.

Standby Engine Indicator

            Indicator OFF   Indicator ON

ON/OFF Switch
Turning on allows for display of select engine parameters. Turning Off hides these parameters

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Autobrakes Panel
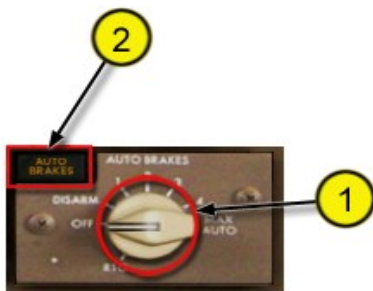
1—Autobrakes Selector Switch
Used to select Takeoff (RTO) and Landing (1-2-3-4-Max Auto) Autobrakes modes. OFF position prevents/disarms Automatic braking.
RTO: Will apply brakes automatically to a full stop if a rejected takeoff occurs.
1-2-3-4-Max Auto: Will apply brakes automatically on touchdown. Autobrakes 1 will require the longest rollout distance while Max Auto requires the shortest distance.
2—AUTOBRAKES Annunciator
Illuminates briefly when the autobrakes are disarmed from Landing mode

Autobrakes System Refresher

The autobrakes system automatically applies the wheel brakes to a complete stop. Interface with the system is via the Autobrakes Control panel located on the Main Panel. Autobrakes allows the pilot to choose from varying levels of deceleration rates for landing and also has takeoff mode called RTO (Rejected Takeoff Mode).

RTO Mode is only available on the ground. Part of the preflight involves selecting the RTO mode on the panel. During takeoff roll if the throttles are retarded to idle after the aircraft has reached 85 knots, the brakes are automatically applied to the maximum setting to stop the aircraft as quickly as possible.

Landing Modes are 1-2-3-4-Max Auto. Prior to landing, the pilot selects the desired landing mode. After touchdown and thrust levers at idle, brakes are automatically applied at the selected deceleration rate.

L (R) Engine Oil Pressure Lights

Lights are illuminated when the engines are shutdown only. Low Oil Pressure conditions with the engine running are NOT simulated

Flap Position Indicator

Indicator Needle
The needle indicates the position of the flaps.
Flap Placard Speeds
The speed listed outside of the gauges are called Flap Placard Speeds. The flaps should not be extended when the aircraft speed is equal to or greater than the speed listed at the applicable flap position. For example, 220K shows above Flaps 5. Do not extend flaps to the 5 position ntil speed is below 220 knots

Flap Load Relief System
The flap load relief system protects the flaps from excessive air loads. If the flap airspeed placard limit is exceeded with the flaps in the 30 position, the flaps automatically retract to position 25. When airspeed is reduced, the flaps automatically re-extend.
This system is simulated on the exterior model and on the flap position indicator.

The EADI Speedtape displays Flap Placard Overspeed limits, but will not trigger OVERSPEED message.

VOR/ILS Navigation Control Panel (Nav 1)
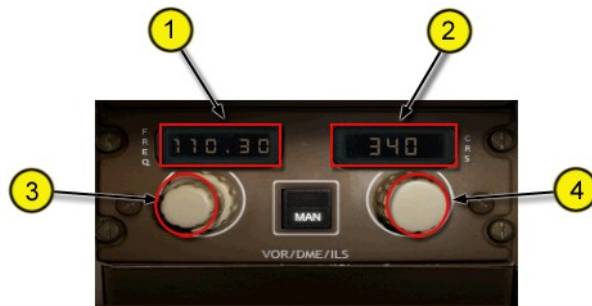
1 - Frequency Window
Displays selected #1 VOR or ILS frequency
2 - Course Window
Displays selected course
3 - Frequency Select Knob
Used to change VOR/ILS frequency
4 - Course Select Knob
Used to change course

.

Landing Gear Control Lever

The 3-position lever controls the position of the Landing Gear.
UP - Retracts the Landing gear (in the air)
DOWN - Extends the Landing Gear
OFF - Used to simulate procedure used on 757 to remove hydraulic power from landing gear. No Flight sim function or consequence if OFF position is not used.

Gear Placard Speeds
The speeds posted next to the respective gear positions are the maximum airspeeds in which the gear should be operated.
When retracting the gear, airspeed should be below 270 knots.
When extending the gear (or operating with gear extended), the airspeed must be below 270 knots

The EADI Speedtape displays Gear Placard Overspeed limits, but will not trigger OVERSPEED message.

Marker Beacon Lights

INNER/AIRWAYS Marker Beacon Light
Illuminated (white) – over an inner or airways marker beacon.
MIDDLE Marker Beacon Light
Illuminated (amber) – over a middle marker beacon.
OUTER Marker Beacon Light
Illuminated (blue) – over an outer marker beacon.

Landing Gear Position Indicator Lights

NOSE, LEFT & RIGHT Annunciators
Illuminated to show landing gear s down and locked.
Extinguished when gear is in transit and UP
GEAR & DOOR Annunciators
Illuminated to show landing gear doors and landing gear are in transit during extension and retraction. Extinguished when gear doors are up and gear is in commanded position.

EICAS Displays

The Upper and Lower EICAS displays show information about the engines and various systems.

Upper Display
The Upper EICAS display shows the Primary Engine parameters and Automatic Alerting EICAS messages. Primary engine parameters on the Boeing 757 aircraft which are: EPR, N1 and EGT.
The EICAS messages display status of various systems and are divided into 3 categories: Level A, B and C messages.

- Level A messages (Red) are the highest priority of the messages. These messages are accompanied by a Siren sound.
- Level B messages (Amber) are the 2nd highest priority of the messages. These messages are accompanied by an Owl sound.
- Level C messages (Amber) are the lowest priority messages as they only require crew attention. They are indented one space to distinguish from the same colored Level B messages. No aural tones are generated for this level EICAS message.

Level B and C messages can be hidden and recalled using the Cancel/Recall switches.
For more information on the Cancel/Recall switches, click here.
For a full list of the EICAS messages that we've simulated, click here.

PRIMARY ENGINE PAGE
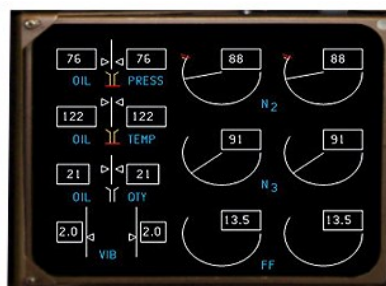
SECONDARY ENGINE PAGE
(BOTTOM DISPLAY)
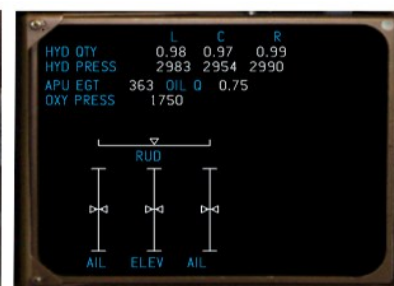
STATUS PAGE
(BOTTOM DISPLAY)

Lower Display

The lower EICAS has 2 display modes: Engine Page and the Status Page. The engine page shows secondary engine parameters which are N2, N3, Fuel flow Oil Temperature, Oil Pressure, Oil Quantity & Engine Vibration. Oil Quantity and Engine vibration parameters are static and not simulated.

The Status Page shows Flight Control position information. All other data on this page is static and not simulated. Switching between Engine and Status pages is accomplished via the Engine/Status Switches.

For more information on the Engine/Status Switches, click here.

Upper EICAS Display Symbology
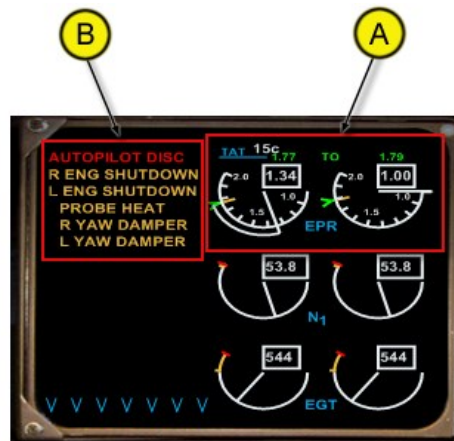
SYMBOL	NAME	REMARKS
(A) EPR INDICATOR		
2.0 1.28 1.5 1.0	ACTUAL EPR	COLOR – WHITE FUNCTION – SHOWS ACTUAL THRUST WITH BOTH ANALOG POINTER AND DIGITAL READOUT
	COMMAND SECTOR	COLOR – WHITE FUNCTION – SHOWS MOMENTARY DIFFERENCE BETWEEN COMMANDED THRUST AND ACTUAL THRUST
150	REFERENCE TARGET READOUT AND CURSOR	COLOR – READOUT IS GREEN – CURSOR IS PINK (FMC) OR GREEN (TMC OR MANUAL CONTROL) [2] FUNCTION – SHOWS TARGETED THRUST
+20 D-TO	SELECTED THRUST MODE AND DERATE TEMPERATURE	COLOR – GREEN FUNCTION – SHOWS SELECTIONS MADE ON THRUST MODE SELECT PANEL
REV	THRUST REVERSER READOUT	COLOR – GREEN (DEPLOYED) OR YELLOW (INTRANSIT) FUNCTION – SHOWS POSITION OF THRUST REVERSERS. BLANK FOR INFLIGHT MODE.
TAT+12C	TOTAL AIR TEMPERATURE	COLOR – WHITE FUNCTION – SHOWS TOTAL AIR TEMPERATURE AS CALCULATED BY ADC
(B) AUTOMATIC ALERTS		
AUTOPILOT DISC L ENG SHUTDOWN PARKING BRAKE	ALERT MESSAGES	COLOR – WARNINGS ARE RED – CAUTIONS AND ADVISORIES ARE YELLOW FUNCTION – SEE TEXT

EICAS Message List

Level A Warning EICAS Messages
These messages are accompanied by the Level A siren sounds

AUTOPILOT DISC
All autopilots disconnected

CABIN ALTITUDE
Illuminates if above 10,000 feet and No Air Conditioning Pack is on

FLAPS
Flaps are not in a takeoff position and at least one engine has takeoff thrust

GEAR NOT DOWN
A gear is not down and locked and a condition that follows continues:
1) Trailing edge flaps are set to 25 or 30 degrees
2) The two thrust levers are set to idle and the radio altitude is below 800 feet (244 meters)
3) At least one thrust lever is set to idle, the radio altitude is below 800 feet, and the 140 second time delay is complete

OVERSPEED
The airplane speed is larger than the maximum operating velocity/maximum operating mach (VMO/MMO)

PARKING BRAKE
The parking brake is set and one or two engines have takeoff thrust

SPOILERS
An engine is set to takeoff thrust and the spoilers are not in a takeoff position

STABILIZER
An engine is set to takeoff thrust and the stabilizer is not in a takeoff position

Level B Caution EICAS Messages
These messages are accompanied by the Level B owl sounds

AUTOTHROT DISC
The autothrottle was disengaged

L (R) ENG SHUTDOWN
The left or right engine has been shutdown

L (R) FUEL SYS PRESS
The left or right Fuel system pressure is low. This message is inhibited with a crossfeed valve open

L (C, R) HYD SYS PRESS
The left, center or right hydraulic system pressure is below 1500 PSI. Each system has 2 pumps. Both pumps would have to be off for the system to be in a low pressure situation

LOW FUEL
The total fuel quantity is less than 2200 lbs [1000 Kg])

Level C Advisory EICAS Messages
These messages are NOT accompanied by any sounds

BATTERY OFF
Battery switch off

C HYD ELEC 1(2)
The center electrical pump 1 or 2 output pressure is low

CARGO DOORS
ENTRY DOORS
Two or more cargo doors are open. One or more entry doors are open

CTR L (R) FUEL PUMP
The center left or right fuel pump output is low

EMER LIGHTS
The Emergency Lights Switch is Disarmed

L (R) ENG ANTI-ICE
The left or right engine anti-ice switch is on and the engine is not running. ETAI only available during eng operation.

FMC MESSAGE
The flight management system has an important message

L (R) AFT FUEL PUMP
L (R) FWD FUEL PUMP
Left or Right Aft or Forward Fuel Pump output pressure is low.

L (R) GEN OFF
Left or Right engine generator switch is off

L (R) HYD ELEC PUMP
L (R) HYD ENG PUMP
Left or Right Electric or Engine Hydraulic Pump output pressure is low.

L (R) PACK OFF
The left or right air conditioning pack is off

PARKING BRAKE
The parking brake is set

STANDBY BUS OFF
The Standby power Switch is in the off position

L (R) YAW DAMPER
Left or right yaw damper is off

WING ANTI-ICE
The Wing Anti-Ice switch is on wand the aircraft is on the ground. Wing anti-ice only available in the air.

L (R) UTIL BUS OFF
The Left or right utility bus switch is off

EICAS Display Select Switches

Engine Page Button
Sets the Lower EICAS Display to show the Engine page
Status Page Button
1st Click—Displays the Status page. 2nd Click—blanks lower display. 3rd Click—Restores Engine Data

SimIcons

QW	Displays/Hides QualityWings Control Panel	PF	Displays/Hides Magnified PFD (Retro ONLY)
O	Displays/Hides Overhead Panel	ND	Displays/Hides Magnified ND (Retro ONLY)
	Displays/Hides Throttle Quadrant Center Console	E1	Displays/Hides Magnified Upper EICAS
A	Displays/Hides Radio Stack	E2	Displays/Hides Magnified Lower EICAS
ADI	Displays/Hides Magnified EADI	FMS	Displays/Hides FMCS Control Display Unit
HSI	Displays/Hides Magnified EHSI	EFIS	Displays/Hides EFIS Control Panel
T	Displays/Hides Rudder/Aileron Trim Panel	L	Displays/Hides Lighting Panel. (Non HD Pnls Only)
A	Displays/Hides Approach View Panel	✔	Displays/Hides Checklist Panel

EICAS Cancel/Recall Switches

Switches are used to Display/Hide Level B and C EICAS messages on the Upper EICAS display. Level A Warnings CANNOT be hidden.
CANCEL - Hides (Clears) any Level B and C EICAS messages displayed on Upper EICAS This Does NOT correct the condition. It only clears the display.
RECALL - Displays any Level B and C EICAS messages that were previously cancelled.

Master Warning/Caution Annunciator

WARNING
Illuminates whenever a Level A Warning is generated. Extinguishes automatically when the condition causing the warning no longer exists
CAUTION
Illuminates whenever a Level B Caution is generated. Extinguishes automatically when the condition causing the caution no longer exists

Autoflight Mode Control Panel
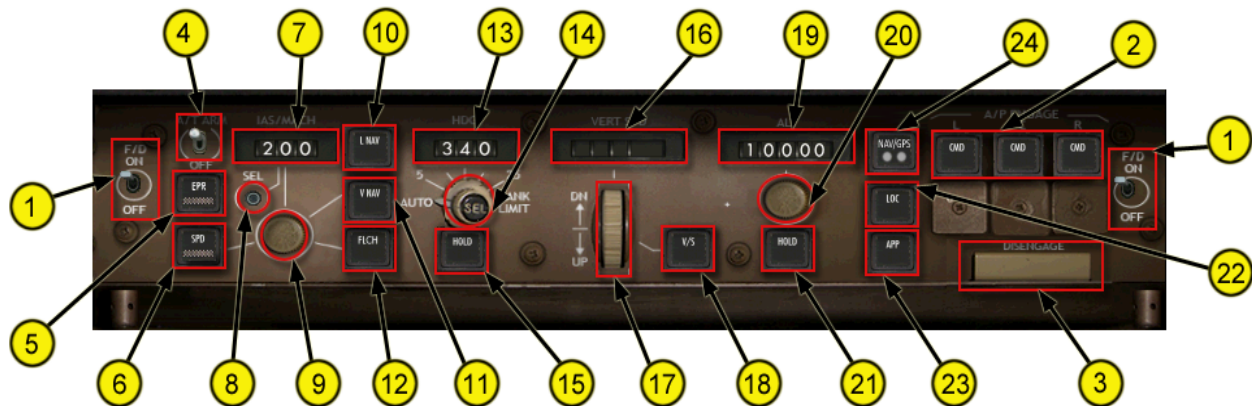
The MCP provides control of the autopilot, flight director and autothrottle systems. The MCP selects and activates AFDS modes, and establishes altitudes, speeds, and climb/descent profiles.

MCP Mode Switch Lights
All MCP mode switches contain a light that appears when the mode switch is engaged to show the mode is selected or armed. The switch lights are shown on the EPR (5) and SPD (6) switches on graphic above

Autopilot Flight Director System (AFDS) Controls

1 - Flight Director (F/D) Switches
The left and right flight director switches activate flight director steering indications on the EADI/Primary Flight Display (PFD)
ON
• Command bars operate in current AFDS mode.
• FD displays on FMA.
• Switches come on automatically upon selection of an A/P mode
OFF
• Flight director steering indications do not display

2 - Autopilot (A/P) ENGAGE Switches
Push (any switch can engage the autopilot) –
• CMD displays on FMA.
• V/S as the pitch mode and HDG HOLD as the roll mode.
• Autopilot engagement inhibited below 400 feet radio altitude in Standard Panel Mode. Always available in Lite Panel Mode.
• Only one autopilot can be engaged at a time UNLESS APP mode selected prior (Multichannel Approach)

3 - Autopilot DISENGAGE Bar
Push down –
• Disengages autopilot(s).
• Automatically returns to Up position after 5 seconds allowing for Autopilot re-engagement

Autothrottle (A/T) System Controls

4 - Autothrottle (A/T) ARM Switch
ARM –
- Arms autothrottle system for mode selection.
- Autothrottle operates when EPR, SPD, VNAV or FLCH switch pushed.
-
OFF –
- Disconnects autothrottle and prevents autothrottle engagement.

5 - Engine Pressure Ratio (EPR) Switch
Push –
- Selects autothrottle EPR mode.
- EPR annunciates on each FMA.
- Autothrottle holds reference thrust value displayed on EICAS subject to maximum speed limits.

6 - Speed (SPD) Switch
Push –
- Selects autothrottle SPD mode.
- SPD appears on FMA.
- Autothrottle controls thrust to maintain IAS or MACH displayed in the speed window

Autopilot Flight Director IAS/MACH Controls

7 - IAS/MACH Window
- Displays selected speed when IAS/MACH selector controls command speed.
- Displays 200 knots when power first applied.
- Blank when FMC controls speed.

· Display range:
- 100 – 399 KIAS
- 0.40 – 0.95 MACH

8 - Select (SEL) Switch
Push –
- Alternately changes the IAS/MACH window between IAS and MACH.

9 - IAS/MACH Selector
Rotate –
- Sets speed in IAS/MACH window and positions command airspeed bugs.
- Inoperative when IAS/MACH window blank.
- Left click changes increment by 1's and by 10's when right clicked.

Autopilot Flight Director Roll and Pitch Controls

10 - Lateral Navigation (LNAV) Switch
Push –
Arms or engages AFDS in LNAV as follows:
- If the active route leg is beyond the turning radius of the airplane, LNAV annunciates on both FMAs.

Previously engaged roll modes remain active.
- Selection of LNAV with the airplane not on a heading, which intercepts the active leg, the FMC MSG lights illuminate and NOT ON INTERCEPT HEADING appears in the both CDU scratch pads.
- If the active route leg is within the turning radius of the airplane, LNAV annunciates on each FMA.

LNAV deactivates:
- By selecting HDG HOLD or HDG SEL.
- When localizer is captured.
- By pushing LNAV switch a second time.

11 - Vertical Navigation (VNAV) Switch
Push –
- engages AFDS and A/T in VNAV mode.
- VNAV PTH or VNAV SPD displays on each FMA.
- AFDS and autothrottle follow vertical path and thrust guidance from FMCS. During climbs or descents, AFDS captures and holds altitude displayed in altitude window or FMC target altitude, whichever is reached first. With VNAV engaged, pushing IAS/MACH selector permits manual speed selection. The FMS then use manually selected speeds for speed control.

VNAV deactivates:
- by selecting FL CH, SPD or EPR, V/S, ALT HOLD or APP
- by pushing VNAV switch a second time.
- in climb or descent, reaching altitude displayed in altitude window prior to reaching FMC target altitude.
- passing top of descent point if the MCP is not set to an altitude below cruise altitude.

12 - Flight Level Change (FL CH) Switch
Push –
- New for SP3: A/P engagement no longer necessary. A/T MUST however be armed!
- Selects FLCH mode and sets IAS/MACH window and command airspeed bugs to current airspeed.
- FLCH displays on each FMA.
- Will not engage if current airspeed is less than 160 knots or greater than 350 knots. Speed up or slow down prior to engaging FLCH is these situations
- AFDS pitch holds existing airspeed and A/T sets required thrust, limited by the thrust limit for climb and idle for descent. When selected altitude is reached, pitch mode changes to ALT HOLD and A/T changes to SPD mode.
- Changes thrust reference from TO to CLB. TMSP mode cannot be changed while in FLCH.
- With FLCH mode displayed, pushing switch resets IAS/MACH window and commands airspeed bugs to current airspeed, SPD and ALT HOLD modes.

Autopilot Flight Director Heading and Bank Angle Controls

13 - Heading (HDG) Window
- Displays selected heading and positions map display selected heading markers.
- Automatically changes to ILS front course heading at LOC capture.

14 - Heading Select (SEL) Switch
Push –
- Engages HDG SEL roll mode.
- HDG SEL roll mode displays on each FMA.
- AFDS controls roll to acquire and hold heading shown in heading window.
- Bank is limited to 25. Bank Limit which is NOT selectable.
- Left click changes increment by 1's and by 10's when right clicked.

15 - Heading HOLD Switch
Push –
- Selects HDG HOLD roll mode and displays on each FMA.
- AFDS rolls wings level, then holds present heading.

Autopilot Flight Director Vertical Speed (V/S) Controls

16 - Vertical Speed (VERT SPD) Window
- Displays selected vertical speed.
- Blank when V/S pitch mode not selected.
- Display range is from (–8000 to +6000 fpm) in 100 fpm increments.

17 - Vertical Speed Selector (DN/UP)
- UP or Down (DN) – sets vertical speed in VERT SPD window.

18 - Vertical Speed (V/S) Switch
Push –
- Selects V/S pitch mode, displays on FMA pitch flight mode annunciation.
- Displays current vertical speed in VERT SPD window.
- When selected altitude reached, pitch flight mode annunciation changes to ALT HOLD.
- AFDS pitch maintains vertical speed displayed in the VERT SPD window.
- If AFDS is engaged in V/S from FLCH or from VNAV, A/T automatically engages in SPD mode if armed.

Autopilot Flight Director Altitude Controls

19 - Altitude (ALT) Window
- Displays selected altitude in 100 feet increments. Range: 0 to 50,000 feet.
- Displayed altitude is reference altitude, for altitude alerting and level off.
- ALT window set to 10,000 feet when power is first applied.

20 - Altitude Selector
Rotate –
- Sets altitude in ALT window.
- Left click changes increment by 100's and by 500's when right clicked.

21 - Altitude HOLD Switch
Push –
- Selects altitude ALT HOLD pitch mode.
- ALT HOLD pitch mode displays on FMA.
- AFDS commands pitch to maintain the altitude when the switch was pushed.

Autopilot Flight Director Approach Mode Controls

22 - Localizer (LOC) Switch
Push –
- arms, disarms, captures LOC as roll mode.
- displays LOC on both FMA roll flight mode annunciations before localizer capture; current roll mode
- LNAV, HDG SEL or HDG HOLD remains active until LOC capture.
- displays LOC on FMA roll flight mode annunciations after localizer capture.
- localizer capture can occur when intercept track angle is within 120 degrees of the localizer course.

Localizer mode can be disarmed by:
- pushing localizer switch a second time.
- selecting another roll mode.
- disengaging the autopilot and turning both F/D switches OFF.
Note: The LOC mode is a single autopilot function only. For multiple autopilot engagement, use Approach mode

23 - Approach (APP) Switch
Push –
- Arms, disarms, or captures LOC as roll mode and glideslope (G/S) as pitch mode.
- Displays LOC and G/S on FMA roll and pitch flight mode annunciations prior to localizer and glideslope capture.
- Displays LOC and G/S on both FMA roll and pitch flight mode annunciations after each is captured.
- AFDS captures and tracks localizer and captures glideslope mode upon interception.
- Localizer must be captured before glideslope.
- Allows for Arming the other autopilot systems (CMD switch bars in view) for subsequent automatic engagement (Autoland) which occurs when localizer and glideslope are captured, and radio altitude is below 1500 feet.

Approach mode can be disarmed by:
- Pushing approach switch a second time, or
- Selecting other pitch or roll mode.
- Disengaging autopilot and turn both F/D switches OFF.

24 - Nav/GPS Switch
- 3 modes , OFF, (NV) NAV, (GP) GPS.
- When a respective mode is on, a green light will display on the button.
- This allows for toggling between Nav/GPS modes as the default panels can.
- When NAV/GPS mode is selected NAV mode is armed, and heading hold is selected. In other words this will disengage LNAV when activated.
- When in NAV mode, when the VOR radial for the tuned NAV1 radio is captured, heading hold will turn off.
- When in GPS mode, and an ATC route is loaded into the FSPlanner, and, the GPS mode is active and the autopilot is on, then heading hold is disengaged.
- The FMA will display 'NAV', or 'GPS' respectively for the roll mode when this mode is active.

Autoflight System Refresher

AUTO FLIGHT SYSTEM DESCRIPTION
INTRODUCTION
The automatic flight control system consists of the autopilot flight director system (AFDS) and the autothrottle system (A/T). The mode control panel (MCP) and flight management computer (FMC) control the AFDS and the autothrottle system to perform climb, cruise, descent and approach.

AUTOPILOT FLIGHT DIRECTOR SYSTEM
The AFDS consists of three Autopilots (Left, Center & Right) and the MCP. The MCP provides control of the autopilot, flight director, altitude alert, and autothrottle systems. The MCP selects and activates AFDS modes, and establishes altitudes, speeds, and climb/descent profiles. The three autopilots control separate hydraulically powered autopilot control servos to operate flight controls. The autopilot controls ailerons and elevators. Rudder commands are added only during a multiple autopilot approach. Nose wheel steering is also added during rollout from an automatic landing.

MCP Switches
MCP switches select automatic flight control and flight director modes. A light in the lower half of the switch illuminates to indicate the mode is armed or active. Respective roll and pitch flight mode annunciations on the ADI will also display. Autothrottle modes are discussed later in this section.

Autothrottle System
The autothrottle system provides thrust control from takeoff through landing. Autothrottle mode and speed selection is controlled from the MCP and the thrust mode select panel (TMSP). When in VNAV, the FMC selects autothrottle modes and target thrust values.
For more information on the TMSP, Click here.
For more information on the FMC, Click here.

AFDS Flight Mode Annunciations
Flight mode annunciations display above AFDS status annunciations. Mode annunciations from left to right are:
· AUTOTHROTTLE
· PITCH
· ROLL
· AFDS STATUS
Active modes display at the top of the flight mode annunciation boxes in large green letters. Armed modes (except for TO on the ground and GA in flight) display in smaller white letters at the bottom of the fight mode annunciator boxes.

Autothrottle Modes
Autothrottle annunciations are:
· EPR – autothrottle controlling to the selected EPR reference thrust.
· SPD – autothrottle controlling thrust to maintain speed selected in IAS/MACH or, if VNAV engaged, the speed as programmed by the FMC.
· IDLE – autothrottle is reducing or has reduced thrust to idle. Occurs after FLARE is engaged during Autoland
· FLCH – autothrottle controlling to a maximum of the selected mode reference thrust during climb, and to a minimum thrust during descent.

Roll Modes
Roll annunciations are:
LNAV –
Arm LNAV by pushing the L NAV switch. The light illuminates and LNAV annunciates on the ADI roll mode annunciator in white characters below the current roll mode.
· LNAV (armed) – LNAV is armed to activate when parameters are met.
· LNAV (active) – LNAV activates when in position to turn onto the active route leg. In flight, selection causes immediate activation if within 2 ½ NM of the active leg.
HDG –
· HDG SEL (active) – airplane turns to or maintains the heading selected in the MCP heading window.
· HDG HOLD (active) – AFDS holds present heading. When turning, AFDS holds the heading reached after rolling wings level.
LOC –
· LOC (armed) – AFDS captures the localizer when within range and within 120 degrees of the localizer course.
· LOC (active) – AFDS follows the localizer course.

NAV-
- When in NAV mode, when the VOR radial for the tuned NAV1 radio is captured, heading hold will turn off.
- When in GPS mode, and an ATC route is loaded into the FSPlanner, and, the GPS mode is active and the autopilot is on, then heading hold is disengaged.

Pitch Modes
Pitch annunciations are:
VNAV –
Arm VNAV by pushing the V NAV switch. The light illuminates and VNAV annunciates on the ADI pitch mode an-
nunciator in white characters below the current pitch mode. VNAV provides pitch commands to maintain the
FMC computed airspeed/path:
· VNAV SPD (active) – Displayed during VNAV Climb and Cruise segments
· VNAV PTH (active) – Displayed during VNAV descent. If the MCP altitude window is set to the current cruise alti-
tude as the airplane approaches the top of descent, the CDU scratchpad message RESET MCP ALT displays.
· If descent of track, VNAV SPD will show until back on path. When back on path - VNAV PTH will display
V/S –
Pushing the V/S switch opens the vertical speed window and displays the current vertical speed. It also opens the
IAS/MACH window (if blanked). Pitch commands maintain the rate of climb or descent selected in the V/S
window.
FLCH –
Pushing the FL CH switch opens the IAS/MACH window (if blanked). Pitch commands maintain IAS/MACH window
airspeed or Mach.
ALT HOLD –
Altitude hold mode is activated by:
· Pushing the MCP altitude HOLD switch, or
· capturing the selected altitude from a V/S or FLCH climb or descent.
G/S –
Autopilot flight director system follows the ILS glideslope.
FLARE –
· FLARE (armed) – during autoland, FLARE displays below 1500 feet radio altitude.
· FLARE (active) – during autoland, flare activates at 45 feet radio altitude. FLARE deactivates at touchdown and
the nose wheel smoothly lowers to the runway.

AFDS Status Annunciation
The following AFDS status annunciations are displayed:
· CMD – the autopilots are engaged
· FD –the flight director is ON and the autopilots are not engaged

Thrust Mode Select Panel (TMSP)

4 - Derate 2: Derates Eng Thrust approximately 16 % from selected ref thrust mode (TO, CLB)

5 - CRZ: Sets Cruise thrust reference point

6 - Assumed Temp Select Knob
Used to program artificial temperature which causes EPR derate. EPR reference will change to D-TO.

7 - CON: Sets Max Continuous Thrust reference point

How to Use:
For Takeoff - Ensure TO mode is the thrust mode set on EICAS prior to takeoff. If lower EPR desired for reduced thrust takeoff, used temp select knob to increase TAT reading. This will reduce EPR ref and throttles will command to the new lower ER for reduced thrust takeoff when clicking the EPR mode on the MCP

EPR Thrust ref on EICAS will change from TO to CLB at 1500 feet or as defined on FMS Takeoff page (Accel Height). While in EPR mode after takeoff, click CLB on the TMSP to have the throttles reduce to climb thrust at any time. If desired, clicking 1 or 2 will choose preset derates. EPR reference will show CLB 1 or CLB 2.

Cruise Mode - Click CRZ on the TMSP. Throttles will command to Cruise thrust reference EPR. Preset derates are available clicking 1 or 2. EPR reference will show CRZ 1 or CRZ 2.

Thrust Mode Select Panel
The (TMSP) provides the following functions:
- · Selection of reference thrust modes (TO, GA, CLB, CRZ).
- · Selection of fixed and assumed temperature derated reference thrust values. The thrust reference values are automatically adjusted for atmospheric conditions.

1 - TO/GA: TO (Takeoff) is available on the ground. It is the default EPR reference mode on power up. GA (Go-Around) is available in the air

2 - CLB: Sets Climb thrust reference point

3 - Derate 1: Derates Eng Thrust approximately 8 % from selected ref thrust mode (TO, CLB)

Autoflight Status Annunciator

The Autoflight Status Annunciator displays the Autoland status of the aircraft.

NO AUTOLND
Displays when the IRS system is not aligned. Disappears when IRS is aligned

LAND 3
Displays during Autoland approach at approximately 1500 feet Radio altitude. Means all 3 Autopilots are coupled for the automatic approach.

Main Panel Retrofit (Differences)

Main Panel Retrofit (2D)

The Main Panel Retrofit is an optional upgrade available on the 757 and 767 family. There are two 10" Flat Panel LCD Displays called the Primary Flight Display (PFD) and the Navigation Display (ND). The PFD replaces the following components on the Standard Main panel: Airspeed Indicator, Altimeter, Vertical Speed Indicator, EADI, EHSI, RDMI and Marker Beacon lights. The ND expands on the data made available in the standard panel EHSI. Also, new on the Retrofit panel is the Integrated Standby Instruments Indicator. This indicator has all standby instruments previously on the standard panel (Stby Airspeed indicator, altimeter and attitude indicator) all in one. The clock, EICAS Cancel/Recall switches and Warning/Caution annunciator panel have all been relocated - but their functionality remain the same. There is also a different EFIS Control panel for Retrofit panel.
For more information on the Retrofit EFIS Control Panel, click here.

1 – Primary Flight Display (PFD)　　　　　　**4 – Caution/Warning Annunciator panel**
2 – Navigation Display (ND)
3 – Integrated Standby Instrument Indicator

PFD: VOR Mode　　　PFD: APP Mode　　　PFD: MAP Mode　　　ND: Map Mode　　　ND: PLAN Mode
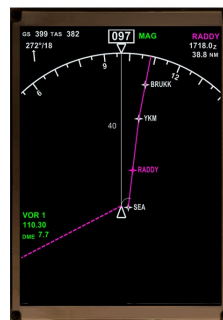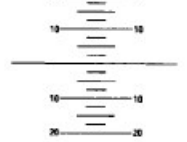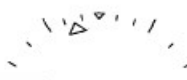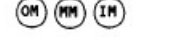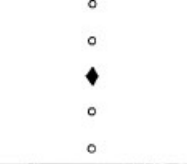
1 - Primary Flight Display (PFD)

There are 3 available viewing modes for the PFD: VOR, APP and MAP modes. Selection of these modes are accomplished via the EFIS Control Panel. The only area of the PFD that is affected by these mode changes is the lower HIS area. All other areas of the PFD are unaffected by the EFIS mode changes. For more information about the Retrofit Flightdeck EFIS Control Panel Click here.
As with the Standard flightdeck EADI, the Flight Director is available in 2 different options: Single or double Cue. Selection which option you want to use can be done on the fly using the QualityWings Control panel. For more information on the QualityWings Control panel, click here.
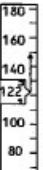
Symbology
All available symbology on the PFD is shown on this and the following pages. HSI symbols are the same as those used on the Standard panel and can be found here.

SYMBOL	NAME	REMARKS
	AIRPLANE SYMBOL (W)	SHOWS AGAINST MOVING PITCH AND ROLL DISPLAYS
	FLIGHT DIRECTOR (M)	SHOWS WITH FLIGHT DIRECTOR SWITCH ON AND VALID STEERING COMMANDS.
	PITCH LIMIT (A)	BOTTOM EDGE SHOWS PITCH LIMIT
	PITCH SCALE (W)	MOVING SCALE SHOWS PITCH. CENTER LINE IS HORIZON.
	ROLL SCALE (W) ROLL POINTER (W)	FIXED SCALE SHOWS ROLL VALUE. ROLL POINTER MOVES AGAINST SCALE. WHEN ROLL MORE THAN 35 DEGREES, ALERT ROLL POINTER SHOWS.
OM MM IM	MARKER BEACON DISPLAYS OM (C) MM (A) IM (W)	OM IS OUTER MARKER. MM IS MIDDLE MARKER. IM IS INNER MARKER.
o ◆ | o o	LOCALIZER DEVIATION POINTER (M)	POINTER SHOWS LOCALIZER DEVIATION.
o o ◆ o o	GLIDE SLOPE DEVIATION SCALE (W) WARNING (A) GLIDE SLOPE DEVIATION POINTER (M)	POINTER SHOWS GLIDE SLOPE DEVIATION. WHEN POINTER IS LESS THAN 2.5 DOTS DEVIATION, THE POINTER IS FILLED. IF LFDS DETERMINES A BACKCOURSE APPROACH, POINTER IS REMOVED. FOR DEVIATION WARNING SCALE CHANGES COLOR (A) AND POINTER FLASHES. SOURCES: GLIDE SLOPE - ILS RECEIVER OR MMR; BACKCOURSE - DPC; DEVIATION WARNING - FCC
VOR 1 ILS 1	SELECTED NAV RADIO VOR/ILS (G)	DISPLAYS SELECTED NAV RADIO BASED ON EFIS CP SELECTION.
110.10	FREQUENCY DISPLAY	DISPLAYED SELECTED VOR OR ILS FREQUENCY
10 — 611 —10 RADIO 200	RADIO ALTITUDE (W) RADIO MINIMUMS READOUT (G) ALERT (A)	DIGITAL DISPLAY SHOWS RADIO ALITITUDE ON ADI. RADIO VALUE SHOWS RADIO MINIMUMS. ALERT SHOWS ON DESCENT IF VISIBLE. TO RESET RADIO MINS ALERT PUSH RST ON EFIS CONTROL PANEL. TO MAKE RADIO MINS BLANK, SELECT RADIO MINS BELOW ZERO OR PUSH RST WHILE NOT IN ALERT CONDITION.

Symbology (Continued)

SYMBOL	NAME	REMARKS
(altitude tape graphic)	ALTITUDE TAPE (W)	MOVING INDICIES AND NUMBERS. MASK COVERS LEADING NUMBER BELOW 10,000 FEET. ALTITUDE SHOWS IN METERS WHEN MTR PUSHED ON EFIS CONTROL PANEL. NUMBERS SHOW EVERY 200 FEET UNLESS COVERED BY CURSOR.
5 100 (bug graphic)	SELECTED ALTITUDE (M) SELECTED ALTITUDE BUG (M)	
(vertical speed pointer graphic)	VERTICAL SPEED DISPLAY SPEED POINTER (W)	VERTICAL SPEED SHOWS FROM ±6000 FPM.
29.96 IN 1011 HPA STD	BARO REFERENCE INCHES (G) ALERT (A) BARO REFERENCE HECTO PASCAL (G) ALERT (A) STANDARD BARO REF (G)	BAROMETRIC REFERENCE SHOWS IN INCHES OR HECTO PASCAL. ABOVE TRANSITION ALTITUDE STANDARD SHOULD BE SELECTED. ALT, ALERT SH
(speed tape graphic)	SPEED TAPE (W) SPEED TREND (G)	AIRSPEED TAPE SHOWS SPEED FROM 30 TO 450 KNOTS. SPEED TREND SHOWS UP OR DOWN AND SHOWS PREDICTED AIRSPEED IN 10 SECONDS.
.455	MACH (W)	MACH SHOWS FOR MACH GREATER THAN 0.4.
290 .39 (bug graphic)	SELECTED AIRSPEED (M) SELECTED MACH (M) SELECTED AIRSPEED BUG (M)	SELECTED AIRSPEED OR MACH SHOWS ABOVE THE SPEED TAPE. THE SELECTED AIRSPEED BUG SHOWS THE SELECTED AIRSPEED OR MACH.
(buffet marker graphic)	MAXIMUM OPERATING SPEED (R/BLACK) HIGH SPEED BUFFET (A) MINIMUM MANUVER SPEED (A) STICK SHAKER SPEED (R/BLACK)	SPEEDS SHOW AT TOP AND BOTTOM OF AIRSPEED TAPE WHEN SPEED SHOWS.
V1, REF, VREF, VR, R, V2 (bug graphic)	DECISION SPEED, REFERENCE SPEED (G) ROTATION SPEED (G) SPEED BUG (G) CLIMBOUT SPEED (G)	SPEED TAPE REFERENCE SPEEDS.
EPR, GA, IDLE, SPD, SPD LIM, FLCH	ENGAGED AUTHOROTTLE MODES (G)	
HDG HOLD, HDG SEL, LOC, LNAV, ROLLOUT, TO, GA	ENGAGED ROLL MODES (G)	
TO, V/S, ALT HOLD, VNAV SPD, VNAV PTH, SPD, G/S, FLARE, VNAV, SPD LIM, GA	PITCH MODES (G)	
CMD, FD	A/P STATUS (G)	

2 - Navigation Display (ND)

The ND display information is almost identical to that displayed on the EHSI on the Standard Panel with the following important exceptions:
 - Only Map and Plan mode are available on the ND.
 - Active Waypoint Data shows fulltime on the Top right when an Active flightplan is loaded

3 – Integrated Standby Instrument Indicator (Standby PFD)
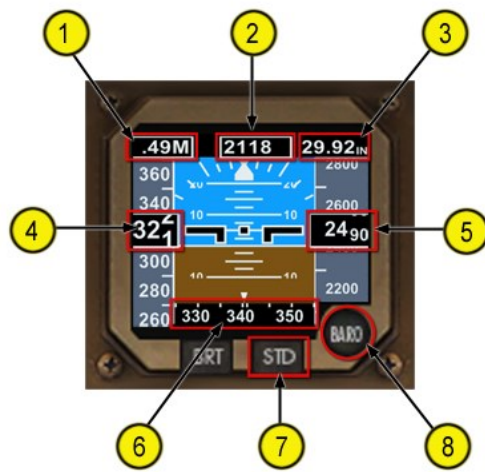
1 - Mach Display
Displays Mach above .40
2 - Radio Altimeter
Displays Radio Altitude below 2500 feet
3 - Barometric Pressure
Shows in Inches of mercury of HPA as selected on the EFIS Control Panel
4 - Airspeed Indication
5 - Altitude Indication
6 - Heading Display
7 - STD Button
Changes barometric pressure to standard setting on both the Standby Instrument indicator and the PFD
8 - BARO Adjustment Knob
Allows adjustment of the barometric pressure on both the Standby Instrument indicator and the PFD

Caution/Warning Annunciator Panel

Functionality identical to Caution/Warning Annunciator panel on standard panel. Configuration changed due to space requirements on Retrofit Panel. You can find information on functionality here.

Red Warning Annunciators indicate an abnormal condition requiring IMMEDIATE action. Red annunciations are also accompanied by an associated Level A EICAS message and Aural warning.
Amber Caution Annunciators indicate a condition requiring IMMEDIATE crew awareness and future action. Amber annunciations are also accompanied by an associated Level B EICAS message and Aural warning.

You can find more information about the EICAS system here.

Retrofit EFIS Control Panel
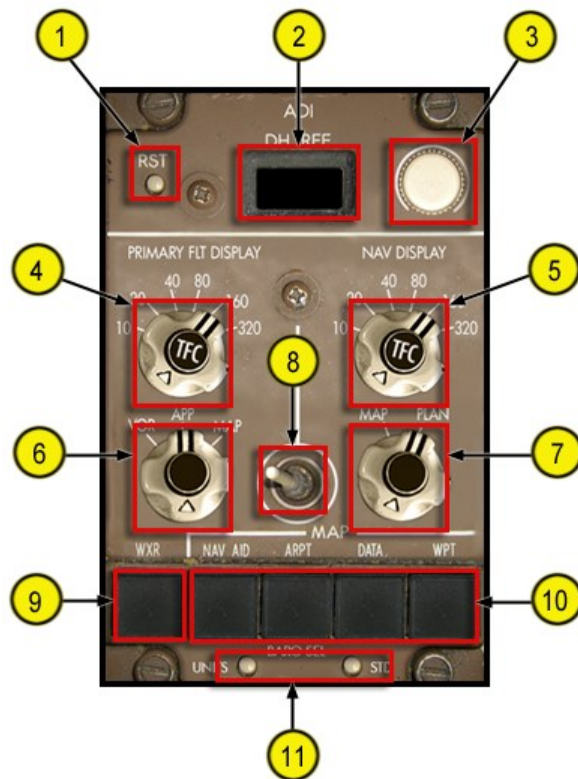
1 - Decision Height Reset Switch
Clears Decision Height alert from PFD
2 - DH Reference Window
Shows Selected Decision height as selected using (3)
3 - DH Selector Knob
4 - PFD Display Range Knob
Chooses range to be displayed on HSI portion of PFD.
5 - ND Display Range Knob
Chooses range to be displayed on ND
Selecting TFC button displays the ND. For more information about TCAS, click here.
6 - PFD Mode Select Knob
Selects which mode is displayed on HSI portion of PFD
VOR Mode is ONLY available in Full Arc. APP and MAP are only available in Exp Arc
7 - ND Mode Select Knob
Selects which mode is displayed on ND (Map or Plan)
8 - Map Display Toggle Switch
Choose whether the PFD or ND will display data as selected using the Map Switches (Item 10)
9 - WXR Switch
Selects Range Marks on the ND
10 - Map Display Switches
Same functionality as Standard EFIS Ctrl Panel. For info on Standard EFIS Control panel, click here.
11 - Barometric Setting Control
UNITS - Chooses whether Inches or Mercury or HPA displayed on PFD
STD - Chooses standard baro settings on PFD & Stby PFD

Radio Communications Panel

The Radio Communications Panel allows for control of the VHF Communications Panels (1 & 2), the ATC Control Panel, the ADF Control Panel and the VOR/ILS Control Panel. The VHF Comm #1 panel is the only panel that is automatically tuned when using the Flight Simulator ATC. The Nav #2 Control panel works to tune frequencies for RDMI navigation usage.
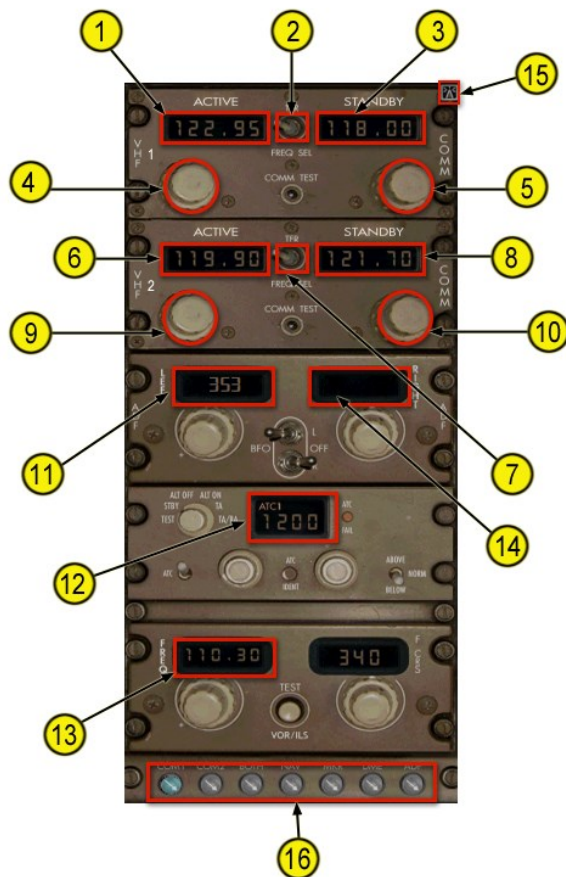
1 - VHF #1 Active Frequency Window
When automatically tuned when communicating via Flight Sim ATC. Frequencies manually transferred from Standby Window.

2 - VHF Comm #1 Transfer Switch
Transfers frequency from Standby to Active Window

3 - VHF Comm #1 Standby Frequency Window
Frequency that is tuned in this window must be transferred to Active window before it can be used

4 - Frequency Selector Knob
Changes digits to the left of the decimal point

5 - Frequency Selector Knob
Changes digits to the right of the decimal point

Items 6-10 for the VHF #2 panel function identical to the VHF#1 panel, except that FS ATC does not tune this panel

11 - ADF #1 Frequency Window
Used to tuned ADF frequency

12 - ATC Transponder Frequency Window
Used to tune ATC transponder codes. FS ATC will automatically tune codes for you when flying an FS Planner route

13 - Nav #2 Frequency Window
Displays and tunes VOR or ILS frequency for RDMI use

11 - ADF #2 Frequency Window
Used to tuned ADF frequency

15 - Panel Close Icon

16 - Audio Receiver Control

Trim Panel
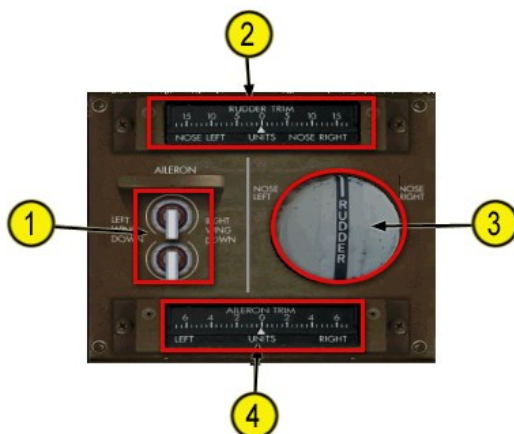
1 - Aileron Trim Control
Click on left side on switches for left wing down
Click on rightside on switches for right wing down

2 - Rudder Trim Indicator

3 - Rudder Trim Control
Click on left side on knob for nose left trim
Click on right side on knob for nose right trim

4 - Aileron Trim Indicator

Throttle Quadrant
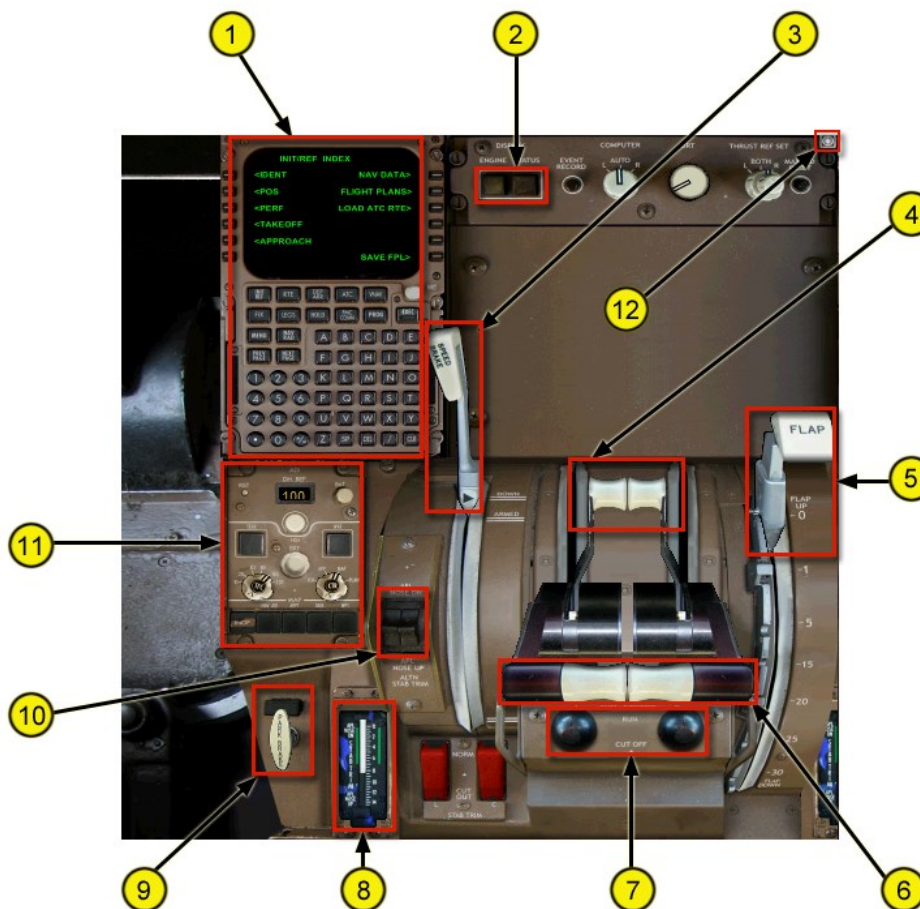
1 - FMCS CDU
Full control of the CDU is available. For more information on the FMCS CDU, Click here
2 - EICAS Lower Display Select Switches
ENGINE: Selects Secondary engine info to be displayed
STATUS: Selects Status Page and blanks lower display (2nd click). 3rd click restores engine data
3 - Spoiler/Speedbrakes Lever
DOWN - Stows Spoiler Panels
ARMED - Arms Autospeedbrake system to deploy on landing
UP - Raises Spoiler Panels
Variable control of the Spoiler lever is available by dragging the lever
4 - Reverse Thrust Levers
Selects Reverse Thrust. Only available when throttles are at Idle
5 - Flap Lever
Selects Flap positions Up-1-5-15-20-25-30
757 Takeoff Flap positions are 5, 15 & 20

757 Landing Flap positions are 20, 25, 30
6 - Thrust (Throttle) Levers
Controls engine thrust
7 - Fuel Cutoff Switches
Raised to RUN automatically when initiating engine start on Overhead or via Autostart
Place to CUTOFF to shutoff respective engine
8 - Stab Trim Position Indicator
Shows Stab Trim Position
9 - Parking Brake Lever
Click to Raise Parking brake lever which sets the parking brake. Click again to release parking brake
10 - Stab Trim Control Switches
Controls horizontal stabilizer trim movement
11 - EFIS Control Panel (Main or Retro)
Full control of the EFIS control panel is available. For more information on the EFIS Control panel, see the applicable EFIS Ctrl panel Section (Main or Retro)
12 - Panel Close Icon

QualityWings Control Panel

The QualityWings Control Panel allows for individual door control as well as selection of several options for the QualityWings Panel. The Panel can be selected via the "QW" SimIcon or on the Fs9 Views Menu (Views/ Instrument Panel/QualityWings Control Panel).
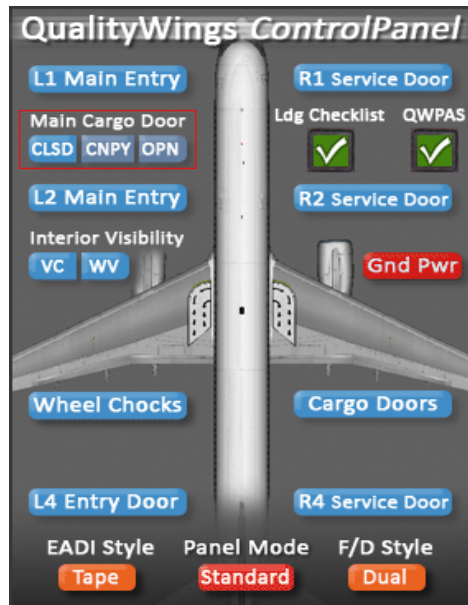
Fig. 1 Gnd Power Not Available

Fig. 2 Gnd Power Available to be connected
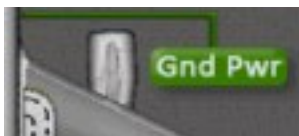
Fig. 3 Gnd Power connected, and ready to provide pwoer

Door Control
All Entry and Service Doors can be opened via the Control Panel. Individual Entry & Service Door control is available, while the Cargo Doors open and close as a pair. The Main Cargo Door button controls the main deck door on the Freighter models. The 2-position door can be opened to Canopy Mode (CNPY), Fully Open (OPN) and closed (CLSD).

EADI Style
Choose between the 2 available EADI options for the Standard Main Panel: Speed **Tape** or **Round** Dial

Panel Mode
Choose between QualityWings **Lite** and **Standard** Modes. For more information of QualityWings Modes, **click here.**

F/D Style
Choose between **Single** Cue or **Dual** Cue Flight Director Styles

Landing Checklist
Green: Armed **Red:** Disarmed
For more information about the Landing Checklist, **click here.**

QWPAS
Enables and disables Prerecorded Announcement System.
For more information about QWPAS, **click here.**

Ground Power
Ground power is available to be connected whenever the Parking is set. When the Parking brake is released, the Button shows in Red (Fig. 1). When the parking brake is set, Gnd Pwr becomes available to be connected and the button shows in Orange (Fig. 2). To Gnd Pwr to the aircraft, press the button and it will turn Green (Fig. 3). Ground power is now available to supply power to the aircraft. It can be selected via the Overhead Panel External power Switch.

There are 2 QW Config file options for Gnd pwr:
ExtPwrAvailWithApuOn
AutoExtPwrAvail=1

Interior Visibility [FSX Only]
Choose whether to display/hiode the Virtual Cockpit and/or the Wingviews. Blue button means VC/WV is hidden

FMCS Control Display Unit (CDU)

The FMCS CDU allows interface with the FMC. It can be viewed by clicking the "FMS" SimIcon, via the Views Menu and on the Throttle Quadrant Popup window. Inside the Virtual Cockpit, the FMC CDU cannot be controlled directly. Clicking on the VC FMCS CDU opens the FMC popup window.

1 - Control Display Unit (CDU) Display
Shows FMS data pages

2 - Line Select Keys
Referred to as button (Number)(Position) throughout the manual. The buttons are numbered 1 - 6 from top to bottom and L or R depending on Line Select Key row position. For example, the top left button is Line Select key (LSK) 1R. The lower right button is LSK 6R

Push –
· moves data from scratchpad to selected line
· moves data from selected line to scratchpad
· selects page, procedure, or performance mode as applicable
· deletes data from selected line when DELETE is shown in scratchpad

Function and Execute Keys

1 - CDU Function Keys
Push –
INT REF – shows page for data initialization or for reference data
RTE – shows page to input or change origin, destination, or route
LEGS –
- Shows page to evaluate or modify lateral and vertical route data
- Show page to control ND PLAN mode display

DEP ARR – shows page to input or change departure and arrival procedures
HOLD – shows page to create holding patterns and show holding pattern data
PROG – shows page to view dynamic flight and navigation data, including waypoint and destination ETAs, fuel remaining, and arrival estimates
MENU – (button inoperative)
FIX – shows page to create reference points on ND map
PREV PAGE – shows previous page of related pages (for example, LEGS pages)
NEXT PAGE – shows next page of related pages
VNAV – shows the CLB, CRZ, or DES page to view or change vertical navigation path data
NAV RAD – shows page to monitor or control VOR tuning
ATC – (button inoperative)
FMC COMM – (button inoperative)

2 - Execute (EXEC) Key
Push –
· Makes data modification(s) active
· Extinguishes execute light

Execute Light (Inside of Execute Key)
Illuminated (white) – active data is modified but not executed

Alpha/Numeric and Miscellaneous Keys
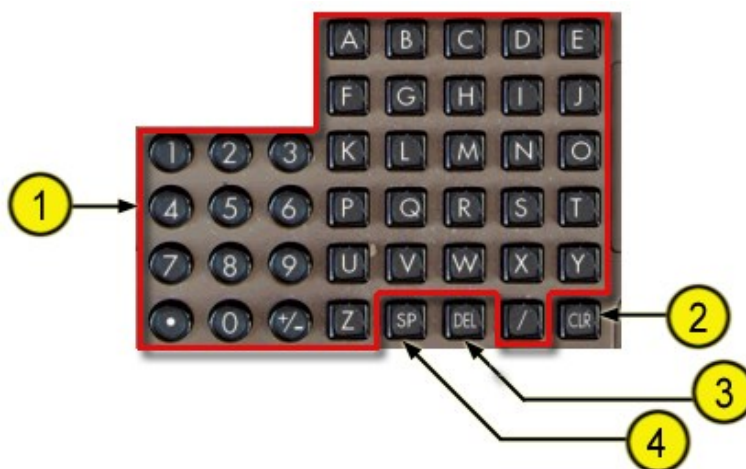
1 - Alpha/Numeric Keys
Push –
· Puts selected character in scratchpad
· Slash (/) key – puts "/" in scratchpad
· Plus Minus (+/-) key – first push puts "-" in scratchpad. Subsequent
pushes alternate between "+" and "-".

2 - Clear (CLR) Key
Push –
· Clears last scratchpad character
· Clears scratchpad message
Push and hold – clears all scratchpad data

3 - Delete (DEL) Key
Push – puts "DELETE" in scratchpad

4 - Space (SP) Key
Push –
· Puts space in scratchpad

CDU Page Components

1 - Page Title
Subject or name of data shown on page
ACT (active) or MOD (modified shows whether page contains active or modified data)

2 - Line Title
Title of data on line below

3 - Line Data
Shows –
· data
· entry fields
· prompts

4 - Scratchpad
Shows messages, alphanumeric entries or line selected data.

5 - Page Number
Left number is page number. Right number is total number of related pages. Page number is blank when only one page exists.

6 - Boxes
Data input is mandatory

7 - Dashes
Data input is optional. The data is not mandatory.

8 - Prompts
Caret "<" or ">" is before or after prompt.
Push – selects indicated information, mode or page.

Flight Management System Description

INTRODUCTION

The flight management system (FMS) aids the flight crew with navigation, in–flight performance optimization, automatic fuel monitoring, and flight deck displays. Automatic flight functions manage the airplane lateral flight path (LNAV) and vertical flight path (VNAV). The displays include a map for airplane orientation and command markers on the airspeed, altitude, and thrust indicators to help in flying efficient profiles.

The flight crew enters the applicable route and flight data into the CDUs. The FMS then uses the navigation database and airplane position to calculate commands for an automatic flight path control. LNAV and VNAV are ONLY available via Automatic control from the Automatic Flight Director System (Autopilot).

The FMS navigation database supplies the necessary data to fly routes, SIDs, STARs and Onroute airways. Cruise altitudes and crossing altitude restrictions are used to calculate VNAV commands. Lateral offsets from the programmed route can be calculated and commanded. Updated Database files are available via Navigraph (For an additional fee)

The FMS commands are sent to the autothrottle, autopilot, and flight director. Map and route data are sent to the HSIs and NDs. The EFIS control panels are used to select the data to be displayed on the HSIs. The mode control panel selects the autothrottle, autopilot, and flight director operating modes.
For more information on the Autoflight system, click here.
For more information on the Flight Instruments displays, click here.

Flight Management System Operation

PREFLIGHT
When first powered, the FMS is in the preflight phase. During preflight, flight plan and load sheet data are automatically or manually entered into the CDU. The flight plan defines the route of flight from the origin to the destination and initializes LNAV. Flight plan and load sheet data provide performance data to initialize VNAV. The QualityWings 757 allows any of four different methods to enter flightplan data into the FMS for preflight:
 - via flightplans created in FS Planner
 - via flightplans created for FSPlanner through 3rd party navigation programs such as FSBuild
 - via flightplans created in QW757 Native .rte format by 3rd party Navigation programs such as FSBuild.
 - manually

Required preflight data consists of:
· performance data (Cruise Altitude ONLY)
· route of flight
· takeoff data

Optional preflight data includes:
· SID
· STAR

Each required or optional data item is entered on specific preflight pages. Preflight starts with the IDENT page. If the IDENT page is not displayed, it can be selected with the IDENT prompt on the INIT/REF INDEX page. Visual prompts help the flight crew select necessary CDU preflight pages. Preflight pages can be manually selected in any order.

After the necessary data on each preflight page is entered and checked, push the lower right line select key to select the next preflight page. When ACTIVATE is selected on the ROUTE page, the execute (EXEC) light illuminates. Push the EXEC key to make the route active. Use the departure/arrival (DEP/ARR) page to select a standard instrument departure (SID). Selection of the SID may cause a route discontinuity in the flight plan. The modification must be connected to the existing route and executed. This can be accomplished on the ROUTE or LEGS page. When all required preflight entries are complete, PRE-FLT COMPLETE is displayed on the TAKEOFF REF page.

Terminology
The following paragraphs describe FMC and CDU terminology.

Active – flight plan data being used to calculate LNAV or VNAV guidance commands.

Activate – the procedure to change an inactive route to the active route for navigation. It is a two step procedure.
· select the ACTIVATE prompt
· push the execute (EXEC) key.

Altitude constraint – a crossing restriction at a waypoint.

Delete – using the delete (DEL) key to remove FMC data and revert to default values, dash or box prompts, or a blank entry.

Econ – a speed schedule calculated to minimize operating cost. The economy speed is based on the cost index. A low cost index causes a lower cruise speed. Maximum range cruise or the minimum fuel speed schedule may be obtained by entering a cost index of zero. This speed schedule ignores the cost of time. A low cost index may be used when fuel costs are high compared to operating
costs. A minimum time speed schedule may be obtained by entering a cost index of 9999. This speed schedule calls for maximum flight envelope speeds.

Enter – put data in the CDU scratchpad and line select the data to the applicable location. New characters can be typed or existing data can be line selected to the scratchpad for entry.

Erase – remove entered data, which has resulted in a modification, by selecting the ERASE prompt.

Execute – push the illuminated EXEC key to make modified data active.

Message – FMC information displayed in the scratchpad.

Modify – to change active data. When a modification is made to the active route or performance mode, MOD displays in the page title, ERASE displays next to line select key 6 left, and the EXEC key illuminates.
Prompt – CDU symbol that aids the flight crew in accomplishing a task. Prompts can be boxes, dashes, or symbols (< or >) to remind the flight crew to enter or select data.

Select – pushing a key to obtain the necessary data or action, or to copy selected data to the scratchpad.

Speed restriction – an airspeed limit associated with a specified altitude entered by the FMC.

Waypoint – a point on the route or in the navigation database. It can be a fixed point such as a latitude and longitude, VOR or ADF station, or an airway intersection.

FMS UPLINKING OPTIONS

Loading flightplans is easy in the QualityWings FMC. Flightplans can be created manually by advanced users, but uplinking is the easiest and fastest method of loading the FMS.

Using FS Flight Planner
Both FS9 and FSX have built in flight planners which can load create simple flightplans for use in the FMS. The advantage of these flightplans is that they allow for ATC guidance since the Flightplans is "on file" with Flightsim ATC. ATC will provide guidance to get you flying toward your Lateral route (LNAV) and vertical profile (VNAV). Plans saved in FS Planner are called PLN files. Click here for a tutorial on using FS Planner.

Using 3rd Party Software to create PLN files
3rd Party Flight Simulator Planner software (Such as FSBuild created by our very own Ernie Alston) allow you to create flightplans for use in the FMS. The plan is first created in the 3rd part software and then exported to the default folder where PLN files are stored. The plan can then be loaded via FS Flight Planner and then uplinked to the FMS. The advantage of these flightplans is the same as using Flight Planner, but 3rd party software allows for more control over your route. Click here for a tutorial on using 3rd Party Software to create PLN files.

Using 3rd Party Software to create RTE files
3rd Party Flight Simulator Planner software allows you to create flightplans for use in the FMS. The plan is first created in the 3rd part software and then exported to the QualityWings Flightplans. The FMS system can read these flightplans (Up to 200) allowing for easy access to the flightplans via the CDU. Because these plans are not created with FS Planner, flightsim ATC guidance is NOT available. Click here for a tutorial on using 3rd Party Software to create RTE files.

FMC PREFLIGHT

Introduction
FMC preflight is required before flight. Completion of the FMC preflight requires data entry in all minimum required data locations. Additional entry of optional preflight data optimizes FMC accuracy.

Flightplans can be "uplinked" to the FMC by using one of three methods which were described briefly above and in detail later sections. Uplinking reduces the number of required actions by you. Manual entries replace existing data.

Preflight Page Sequence
The usual FMC power–up page is the identification page. Preflight flow
continues in this sequence:
· identification (IDENT) page
· position initialization (POS INIT) page
· ROUTE page
· DEPARTURES page (no automatic prompt)
· performance initialization (PERF INIT) page
· takeoff reference (TAKEOFF REF) page.
Some of these pages are also used in flight.

Minimum Preflight Sequence
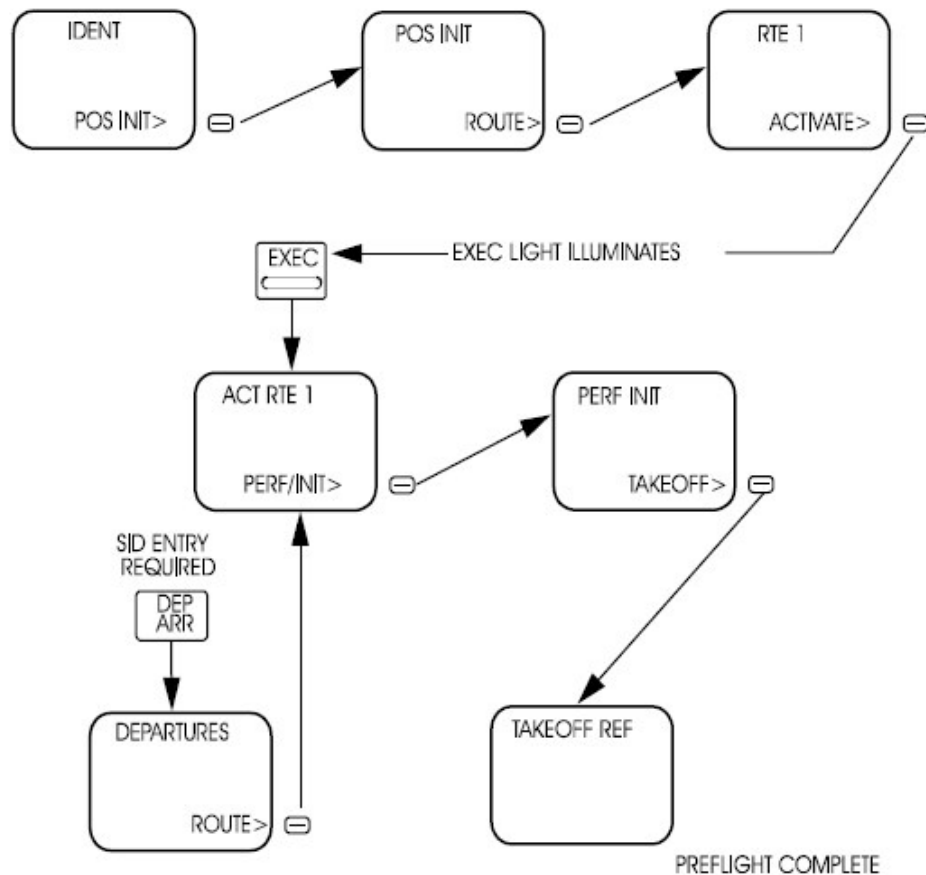
Minimum Preflight Sequence

During preflight, a prompt in the lower right directs the flight crew through the minimum requirements for pre-flight completion. Selecting the prompt key displays the next page in the flow. If a required entry is missed, a prompt on the TAKEOFF page leads the flight crew to the preflight page missing data. Airplane inertial position is NOT necessary for FMC preflight and flight instrument operation.

A route must be entered and activated. Flight uplinked into FMS are automatically activated. The minimum route data is origin and destination airports, and a route leg. Performance data requires the airplane weight and cruise altitude. Airplane weight is automatically entered for you and a cruise altitude is uplinked as well. But the cruise altitude MUST be verified to be the cruise altitude that matches your flightplan. Takeoff data requires a flap setting. Default Flaps setting is set at 15. You can adjust default flaps via QualityWings options. For more information on QualityWings Options, **click here**.

PREFLIGHT PAGES - PART 1
The preflight pages are presented in the sequence used during a typical preflight.

Initialization/Reference Index Page
The initialization/reference index page allows manual selection of several FMC pages. It gives access to most of the pages used during preflight.
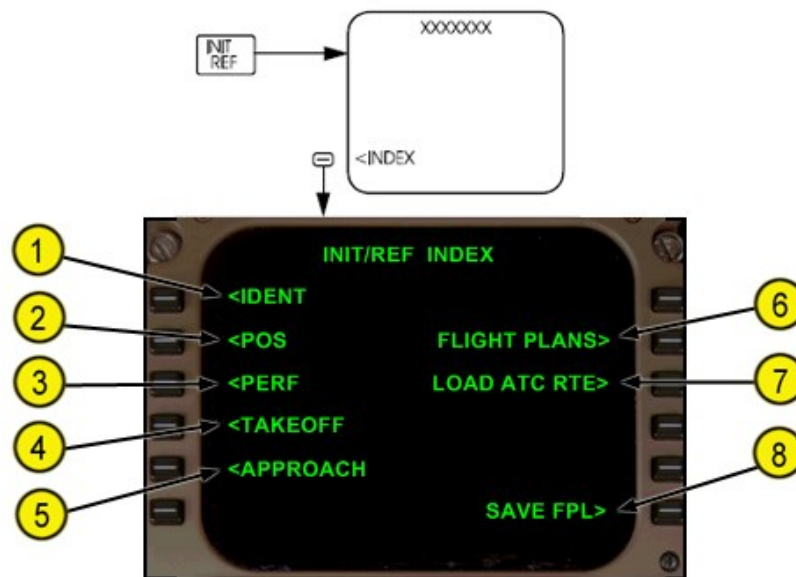
1 - Identification (IDENT)
The IDENT page is the first page in the preflight sequence.

2 - Position (POS)
The POS INIT page is used for IRS initialization.

3 - Performance (PERF)
The PERF INIT page is used for initialization of data required for VNAV operations and performance predictions.

4 - TAKEOFF
The TAKEOFF REF page is used to enter takeoff reference data and Vspeeds.

5 - APPROACH
The APPROACH REF page is used for entry of the approach VREF speed.

6 - FLIGHT PLANS
The page is used to access routes stored in the QualityWings/Flightplans folder

7 - LOAD ACT RTE
Uplinks the active loaded FS Flight Planner route. Displays RTE UPLINK OK when active flightplan is loaded ok.

8 - SAVE FPL
This page is used to save the active flightplan

Identification Page
Most of the data on this page is for flight crew verification ONLY.
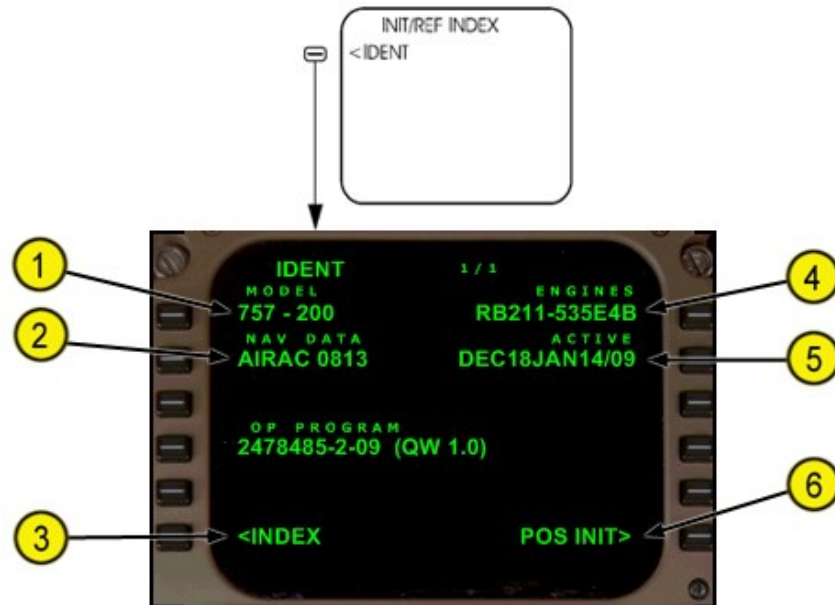
1 - MODEL
Displays the airplane model that is currently loaded. (757-200 or 757-300)

2 - Navigation (NAV) DATA
Displays the navigation database identifier. The current AIRAC cycle that is being used shows.

3 - INDEX
Push – displays the INIT/REF INDEX page.

4 - ENGINES
Displays the engine model for the model that is currently loaded (RB211 or PW Series)

5 - ACTIVE
Displays the effectivity date range for the navigation database.

6 - Position Initialization (POS INIT)
Push – displays the POS INIT page.

Position Initialization Page
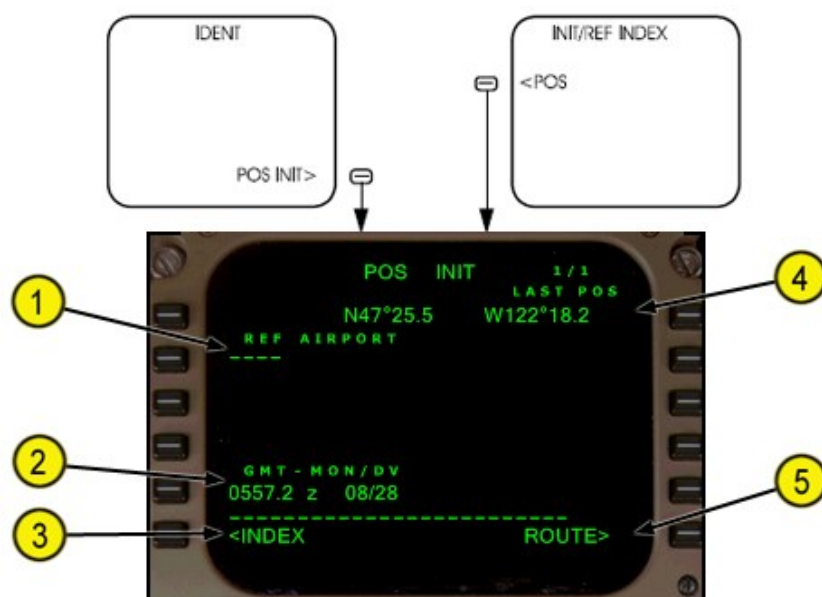
1 - Reference Airport (REF AIRPORT)
Displays the ICAO four letter airport identifier of the closest airport Entry blanks when airborne.

2 - Coordinated Universal Time (UTC)
Displays current SIMULATOR Time and Date.

3 - INDEX
Push – displays the INIT/REF INDEX page.

4 - Last Position (LAST POS)
Displays the current aircraft position.

5 - ROUTE
Push – displays the ROUTE page.

Route Page
One routes (RTE 1) can be stored and displayed in air traffic control format. The first route page displays origin and destination data. Subsequent route pages display route segments between waypoints or fixes.

Route Page 1/X
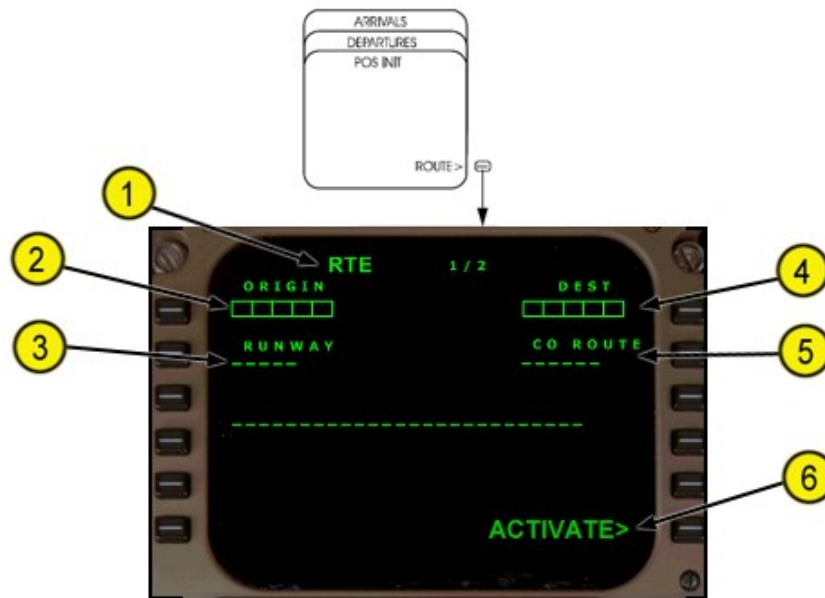
1 - Page Title
Preceded by ACT when the route is active, and by MOD when the route is modified and the change is not executed.

2 - ORIGIN
Entry:
· must be a valid ICAO identifier in the navigation database
· made automatically when a company route is entered
· required for route activation
Entry deletes existing route.

3 - RUNWAY (Optional)
Enter the applicable runway for the origin airport. Runway label displayed if departure is selected when flightplan is loaded and can also be manually entered. Runway must be in the navigation database.
Entry:
· causes MOD to display in the title if route is active
· can be selected on the DEPARTURES page

4 - Destination (DEST)
Entry:
· must be a valid ICAO identifier in the navigation database
· made automatically when a company route is entered
· required for route activation
· displays MOD in page title if entered in an active route.

5 - Company Route (CO ROUTE)

A saved flightplan can be called from the navigation database by entering the filename prefix. The data supplied with a company route can include origin and destination airports, departure runway, SID and STAR, and the route of flight. An entry is optional for activation of the route. If the name is not contained in the navigation database, the entry is allowed and the scratchpad message NOT IN DATABASE is displayed. Entry of a new company route replaces the previous route.

6 - ACTIVATE

Push the ACTIVATE key to arm the route and illuminate the execute light. When the EXEC key is pushed, the route becomes active, ACT is displayed in the title, and the ACTIVATE prompt is replaced with the next required pre-flight page prompt. Activation of a route is required for completion of the preflight.

Route Page 2/X

Route segments are defined as direct routing, airways, or procedures with start and end points such as way-points, fixes, navaids, airports, or runways. More waypoints for each route segment are shown on the **RTE LEGS** page.
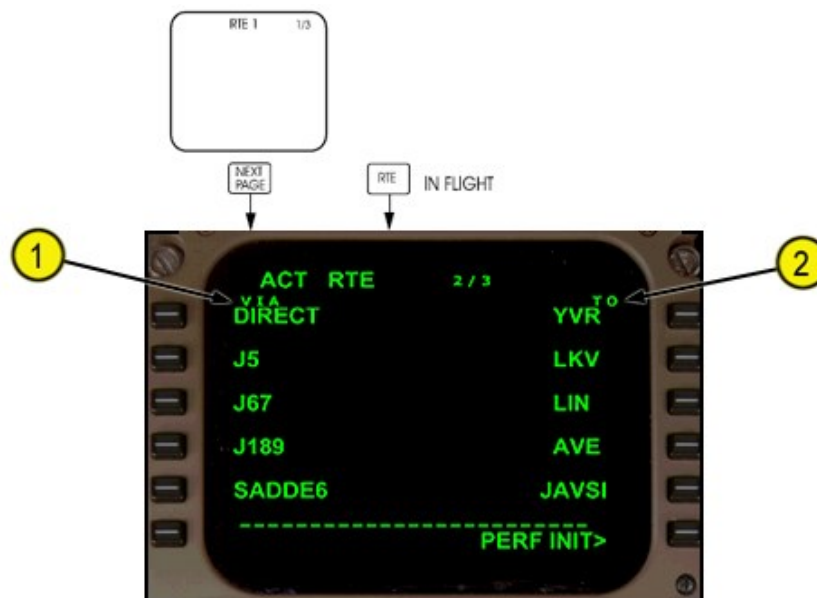
1 - VIA

The VIA column displays the route segment to the waypoint or termination in the TO column.

2 - TO

Displays the end point of the route segment specified by the VIA entry.
Enter the end point of the route segment specified by the VIA entry.

PREFLIGHT PAGES – PART 2

Departure/Arrival Index Page
The departure and arrival index page is used to select the departure or arrival page for the origin and destination airports for the route. Departure and arrival prompts are available for the origin airport. Destination airports have only arrival prompts.
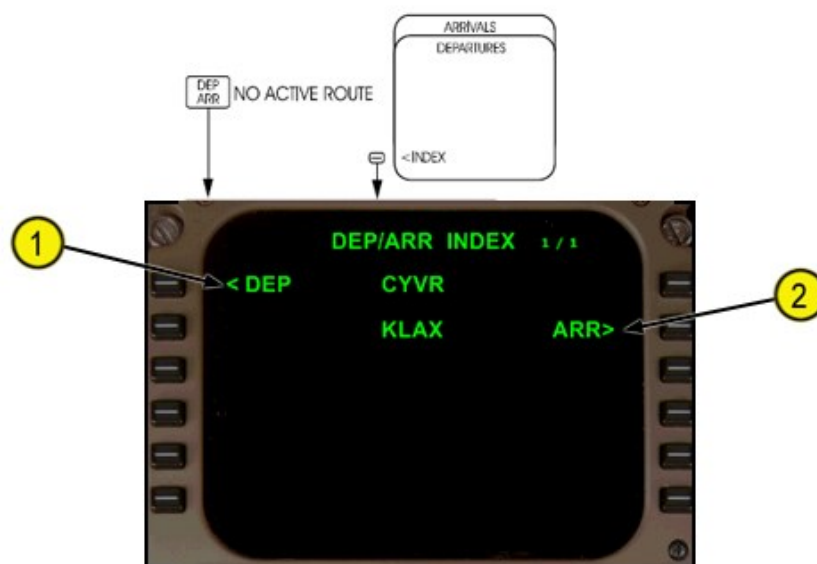
1 - Departure (DEP) – Route 1
Push – displays the departure page for route 1 origin airport.

2 - Arrival (ARR) – Route 1 Destination
Push – displays the arrival page for route 1 destination airport.

Departures Page
The departures page is used to select the departure runway, SID, and transition for the route origin airport. The departures page for the displays when the DEP ARR unction key is pushed with an inactive RTE or RTE LEGS page is displayed.

Departures Page

The departures page is used to select the departure runway, SID, and transition for the route origin airport. The departures page for the displays when the DEP ARR function key is pushed with an inactive RTE or RTE LEGS page is displayed.

1 - Standard Instrument Departures (SIDS)

Displays a list of SIDS for the airport.

Push –

· selects SID for use in the route

· other SIDs no longer display and transitions for the selected SID display

· runways for selected SID remain and others no longer display.

2 - Transitions (TRANS)

Displays transitions compatible with the selected SID.

Push –

· selects transition for entry in the route

· other transitions no longer display.

3- ERASE or INDEX

Erase displays when a route modification is pending. INDEX displays when no route modification is pending.

ERASE push – removes route modifications not executed and displays the original route.

INDEX push – displays the DEP/ARR INDEX page.

4 - RUNWAYS

Displays a list of runways for the selected airport.

The runway selected on the RTE 1/X page displays as <SEL> or <ACT>.

Push –

· selects runway for use in the route. All other runways no longer display

· SIDs associated with selected runway remain, all others no longer display

· subsequent change of a runway deletes departure procedures previously selected.

5 - <SEL>, <ACT>
Selecting an option displays <SEL> inboard of the option and creates a route modification. After executing the modification, <SEL> becomes <ACT>. Executing a modification or leaving the page and returning displays all options and the <SEL> or <ACT> prompts.

6 - ROUTE
Push – displays the related RTE page.

Navigation Radio Page
The NAV RADIO page displays the tuned VOR/ILS frequencies, identifiers and current radial for the Nav radio. The VOR/ILS can be remotely tuned from this page. Tuning done on this page will show on the Nav panels in the flightdeck and vice-versa.

1 - Frequency and Tune Status
Displays tuned VOR or ILS frequency and Identifier. Although label says VOR, an ILS frequency may be tuned.

2 - RADIAL
Displays the current radial from the left VOR or ILS station to the airplane.

Performance Initialization Page
The performance initialization page allows the entry of airplane data to initialize performance calculations. This data is required for VNAV operation.
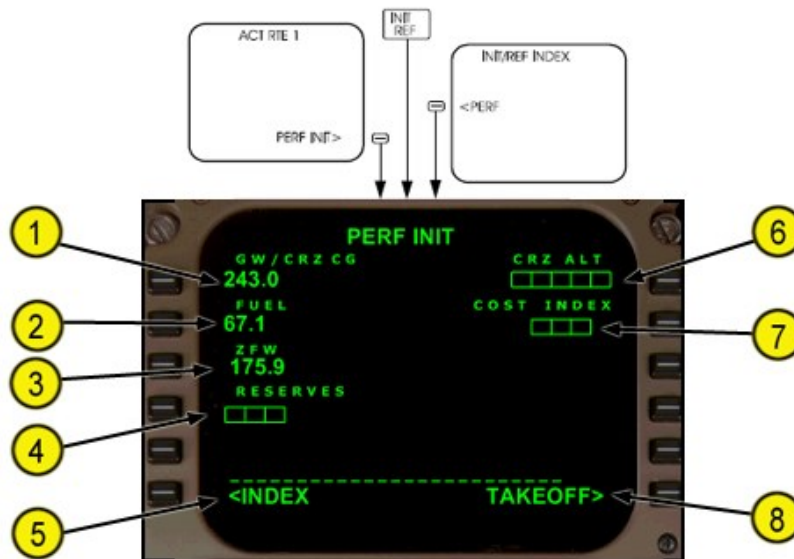
1 - Gross Weight (GR WT)
Airplane gross weight is automatically calculated by the FMC. Change through FS9/FSX Fuel-Payload editor.

2 - FUEL
Automatically displays Fuel on board. No manual changes allowed. Change through FS9/FSX Fuel-Payload editor.

3 - Zero Fuel Weight (ZFW)
ZFW is automatically calculated by the FMC. Change through FS9/FSX Fuel-Payload editor.

4 - RESERVES
Valid entry is thousands of pounds with a decimal (hundreds) optional.

5 - INDEX
Push – displays the INIT/REF INDEX page.

6 - Cruise Altitude (CRZ ALT)
Cruise altitude can be entered manually or from a uplinked flightplan. Entered value is displayed on the CLB and CRZ pages. *NOTE: You must check you that the altitude matches the altitude you choose when flying via FS Planner. The Cruise altitude may be incorrect!!*

7 - COST INDEX
Cost index is used to calculate ECON climb, cruise, and descent speeds. Larger values increase the ECON cruise speed. Entering zero results in maximum range airspeed and minimum trip fuel. Cost index can be entered by the flight crew or from a company route or uplink. Valid entries are 0 to 199.

8 - TAKEOFF
Push – displays the TAKEOFF REF page.

Takeoff Reference Page

The takeoff reference page allows the input of the final performance data required for takeoff. Entries on the takeoff reference page complete the normal FMC preflight.

1 - FLAP

By default, flaps 15 is entered. To change, enter a valid takeoff flap setting. Takeoff flap settings are 5, 15, or 20.

2 - INDEX

Push – displays the INIT/REF INDEX page.

3 - V Speeds

V Speeds are automatically calculated when the Takeoff Ref page is accessed. The calculations are based on a Flaps 15 takeoff. If another Flap setting is desired:
 - Change the Flap value
 - Flight crew entered speeds are displayed in large font. V1 and VR are displayed on the ADI Speedtape. V Speeds are deleted when the flightplan is cleared.

4 - Gross Weight (GR WT)

Displays the airplane gross weight value from the PERF INIT page.

5 - Pre–Flight (PRE–FLT) Status

Displays COMPLETE if all required pre–flight entries have been made. Criteria for COMPLETE is flight plan is activated, reserve fuel entered, cruise altitude entered and departure runway selected.

Route Legs Page

The legs page is used to evaluate and modify the planned route of flight during the climb and to add or delete waypoint constraints. The data on the climb page comes from preflight entries made on the route and departure pages, and from the FMC data bases.

1 - Page Title

Title format shows route status:

· RTE X LEGS – inactive route

· ACT RTE X LEGS – active route

· MOD RTE X LEGS – modified active route.

2- Waypoint Identifier

Shows waypoints by name or condition. Active leg is always the first line of the first active RTE X LEGS page and is highlighted by green background. All route waypoints are shown in flight sequence. Waypoints on an airway are included on the route legs page.

Waypoints can be modified. Examples:

· add waypoints

· delete waypoints

· change waypoint sequence

· connect route discontinuities.

Boxes are shown for route discontinuities. Dashes are in the line after the end of the route.

3 - Leg Direction

4 - Waypoint Speed/Altitude Constraints
Manual entry allowed in climb or descent phase. Entered by FMC when constraints are part of a procedure.
Speed constraint is assumed to be at or below the displayed speed.
Valid entries are:
· speed – airspeed or Mach – requires an altitude constraint at the same
waypoint
· altitude in thousands of feet or flight level (19000, 190)
· XXX/XXXXX – airspeed/altitude entered simultaneously
Altitude constraint suffixes:
· A – cross at or above altitude

5 - Distance to Waypoint
Distance between the waypoints displayed in nautical miles.

6- Waypoint Speed/Altitude Predictions

7 - ACTIVATE, Route Data (RTE DATA)
Push – three possible prompts
· ACTIVATE – activates inactive flight plan; shows RTE DATA prompt
· RTE DATA – shows route data page
· STEP – changes the center point on the HSI map in the PLAN mode.

8 - Center (<CTR>)
Displays when PLAN mode selected. Displays adjacent to the waypoint around which HSI plan mode is centered.

9 - MAP Center (CTR) STEP
Replaces ACTIVATE or RTE DATA when PLAN mode selected.
Push – steps <CTR> to next waypoint. HSI plan mode re-centers.

LNAV Modifications

This section shows typical techniques to modify the route. The modifications include:

· add and delete waypoints   · change waypoint's sequence
· connect discontinuities   · intercept a course.

RTE LEGS Page Modifications

Modifications to the LNAV route are usually made on the RTE LEGS page. When the route is modified, MOD is displayed in the title and the execute light is illuminated.

Add Waypoints

Waypoints can be added to the route at any point. Added waypoints are followed by route discontinuities.
First, enter the waypoint name in the scratchpad.
Second, locate the correct line in the flight plan and push the adjacent line select key. The scratchpad waypoint name is put into the selected line. The entered waypoint is connected to the waypoint above it via a direct route. A route discontinuity follows the waypoint.
For example, AVE is typed into the scratchpad. Push line select key 3L to put AVE into line 2. The FMC assumes LIN direct AVE. DERBB and the rest of the flight plan are kept but, are put after the route discontinuity.

1 - Page Title

MOD – replaces ACT when modification is in progress.
ACT – replaces MOD when ERASE is selected or execute key is pushed.

2 - Modified Waypoint

AVE waypoint entered into the route after LIN. Modification creates a route discontinuity because AVE was not in the active route. The FMC now requires routing beyond AVE.

3 - Discontinuity

Discontinuity is corrected when applicable waypoint is entered in boxes.

4 - ERASE

Push – removes all modifications and shows active data. Displayed when the FMC contains modified data. Removed when the modifications are executed.

5 - ROUTE DISCONTINUITY

Line title separates route segments when there is a discontinuity.

Delete Waypoints
Use the RTE LEGS page to remove waypoints from the route. Two methods to remove a waypoint are:
· delete the waypoint with the DEL function key
· change the sequence of other waypoints.
The data in the route before the deleted waypoint does not change. A discontinuity is put in the route when the DEL function key is used to remove a waypoint.
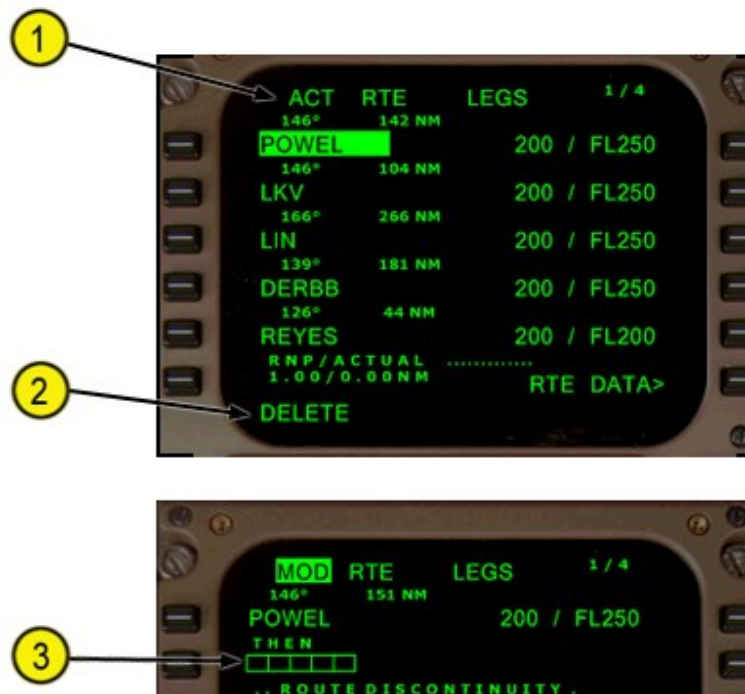
1 - Active Route
The active route shows LKV followed by LIN and DERBB.

2 - DELETE Entry
Pushing the DEL function key arms the delete function and selects DELETE to the scratchpad.

3 - Discontinuity
With DELETE in the scratchpad, pushing the line select key for LKV deletes the waypoint. Boxes replace LKV and a route discontinuity is displayed.

Change Waypoint Sequence
Waypoints moved from one position in the flight plan to another do not cause route discontinuities.
The waypoint may be manually typed or copied from any of the RTE LEGS
pages. To copy the waypoint, push the line select key adjacent to the waypoint.

The example below shows the flight plan being modified to fly from POWEL direct LIN. Push the line select key
adjacent to LIN to put LIN in the scratchpad. Push the line select key adjacent to LKV. LKV is removed from the
flight plan and the routing is direct from POWEL to LIN to DERBB. The modification does not cause a route discon-
tinuity. Several waypoints can be removed from the flight plan at a time with this method.

1 - Active Route
The active route shows LKV followed by LIN and DERBB. The clearance is to fly from POWEL direct LIN. The LIN
waypoint is selected to the scratchpad.

2 - Change LIN's Sequence
LIN is selected to the waypoint after POWEL. LKV is removed with no discontinuity

Remove Discontinuities
A discontinuity exists when two waypoints are not connected by a route segment.
To remove a discontinuity, copy the subsequent waypoint from the route into
the scratchpad and enter it into the discontinuity.
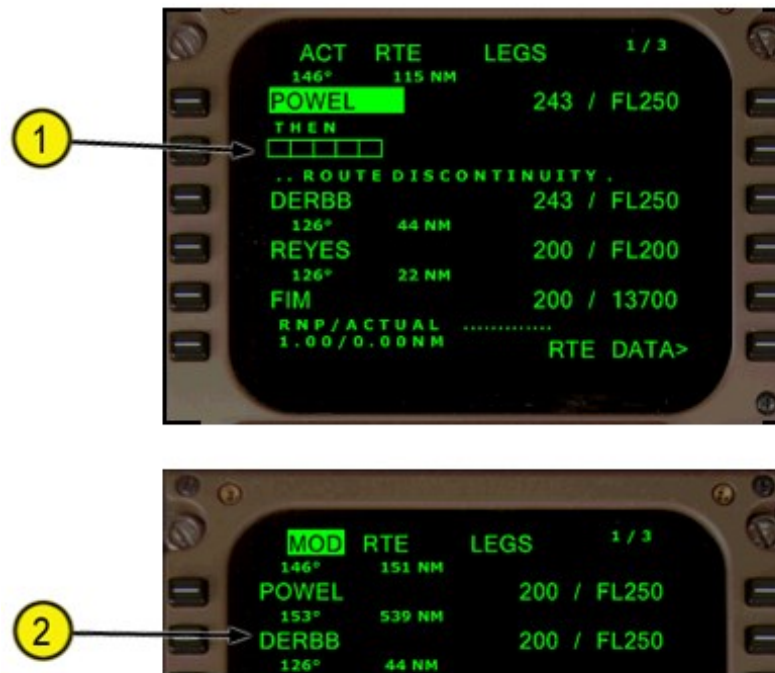
1 - Discontinuity
The active route has a discontinuity after POWEL. The example shows how to fly direct from POWEL to DERBB.
Copy DERBB to the scratchpad. Any subsequent waypoint in the route can be selected to the scratchpad to remove the discontinuity.

2 - Continuous Route
Select DERBB to the boxes to remove the discontinuity. If a waypoint which does not already exist on the route is entered into the boxes the discontinuity moves one waypoint further down the route.

SELECT WAYPOINT Page
The SELECT (Desired) WAYPOINT page is displayed when a waypoint identifier or name is entered and the navigation database contains more than one location for the same waypoint name. Selection of a waypoint returns the display to the previous page.

NAVIGATION DATA

Reference Navigation Data Page
The reference navigation data page displays data about waypoints, navaids, airports, and runways.

1 - Identifier (IDENT)
Valid entries are any waypoint, navaids, airport, or runway from the navigation database. Only runways at the destination airport can be entered. Entry changes to dashes when page is exited and then reselected.

2 - LATITUDE
Displays latitude of entered identifier. When the identifier is a runway the latitude displayed is for the threshold of the runway.

3 - INDEX
Push – displays the INIT/REF INDEX page.

4 - Frequency (FREQ)
Displays frequency of entered identifier when it is a navaid.

5 - LONGITUDE
Displays longitude of entered identifier. When the identifier is a runway the longitude displayed is for the threshold of the runway.

6 - ELEVATION
Displays elevation of entered identifier when it is a navaid, airport, or runway.

Fix Information Page

Two identical fix information pages are used to create fixes and waypoints for the HSI. Some of the created waypoints can be copied into the route.
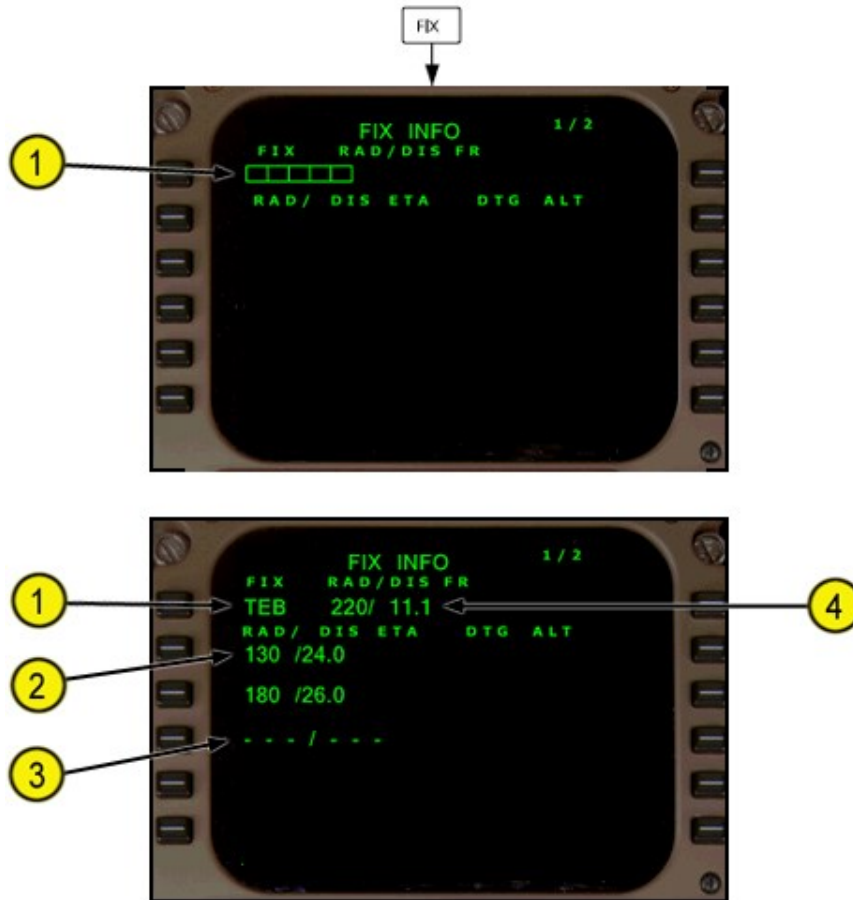
1 - FIX

Before entry of a name or identifier, boxes displayed and most data lines are blank. Valid entries are airports, navaids, and waypoints from the navigation database. The selected fix displays on the HSI and is highlighted by a green circle.

2 - Radial/Distance (RAD/DIS), ETA, DTG, ALT

Valid entries are XXX/YYY.Y:

· decimal values can be omitted
· leading zeros can be omitted for distance entries
· distance only entries must start with a slash (/).

Distances from the fix display on the HSI as a circle around the fix. When the circle intersects the active route, the ETA, DTG and predicted altitude at the intersection display for the closest of the two intersections.

Bearings from the fix display on the HSI as radial lines from the fix. When the bearing intersects the active route, the ETA, DTG and predicted altitude at the intersection display.

ETA – displays the estimated time if arrival to the intersection point.
DTG – displays the distance to go to the intersection point.
ALT – displays the predicted altitude at the intersection point.

VNAV Pages

Climb Page
The climb page is selected by pushing the CDU VNAV function key while on the ground, during takeoff, or in climb.
The climb page is used to evaluate, monitor, and modify the climb path. The data on the climb page comes from preflight entries made on the route and performance pages, and from the FMC data bases.
The FMC provides speed control in the climb mode to provided the best economy or a fixed speed. In each mode, the same type of data is shown on the page.

1 - Cruise Altitude (CRZ ALT)
Displays cruise altitude entered on PERF INIT page.
Altitude displays in feet or flight level depending on transition altitude.

2 - Selected Speed (SEL SPD)
· if Cost Index is entered, then economy speed shows based on Cost index
· speeds can be set manually
· shows CAS and Mach values. Mach used above FL240

3 - Speed Restriction (SPD RESTR)
Speed restrictions not associated with specific waypoints are manually entered on this line.

4 - Transition Altitude (TRANS ALT)
Transition altitude for origin airport contained in navigation database. FMC uses 18,000 feet if transition altitude is not available.
Manually change transition altitude here.
Valid entries are XXX, XXXX, XXXXX, or FLXXX.

Cruise Page

All Engine Cruise

The cruise page is used to monitor and change cruise altitude and speed. Speed changes can be manually select-ed or automatically selected with the selection of other VNAV modes. When Cost index is entered, economy speed is used. When the flight crew enters a selected speed, page data changes.

1 - Cruise Altitude (CRZ ALT)

Displays cruise altitude entered on PERF INIT page.

Valid entries are: XXX, XXXX, XXXXX, OR FLXXX. Altitude displays in feet or flight level depending on the transition altitude.

2 - Target Speed (TGT SPD)

Displays target speed for cruise. If Cost index entered, this value is based on that number. Can be manually changed. Once changed, will not change back to CI based speed. Mach used above FL240

3 - Actual Wind

4 - Destination ETA/FUEL

Estimated time of arrival and calculated fuel remaining at the destination.

Descent Page
The descent page is used to monitor the descent. Descent speed modes are fixed speed (TGT). The default VNAV descent mode is a fixed speed descent based on the Cost Index entered OR manually entered on the DES page. The descent page is available fulltime. The fixed speed mode controls descent speed until a lower speed restriction is reached.

1 - End Of Descent At (E/D AT)
Shows the end of descent altitude and waypoint. The end of descent point is a waypoint in the descent phase with the lowest altitude constraint. Blank if no E/D point exists.

2 - Target Speed (TGT SPD)
Shows the current target descent speed.
· Speed based on cost index if entered
· shows CAS or Mach.
· Can be manually entered
· Mach used above FL240

3 - Speed Restriction (SPD RESTR)
Speed restrictions are manually entered on this line. Valid entry is a CAS and altitude (example 240/8000).

Progress Page
The progress page displays general flight progress data.

Progress Page 1/2
The page title displays the company flight number entered on the RTE page.
Page one of the progress pages displays general data about:
· waypoints (previous, active and next)
· destination

1 - FROM
Previous waypoint is displayed. Can not be modified.

2 - TO
Active waypoint is displayed. Can not be modified.

3 - NEXT
Waypoint after TO waypoint is displayed. Cannot be modified.

4 - Destination (DEST)
When the page is selected the active route destination is displayed.

5 - Wind

6 - ATA/ETA
Actual time of arrival (ATA) at previous waypoint. Estimated time of arrival (ETA) at waypoint or destination.

7 - Distance To Go (DTG)
Distance to go to waypoint or destination.

8 - FUEL
Estimated fuel remaining at waypoint or destination.

9 - FUEL QTY
Current Fuel quantity

Progress Page 2/2
Progress page two contains:
· wind data
· true airspeed
· track error data.
· static air temperature.

1 - Headwind (H/WIND), Tailwind (T/WIND)
Displays headwind (H/WIND) or tailwind (T/WIND) component relative to the airplane heading.

2 - WIND
Displays current wind direction and speed referenced to true north.

3 - Crosstrack Error (XTK ERROR)
Displays crosstrack (XTK) error in nautical miles left or right of the active route.

4 - Crosswind (X/WIND)
Displays left (L) or right (R) crosswind component relative to airplane heading.

5 - Static Air Temperature (SAT)
Displays outside static air temperature.

6 - TAS
Displays airplane true airspeed.

Arrivals Page
The arrivals page allows selection of an approach, standard terminal arrival route (STAR), and an arrival transition to the destination airport. This page can also be used to view data about a selected airport that is not the destination. Route 1 and route 2 have separate arrival pages. The approaches, STARS/profile descents, and transitions are shown and selected on this page.

1 - Standard Terminal Arrivals (STARS)
Lists the STARS and PROFILE DESCENTS for the airport. STARS are shown first in a list under the STAR line title. Profile descents are listed after the STARS under the PROF DES line title. When a selection is made the procedures not selected are removed from the page. The selected procedure is listed with <SEL> and a list of compatible transitions is shown.

2 - Standard Terminal Arrivals Transitions (STARS TRANS)
Lists all the transitions for the selected STAR. When a selection is made the transitions not selected are removed from the page. The selected transition is listed and marked <SEL>.

3 - INDEX
Push – shows the DEP/ARR INDEX page.

4 - APPROACHES
Lists available approaches and runways for the destination airport. When a selection is made, other approaches and runways are removed from the page and compatible transitions are listed. The list of STARS and profile descents is reduced to those compatible with the selected approach.

5 - Approach Transitions (APPROACHES TRANS)
Transitions are listed when an approach is selected. Shows a list of available transitions to the selected approach.

6 - ROUTE
Push – displays the related RTE page.

Approach Reference Page
The approach reference page shows approach planning data and approach reference speed (VREF) selection. It is accessed via the INIT/REF INDEX page LSK 5L.

1 - Gross Weight (GROSS WT)
Airplane gross weight is shown.

2 - INDEX
Push – shows the INT/REF INDEX page.

3 - FLAPS VREF
Push the applicable line select key to select the correct VREF speed. It will be placed in the scratchpad. Then select LSK 4R to place in FLAP/SPEED section. The three VREF speeds are based on landing flap setting. Shows the calculated reference speed for flaps 20°, 25°, and 30°.

4 - FLAP/SPEED
The flap position and VREF speed is entered for landing. The VREF speed is shown on the ADI Speedtape. Deletion of the data removes VREF from the ADI Speedtape.

HOLDING

Hold Page (First Hold)
The hold page is used to enter a holding pattern into the route. When the flight plan does not have a holding pattern, push the HOLD function key to show the RTE X LEGS page with the HOLD AT line. The holding page displays actual or default data about the holding pattern. Entries make route modifications, which can be erased or executed. Active holding patterns are magenta

1 - HOLD AT
When the HOLD function key is pushed and no holding pattern exists in the route, the RTE LEGS page displays prompts to enter the holding fix. Enter the holding fix to show the RTE X HOLD page. Route waypoints ONLY should be entered as the holding fix. In this example, POWEL was selected into the scratchpad by selecting LSK 2L. the next step would be to click LSK 6L.

2 - HOLD AT Present Position (PPOS)
Selects the airplane present position as the holding fix. Creates a Waypoint for the current position.

HOLD PAGE (EXISTING HOLD)
When one or more holding patterns are already in the route, push the HOLD key to show the hold page for the first holding pattern. Holding parameters can be monitored and changed on this page. New holding patterns are added using the NEXT HOLD prompt.

1 - Holding FIX
Displays the holding fix.

2 - Inbound Course/Direction (INBD CRS/DIR)
Displays the holding inbound course and turn direction. Valid entry is XXX (inbound course), XXX/X (inbound course/turn direction), /X or X (turn direction).

3 - LEG TIME
Default display is 1.0 MIN (minute). Displays –.– if a LEG DIST is entered. Valid entry is X, X.X, or .X in minutes from 0.1 to 9.9.

4 - Leg Distance (LEG DIST)
Default display is —.– NM if no leg distance has been entered or if a LEG TIME is entered. Valid entry is X.X, XX.X, or .X.

5 - NEXT HOLD
Push – displays a new hold page for a new holding pattern entry.

6 - FIX ETA
Displays the ETA to the next passing of the holding fix.

7 - BEST SPEED
Fixed value of 220 knots and can NOT be adjusted.

8 - EXIT HOLD
Pushing arms a return to the holding fix via the inbound course for holding pattern exit
· EXEC light illuminated.
When the EXEC key is pushed, the airplane will cross the holding fix and exit holding. If executed when outbound in the holding pattern the airplane will immediately turn inbound and exit holding when the fix is crossed.

FMC Messages

FMC messages:
· display in the CDU scratchpad
· illuminate the amber FMC light on the instrument panel
· cause the EICAS advisory message FMC MESSAGE to display

DELETE – DEL key pushed.

INVALID DELETE – deletion of selected data is not allowed.

INVALID ENTRY – entry format or range is incorrect for the selected field or the entered airway/waypoint does not coincide with the navigation database.

NO ACTIVE FLIGHT PLAN - displays when LOAD ATC RTE is selected and there is no FS Planner route currently loaded.

NOT IN DATABASE – data is not in the route or the navigation database.

RESET MCP ALT – displays 'after' the TOD is passed and the aircraft remains above the cruise alt -100 ft. Clears automatically when aircraft goes below cruise alt -100 ft.

RTE UPLINK OK – Active FS Planner route data has been loaded and is ready to be executed.

FMS Loading Tutorial

Load a Stored Flight Plan

1. Press the 'INIT REF' button.
2. Press the L6 LSK button (< Index label).
3. Press the R2 LSK button (Flight Plans label)
4. Scroll through the Stored Flight Plans list for the filename to select.
5. The Flight Plans list will show every stored flight plan in your FS..\QualityWings\FlightPlans folder. Only the first 200 files only.
6. Select the LSK next to the FlightPlan name to select.
7. The EXEC button will light up, press the EXEC button to activate and execute the FlightPlan

The file formats supported from this folder are:
- FS2004 Planner .pln
- FSX Planner .xml
- QW 757 / ISG1 .rte

Load the current FS Planner ATC/GPS Flight Plan

1. Press the 'INIT REF' button.
2. Press the L6 LSK button (< Index label).
3. Press the R3 LSK button (Load ATC Rte label). If Load was successful the FMS scratchpad will display 'RTE UP-LINK OK' message If Load was Unsuccessful the FMS scratchpad will display 'NO ACTIVE GPS RTE' message.
4. Clear the FMS scratchpad (CLR button)
5. Press the LEGS button
6. Press the R6 LSK to Activate the Flight Plan.
7. The EXEC button will light up, press the EXEC button to Activate/Execute the Flight plan.
8. The Legs page status will change to 'ACT'

Export from FSBUILD

1. Fsbuild Ver 2.3.7.6.2 (Hotfix) or later required.
2. If FS_HOME path is set, QualityWings folder will automatically be known to FSB. If not, then Set FS_HOME Path on Options/Export Directories page. Go to Settings tab, and press the 'Save Config Options' button. Shut Down FSBuild, and restart again.
3. Prior to building or autogen a route, go to the 'Export To' menu, and Select the QualityWings 757 menu item.
4. Build the flight/plan route.
5. A message box will appear with the text 'Created QualityWings 757 file... followed by the exact path and file-name the file was written to.
6. Go to the QualityWings 757 FMS
7. From here Follow the steps for 'Load a stored flight Plan' section above

For other 3rd party Flight Planner programs or websites (FSCommander, FSNav, Simroutes.org, vroute.net etc,).

1. Export the flight plan in FS Planner format
2. Save to the FS..\QualityWings\FlightPlans folder.
3. From here Follow the steps for 'Load a stored flight Plan' section above

TUTORIAL FLIGHT

QualityWings Ultimate 757 Tutorial (Simple)

Aircraft: B757-200 Rolls Royce w/Winglets
Route: KTPA-KMIA
Flight plan : Flight Sim Flight planner
- IFR
- High Altitude Airways
- FL200
Flight is done WITH ATC Guidance!

PAYLOAD SETUP
Please perform this step BEFORE YOU START FLIGHTSIM or BEFORE YOU LOAD A QW AIRCRAFT!!!
Setting Payload via the QualityWings Livery/Load Manager

After you initially load the QW Aircraft, before we get started, you need to set your Fuel Load Via the QualityWings Livery/Load manager. For today's flight, we are going to set the payload at 50% Full. You can do this at the bottom of the Livery manager. MAKE SURE YOU CLICK APPLY and make sure you set the payload for the appropriate aircraft!!

FUEL QUANTITY SETUP
After you load the aircraft be sure to set the fuel in the Left and Right main fuel tanks to 100% in the default FS fuel loader.

- Open the QualityWings Control panel (QW Simicon) and select landing Checklist. it will turn green when it is enabled.
- - Setup Flight using Default Simulator Flight Planner
- - Load the flight. You can choose to move the aircraft to your Departure Airport if you are not already there.
- - Select the "FMS" simicon on the side of the 2D panel to access the FMC Control Display Unit. This is where we interface with the Flight Management System.
- - The FMS loads on the IDENT page. Select the Line Select Key (referred to as LSK from this point forward) next to INDEX. This will bring you to the INIT/REF page. Another way to get to this page would have been to hit the INIT REF button.
- - Select LOAD ATC RTE. RTE UPLINK OK shows in the FMC Scratchpad. Select the CLR key to remove this message from the scratchpad. otherwise, the Amber F<MC Alert message will show on EICAS
- - When the Route is loaded, you will automatically be taken to the RTE page. Confirm your Origin and Destination correct. If so, select the EXEC key which should be lit up at this time. Click execute clears the EXEC light and turns your RTE ACTIVE. The Title page changes from RTE to ACT RTE
- - Select LSK 6R for PERF INIT (Performance Initialization). This page sets information for the aircraft vertical profile to be used for VNAV control
- - Confirm the altitude chosen in our Flightplan matches what we selected (FL200). If not, correct it by entering 200 in the scratchpad and selecting the LSK 1R for CRZ ALT. For the Cost Index, we'll use 80 today.
- - Now that we've completed the cruise altitude parameters for this flight, let's go to the takeoff ref page. You'll notice the very low v-speeds, we are light today and will be using a rather long runway... enter 5 in the scratchpad to adjust our takeoff flap setting to 5. Your v-speeds will increase due to the lowered flap setting.
- - Select V2+25, in the IAS/MACH speed window on the MCP. For instance, if our V2 speed is 132 so you will enter 157 in the speed window. You do not want to exceed this speed until the acceleration height of 1000 feet.

- • - Now that we've entered all of the performance data, select the DEP/ARR button on the FMS so we can enter our Departure as per the flightplan.
- • - Select the DEP button and then select a departure runway (choose whichever is active per ATC). Your arrival will be set enroute when ATC assigns your approach.
- • - The flightplan is now entered, select the INIT REF key and then INDEX to get back to the Index page. Select TAKEOFF and you will notice "PRE-FLIGHT COMPLETE" shows bottom right. Your FMS is ready to get you going!
- • - Now select the EFIS simicon in the 2D panel to open the EFIS control panel. Put the HSI in Map Mode and select 40 miles for the range. Hit the TFC button for the TCAS system.
- • - We're almost ready to push back now, go to the overhead panel and select the APU switch in the start position. When the APU is fully spooled up, you should see it display "Run".

Contact ATC for IFR Clearance

- The APU is now running, now we are ready to start the engines.

Manual Start
In the overhead panel, you will see a bleed air panel on the right side, above this panel are the packs switches. Please make sure that these are switched off before we start the engines. In addition, ensure that the Isolation valve Switch is ON (Flow-bar visible).

- Before engine start make sure there is APU bleed air on or the engines will not start. The engine start panel is above the fuel section of the overhead, turn the start position to both, then select "GND" to start either the # 1 or # 2 engine.

- When one engine is fully spooled up you may start the remaining engine.

AutoStart
- Click CTRL + E for automatic engine start. The sim will start both of your engines for you.

Contact Ground for Taxi Clearance

- Taxi to runway 36L, make sure to set the flaps to 5, turn on the flight director and arm the auto throttle. Make sure your taxi lights and anti collision lights are turned on. For more information on how to taxi the aircraft, **Click here**

Contact Tower for Takeoff Clearance

- As you approach the runway, derate your thrust to 50 degrees Celsius. On the RB211 engine, this should derate your take thrust ref to 1.70 EPR.

- When you line up on the runway, turn off the taxi lights and switch to the landing light. Do not forget to turn the wing lights and set the autobrake to "RTO".

- You are now ready to takeoff, advance the throttles to approximately 1.45 EPR and select the EPR button to engage takeoff thrust. The power should be set to the derated ref of 1.70 EPR.

- At VR, your rotation speed, rotate the aircraft and follow the flight director. Retract the gear and manually fly the aircraft and hold V2+25 knots until you reach the acceleration height of 1000 feet.

Under ATC Control

- - At 1000 feet your engines will automatically reduce to Climb thrust.
- - When you reach 190 knots, retract your flaps to 1, and at 205 bring the flaps up.
- - Turn on the center autopilot and we suggest controlling the aircraft as follows:
- - ATC will give you a series of instructions to turn the aircraft as they line you up to intercept your Flight Plan course. Use Autopilot HDG SEL mode as required.
- - ATC will give you a series of instructions to increase the altitude of the aircraft as they set you up to get to cruise altitude. You can use VNAV, but tVNAV will transition to ALT HOLD when it reaches a MCP constraint. The MCP aAltitude overrides VNAV requests!
- We suggest using FLCH during these phases.For climbing, FLCH (Flight Level Change will command for climb thrust and adjust pitch to maintain the speed. Current aircraft speed upon FLCH mode selection becomes target speed. This speed can be adjusted.
- - For climbout, turn off the landing light and wing light.
- - Prior to the Top of Descent, it's time to start getting setup for Miami. Select the INIT ref key. You will see the Miami ILS approach information and flap settings. Select flaps 30 and the Line select Next to "--/---" to select this Approach Flaps. Enter the ILS information into the Nav Control Panel on the glareshield.
- - In the HSI you'll see the little T/D icon in green as you approach it. This is your top of descent position. Even if you are using VNAV, we suggest waiting until ATC clears you for qa descent to adjust your MCP altitude to a lower altitude. In many cases, ATC is pretty much in sync with FMC computerd T/D. in the event that they are not in sync, this will prevent nuisance ATC instructions to return to your "cruising altitude" due to them seeing a premature descent.

Perform Checklist Item—IN RANGE

- - Now that you are descending you may require drag as the aircraft my be diffult to slow down. If this is the case you will get an amber colored FMC Level-C alert. This FMC message on EICAS is telling you that the FMC CDU has an improtant message for you to view. The message DRAG REQUIRED may be showing which means the aircraft needs a little bit of assistance slowing down. The 757 is a very "Slippery" aircraft. Extend the speedsbrakes to help aid in slowing the aircraft down.
- - Once below 10K Turn on the landing lights and set the autobrakes to "2".
- - Before I explain the final approach phase, please follow these flap retration speeds and refer to them as you approach the airport. Flaps 1 : 240, Flaps 5 : 215, Flaps 15 : 190, Flaps 20 : 170, Flap 25 : 160, Flaps 30 : 150/145.

ATC Approach Vectors

- - ATC will alert you of your current position relative to your destination airport.

"Boeing 1979, you are XX miles Northeast. Turn right heading XXX. Expect vectors ILS approach XXX.XX
- - You now know which runway you will be using
- - Navigate to the DEP/ARR page and select the appropriate Runway. This will give you visual reference on your HSI, assuming you are still in MAP mode on the EFIS Control panel

Perform Checklist Item—APPROACH

- - When u pass under 2500 feet, bring the gear down and reset the MCP to 1000 feet. Select the glideslope buton "APP" to arm the glidesploe hold. The autopilot is now in full control of the airplane and will autoland into Miami.

Perform Checklist Item—LANDING

- - When crossing 1700 feet reset your speed window to the VRef Speed called out of the FMC Approach page for the Flap setting that we used (Flaps 30). Add 5 knots and this is your VREF + 5 speed. At 1500 feet you should see the Land 3 status illuminate and the aircraft is now committed to autoland.
- - Now that you've landed operate the Thrust Reversers. You do not need to worry about the spoilers as they

auto deploy since yuou armed them during the Approach

- • - At 85 Knots you will hear a Level-A warning because the AP has disengaged. This is normal. Disengage au-
tobrakes by manually braking the aircrft and exit the runway.

<div align="center">

Perform Checklist Item—AFTER LANDING

</div>

- • - Once you've exited the runway retract the flaps and spoilers and turn off the landing lights. You may use
the taxi lights if you'd like.

<div align="center">

Perform Checklist Item—SHUTDOWN/PARKING

</div>

- • Go to the gate, arm the park brake and shut down the engines. You have now completed your flight.

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QualityWings Ultimate 757 Tutorial (Advanced)

</div>

Aircraft: B757-200 Rolls Royce w/Winglets
Route: KTPA-KMIA
Flight plan : GANDY1 SABEE CYY ILS 08R
Flight is done WITHOUT ATC Guidance!

COLD AND DARK SETUP
Prerequisites:
Please perform this step BEFORE YOU START FLIGHTSIM or BEFORE YOU LOAD A QW AIRCRAFT!!!
The best method at starting cold and dark is to first set your QW757.cfg file to load "Cold and Dark" panel config-
uration by default. This can easily be done by setting the following options in the QW757.cfg file:
PanelState=Cold_And_Dark.PNL
LoadPanelStateonAcLoad=1

Note: As long as these options are set in your QW757.cfg file, the aircraft will load Cold and Dark. HOWEVER, if
you do not use the QualityWings "Cold and Dark" Flight that we included, the engines will load "Running".

Once loading the QualityWings Cold and Dark Panel Situation and Flight, please be patient for approximately 10
seconds as the aircraft sets up the Cold and Dark Situation!

PAYLOAD SETUP
Please perform this step BEFORE YOU START FLIGHTSIM or BEFORE YOU LOAD A QW AIRCRAFT!!!
Setting Payload via the QualityWings Livery/Load Manager
After you initially load the QW Aircraft, before we get started, you need to set your Fuel Load Via the QualityWings Livery/Load manager. For todays flight, we are going to set the payload at 50% Full. You can do this at the bottom of the Livery manager. MAKE SURE YOU CLICK APPLY and make sure you set the payload for the appropriate aircraft!!

FUEL QUANTITY SETUP
After you load the aircraft be sure to set the fuel in the Left and Right main fuel tanks to 100% in the default FS fuel loader.

Checklist Item Reference - COLD & DARK START

For this flight we'll be doing a cold and dark startup and manual flightplan entry, we will explain everything you need to do.

The first thing you want to do is go to the overhead panel, click on the "O" Simicon (adjacent to the airspeed indicator).

- - Right click on the battery button to open the plastic over, and then left click to turn on the power. You may close the cover once you turn on the bettery.
- - Next to the Battery button, you'll see the STBY power knob, select that to the auto position. You will hear an electric buzz sound and the stby attitude indicator gyro spool up, this is normal.
- - Below the STBY power knob, you'll see external power button. As long as the parking brakes are on, EXT PWR will be available on our aircraft. Turn it on, you will hear the equipment cooling sound and AC power turn on. Do not release the parking brake, this will cause ground power unit to disconnect power to the aircraft.
- - If it's dark out, I'd recommend selecting the panel backlighting on. This can be done by selecting the LT OVRD (Light Override) button above the Taxi/Runway Turnoff light switch on the full overhead, or selecting the LT OVRD switch on the lighting panel in the 2D. if youa re in the Virtual Cockpit, the LT OVRD switch can also be accessed on the overhead.

Perform Checklist Item - RECEIVING AIRCRAFT

- - Select the "FMS" simicon on the side of the 2D panel to access the FMC Control Display Unit. This is where we interface with the Flight Management System.
- - Select the RTE (Route) button and then Enter "KTPA" in the scratchpad and select that into ORIGIN box. You can do this by selecting Line Select Key 1L. Do the Same for the DEST (Destination) Box for "KMIA".
- - Select the INIT REF button to go to the PERF INIT page. Enter "2" for the reserves.
- - Enter 340 in the scratchpad for your cruise altitude, enter this in the CRZ ALT box. For the Cost Index, we'll use 80 today.
- - Now that we've completed the cruise altitude parameters for this flight, let's go to the takeoff ref page. You'll notice the very low v-speeds, we are light today and will be using a rather long runway... enter 5 in the scratchpad to adjust our takeoff flap setting to 5. Your v-speeds will increase due to the lowered flap setting.
-
- - Select V2+25, in the IAS/MACH speed window on the MCP. For instance, if our V2 speed is 132 so you will enter 157 in the speed window. You do not want to exceed this speed until the acceleration height of 1000 feet.
- - Now that we've entered all of the performance data, select the DEP/ARR button on the FMS so we can enter our Departure as per the flightplan.
- - Select the DEP button and then select the GANDY1 SID in the KTPA departures list. Select the SABEE transi-

tion and Runway 36L.
- - Now that we've entered our SID, go back to the DEP ARR page and select ARR
- - Select the CYY5 arrival without a transition unlike the SID. For the approach we'll do the ILS Runway 08R, select that with the KROME transition.
- - Go to the LEGS page and hit the NEXT PAGE key until you get to page 3/4 of our flightplan.
- - Hit the DEL (Delete) key and you will see the word DELETE spelled out on the scratchpad. Then select this next to DHP to remove that fix.
- - Now select the button next to the fix KROME, it should spell out in the scratchpad. Select button next to the empty box to close the flightplan discontinuity with the fix KROME.
- - The flightplan is now entered, select the RTE key to get back to the main route page. Select activate, notice the Execute light turn on, hit the execute key to finalize the activation.
- - Now select the EFIS simicon in the 2D panel to open the EFIS control panel. Put the HSI in Map Mode and select 40 miles for the range. Hit the TFC button for the TCAS system.
- - We're almost ready to push back now, go to the overhead panel and select the APU switch in the start position. When the APU is fully spooled up, u should see it display "Run".

Perform Checklist Item - BEFORE START

- - The APU is now running, now we are ready to start the engines. In the overhead panel, you will see a bleed air panel on the right side, above this panel are the packs switches. Please make sure that these are switched off before we start the engines. In addition, ensure that the Isolation valve Switch is ON (Flowbar visible).
- - Before engine start make sure there is APU bleed air on or the engines will not start. The engine start panel is above the fuel section of the overhead, turn the start position to both, then select "GND" to start either the # 1 or # 2 engine.
- - When one engine is fully spooled up you may start the remaining engine.

Perform Checklist Item - AFTER START

- Taxi to runway 36L, make sure to set the flaps to 5, turn on the flight director and arm the auto throttle. Make sure your taxi lights and anti collision lights are turned on.

Perform Checklist Item - BEFORE TAKEOFF

- - As you approach the runway, derate your thrust to 50 degrees celcius. On the RB211 engine, this should derate your take thrust ref to 1.70 EPR.
- - When you line up on the runway, turn off the taxi lights and switch to the landing light. Do not forget to turn the wing lights and set the autobrake to "RTO".
- - You are now ready to takeoff, advance the throttles to approximately 1.45 EPR and select the EPR button to engage takeoff thrust. The power should be set to the derated ref of 1.70 EPR.
- - At VR, your rotation speed, rotate the aircraft and follow the flight director. Retract the gear and manually fly the aircraft and hold V2+25 knots until you reach the acceleration height of 1000 feet.

Checklist Item Reference - AFTER TAKEOFF

- - At 1000 feet your engines will automatically reduce to Climb thrust. Turn on the center autopilot and select the LNAV and VNAV switches on the MCP. You may now release the flight controls as the autopilot is now fying the aircraft.
- - When you reach 190 knots, retract your flaps to 1, and at 205 bring the flaps up.
- - For climbout, turn off the landing light and wing light. Do not forget to set the MCP to 34,000 feet so the aircraft does not stop climbing.
- - Once you reach the cruise altitude, go to the FMS and select VNAV to view information of the CRZ and DES phases of the flight. You can also hit the PROG (progress) button top view information on how the aircraft is performing.

- - Prior to the Top of Descent, it's time to start getting setup for Miami. Select the INIT ref key. You will see the Miami ILS approach information and flap settings. Select flaps 30 and the Line select Next to "--/---" to select this Approach Flaps. Enter the ILS information into the Nav Control Panel on the glareshield.
- - In the HSI you'll see the little T/D icon in green as you approach it. This is your top of descent position. In preperation for the descent reset your MCP altitude to 10,000 feet so allow VNAV to fly the aircraft down.

Perform Checklist Item - IN RANGE

- - Now that you are descending you may require drag as the aircraft my be diffult to slow down. If this is the case you will get an amber colored FMC Level-C alert. This FMC message on EICAS is telling you that the FMC CDU has an important message for you to view. The message DRAG REQUIRED may be showing which means the aircraft needs a little bit of assistance slowing down. The 757 is a very "Slippery" aircraft. Extend the speedbrakes to help aid in slowing the aircraft down.
- - Reset your MCP to 2000 feet before you get to 10,000 feet so the AP can continue descending through 10K.
- - Once below 10K Turn on the landing lights and set the autobrakes to "2".
- - Before I explain the final approach phase, please follow these flap retration speeds and refer to them as you approach the airport. Flaps 1 : 240, Flaps 5 : 215, Flaps 15 : 190, Flaps 20 : 170, Flap 25 : 160, Flaps 30 : 150/145.
- Open the QualityWings Control panel (QW Simicon) and select landing Checklist. it will turn green when it is enabled.

Perform Checklist Item - APPROACH

- - As you approach the waypoint KROME your initial approach fix, hit the Speed hold button on the MCP and set it to 170 and select the "LOC" button to arm the localizer hold.
- - When u pass under 2500 feet, bring the gear down and reset the MCP to 1000 feet. Select the glideslope button "APP" to arm the glidesploe hold. The autopilot is now in full control of the airplane and will autoland into Miami.

Perform Checklist Item - LANDING

- - When crossing 16, 1700 feet reset your speed window to the VRef Speed called out of the FMC Approach page for the Flap setting that we used (Flaps 30). Add 5 knots and this is your VREF + 5 speed. At 1500 feet you should see the Land 3 status illuminate and the aircraft is now committed to autoland.
- - Now that you've landed operate the Thrust Reversers. You do not need to worry about the spoilers as they auto deploy since you armed them during the Approach
- - At 85 Knots you will hear a Level-A warning because the AP has disengaged. This is normal. Disengage autobrakes by manually braking the aircraft and exit the runway.

Perform Checklist Item - AFTER LANDING

- - Once you've exited the runway retract the flaps and spoilers and turn off the landing lights. You may use the taxi lights if you'd like.

Perform Checklist Item - SHUTDOWN/PARKING

- - Go to the gate, arm the park brake and shut down the engines. You have now completed your flight.

Taxiing

Thrust Use
To initiate taxi and reduce possibility of jet blast damage:
• Smoothly advance power to a minimum required for the aircraft to roll forward; maximum of N1 35% RPM.
• Aircraft response to thrust change is slow, particularly at high gross weights. Idle thrust is adequate for taxiing under most conditions. A slightly higher thrust setting is required to start taxiing. Allow time for aircraft response to each thrust change.
• Retard the power as soon as possible after the airplane starts to taxi. Use of reverse thrust is not recommended during taxi or for power back.

Controlling the aircraft
The normal straight away taxi speed should not exceed approximately 20 knots. When approaching a turn, use approximately 8 to 12 knots. In Flight Simulator, rudder pedals (twist the joystick, use the rudder pedals, or press 0 [left] or ENTER [right] on the numeric keypad) are used for directional control during taxiing. Avoid stopping during turns as excess thrust may be necessary to get rolling again. Use the reference point shown below while taxiing in the 2D panel. On the Widescreen panels, use below the **MAN** Switch on the VHF Nav Panel to the left of the Mode Control panel as the Centerline Reference Point.

Centerline Reference Point

VIRTUAL COCKPIT TOUR

Virtual Cockpit Tour

The Virtual cockpit provides a dynamic 3-dimensional flight sim experience while inside "the office". In the 2D cockpit, panels must be accessed via Sim-Icons and overlay one another. In the VC, you must "look" for these panels as you would in a real airplane!

Great care was taken to ensure that 2D and 3D cockpit functionality work in parallel. If it works in the 2D, it works in the 3D Virtual Cockpit. And we've thrown in some cool animations such as the ability to move the flightdeck seats to really enhance your experience on those long flights!

Accessing Virtual Cockpit:
FS9
Ensure VC model is loaded and click "S" (Default flightsim switch views command). The VC view mode is after the 2D view Mode. You can also select the VC in the Flightsim Views Menu.
FSX
Ensure VC model is loaded and click "F9" (Default flightsim View Virtual Cockpit command). Click F9 to switch back to 2D. You can also select the VC in the Flightsim Views Menu.

Basic VC Commands
You can move inside the virtual cockpit using these combinations:
Back: Control + Enter
Forward: Control + Backspace
Left: Control + Shift + Backspace
Right: Control + Shift + Enter
Up: Shift + Enter
Down: Shift + Backspace

FS9
You can pan around by clicking and holding your Mouse Wheel and moving mouse around.
FSX
You can pan around by holding your keyboard space key and moving your mouse around.

VC Lighting
The Light Override (LT OVRD) switch controls lighting in the VC. NOTE: if you click "L", all lights will turn on and off. Use the Landing light switches in lieu of the "L" command whenever possible.

Partial VC Lighting   Full VC Lighting

Interfacing with the Aircraft in the Virtual Cockpit

Interface with the Virtual cockpit is done using the mouse. Some items require you to Select and hold it with the mouse and move it, such as the throttle. Some items require right clicks to move in one direction and left clicks to go the opposite way, such as the Autobrakes switch. The pictures following show areas of the VC either can be interfaced with, or respond to movement of a control device (yoke, joystick). Pink circles represent areas that when clicked will open up a windowed Popup for ease of use. *Standard cockpit shown. Retrofit similar.*

The Control columns can be lowered for better viewing of EHSI by clicking on it.

Note: The EFIS Control Panel in the Retrofit Cockpit opens as a popup window. The Standard cockpit EFIS ctrl panel can be directly controlled in the VC without a popup
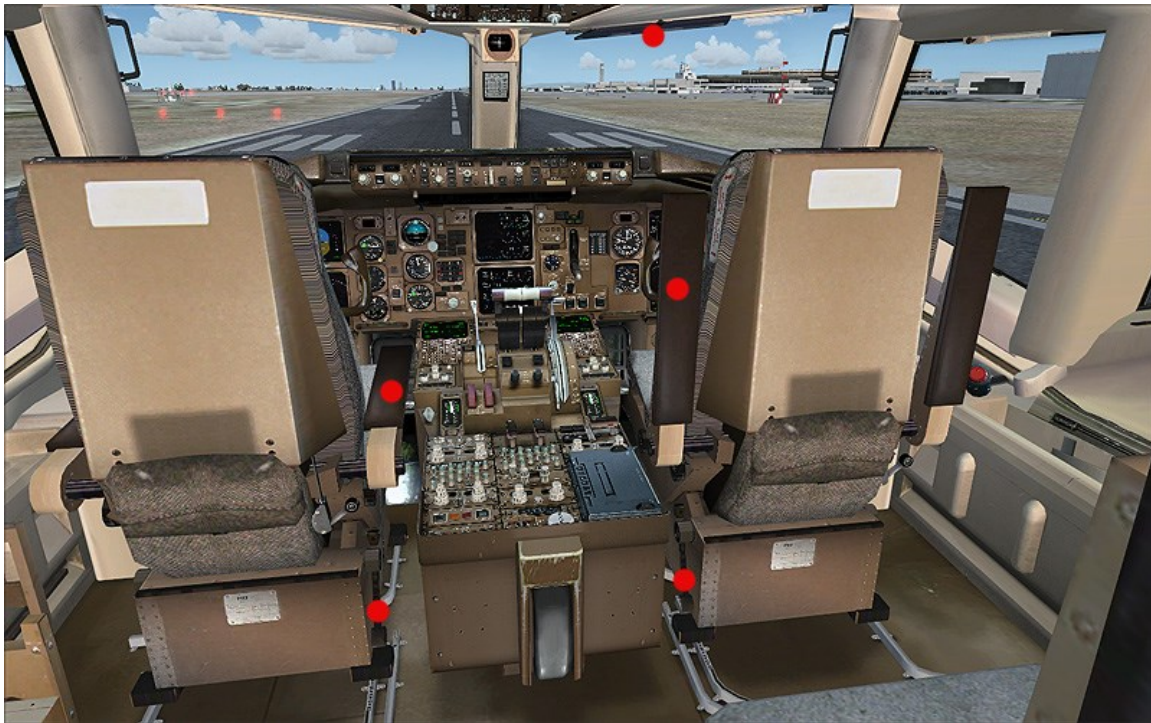
Click on these clickspots to manipulate the flightdeck accommodations: Seats and Sunvisors

Click on these clickspots to manipulate the flightdeck accommodations: Seats and Storage doors

TCAS SUPPLEMENT

Traffic Collision and Avoidance System (TCAS)

QualityWings is pleased to offer Lee Hetherington's TCAS II v7.0 logic fully integrated into the 757 EHSI and Nav displays (Retrofit). The TCAS is a full-fledged implementation of TCAS II version 7.0 (aka change 7.0 aka MOPS 7.0) logic, as specified by RTCA document DO-185A plus its amendments approved by SC-147A. Literally all features of the logic are implemented with the exception of TCAS/TCAS resolution advisory (RA) negotiation and Mode S ground stations. It is believed this is the most advanced TCAS II version 7.0 logic simulation in Flight Simulator.

The 757 DOES NOT include the Vertical Speed Indicator version of the TCAS II gauge, but this addition can be obtained by downloading Lee's freeware TCAS II gauge which is readily available on sites such as Flightsim.com. The QualityWings Standard Panel (ONLY) can be made to accommodate the Freeware TCAS VSI with some simple tweaks. QualityWings no longer supports this. It does work though!

TCAS Logic shown on EHSI (included)

TCAS Logic shown on VSI (Not included)

How to use:
To enable TCAS, access the EFIS Control Panel.
Select the TFC (Traffic button) and you will notice a Green TFC symbol on the EHSI/ND. This is your indication that TCAS is working. You can change the range of the display on the EHSI/ND via the EFIS Control panels to see targets further out. Vertical TCAS target range must be specified in the QW757.cfg file.

TcasVertRange=   \\ Sets the TCAS vertical range (default 3000 ft)
A maximum of 9000 ft can be chosen.

For more information on how to edit the QW757 config file, **click here**

 TCAS Symbology

Altitudes
Traffic is displayed with one of four symbols, a two-digit relative altitude (e.g., +03 or -07) or a three-digit flight level (e.g., 250), and an arrow indicating a vertical rate of at least +/- 500fpm. The altitude is indicated in units of 100ft, with a + indicating above ourself and a - indicating below for relative altitudes. The altitude tag, relative or absolute, will be positioned above the symbol if the intruder is above own altitude or below the symbol if the intruder is below own altitude

Resolution Advisory (RA)
A red symbol indicates a Threat and is accompanied by an aural warning which will direct you to perform a specific maneuver. It can be a Climb, descend or even maintain command. An RA concludes with a "Clear of Conflict" aural alert.

Traffic Advisory (TA)
A yellow circle indicates a Potential Threat and is accompanied by the aural warning "Traffic, Traffic" for a Traffic Advisory (TA).
A TA generally precedes an RA by 15-20 seconds. If an RA or TA is already active and a new TA appears, the aural warning will be a single "Traffic."

Proximate Traffic
A white solid diamond indicates Proximate Traffic that is within 6nm and +/- 1200ft vertically and is not an RA or TA:

Other Traffic
A white hollow diamond indicates Other Traffic that is within a settable vertical range of own aircraft. this range can be defined via the QualityWings options file. default range is 3,000 feet.

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SYSTEMS MODES

Systems Programming

QualityWings understands that flight simmers come in MANY MANY different flavors. Some users love a hard-core simulating experience and want to be in control of every area of the aircraft they are flying. They take pride in learning systems and operating the aircraft to every detail possible within the limitations of Microsoft Flight Simulator. There are also MANY MANY more users who couldn't care less what's going on with the aircraft. They want to fly from point A to point B as quickly as possible without having to setup an entire cockpit.

We have put A LOT of though into the design of the 757 panel and systems, and through a combination of intuitive programming and a bunch of Customizable User options - we believe we have created a 757 experience that EVERYONE can enjoy.

The real-life Boeing 757 is an incredibly complex aircraft, with hundreds and hundreds of processing going on "behind the scenes"...yet, a certain level of pilot interface is required. We have tried to create an experience that does not overwhelm you, but it is sophisticated enough to keep you on your toes in some cases. For instance, on the real 757 - when the A/P disengage bar is selected to disengage the Autopilot, it will remain down preventing re-engagement until it is returned to it's normal position. On the QualityWings 757, after 5 seconds we return the disengage bar back to normal. One less step for you to worry about. In another example, we allow you to control the Air Conditioning Packs...but forget to turn them on before flight and you may be faced with an untimely system warning.

Panel Modes: Standard vs. Lite Mode

Standard panel mode is the most realistic of the 2 panel modes and while it's not extremely complicated, there are users who really like a true Lite experience. Enter QualityWings LITE Mode. At the touch of a button, several 'advanced functions' are disabled. Lite Mode consist of the following:

- VNAV disabled.
- Autoland disabled.
- FLCH disabled.
- Thrust Hold disabled.
- Single button push complete start/shutdown option (Start/Stop button displays on overhead panel).
- Z key toggles on/off A/P.
- CTRL-H toggles on/off heading Sel mode.
- CTRL-Z toggles on/off altitude hold mode.
- Vertical speed window always open.
- When Alt Hold is activated V/S hold is also activated.
- LNAV will engage (not arm) if selected, it will immediately turn to the next active wpt instead of flying the current heading until intercepting track (intercept heading not required).
- Autopilot can be turned on anytime (even on the ground).
- Speed/Mach hold can be activated anytime (even on the ground).
- Pressing CMD button toggles on/off autopilot.
- Heading hold disabled (only Heading select is available, hdg hold box will light up however).
- IRS will align whether aircraft is in motion or not.
- Certain Level A Warning alarms disabled (Flaps,Stabilizer,Spoilers,Parking Brake).
- In Overhead panel a 'Start/Stop' button displays..

LITE Mode is selected via the QualityWings Control panel. Upon selecting lite mode, the QualityWings Control panel "Panel Mode" button will switch from STANDARD to LITE and the START/STOP button (normally hidden) now shows.
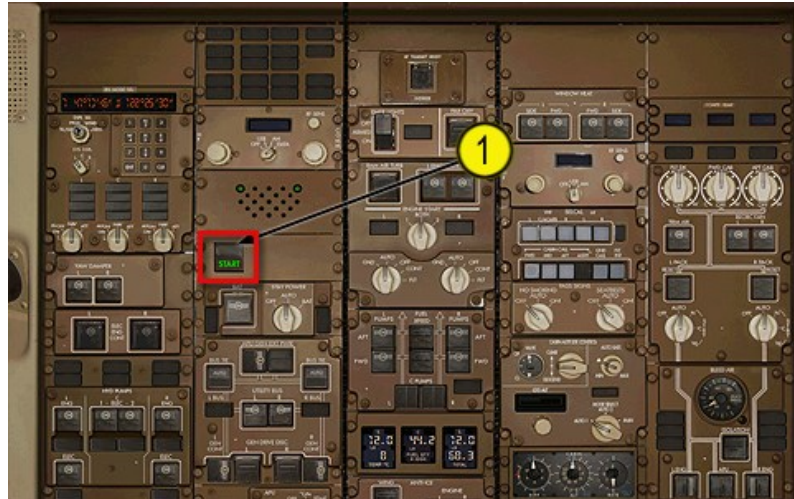
1 - Start/Stop Button

 - Start
     - Turns on Battery
     - Aligns IRS's
     - Turns on Y/D
     - Turns on APU
     - Turns on Packs
     - Autostarts both Engines
     - Button label changes to 'Stop'

 - Stop
     - Shuts down Engines,
     - Turns off Packs
     - Turns off Y/D
     - Turns off IRS's
     - turns off APU
     - Button label changes to 'Start'

OPTIONS

QualityWings Options

In addition to the "On the Fly" options available via the QualityWings Control Panel, there are over 100 other options that can be set via a configuration file. The config file (QW757.cfg) can be found in the QualityWings folder within the Flightsim folder:
\Flight Simulator 9\Qualitywings\QW757.cfg
\Microsoft Flight Simulator X\Qualitywings\QW757.cfg

By default, the QW757.cfg does not have many options set. If the option is not in the cfg file, the default value for a given parameter is always used. All options are conveniently available in another text file within the QualityWings fold-er for copy and paste purposes.

For more information on the QualityWings Config file, check out this Video Tutorial:
http://www.youtube.com/watch?v=51QEDqJXNNA

Available Options and Descriptions
There are 2 types of options:
Enable/Disable Type Options and Variable User Customizable Options.
Enable/Disable type options require either "0" or a "1" to set the option. Variable User Customizable Options allow you to tweak (preset) certain options to your personal liking (within specified limits).
Notes:
• Leaving an option file blank sets an option of zero "0". This can cause confusion between values where "0" is used to disable and where "0" can be used to set a parameter. If you do not intend to set an option, make sure it is not in the QW757.cfg file.
• // in front of an options cancels option and uses default

GENERAL OPTIONS

Enable/Disable Type Options
ActLnavWoIntHdg=1	Allows LNAV to activate when aircraft is not on Intercept heading.
AutoExtPwrAvail=1	Automatically makes External Power available when conditions warrant.
AutoLandApDiscSpd=	Speed when below autopilot is disconnected during autoland.
BlankMainGaugeOnPopup=0	Disables blanking of main window when expanded popup window of same gauge is opened. Default is 0. If for some reason you want the gauges to show when the display pop-ups are activated, set this option to 1. Note: Blanking the respective display on popup activation helps performance!
BurnFuelFromCtrFirst=0	Disables burning fuel from CTR tank first. Default is 0
DisplayLdgChkLst=1	Displays landing checklist on lower EICAS, when the Landing checklist is activated
DisplayVCOnLoad=0	Loads aircraft with VC Off
DisplayWVOnLoad=0	Load Aircraft with WV Off
ExtPwrAvailWithApuOn	External Power becomes available without APU on.
EnableManualEngStart=1	Allows for manual Start of Engines (User controls fuel control switch)
Irs=1	Aligns IRS's on aircraft load. Default is 0
LdgChecklist=1	Activates Landing Checklist feature on aircraft load. Default is 0
LiteMode=1	Load Aircraft in Lite Mode config. Default is 0
LoadPanelStateonAcLoad=0	Disables the automatic loading of the LastSavedPanelState.pnl file (or defined PanelState= file). '1' enables automatic loading and is default.
Packs=1	Turn packs on, on aircraft load
SetSpdOffwhenAPMasterSetOff=1	Turns off speed hold automatically whenever the autopilot is disengaged.
YawDampers=1	Turn on Yaw Dampers on aircraft load.
WindVectorDegVar=Mag	Show the Wind vector as degrees 'Mag' or 'true' (default)
UseATForVnavDesc=1	Uses default autothrottle for VNAV descent
UseAxisAutoBraking=1	Uses Joystick/Controller Axis braking for Autobrakes
UseDefAutoBrakes=1	Uses FS default autobraking system.

synchfplanwithfsgps=1	Any modification to the FMS updates the default GPS flightplan
LoadFuelonAircraftLoad=1	Always load the fuel from the QW Dispatcher when the plane loads
LoadFuelonFlightPlanLoad=1	Load fuel from the QW Dispatcher when loading a flightplan
SetMCPCruiseAltonFlightPlanLoad=1	Automatically set the MCP Alt to the loaded flightplan's cruise altitude

Variable User Customizable Options

AltWinRightClickIncr=200	Sets increment value of altitude window on right click (default 500, must be in even hundreds. In this example, 200 has been selected. Right clicking the altitude window reading 10,000 would result in the window changing to 9,800 or 10,200)
FlchMinIas=	Minimum IAS FLCH will engage (Default 150 knots)
FlchMaxIas=	Maximum IAS FLCH will engage (Default 340 knots)
IrsAlignSecs=17	Length of time in seconds to align the IRS's (default is 17)
LdgFlaps=	Preset Landing Flaps setting
PanelState=xxx.pnl	Panel state file to use every aircraft load (This file is not used if the situation matches the LastSavedPanelState.pnl file).
simver=9	Set simulator version (should only be used if aircraft is not correctly finding sim version by default)
TcasVertRange=	Default TCAS vertical range (in hundreds of ft) Default is 30 (or 3000 ft)

FMS OPTIONS

Enable/Disable Type Options

SetClbThrAtAccelHt=1	Disables the automatic switch from TO thrust to CLB thrust at the acceleration height. Default is 0. Setting a 1 disables.
1xAtTod=1	Automatically changes to 1x sim rate on reaching TOD
Arm1xAtTod=1	Allows Arming of 1x at TOD feature in FMC (label will display on FMS CRZ page)
ArmPauseAtTod=1	Allows Arming of pause at TOD feature (label will display on FMS CRZ page)
PauseAtTod=1	Automatically pauses the sim on reaching TOD
WeightUnit=KGS	Displays weighs in FMS as LBS (def) or KGS.

Variable User Customizable Options

AccelHt=	FMC Acceleration height on aircraft load (default 1000 ft RA)
ClbAltRest=	Preset Climb Altitude restriction (displays under Spd Rest label on FMS CLB page)
ClbSpdRest=	Preset Climb Speed restriction (displays under Spd Rest label on FMS CLB page)
ClimbIas=	Preset Climb Indicated Airspeed (displays under Sel Speed label on FMS CLB Page)
ClimbMach=	Preset Climb Mach speed (displays under Sel Speed label on FMS CLB Page)
CostIndex=	Preset Cost Index 0-200
CruiseIas=	Preset Cruise Indicated Air Speed (displays under Sel Speed label on FMS CRZ Page)
CruiseMach=	Preset Cruise Mach speed (displays under Sel Speed label on FMS CRZ Page)
DescAltRest=	Preset Descend Altitude restriction (displays under Spd Rest label on FMS DES page)
DescSpdRest=	Preset Descend Speed restriction (displays under Spd Rest label on FMS DES page)
DescentIas=	Preset Descent Ias speed (displays under Sel Speed label on FMS DES Page)
DescentMach=	Preset Descent Mach speed (displays under Sel Speed label on FMS DES Page)
FmcDispDragReqMsg=0	Disables 'DRAG Required' FMC message in VNAV mode
FmcShowResetMCPMsg=0	Disables 'Reset MCP' message in FMC
ToFlaps=	Preset Takeoff Flaps setting
TransAlt=	Preset Transition altitude
V1=	Preset V1 speed (FMS will not auto-calc when this setting is made)
VR=	Preset VR speed (FMS will not auto-calc when this setting is made)
V2=	Preset V2 speed (FMS will not auto-calc when this setting is made)
VREF=	Preset VREF speed (FMS will not auto-calc when this setting is made)

GAUGE OPTIONS

Enable/Disable Type Options

ShowRoundEadiVSpeeds=1	Display V-speeds on EADI in round mode.

EadiFMA=	0 FMA's display on bottom, 1 FMA's display on top
FlightDirectorType=	1 Single Cue , 0 Dual Cue
MapModeDispHdgAlways=1	Displays HDG in ND, or HDG in Retro MFD in Map mode (default is TRK)
ShowExtDestCtrlineRwyId=1	Displays runway identifier at the end of the extended runway centerline display in Map mode (ND/MFD/EHSI)
DispFPV=1	Displays Flight Path Vector (Retro PFD only)
EadiMode=	0 Speed Tape ADI , 1 Round ADI

Variable User Customizable Options

DisplayFont=Arial	Font to use in EADI/EHSI/Eicas screens (default is 'QualityWings757').
EADISkyColor=R,G,B	Sets color of the EADI ADI sky portion (insert RGB numbers separated by comma , Ex =100,151,249
EADIGndColor=R,G,B	Sets color of the EADI ADI Ground portion
PFDSkyColor=R,G,B	Sets color of the Retro PFD ADI Sky portion
PFDGndColor=R,G,B	Sets color of the Retro PFD ADI Ground portion
PFDTapeColor=R,G,B	Sets color of the Retro PFD Speed, Alt, FMA Tape
EfisLinesize=1	Sets line thickness in standard cockpit EFIS displays
EadiRefreshRate=	Sets EADI refresh rate (per second), min is 1, max and default is 18.
FmsRefreshRate=	Sets FMS refresh rate (per second), min is 1, max and default is 18.
RetroEhsiRefreshRate=	Sets Retro EHSI refresh rate (per second), min is 1, max and default is 18.
RetroPfdRefreshRate=	Sets Retro PFD refresh rate (per second), min is 1, max and default is 18.
RetroNdRefreshRate=	Sets Retro ND refresh rate (per second), min is 1, max and default is 18.
NdRefreshRate=	Sets ND refresh rate (per second), min is 1, max and default is 18.
StdbyPfdRefreshRate=	Sets Retro standby PFD refresh rate (per second), min is 1, max and default is 18.
LowerEicasRefreshRate=	Sets EADI refresh rate (per second), min is 1, max and default is 18.
UpperEicasRefreshRate=	Sets EADI refresh rate (per second), min is 1, max and default is 18.
ShowLiteModeStatus=1	Displays (L) in Lower right corner of Upper EICAS to indicate Lite more is active

SOUND OPTIONS

Enable/Disable Type Options
[Zero disables these sounds]

AltCallApprMins=0	Disables 'Approaching Minimums' altitude callout
AltCallMins=0	Disables 'Minimums' altitude callout
AltCall10=0	Disables '10' altitude callout
AltCall20=0	Disables '20' altitude callout
AltCall30=0	Disables '30' altitude callout
AltCall40=0	Disables '40' altitude callout
AltCall50=0	Disables '50' altitude callout
AltCall100=0	Disables '100' altitude callout
AltCall200=0	Disables '200' altitude callout
AltCall300=0	Disables '300' altitude callout
AltCall400=0	Disables '400' altitude callout
AltCall500=0	Disables '500' altitude callout
AltCall1000=0	Disables '1000' altitude callout
AltCall2500=0	Disables '2500' altitude callout
InhibitCockpitSoundsOnStopSound=1	inhibits cockpit sounds when view is outside the cockpit (ie when other sounds are also disabled). includes slew mode as well.
PlayAnnouncements=1	Plays Cabin announcements
PlayCockpitSounds=0	Disables all the non sound.cfg cockpit sounds
PlayEventSounds=0	Disables event sounds (button clicks etc)
PlayGpwsSounds=0	Disables GPWS sounds
PlaySpoilersSounds=0	Disables the spoiler sound
PlayCoolingSounds=0	Disables the Equip Cooling sound

PlayPacksSounds=0   Disables the packs running sound
PlayStbyPwrOnSounds=0   Disables the standby power on buzzing sound
PlayGearDragSounds=0   Disables the Gear Drag sound
PlayWarningSounds=0   Disables the Cockpit warning sounds (Level A, B etc)
PlayTakeoffCalloutSounds=0   Disables the takeoff callout sounds (V1, rotate, V2 etc)
PlayFlapHandleSounds=0   Disables the Flap handle movement sound.

Variable User Customizable Options
VolumeCoolingFan=100   Sets cooling fan sound volume (min 1, Max 100) default 100
VolumeCrewCallouts=100   Sets Crew callouts sound volume
VolumeWarnings=100   Sets Warnings sounds volume
VolumeStbyPwrOn=100   Sets standby power buzzing sound volume
VolumePacksOn=100   Sets Packs running sound volume
VolumeSpoilers=90   Sets Spoilers sound volume
VolumeEvents=10   Sets Events sounds volume
VolumeStbyAttSpool=85   Sets the volume of the standby power spooling up sound
VolumeGpws=100   Sets the volume of the GPWS sounds

3RD PARTY OPTIONS

Should you want to fit the default GPS or any 3rd party weather radar into the panel between the CDUs, please browse to *<Flight Simulator>\SimObjects\Airplanes\QualityWings 752 Passenger\panel.main* and search for the *[Vcockpit05]*-section.
You will see the default GPS listed as *gauge01*.
It is commented out by default (indicated by the: //). Delete the '//' and the GPS will show up in the simulator.
You can manually change the GPS to any other 3rd party gauge.

The example below shows how the entry should look like (marked in red):

[Vcockpit05]
file=$vc_05.bmp
Background_color=0,0,0
size_mm=1024,1024
visible=0
pixel_size=1024,1024
texture=$vc_05

gauge00=Qw757!FMS, 0,370,410,651
gauge01=fs9gps!gps_500, 535,650,474,346

SOUNDS

QualityWings Sounds

In addition to the expertly mixed Engine Sounds for both engine variants, the QualityWings sound suite promises to capture the 757 experience like never before! And new for SP2 is the QWPAS (QualityWings prerecorded Announcement System. In addition we've added 2 new modes of GPWS: Glideslope and Don't Sink logic

Recommended Sound Configuration Setup

To experience the awesome sound quality of the sounds included in this package, we **recommend** you adjust you Sound Settings as follows:
- Engines=55
- Cockpit=75
- Environment=75

Takeoff Callouts
Aural callouts are provided at 80 knots and at the appropriate V-Speeds as calculated by the FMS. Flap Retraction Callouts are also provided. A flightplan is NOT necessary for callouts. All you must do is access the takeoff page prior to takeoff so that the V-Speeds can calculate. **Click here** to see more info about the Takeoff page.

Landing Checklist Callouts
The Landing Checklist callouts are available as long as the Landing Checklist option is enabled in the QualityWings Control panel . It is disabled by default.

The prerequisites for the checklist are as follows:

- Approach Ref Speeds Set via the FMC. Just as with the Takeoff callouts, a flightplan is NOT necessary. Just access the Approach page while in-flight and set your desired Landing Flaps. **Click here** to see more info about the Approach page.
- Arrival Runway defined in the FMS. Flightplan not necessary, but a destination must be entered on the RTE page. **Click here** to see more info about the Route page.
- You must be less than 5 miles away from the runway
- You must be less than 1,500 feet radio Altitude
- Aircraft must be within 15 degrees of the runway centerline

When entering the checklist threshold (1500ft and 5 miles out), the callout "Landing Checklist" will sound. If you selected the option to display the Checklist on EICAS in the QualityWings Config file, the checklist will show on the Upper EICAS. As you complete items on the checklist—the color will change from Yellow (Item incomplete) to Green (Item Completed)

The following items will be called out:
Spoilers
- Your action - Arm the spoilers (Shift + /)
Flaps
- Your action - Set Flaps to landing Flaps set on Approach ref page. At this point in approach, flaps should be near landing flaps.
Gear
- Your action - Extend Landing gear

Once all items are complied with, the callout "Landing Checklist Complete" lets you know you are setup for landing. Don't blow it lol

PERFORMANCE DATA

Fuel Planning

How to read performance charts for fuel planning
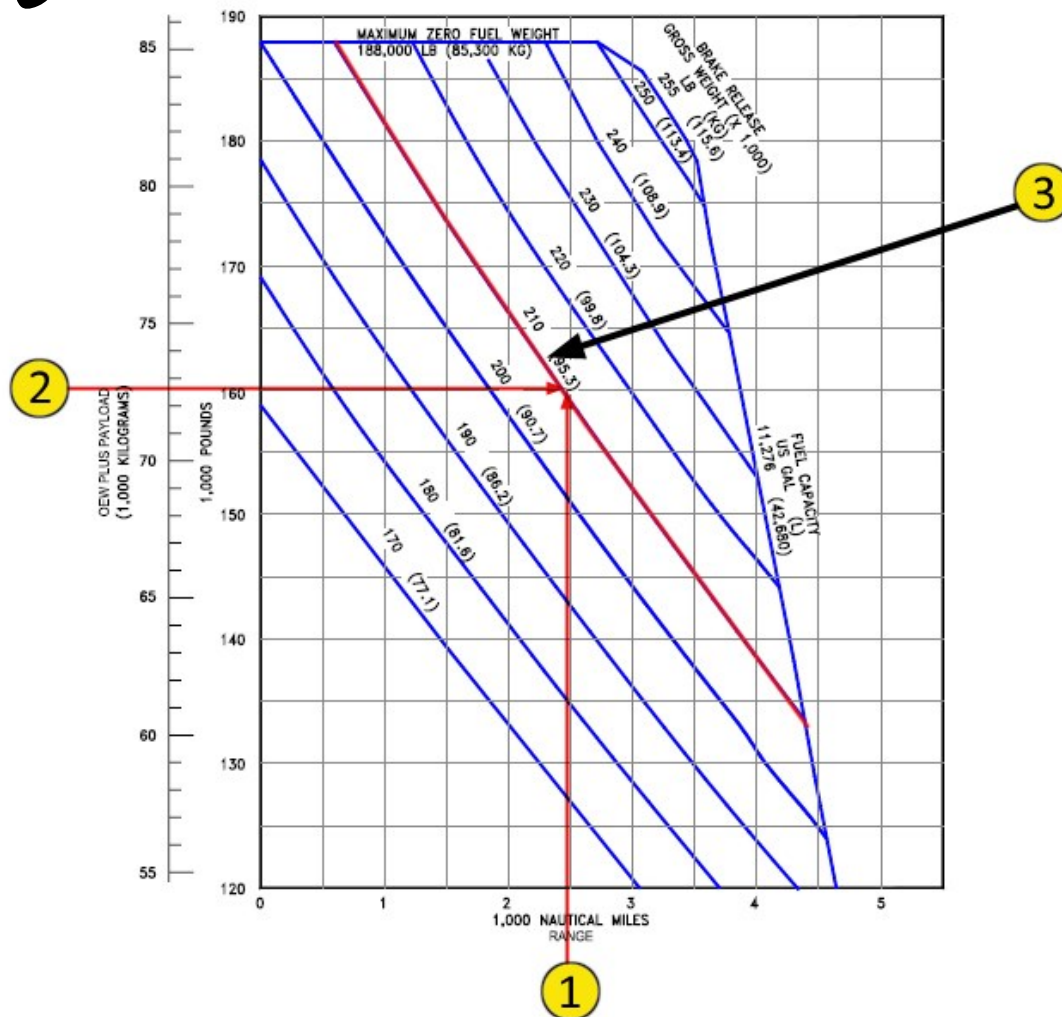
1. First you need to determine the distance of your flight. The distance of this flight will be 2,500 nautical miles. Draw a vertical line up along the2,500 mile line to your intended Zero Fuel Weight as determined in Step (2).
2. This flight will carry a mixed load of payload. The total payload of passengers and cargo = 28,060lbs. Adding this to the empty weight gives me a ZFW=160.000lbs. Draw a horizontal line from 160,000lbs (OEW + Payload = ZFW) to intersect the vertical line drawn in Step 1. We happen to intersect the 210,000 Gross Weight Line.
3. We can now determine our "Estimated Fuel Load". Our range and ZFW for this flight intersect the 210,000lb Gross Weight (GW) line. This GW minus ZFW = 50,000. We will need a approximately 50,000 lbs of fuel for this flight. We suggest you consider adding additional reserve fuel if you expect to encounter extreme headwinds.

B757-200 Passenger/Freighter (RB211-535E4B/PW2043)
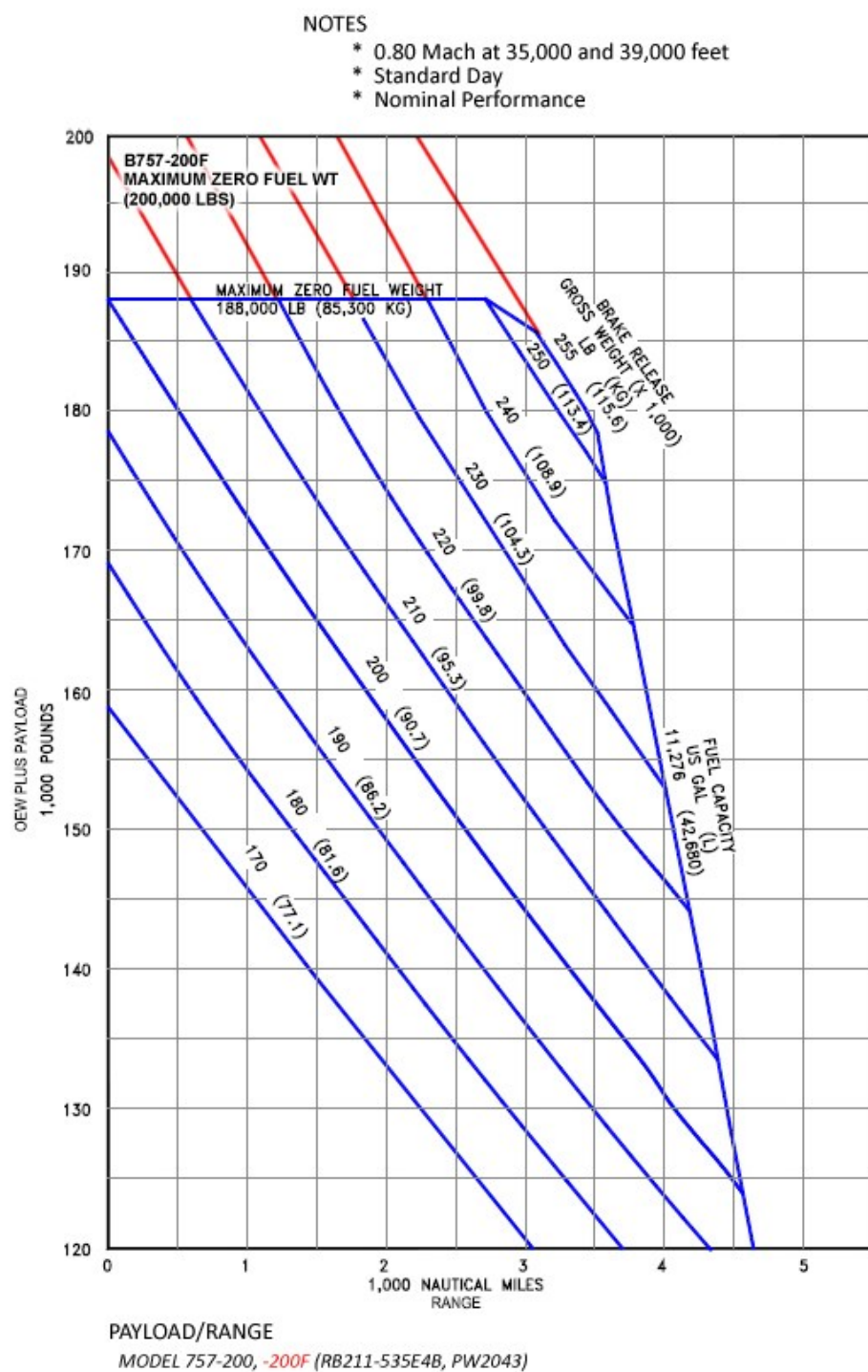
NOTES
* 0.80 Mach at 35,000 and 39,000 feet
* Standard Day
* Nominal Performance

PAYLOAD/RANGE
MODEL 757-200, -200F (RB211-535E4B, PW2043)

B757-200 Passenger/Freighter (RB211-535C)
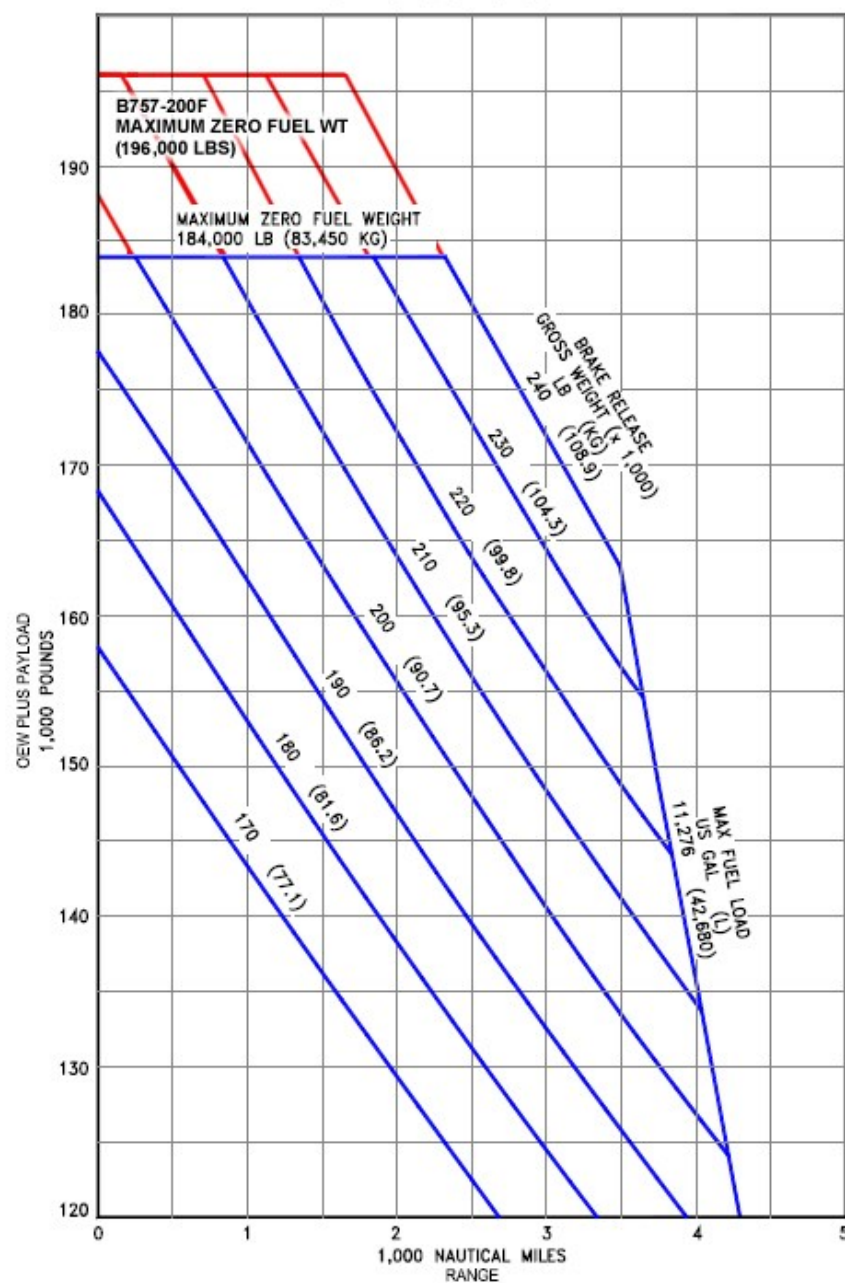
PAYLOAD/RANGE

MODEL 757-200, -200F (RB211-535C)

B757-200 Passenger w/Winglets (RB211-535E4B/PW2043)

NOTES
* 0.80 Mach at 35,000 and 39,000 feet
* Standard Day
* Nominal Performance
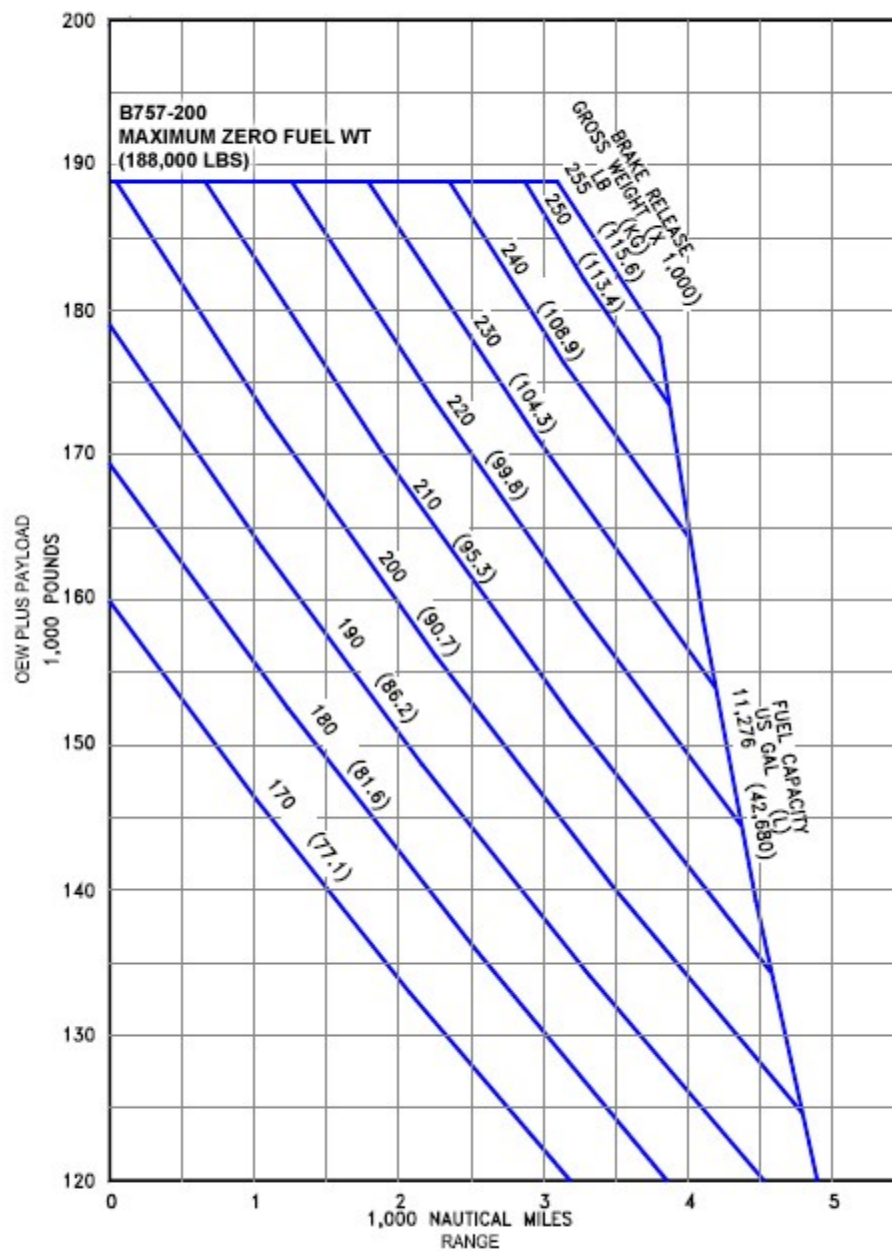
PAYLOAD/RANGE
MODEL 757-200WL(RB211-535E4B, PW2043)

B757-300 Passenger (RB211-535E4B/PW2043)

NOTES
* 0.80 Mach at 35,000 and 39,000 feet
* Standard Day
* Nominal Performance
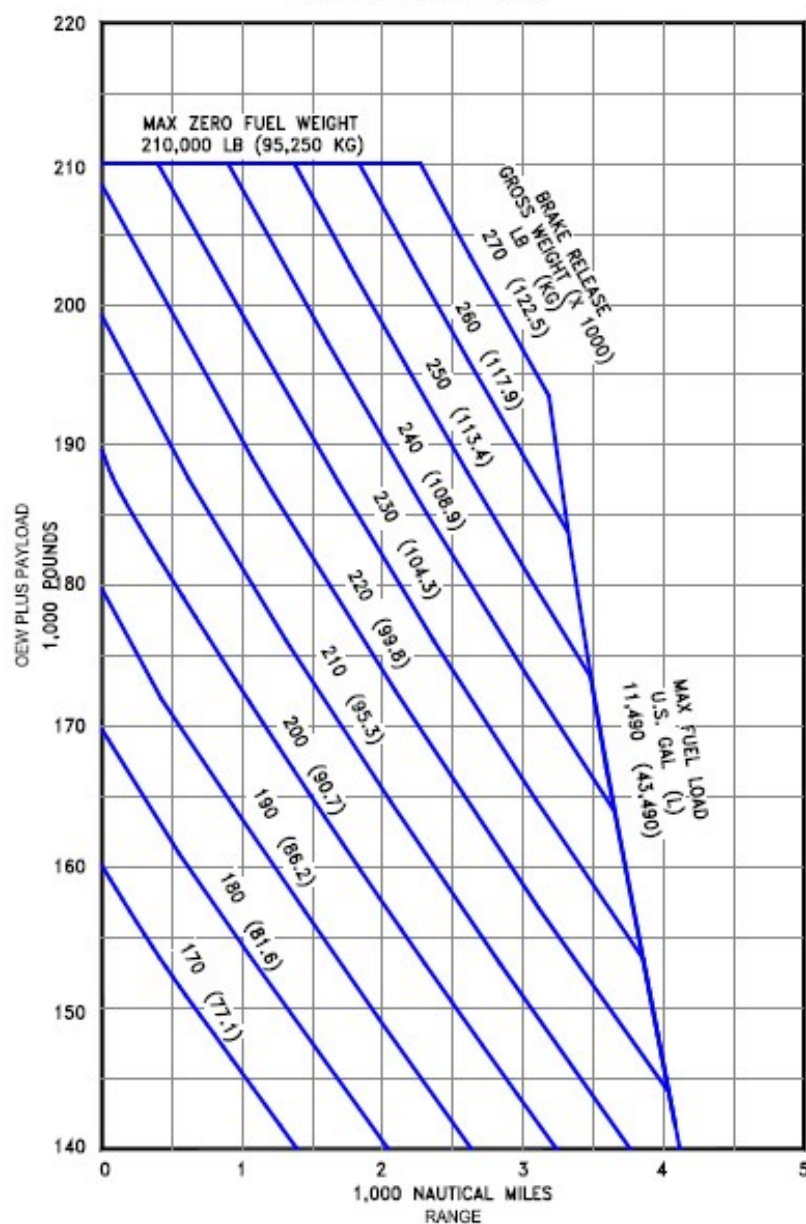
PAYLOAD/RANGE
MODEL 757-300 (RB211-535E4B, PW2043)

B757-300 Passenger w/Winglets (RB211-535E4B/PW2043)

NOTES
* 0.80 Mach at 35,000 and 39,000 feet
* Standard Day
* Nominal Performance
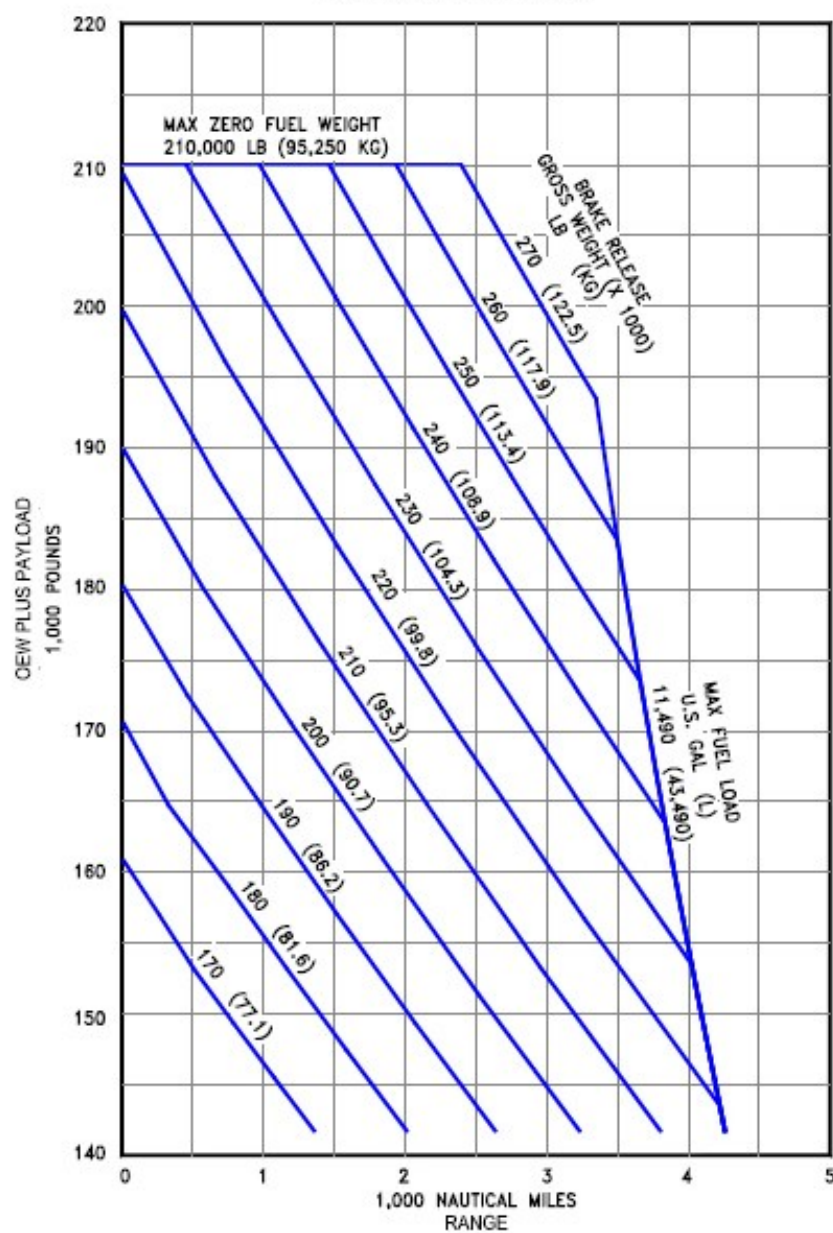
PAYLOAD/RANGE
MODEL 757-300WL (RB211-535E4B, PW2043)

FOLDER STRUCTURE

Folder Structure
Aircraft Models, Panels, Sounds and Textures
QualityWings objects can be found in the Aircraft folder of FS9 and the Simobjects\Airplanes folder in FSX

1 - Aircraft Folder
There are 7 QualityWings Aircraft folders containing all 15 models. Each aircraft folder contains all models and most textures needed, but not all aircraft folders contain panels and sounds. Only the QualityWings 752 Passenger and QualityWings 753 Passenger folders contain Panels. Only the 752 folder contains sounds. Each aircraft folder has an Aircraft.cfg file and all needed .Air files (Flight Dynamics)

2 - Model Folders
PW=Pratt & Whitney
RR=Rolls Royce
RR535C=Rolls Royce 535C Engine Model
WL=Has Winglets
WV=Wingview Model
VC=Virtual Cockpit Model (This folder no longer present after SP2 as the VC/Wv models are now combined into one model)

3 - Panel Folders
Panel.main - Has all Standard main panel files
Panel.main_VC - 2D Views removed

Panel.mainHD - Has all Widescreen main panel files
Panel.mainHD_VC - 2D Views removed

Panel.retro - Has all Retrofit main panel files
Panel.retro_VC - 2D Views removed

Panel.retroHD - Has all Widescreen main panel files
Panel.retroHD_VC - 2D Views removed
**NOTE: Virtual Cockpit models MUST use panels with the "_VC" suffix to prevent conflicts with static 2D views

4 - Sound Folders
Sound.pw - Contains all Pratt & Whitney Sound files. Only the QualityWings 752 Passenger has the files. All other aircraft are aliased to this folder
Sound.rr - Contains all Rolls Royce Sound files. Only the QualityWings 752 Passenger has the files. All other aircraft are aliased to this folder

5 - Texture Folder
Each texture folder contains MOST of the texture necessary for the livery. Common textures such as Virtual Cockpit bmps can be found in a common texture folder which differs between FS9 and FSX. FS9 Common textures can be found In the QualityWings folder while commons in FSX are inside the **QualityWings 752 Passenger\Common** folder. The contents differ between platforms.
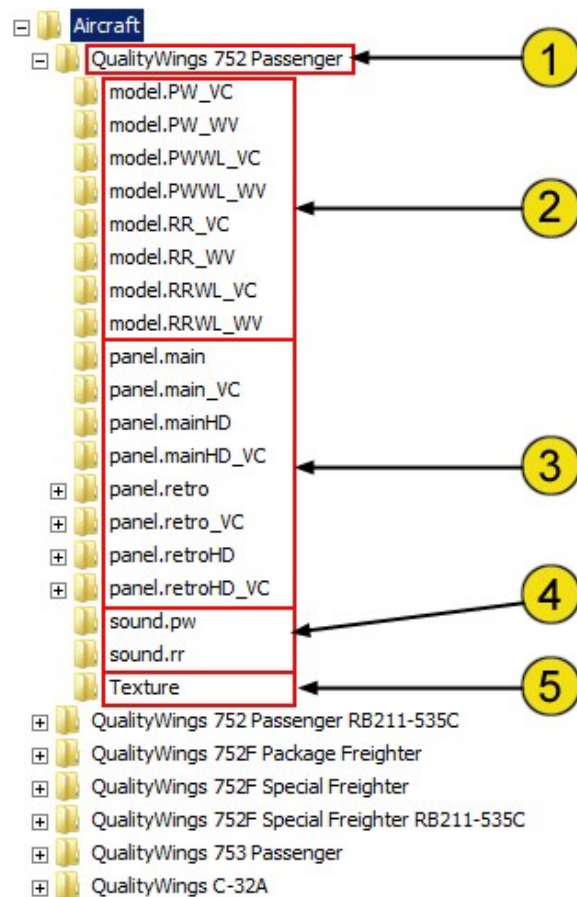
Folder Structure
QualityWings Folder contains support files and more
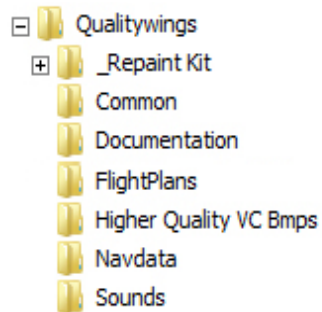
Repaint Kit - Contains repaint Kit
Common (FS9 Only) - Contains Common textures
Documentation - Users Manual
FlightPlans - Contains some sample FlightPlans. Flightplans may be placed here for use in the FMS
Higher Quality Bitmaps - Those users with the Recommended PC System may want to try our higher Quality 32-bit BMPS for the FS9 VC and the Engines. This folder is no longer present in the FSX Build.
Navdata - Contains AIRAC cycle
Sounds - Contains Other QualityWings Sounds

Freeware TCAS Ready Configs and Flight Dynamics Options are no longer available!

Aircraft.cfg File Refresher

Shown below are the contents of the QualityWings 752 passenger AIRCRAFT folder. In the Folder Structure section, we explained what each folder is responsible for. In this section, we will show the relationship between the folder and the Aircraft.cfg file.
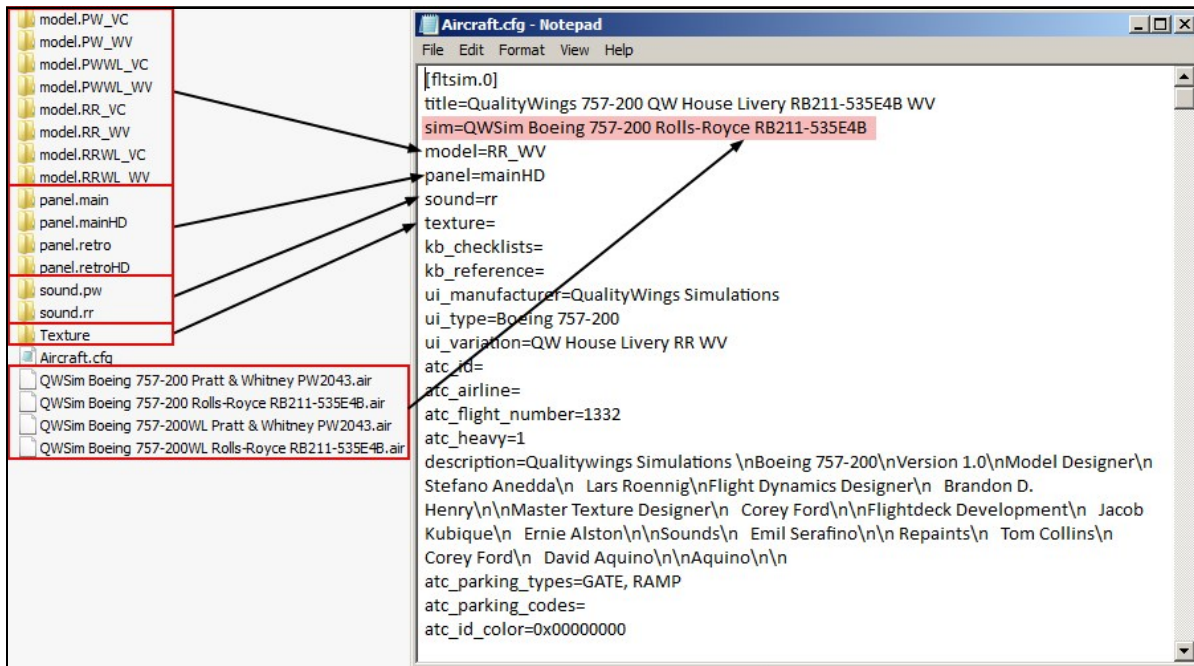
[Fltsim Section]
Each flightsim section of an aircraft configuration file represents a different version (configuration) of the aircraft, and is known as a configuration set. Configuration sets allow a single aircraft container to represent several aircraft, and allow those aircraft to share components. If there is only one section (labeled **[fltsim.0]**), it is because there is only one configuration set in that aircraft container. If there is more than one configuration set (labeled **[fltsim.0]**, **[fltsim.1]**, **[fltsim.2]**, and so on), each one refers to a different version of the aircraft.

Title Section
The title of the aircraft. All flightsim aircraft must have different title

Sim Section
Specifies which AIR (flight model) file to use. The file is located in the same folder as the aircraft configuration file.

Model Section
Specifies which model folder to reference.

Panel Section
Specifies which panel folder to reference. Panels with "HD" have widescreen (16:10) are default
__NOTE: Virtual Cockpit models MUST use panels with the "_VC" suffix to prevent conflicts with static 2D views__

Sound Section
Specifies which sound folder to reference.

Texture Section
Specifies which texture folder to reference. Folder suffixes must be added like so [Texture.abc]. Cfg would say Texture=abc

REPAINT KIT

QualityWings Repaint Kit (Now including QWHDT files)

The repaint kit allows you to paint high quality liveries for your 757. It's easy enough for the novice painter, but deep enough for the more advanced painters to appreciate. The kit is located in the QualityWings folder and requires Adobe Photoshop, as kit files are in .PSD format. **QWHDT files are for FSX ONLY!!**
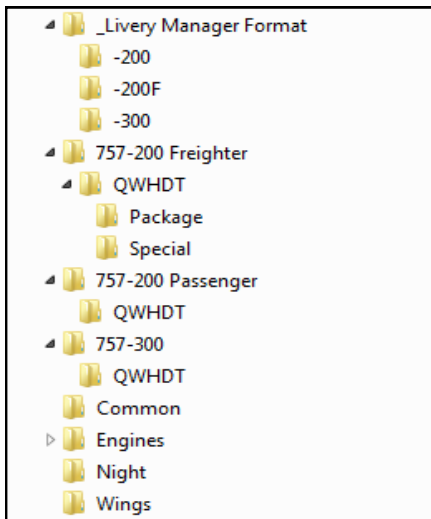
Livery Manager Format
Features sample files for you to use see what is needed for the Livery manager. You can find more information on the Livery Manager in the next chapter.

757-200 Freighter
QW752F Fuselage Master.psd
QW752F_FuseL_T.bmp
QW752F_FuseR_T.bmp
QW757F_Cargo_T.psd
QWHDT Subfolder
Contains QW752 PaintKit Freighter QWHDT Public.psd
Package & Special subfolders contain QWHDT Fuse bmps

757-200 Passenger
QW752 Fuselage Master.psd
QW752_FuseL_T.bmp
QW752_FuseR_T.bmp
QWHDT Subfolder
Contains QW752 PaintKit Pax QWHDT Public.psd
QWHDT Fuse bmps also included

757-300 Passenger
QW753 Fuselage Master.psd
QW753_FuseL_T.bmp
QW753_FuseR_T.bmp

QW753FuseStretch_T.bmp
QWHDT Subfolder
Contains QW753 PaintKit Pax QWHDT Public.psd
QWHDT Fuse bmps also included

Common
QW757_radomelines.bmp
QW757_registration.psd
QW757_Stabs_t.psd
QW757Belly_T.psd
QW757Gear_t.psd

Engines
PW2000
QW757engine_PW_L_T.psd
QW757engine_PW_R_T.psd
QW757engine_PW_L_T.bmp
QW757engine_PW_R_T.bmp

RB211-535C
QW757engine_RR535C_L_T.psd
QW757engine_RR535C_R_T.psd
QW757engine_RR535C_L_T.bmp
QW757engine_RR535C_R_T.bmp

RB211-535E4B
QW757engine_RR_L_T.psd
QW757engine_RR_R_T.psd
QW757engine_RR_L_T.bmp
QW757engine_RR_R_T.bmp

Wings
QW757Wings_L_T.psd
QW757Wings_R_T.psd
QW757Winglet_T.psd
QWHDT Subfolder
Contains QWHDT Wings

More information about the PSD files can be found in the pages following this one.

Recommended Painting Tools:
DXTBMP.exe
Imagetool.exe

Fuselage Masters

The fuselage masters are the starting point for an airline livery job. This is where the entire fuselage can be painted as well as the Vertical Stabilizer. This PSD is only an area to paint as it has no function within the simulator. Once you are finished, painting on the .psd, the image must be flattened and then cut up to be used in several other bitmaps. The flatten process must be done twice: once for the left side and once for the right side.

There are 6 different Masters:
- QW752F Fuselage Master.psd   B757-200 Passenger (FS9 or FSX)
- QW753 Fuselage Master.psd   B757-300 Passenger (FS9 or FSX)
- QW752 Fuselage Master.psd   B757-200 Freighters (Package & Special) (FS9 or FSX)
- QW752F Fuselage Master.psd   B757-200 Passenger (FSX ONLY)
- QW753 Fuselage Master.psd   B757-300 Passenger (FSX ONLY)
- QW752 Fuselage Master.psd   B757-200 Freighters (Package & Special) (FSX ONLY)

All masters contain the different Door options for the 757 aircraft as well as MANY other options, such as an optional bulk cargo door. When the Masters load, an information layer shows as an overlay, providing you with important information such as which .bmps the various parts of the .psd must be copied to. This overlay can and must be hidden before continuing.
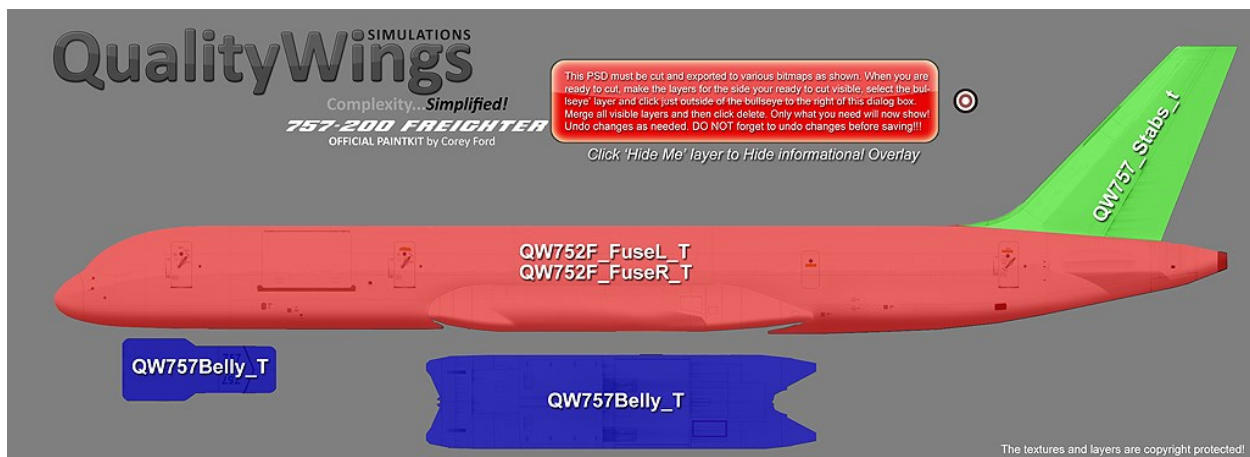
Informational Layer Shown

Informational Layer Hidden

Engine Masters

The engine masters are where the engines are painted. This PSD can be exported for use in the sim. Save as targa and then convert to 32-bit (higher quality) or DXT3 (Better performance). When the Masters load, an information layer shows as an overlay on some engine .psds, providing you with important information such as available options and tips. This overlay can and must be hidden before continuing.
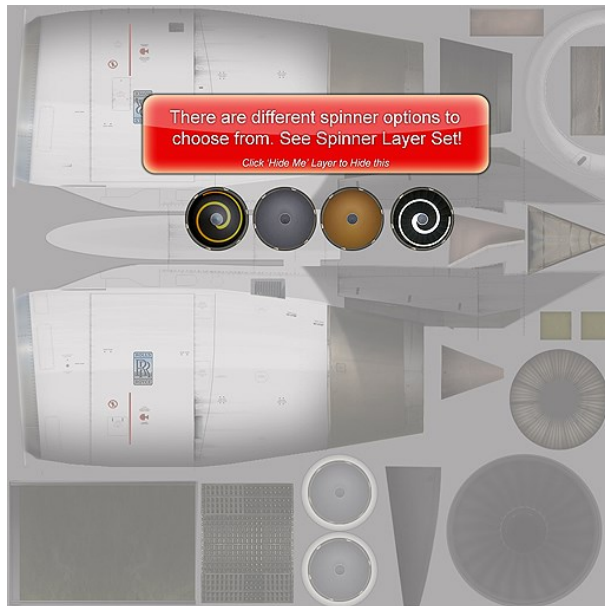
RB211-535E4B PSD showing Spinner Options   *PW2000 PSD showing painting tip*
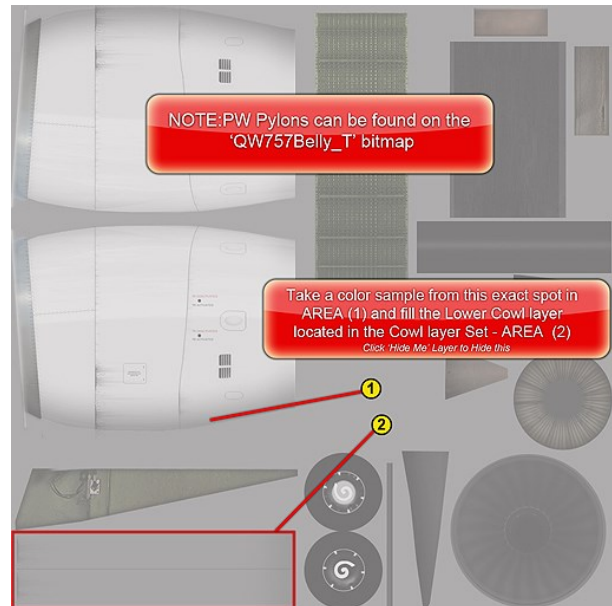
Stabilizer Masters

The Stabilizer masters are where the horizontal and vertical stab are detailed. The Vertical stab texture is taken from the fuselage masters while the horizontal stab can be left as is or customized. When the Masters load, an information layer shows available options and tips. This overlay can and must be hidden before continuing.
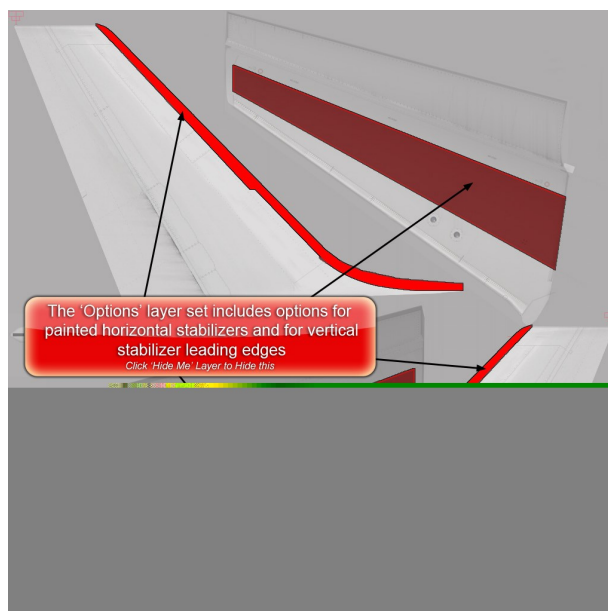
Wing Masters

The wing masters are where the wings are painted. This PSD can be exported for use in the sim. Save as targa and then convert to 32-bit (higher quality) or DXT3 (Better performance). When the Masters load, an information layer shows as an overlay, providing you with important information such as available options and tips. This overlay can and must be hidden before continuing.
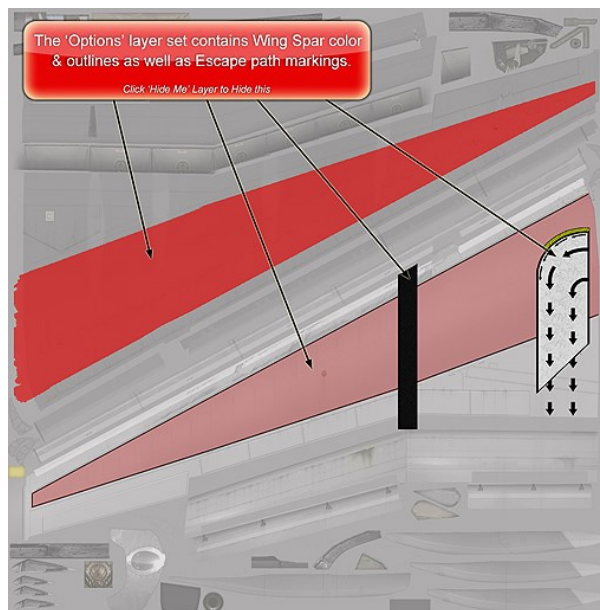
Winglet Masters

The winglet masters are where the winglets are painted. This PSD can be exported for use in the sim. Save as targa and then convert to 32-bit (higher quality) or DXT3 (Better performance).
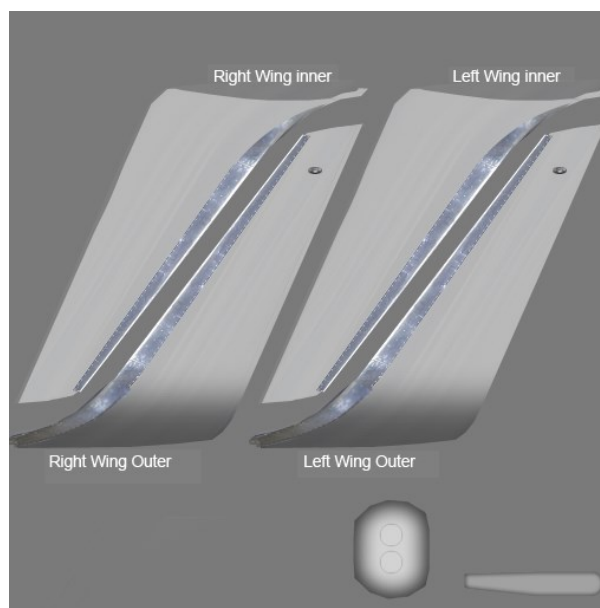
Gear Masters

The gear masters only have one available option set for the wheels. There are many different looking wheels on the 757. Now you can choose. Also, there are 2 rims that the simulator looks at so that not all wheels look the same. This PSD can be exported for use in the sim. Save as targa and then convert to 32-bit (higher quality) or DXT3 (Better performance). When the Masters load, an information layer shows as an overlay, providing you with important information such as available options and tips. This overlay can and must be hidden before continuing.
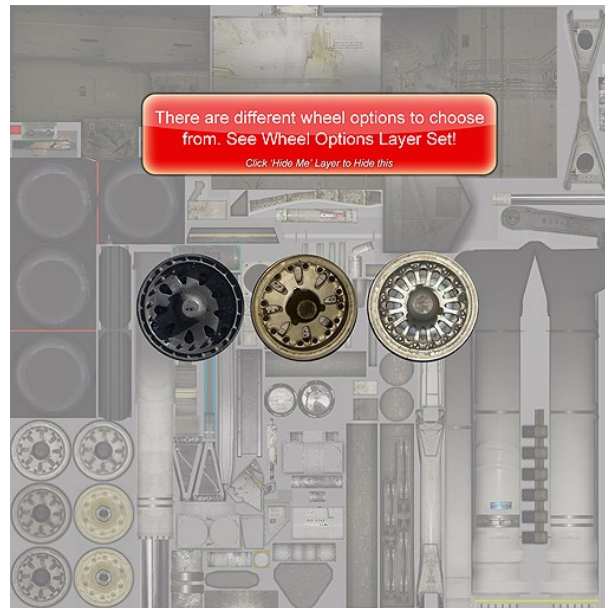
Belly Texture

The belly texture also has the PW pylon. This PSD can be exported for use in the sim. Save as targa and then convert to 32-bit (higher quality) or DXT3 (Better performance). When the Masters load, an information layer shows as an overlay, providing you with important information such as available options and tips. This overlay can and must be hidden before continuing.
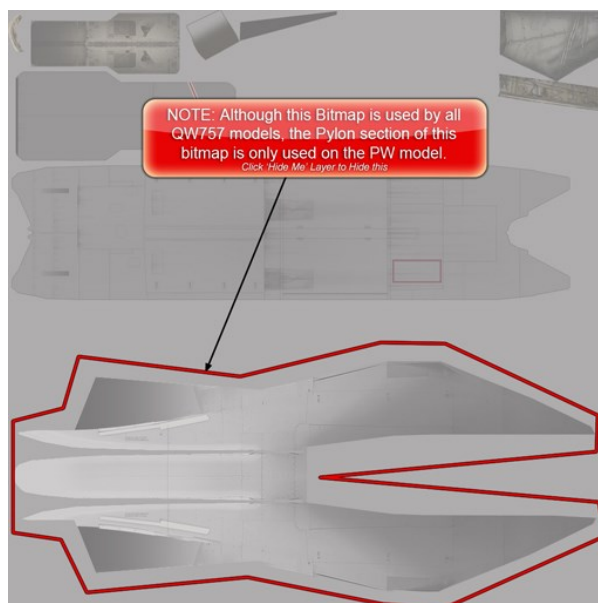
Nose "Forehead" Registration

This PSD allows for registration numbers to be placed on the nose above the Number 1 flightdeck windows. This PSD can be exported for use in the sim. Alpha channels must be used to make the registration number visible.

Standard working area shown   *Use black alpha to hide all EXCEPT the registration*

Freighter Interior

The QW757F_Cargo_T.psd only has one area of focus and that is the Freighter Door interior. You may paint airline logos on the door interior. This PSD can be exported for use in the sim.

Night Textures

We've provided layered Night .psd files allowing you to easily match your favorite airlines window config.
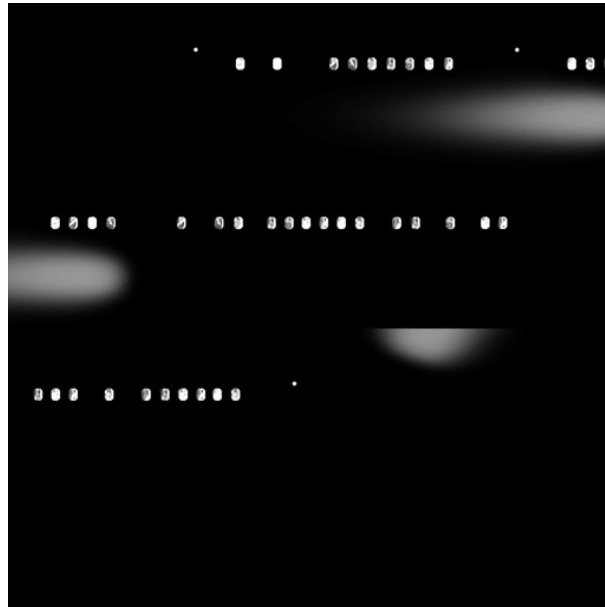
Other Bitmaps

Radome Lightning Strips
- QW757_radomelines.bmp

Purpose
Used to set color of Radome lightning strips if necessary

Fuselage (Left Side) Textures
- QW752FuseL_T.bmp
- QW752F_FuseL_T.bmp
- QW753FuseL_T.bmp

Paintable areas
Stabilizer Trim Plate (Texture used for both left and right side of aircraft)

Fuselage (Right Side) Textures
- QW752FuseR_T
- QW752F_FuseR_T.bmp
- QW753FuseR_T.bmp

Paintable areas
VHF Antennas
Water System Drain Masts

Preparing your livery for Installation
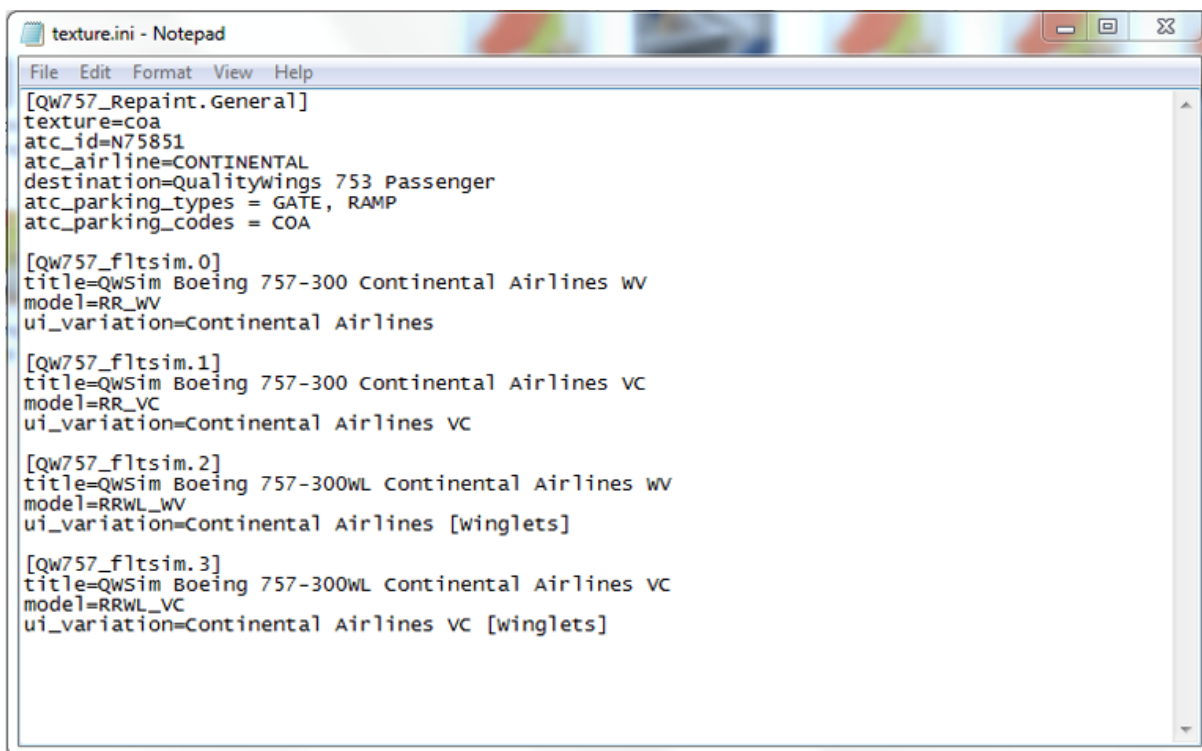
INSTRUCTIONS
Advanced users
You can install livery manually, but make sure you check the **Livery Manager Format** for the variant you're painting and make sure you have all files necessary. Edit the Aircraft Config files as necessary.

Beginners
We recommend preparing your livery so that it can be installed automatically via the QualityWings Livery Manager. When you are done with your repaint, check the **Livery Manager Format** for the variant you're painting and make sure you have all files necessary. You must edit the Texture.ini file in the Livery Manager Format Folder with the information for your livery.

Here's a sample Texture.INI. This is a Continental Airlines 757-300. Continental added Winglets to their 757-300s, but at the time this manual was printed still had some 757-300s without winglets. We wanted to allow for BOTH models to show, for both the VC and WV:

```
texture.ini - Notepad
File  Edit  Format  View  Help
[QW757_Repaint.General]
texture=coa
atc_id=N75851
atc_airline=CONTINENTAL
destination=Qualitywings 753 Passenger
atc_parking_types = GATE, RAMP
atc_parking_codes = COA

[QW757_fltsim.0]
title=QwSim Boeing 757-300 Continental Airlines WV
model=RR_WV
ui_variation=Continental Airlines

[QW757_fltsim.1]
title=QwSim Boeing 757-300 Continental Airlines VC
model=RR_VC
ui_variation=Continental Airlines VC

[QW757_fltsim.2]
title=QwSim Boeing 757-300WL Continental Airlines WV
model=RRWL_WV
ui_variation=Continental Airlines [winglets]

[QW757_fltsim.3]
title=QwSim Boeing 757-300WL Continental Airlines VC
model=RRWL_VC
ui_variation=Continental Airlines VC [winglets]
```

The config file needs to have one [QW757_Repaint.General] sections, which includes options common to all variations, and several [QW757_fltsim.XX] sections, one for each variation of the same base model. Note that, the numbers on the [QW757_fltsim.XX] sections don't have any relationship with the actual numbering that will be used on the target aircraft.cfg, they are only needed because it's not legal to have sections with the same name under an .INI file. If they were all called [QW757_fltsim] (without a number), the livery manager won't work. The number that will be used in the aircraft.cfg file, will depend on how many other [fltsim] sections are in there already.

Options for the [QW757_Repaint.General]

texture=COA
• This is the texture variation suffix that will be created

atc_id=N75851
atc_airline=CONTINENTAL
• These two will be the same for all variations of the same base model for this repaint. So, all 4 Continental variations will have the same atc codes.

destination=QualityWings 753 Passenger
• This is very important, and it's the destination folder, which also tells the program which is the base model for this repaint. This info is only used by the Livery Manager and is not copied in the aircraft.cfg. The common textures in FS9 (and the "thumbnail.jpg" and "texture.cfg" in FSX) will be taken from the "texture" folder under THIS folder. There can be only one destination folder. This means, if you have a repaint that can be used on more than one base model, you need to create two separate .ZIP, each one with its own different texture.cfg that will point to the correct destination.

Options for the [QW757_fltsim.XX] sections:

[QW757_fltsim.0]
• Progressive number of the variation, always starting from 0

title=QualityWings 757-200 RB211-535E4B WV
• Title of the airplane. This is not very important for the Livery Manager, but all titles should be different in Flight Simulator.

model=RR_WV
• The model string is important because the Livery Manager uses information to create information for other Aircraft.cfg section

ui_variation=Continental Airlines [Winglets]
• This is what will be listed on the "Installed Repaints" listbox.

NOTE:
• It is not possible to remove just one variation of a repaint: if one has installed the 4 variations of the Continental 753 Passenger repaints, all 4, including the texture folder will be removed.
• FSX: After you install your paint, you may create your own customized .jpg thumbnail, as a generic thumbnail is provided just to get you going.

Creating .QWL file
When you are ready, select all files and send them to a compressed folder. Rename the new compressed folder and change the extension from .ZIP to QWL. Please note, that you may have to change your Windows 'Folder Options' to show file extensions (Uncheck Hide extensions for known file types). Your livery is now Livery manager Ready!

QUALITYWINGS DISPATCHER

QualityWings Livery/Load Manager

A QualityWings Livery and Load Manager is provided to allow for installation/uninstallation of liveries. It also allows you to set desired Payload (passenger and Cargo). The Livery manager reads files formatted in QualityWings format (.qwl) ONLY. The Manager IS installed automatically. The 757 installer now creates a QualityWings program group under the Windows Start button, which includes both a link to this manual, and a link to install the Livery Manager. It's also possible to find the setup.exe in the FS\QualityWings\LiveryManager setup folder.

After the installation, the Livery/Load Manager itself will appear as a normal icon under the Start menu, in the QualityWings group, together with the users manual.

The program it's very easy to use: it works in two modes, FS9 and FSX, and it's possible to switch between the two, if both sims are installed and the QW757 is installed on both sims. If only one sim is used, or the QW757 is installed only on that, the mode is fixed.
          The list of installed repaints contains the House Livery versions, but these CANNOT be removed.

Please Run the Livery/Load manager as an Administrator!
Please Run the Livery/Load manager prior to loading a QW Aircraft!
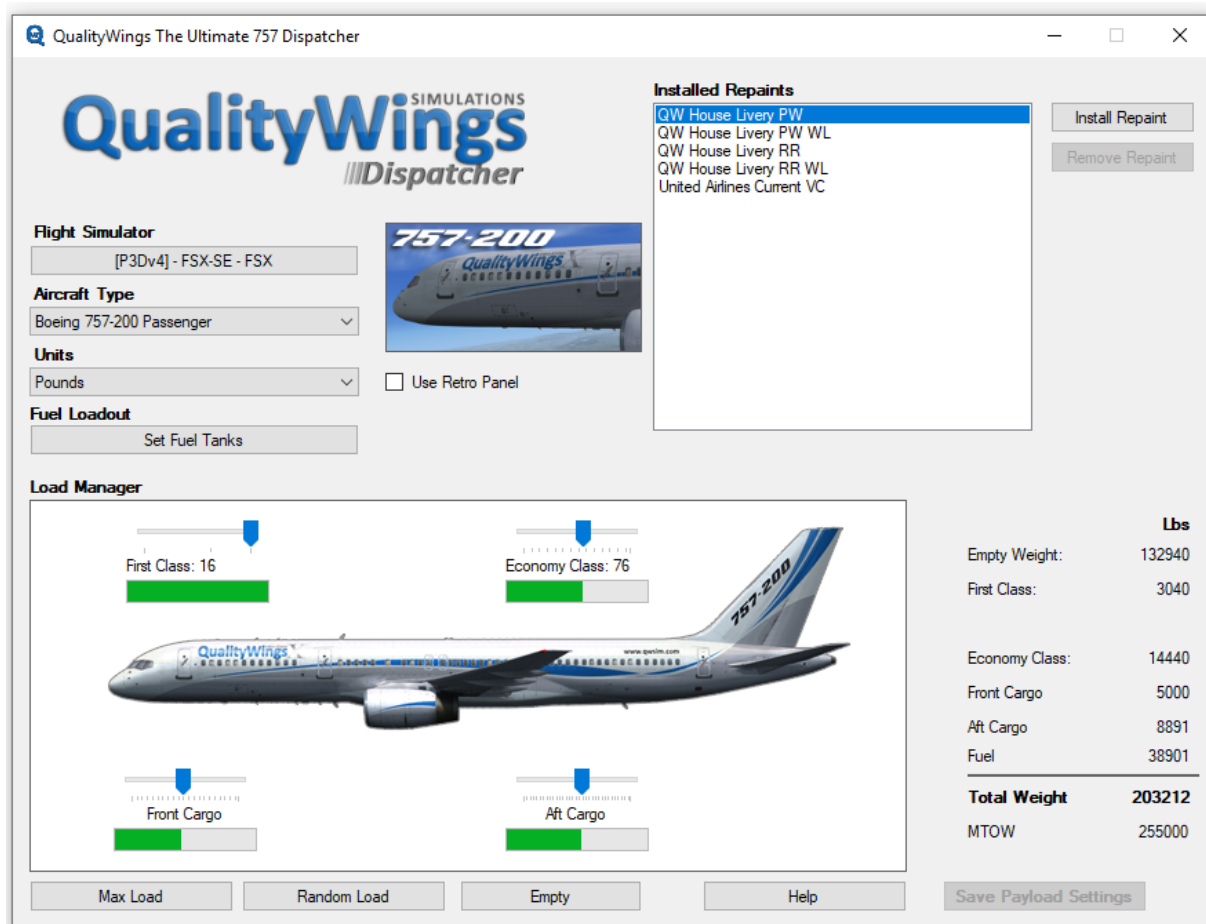
LIVERY MANAGER

Installing a repaint
Clicking the "Install Repaint" button, will ask the user to browse any folder to look for a .QWL file that contains the repaint. The .QWL file will be uncompressed in a temporary folder under the %TMP% folder, the existing air-craft.cfg will be modified to add the new [fltsim] sections, and the textures will be copied from the temporary folder to the destination folder. Multiple liveries can be installed at a time.

Removing a repaint
The texture variation folder is erased, and the aircraft.cfg is updated to remove all the orphaned [fltsim] sections. AND YES, IT DOES RENUMBER THE SECTIONS!!

Use Retro Panel
You can change the type of panel you want to use for a particular livery.

Main is the standard 757 Cockpit
Retrofit is the Retrofit Displays 757 Cockpit

After choosing your desired panel, click the APPLY button which will become available when a new panel selection is detected.

LOAD MANAGER

The Load manager allows you to set the individual payloads for a specific Zone or a preset Payload. The zones available will depend on the model selected. As an example, the 757-300 has an extra passenger zone as compared to the –200s.

The available presets are:
Max Load
Random Load
Empty

When you have made your selection, click APPLY and the changes will be applied the next time your start the Flight Simulator (or reload aircraft).

FUEL LOADOUT

Clicking the "Set Fuel Tanks" button will open an additional window in which you can set the fuel quantity for each tank or select a preset amount of fuel.
The available presets are:
25% Fuel
50% Fuel
75% Fuel
100% Fuel

FLYING THE 757

Flying the Ultimate 757
By Nick Peterson

For you to get the most enjoyment out of this simulation, I thought I'd give everyone a little basic instruction on operating techniques for the B757. These were (are) used at the Major US airline I flew for and we used RR powered -200s only, so any other type or other
company may have there own techniques.

For taxi:

No more than 35%N1 should be needed for breakaway thrust. At close in gates you do not want to blow a bunch of stuff around. At light weights the plane will almost start rolling on it's own. Usually it was about 28%N1 to get moving. Once you are taxiing, occasionally you will need a little thrust to keep her going, but it should roll at idle thrust. For 90deg turns taxi speed should be no more than 10-12kts (we used the ground speed read out in the EADI). Over 15kts you will scrub the nose gear tires.

For takeoff:

We mainly used Flaps 5. Flaps 15 would be used for airports like DCA, SNA, SAN and so on. Occasionally, we would use Flaps 20 out of Lihue or DCA for heavy loads. It is a very capable plane performance wise. We could take 190pax and 60,000lbs of fuel out of a 6000 ft runway!! Try that Airbus hahaha .

Max thrust was seldom used. Typical de-rates were 42C all the way to 63C if we were really light. It depended on runway length, weight, flap setting and obstacles in the departure path. I mainly remember a lot of 55-58C de-rates. These would be from 10,000 foot runways. At max thrust and light weights the acceleration is downright scary. You can easily be airborne in less than 2500ft. I have climbed from San Diego to FL 390 in about 13 minutes.

Trim setting varied depending on flap setting. Of course every flight we received the weight and balance and that had the exact numbers so these come mostly from memory:
• Flap 5 typical settings were about 3.9-4.5 units nose up.
• Flap 15 and 20 typical trim was about 4.8-5.5 units nose up.

Once lined up on the runway, the pilot flying would advance the thrust lever to about 60% and hit "THR on the mode control panel" This is to make sure the engines were spooled before engaging the autothrottle. Rotation rate is about 2.5-3.0 degrees per second. The simplest way is to count...."one thousand one, on thousand two, on thousand three." That's how long your rotation should take. The lowest tail clearance occurs with flaps 5 and after the main gear are in the air. I believe it was a little less than 26 inches(66cm or so).

Initial pitch (again depending on weight) was anywhere from 16-20deg. nose up. We climbed to 1,000 feet AFE (above field elevation) then began acceleration. At 1000 feet we would select climb thrust, VNAV (or FLCH) and begin to retract flaps. For a flap 15(or 20) departure it would be flaps 5, flaps 1, flaps up. For flap 5 just flap 1 and flap up. There would be 20 kts spacing between each flap setting and the retraction schedule depended on weight. We would be clean by 190-210kts.

For Climb:

250kts to 10,000 ft. The schedule was based on the FMC, but I can say most of the time it was 296-310kts to Mach Crossover. Then, usually M.785-M.801. For a heavy weight departure (say 250,000lbs) we would go usually no higher than FL340 initially. Maybe FL360. At that weight you are not going straight to FL390, you are just too heavy. A few hours into the flight you could head up to FL380 or FL390. Never go above FL380 unless you are less than 200,000lbs, the margins get pretty small.

Fuel planning: Figure 10,000lbs for your 1st hour of flight, then 8,000 pounds per hour after that. Landing fuel depended on the weather but on a VFR day it was about 8-9,000 lbs and with an alternate about 12-14,000 lbs. The lowest I landed with was about 6,000lbs and that's pretty darn light. IFR 45 min reserve is 5.1 or so and that is what we put in the INIT REF page on the FMC.

Cost Index depended on the winds. Usually 30/50/70. 30 for a tailwind, 70 for a headwind. Going to Hawaii it was Mach .80 and we did not use CI because we were filed at a constant Mach number.

For Descent:

Plan to be 30 miles from the airport at 10,000 feet. If it's straight in, 40 miles out a 10,000 feet. Below 10,000 feet at typical rate of descent at idle thrust was around 1400 feet per minute. You could get about 23-2500 feet per minute with speed brakes.

Approach Planning:
For approach planning, plan to be at 250kts at 10,000ft. If you are landing straight in, better make it 40 miles out at 10,000ft. An idle descent at 250kts will give you about 1200-1400 feet per minute, 2400fpm with speedbrakes out. If you descend at 2000fpm the airplane WILL accelerate, even at idle thrust. The best I have ever done is 210kts to about 10 miles out, and the was as tight as I wanted to go. A captain once told me, "if you are starting to be slightly concerned about coming in too fast you shoulda slowed down five miles ago!"

Arrival:

We used LNAV until about 12 miles out. The LOC in the real airplane was notorious for zig- zagging across the LOC, so we'd use LNAV to about 12 out, then hit LOC. Only hit APP when you are on the LOC as the AP will follow the G/S down without localizer capture and that is very bad when you are around high terrain.

Configuring for landing depended on the weight. This is perhaps the only plane I have ever flown where sometimes it is harder to slow down when it is light versus heavy. The wing is very efficient and it just glides and glides.

Let's use an example of 194,000lbs landing weight. I'd have to look at the table but I remember VRef being around 130kts. In zero wind we add 5 kts for an approach speed of 135kts. We add 40kts to 130 and 80 kts to 130 to get our flap extension speeds. So in our example our bugs would be set at 130, Orange MCP bug(speed window) to 135, then 170 at 210 for flap speeds.

To configure for landing we slow first, then extend flaps. So in the above example we slow to 210, call

flaps 1. At 190, flaps 5.

The slowest we could fly flaps 5 is 170kts, one of our bugged speeds. At G/S capture, call gear down, flaps 20 and arm the speedbrakes.

At about 150kts we would call flaps 30 for the final configuration. For simple terms, the above speeds will work in about every condition. Autobrakes typically 2, but 1-4 were used if necessary.

Once stabilized, it was about 60%N1 or so to hold speed on glidepath.

Now the final part, landing technique, I'll put out there the disclaimer that this was MY technique. As we say in the States there are 80 ways to skin a cat and landing a 757 is no exception. So this is what worked best for me:

Trim usually wound up being around 8-9.5 units nose up. At really light weights(say 160,000lbs or so) the plane was not easy to land at all. Vref was very low, around 115kts and the plane did not like flying that slow. The controls were mushy and it just kinda waddled in. My TECHNIQUE was to never select an approach speed less than 125kts, and that seemed to work pretty good.

At about 1500 ft AFE I would usually disconnect the AP and A/T to hand fly. As I crossed the threshold I waited for the altitude callouts. At this point (let's use the 135kts and 190,000lbs example) the speed would be 135kts, thrust around 60%N1 and pitch around 2.5 deg. Nose up. The GPWS would call 50, 40, 30, 20......at 20 I would hesitate only slightly, then raise the nose a few degrees to lower the rate of descent. Once I had the pitch, by this time 10 would be called, I would hold that pitch and slowly reduce thrust to idle. If it worked out right you would hit idle exactly the same moment the main wheels touched. The next step is to land the nosewheel, which is easier said then done. It kind of always just went clunk.

We used max reverse, though I guess some carriers are using idle reverse to save fuel. At 80kts we would reduce reverse to idle at 60kts and stow the reversers.

Then all that was left was to clear the runway, clean up the flaps and such, and off to the beach!

Photo courtesy of Trevor Bair

ABOUT THE QW TEAM

The Ultimate 757 Collection Development TEAM

Stefano Anedda - Founder/Lead Exterior Model Designer
Country: Italy
Bio: Stefano founded 'CustomSim' which eventually became "QualityWings Simulations". For the 757 series, he built the base for the 757-200 series.

Corey Ford - President/Master Texture Artist/Advisor/Lead Developer
Country: United States
Bio: Corey got his start with the gold standard in flightsim groups 'Project Opensky' as a texture artist in 2006. He joined QualityWings in 2008. Responsible for Master Textures, Design advisor on the 757, Panel enhancements, and the Users Manual

Jacob Kubique - Virtual Cockpit Designer
Country: Australia
Bio: Another 'Project Opensky' member, Jacob joined QualityWings in March of 2008 and was developed the Virtual Cockpit and 2D Panel for the 757 series. Jacobs Virtual Cockpits are among, if not THE best in the FlightSim Community (If we may say so ourselves).

Lars Roennig - Lead Exterior Model Designer
Country: Germany
Bio: Yet ANOTHER 'Project Opensky' member, Lars Roennig joined QualityWings in October 2008. Lars, was responsible for the 757-300, 757-200 and several advanced modeling features. Hard to believe he only started modeling in 2007.

Ernie Alston - Lead Gauges Programmer
Country: United States
Bio: Ernie is our lead programmer and has been programming FMC software for ages. His ISG FMCs are extremely popular within the FlightSim Community as well as his FSBuild Flightsim Plan Building software. He joined QualityWings in August 2008.

Emil Serafino - Sound Designer/Product Technical Support
Country: United States
Bio. Another FlightSim community veteran, Emil joined QualityWings in April 2008 and has applied his unmatched Sound developing skill to the 757 series. In addition to his duties as our sound guru, Emil is in charge of Product Technical Support.

Brandon Henry - Flight Dynamics Editor
Country: United States
Bio: An aspiring pilot and the youngest member of the team, Brandon helped develop the Flight Dynamics for the 757 Series. Brandon has spent years perfecting his craft as an FDE developer after getting his start with Project OpenSky.

Nick Peterson - Flight Dynamics Editor
Country: United States
Bio: A certified Boeing 757 pilot, Nick helped develop the 757 Flight Dynamics, helping to bring a high level of realism to the 757. How convenient, and actual 757 pilot who also happens to be a Flight Dynamics veteran!

Development Team Supporting Cast

David Aquino - Texture Artist
forum username: El_Matatan
Country: Mexico
Bio: David contributed several repaints for the Ultimate 757 Collection.

Tom Collins - Texture Artist
forum username: Tom
Country: United Kingdom
Bio: Tom contributed several repaints for the Ultimate 757 Collection.

Umberto Colapicchioni
Product Packaging and support programs

Beta Testing Team
Jonathan Cecil, Anthony Flahant, Ben Fluth, Jay Gardner, Brian Kircher, Renzo Marcus, Matt Martin, Sam Millar, Eric Olsen, Kyle Schurb, Benjamin van Soldt, Nicholas Taylor and Kevin Yang.

Additional Acknowledgements
A VERY Special Thanks to these people/groups who have helped immensely!

Marc Brodbeck
Jorge Garcia
Jakob Klein
Flightsim.com
FlightXpress Magazine

SUPPORT

How to Obtain Support for your product

Should you need assistance with your product, please feel free to contact us on the Support Forums:

http://qwsim.flight1.net/forums

Technical Support requests will ONLY be handled in the SUPPORT FORUM for "The Ultimate 757 Collection".

Please be advised that the Tech Support Forum will only be accessible to LICENSED MEMBERS of this forum. Registered users will need to upgrade their forum accounts to LICENSED USERS before they can view the support forum to post topics and receive support.

To become a Licensed User after your purchase, first become a member on the QualityWings forums.

Support Guidelines

In order to better assist you, you need to be as SPECIFIC AS POSSIBLE as to the nature of your problem
In addition, the following information is REQUIRED in your post to receive support!
What platform did you experience difficulties? FS9 or FSX?
What operating System do you use?

Other information to consider providing:
Have you recently made any changes to your PC (Hardware or software)

HELP US HELP YOU. Vague descriptions of problems will delay progress.

A quick Note to consider before requesting support

A LOT of time and effort has been put into developing this manual. Communication between the development team and the end-user (YOU) is paramount here at QualityWings Simulations, and hopefully that is reflected in the manner that this manual was put together. We ask that you CAREFULLY read this manual while you become familiar with the aircraft. We understand that you may want to just "jump right in"...and we have gone through great lengths to make sure that you can do that. But all good pilots put in some level of preparation before every flight. Do not be intimidated by the size of this manual. Information is VERY easy to find through the use of bookmarks which are enabled by default.

Before you request support, we suggest that you check this manual carefully. While you request for support on issues that we have covered in this manual will not necessarily fall on deaf ears, let's just say your request for support may not occur as expeditiously as those with legitimate issues that have not been explained. Please do not opt for the quick answer - as it becomes annoying and increases the workload on the development team.

Happy Flying :-)
The QualityWings Development Team

SP2 SUPPLEMENT

Highlights

FSX Native Models

This Service Pack features many new features and addresses some Post Sp1 Bugs. Perhaps the most significant feature of this Service Pack is that the FSX Version now features FSX Native models. The development of the FSX Native models was a radical change from the original FSX Compatible models and the Natives allow for several product improvements for FSX Users. The FSX Native models allow for the following improvements in FSX:

- Better Exterior Model performance in FSX * (Note 1)
- Better Virtual Cockpit performance in FSX * (Note 1)
- Higher Quality bitmaps for the Virtual Cockpit
- High Quality Exterior textures (QWHDT – QualityWings High Definition Textures)
- Bump and specular mapping for Exterior textures
- Wingview and Virtual Cockpit combined in one model. No more choosing WV or VC prior to flight!
- Improved Virtual Cockpit Lighting including independent control of the Text Backlighting and Flood lighting

The new FSX native models correct the following Pre SP2 issues:
Multiplayer functionality

New Features
In addition to the improvements on the FSX side of the product, both platforms include 2 very exciting new features:

- QWPAS
- QualityWings Mechanical Checklist

QWPAS (QualityWings Pre-Recorded Announcement System) promises to take your flight experience to another level with the including of several commonly heard Announcements from Flight Attendants and Flightcrew. More information on the QWPAS system can be found HERE

The **QualityWings Mechanical Checklist** is a new panel which users can use to ensure they have configured the aircraft prior to 4 common flight situations. More information on the Checklist can be found HERE

Other Fixes, Modifications and Additions
In addition to the major additions described above, we also addressed some long standing issues, including the Autobrakes issue that affected SOME of your customers.
We also addressed TCAS not loading until the user cycles through different views.

The Livery Manager has been tweaked as well. You spoke and we listened. QualityWings House Liveries can now be hidden in the Livery manager to reduce clutter.

A complete list of all fixes, modifications and additions in the Change Log HERE

New in the Virtual Cockpit

There are a couple of changes in the Virtual Cockpit. As mentioned, the Native models allowed for individual lighting controls for the flood lights and text backlighting. In addition, we now allow you to open the QW Ctrl panel in the VC. The new Checklists can also be accessed via a switch in the VC.
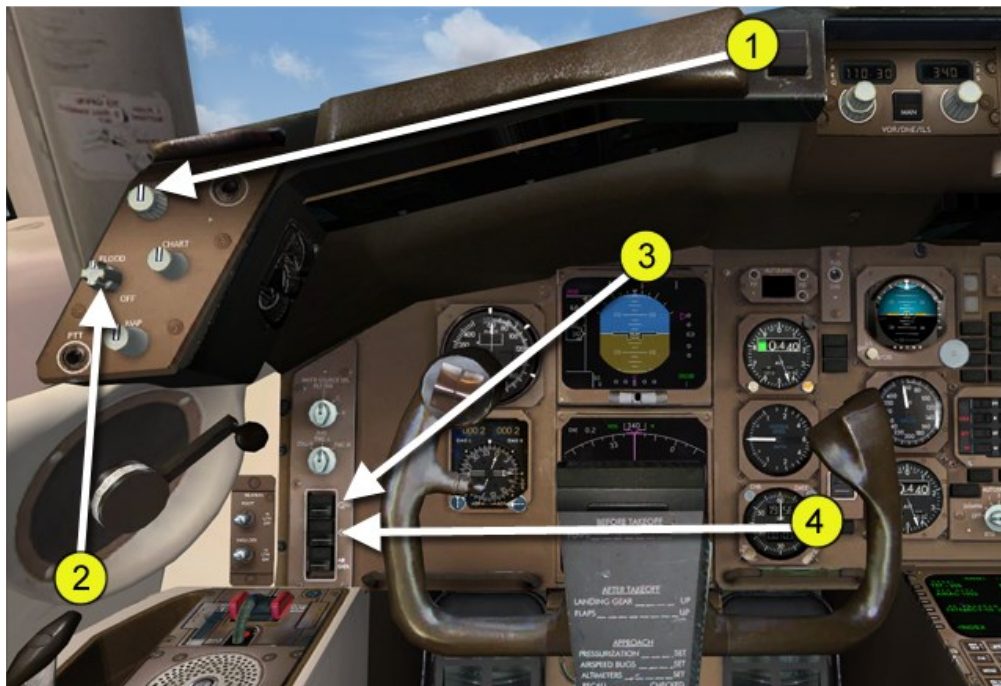
1. Panel Backlighting Switch (FSX Only)
Turns on/off Panel text backlighting

2. Flood Lights Switch (FSX Only)
Turns on/off Flood lighting. LT OVRD Switch can override this switch

3. QW Control Panel Switch
Opens/Closes QW Control Panel

4. Checklists Switch
Opens/Closes Checklists Panel

Text Backlighting with flood lighting Off

Text Backlighting Off with flood lighting On. Backlighting can be turned on with flood on as well

QWPAS

The QWPAS system automatically provides cabin announcements for your flight.
The announcements Include:

PREFLIGHT ANNOUNCEMENTS

Boarding Announcement
Plays after flight plan is loaded into FMC, and when L1 or L2 doors are open and the parking brake is set. Set brakes first, open either the L1 or L2 door and then load flightplan (EXEC required)
Gate Departure Announcement
Plays shortly after main cabin entry doors are closed. Boarding announcement must be completed.
Safety Demo
Plays shortly after the Gate Departure Announcement. If the aircraft is too close to the departure runway, the announcement may not play!
Pilot to Flight Attendant Departure Announcement
Alerts the F/A to be seated for departure. Plays as the aircraft approaches the departure runway as specified in the FMS. Dep Runway MUST be specified!

ENROUTE ANNOUCNEMENTS

After Takeoff
Alerts passengers that the use of portable electronic devices is permitted passing 10,000 AGL
Cruise Announcement
Plays as the aircraft reaches Top of Climb as defined in the FMS and the seatbelt sign on. The Seatbelts sign MUST be on prior to reaching Cruise altitude. If not, the announcement will not play!
Seatbelts Sign illuminated
Alerts passengers that the seatbelt sign has been turned on. Aircraft must be within 80 nm of TOD and switch moved from Off to On.
Initial Descent
Plays as the aircraft starts its descent as the first warning to passengers to prepare for landing
Final Approach
Plays as aircraft begins its final approach as the final warning to passengers to prepare for landing
Pilot to Flight Attendant Arrival Announcement
Alerts the F/A to be seated for arrival. Plays as the aircraft is on short final.
Customs Declaration
Played at a point shortly during or shortly after cruise to brief passengers on US Customs declaration info (Travel to the US)
Customs Declaration - Non US
Played at a point shortly during or shortly after cruise to brief passengers on Non US immigration info (Travel from the US to other countries)

AFTER LANDING

After Landing
Plays as aircraft slows below 35 knots during landing rollout

Checklists Panel

The mechanical check list is used to ensure you have completed all necessary items prior to the following flight situations:
- Before Engine Start
- After Engine Start
- In-Range
- After Landing
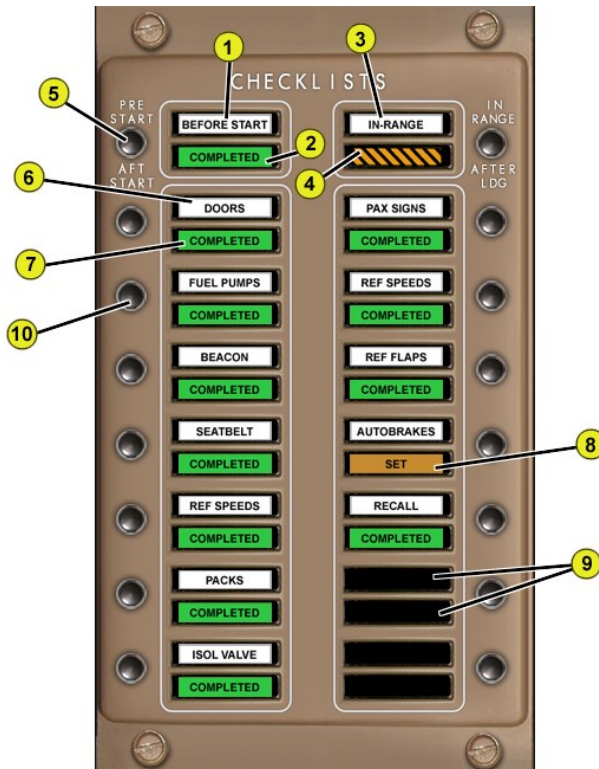
(1) Departure checklist Mode Window
Displays the mode as selected by the Mode Select Switch. Takeoff modes are 'Before Start' or 'After Start'

(2) Departure checklist Status Window
Displays the checklist status for the selected mode. Yellow and Black Warning Flag shows if any one item is NOT COMPLETE. Green Completed Flag shows when ALL items are complete

(3) Approach checklist Mode Window
Displays the mode as selected by the Mode Select Switch Departure modes are 'In-Range' or 'After Ldg'

(4) Approach checklist Status Window
Displays the checklist status for the selected mode. Yellow and Black Warning Flag shows if any one item is NOT COMPLETE. Green Completed Flag shows when ALL items are complete

(5) Checklist Mode Select Switch
Selects the Departure or Arrival Mode (Departure switch on the right side on Arrival Window). Checklist starts up totally blank. Subsequent clicks select between the modes

(6) Checklist Item Challenge Window
Displays the area/system/item of focus

(7) Checklist Item Response Window
Displays the required action to satisfy checklist requirements. Completed item shown

(8) Checklist Item Response Window
Displays the required action to satisfy checklist requirements . Incomplete item shown

(9) Inactive Window
Not all Checklist modes use all the windows. This is OK

(10)Checklist Item Confirmation Switch
Click to complete the required checklist item

* Statement on Performance (Note 1)

The Pre SP2 models for FSX were what are called Non Native FSX models. They were compatible with FSX, but not designed for FSX. Some users reported performance issues with the FSX product in the Exterior and VC views. The New FSX models _significantly_ improved performance on **ALL** QualityWings team FSX setups. PCs of varying capabilities were tested! Several performance benchmarks were done on the model and we are excited and satisfied with the level of performance of the FSX product – much more so than SP1.

It must be noted however that FSX is, has been and will always test the capability of even the best PCs. It is impossible to guarantee performance gains due to the unbelievable amount of variations between everyone's FSX setup. There are a million opinions on how to customize settings correctly, but in reality – each user has to be honest with his or herself about their PCs capability to enjoy ANY FSX Add-on.

In our tests, we did note the following:
- On PCs which generally do a good job of handling FSX, performance gains were more evident than a PC which was struggling with FSX in the first place.
- Leaving your Frame rates locked is not always as beneficial as leaving it Unlimited! FSX can work harder to maintain a Locked rate than it will without rate restriction.
- The Standard Cockpit performs slightly better than the retrofit. The Retrofit Cockpit has bigger screens and uses more resources to draw gauges.
- We did not see any significant degradation in performance between Standard liveries and QWHDT Liveries

Tips

1. Keep your PC defragmented. This is one of the biggest contributors to doggy flightsim performance. Default FSX aircraft do not tax your system nearly as much as detailed 3rd party addons
2. The QW Config file has a couple of options that can help improve performance:
- When you click on a display such as the ADI or EHSI, blanking the gauge in the spot where the pop up was prevents the gauge from being drawn twice.
- Gauge Refresh settings allow you to tweak gauge refresh rates if needed.

SP3 SUPPLEMENT

Highlights

Service Pack 3 marks the end of the development cycle for the Ultimate 757 Collection. In addition to Post SP2 Bug fixes and improvements, we've refreshed the FSX VC textures to improve the overall look and feel of the flightdeck. Sound cones are now available to enhance the audio experience for your Ultimate 757.

The full installer for SP3 allows for those who own the Prepar3D product to install the Ultimate 757, however QualityWings WILL NOT provide ANY Technical Support for the QW757 in any P3D platform.

A full list of changes can be found in the Changelog

QW757 CHANGE LOG

Change Log (Version History)

Initial Release
Version 1
Release Date December 6, 2009

Service Pack 1
Version 1.1
Release Date April 5, 2010
List of Changes

==
Inertial Reference System (IRS)
==
Enhancement: IRS now interfaced w/the Autopilot system. IRS alignment required for Autopitlot Operation.

IRS Panel
Fix: Display window now blanks when IRS systems is not aligned
Fix: Improved "ALIGN" and "ON DC" bitmaps

==
Yaw Damper System
==
Fix: Disabled Flightsim Yaw Damper to improve rudder effectiveness.

Yaw Damper Panel
Fix: Yaw damper switches not setting correctly.

==
Hydraulic System
==
Enhancement: Now interfaces w/the Autopilot System. (L,C,R) Hyd system is required for onside Autopilot system operation. For example, low left system hyd pressure prevents left Autoilot operation.
Enhancement: Not interfaces w/the Flight Control system. Appropriate flight controls affected by loss of hydraulic pressure (requires FSUIPC).

Hydraulic Panel
Enhancement: Added (L,C,R) SYS PRESS light functionality
Enhancement: Added Hyd Pump Switch (6) functionality

EICAS Interface
Enhancement: Added Hyd Pump and Sys Press EICAS messages
Enhancement: Added Hyd System pressure values to lower EICAS

==
Electrical System
==
Enhancement: Implemented Cold and Dark Cockpit Capability
Enhancement: Added External Power System (Available when engines are Shutdown and Parkign brake is set
Enhancement: Added APU Generator System (Available whenever APU is Running)
Enhancement: Added Engine Generator System (Available whenever respective engine is running)

Battery/Standby Power Panel
Enhancement: Added Battery Discharge Light
Enhancement: Added Standby Power Selector functionality
Enhancement: Added Standby Pwr OFF light funtionality

AC Electrical Power Panel
Enhancement: Added External Power Switch Functionality
Enhancement: Added L(R) Generator Control Switch Functionality
Enhancement: Added L(R) Utility Bus Switch Functionality

EICAS Interface
Enhancement: Added Standby Pwr OFF EICAS message
Enhancement: L(R) Bus OFF light & EICAS messages
Enhancement: Added L(R) Gen OFF EICAS messages
Enhancement: Added L(R) Util bus OFF EICAS messages

===
APU System
===
APU Panel
Fix: Corrected displaced switch bitmap

EICAS Interface
Enhancement: Added APU RPM & EGT Indicatiosn on EICAS

===
Emergency Lights Panel
===
Enhancement: Added Emergency Lights Siwtch/Unarmed light functionality

EICAS Interface
Enhancement: Added EMER lights OFF EICAS

===
Engine Start/Shutdown System
===
Fix: Corrected Engines briefly spooling to Takeoff power after start
Fix: Corrected Engines Not Shutting Down [FSX]

Engine Start Panel
Enhancement: Added Ignition Selector functionaltiy

===
Fuel System
===
Fix: Low Fuel light/EICAS logic corrected
Enhancement: Added Center Tank Override Functionality (Center Tanks burns first) - Pay versionof FSUIPC re-
quired!

Fuel Panel
Fix: Center Tank Switch Locked out
Enhancement: Added Fuel Pump Switch (6) functionality

Enhancement: Added Fuel Config Light Logic

EICAS Interface
Enhancement: Added Fuel Pump & Fuel SYS Press EICAS messages
Enhancement: Added Fuel Config EICAS message

Fuel Quantity Panel
Fix: Fuel Qty not showing [FSX]

===
Ice Protection System
===
Fix: Addressed Pitot heat Issue (Airspeed drops to zero in icing conditions).

Anti-Ice Panel
Enhancement: Added Wing Anti-Ice switch logic & functionality
Enhancement: Added Engine Anti-Ice switch logic & functionality

EICAS Interface
Enhancement: Added TAI indicatiosn to EICAS Upper Display
Enhancement: Added Wing Anti-Ice OFF EICAS messages
Enhancement: Added Engine Anti-Ice OFF EICAS messages

===
HF Comm Panel
===
Enhancement: Added Limited Switch Function. Plays Clock Set.

===
Pilots Call Panel
===
Enhancement: Added ACARS light functionality for Flightplan Uplinks

===
Mach Airspeed Indicator
===
Fix: Changed Minimum Displayed Speed to 30 knots
Fix: Corrected Flag Logic
Fix: Added Approach Ref Bug Logic

===
RDMI
===
Fix: Improved DME Display readability
Fix: ADF Reliability Issues Addressed
Enhancement: Enabled nav 2
Enhancement: ADF 2
Enhancement: Added Flag Logic

===
Standby Altimeter
===
Fix: Removed Flag Logic

==
Vertical Speed Indicator
==
Enhancement: Added Flag Logic

==
Standby Attitude Indicator
==
Fix: Rolls right on engine shutdown in FSX
Enhancement: Added Flag Logic

==
EICAS System
==
Fix: Addresses Cancelled messages re-appearing when a new message is added.
Fix: Adressed "0.00" EPR Thrust Reference issue
Fix: Reverse Command Sector EPR
Fix: Ailerons working in reverse]
Fix: SPEEDBRAKES EXT logic adjusted to prevent nuisance warnings on touchdown
Fix: EPR Ref bugs display in pink and idle when in VNAV
Enhancement: Added ETAI Indications
Enhancement: Added Ability to blank lower EICAS display
Enhancement: Added APU EGT and RPM Indications

==
Electronic Flight Instrument System (Standard & Retro)
==
Fix: EADI: Make Groundspeed available on the ground below 30 knots
Fix: EHSI: Vertical Deviation (Prfile Indication) Indicator displays off scale
Fix: EADI: After engine shutdown, EADI and Stby ADIs tilt right into an inop position [FSX]
Fix: EHSI/Retro ND - MAP mode , When Dep/Dest Runway selected, initial waypoint displayed is airports position
instead of runway.
Fix: Retro ND , Active waypoint ETA incorrect for active Wpt
Fix: EHSI/Retro ND , Dep Rwy ID dissappears when first waypoint is advanced
Fix: EHSI/Retro ND , Runway graphic not aligned correctly in Plan mode.
Fix: Retro ND, dest rwy graphic not displayed correctly in plan mode.
Improvement: Stall Speeds Updated

==
EFIS Control Panel
==
Fix: Decision height Window Bug (Negative + long numbers show)

==
Comm Panel
==
Fix: ADF Tuning Issues Addressed
Fix: VHF Comm Panel Tuning Issues Addressed
Enhancement: Changed Nav Panel to Tune newly activated Nav #2 System
Enhancement: Added Nav #2 System Audio

```
==========================================
```
VHF Nav Panel (Glareshield & Comm Panel)
```
==========================================
```
Fix: Course (CRS) Tunning Issues Addressed
Fix: Addressed Course Selector Allowing 360 to be entered on increase from 359.


```
==========================================
```
Autoflight System
```
==========================================
```
Fix: Autothrottle Issues Addressed
Fix: FLCH Issues Addressed
Fix: VNAV Issues Addressed
Fix: Approach Issues Addressed
Fix: Premature descent when changing Altitude while in a Pitch hold Mode (VNAV CRZ, Alt Hold)
Enhancement: Now Interfaces with the IRS and Hydraulic Systems
Enhancement: Added Flight Director Takeoff Mode
Enhancement: LNAV Arm available prior to takeoff and prior to A/P Engagement

Mode Control Panel
Fix: Addressed HDG Window Allowing "360". Now reads "000"
Fix: Addressed SPD Mode disengage when V/S mode replaced FLCH mode
Modification: When Approach mode Selected, remaining Autopilot engage Automatically
Enhancement: SPD/HDG windows now increment by 1's when left clicked, and by 10's when right clicked.
Enhancement: ALT window, now increment by 100 ft when left clicked, 500 ft when right clicked.
Enhancement: Added New "NAV/GPS" mode select button. Users can now fly Default Nav/GPS routes


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General Panel Issues
```
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```
Fix: Addressed Panel Alias issues
Fix: Addressed Retro Standard Sized Panel Simicon/Clock Overlay Issue
Fix: Addressed Panel Viewpoint too High
Fix: Addressed TCAS Gauge Locking Up selected PCs issue
Fix: Addressed Missing TrafficInfo.dll
Fix: White Anticollision (Strobe) Light Click Sound Missing
Fix: Addressed Autobrakes Issues (Tentative)
Enhancement: Changed Mode Select engaged color to green on MCO buttons for 757-300 (To simulate newer MCP styles used on these aircraft)
Enhancement: Added Mini Panels
Enhancement: Added Turn Coordinator
Enhancement: Autobrakes can be cancelled using Toe Brakes
Enhancement: Added Kneeboard Checklist and Reference Documents

Readability
Improvement: Increased size of the MCP and MCP Button labels
Improvement: Increased size of Main Panel text where available
Improvement: Increased Initial Size of QualityWings Control panel popup
Improvement: Increased Initial Size of EFIS Control panel popup
Improvement: Brightened B757-300 MCP Window Text

Performance
Improvement: Reduced some bitmap sizes to increase panel performance

Improvement: Added Config option to set Gauge Refresh Rates
Improvement: Blanks background gauges when Popups opened (Zoomed Displays)

==
Overhead Lighting Panel
==
Enhancement: Added Light Override (Panel lights) and Strobe lights switches

==
Flight Management System
==
Enhancement: Fully Navigraph Ready (Fixes Missing Approach, Runways Complaints)
Enhancement: 'WeightUnit=Kgs' option added, to display FMS weights in Kgs
Enhancement: Implemented Add/Delete SPD/ALT constraint functionality.
Enhancement: PROG Page , Added T/C, T/D distances .
Enhancement: VNAV CRZ Page , PROG Page Added T/C, T/D distances .

Fix: INDEX Page , When selecting LOAD ATC RTE Dest Airport did not show on RTE page until plan was executed.
Fix: PROG Page , ETA showing as 60 mins (ex 17:60 instead of 18:00).
Fix: SEL WPT Page , Duplicate waypoint selections displayed.
Fix: On loading a stored flight plan, then entering a cruise altitude prior to Exec, cruise alt dissappears.
Fix: When Preset speeds (via qw757.cfg) are used, FMS does not autocalc crossing altitudes after Exec is pressed.
Fix: DEP page, If selected SID has more than 5 transitions on page 1 trans 5 overlaps the (<Index) label.
Fix: VNAV: Cannot overrride speeds for FMC CRZ
Fix: Addressed No <CTR> pointer when stepping thru FMS Legs
Fix: HOLDS page, Allow Future HOLDS. Hold function not allowing multiple holding patterns to be entered.
Fix: LEGS page: LSK selection of alt/speed constraint puts SPD/ALT constraint in scratchpad backward. (i.e. 25000/300).
Fix: LEGS page, not correctly executing a direct to waypoint.
Fix: PROG page, DTO out of alignment
Fix: LEGS page , Mach constraint showing as 0.00/ when selected.
Fix: LEGS page , Star and Approach altitudes not included in flight plan.
Fix: CTD when selecting dest airport on Rte page, or loading stored flight plan.
Fix: LEGS page, Flightplan waypoints out of sequence when new waypoint inserted beyond fence '---' position on Legs page.
Fix: LEGS page, In some instances deleting a waypoint causes the last wpt to be deleted instead of the target waypoint.
Fix: CRZ page, Mach tgt speed not being entered after 'EXEC' button is pressed.
Fix: PERF page, Cannot enter 0.0 for reserve fuel.
Fix: NAV RAD Page, Entered 115.3 into FMC NAV1, FMC displayed (and NAV1 tuned) 111.53.
Fix: LEGS page accepts altitude restrictions beyond aircraft's capability (ie FL800).
Fix: Added 'DRAG REQUIRED' FMC msg displayed if Aircraft not able to slow down in time to meet restriction.

Improvement: Cost Index Table Updated with more realisitic data
Improvement: V-Ref table Updated
Improvement: V-Speeds table Updated

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============================================
Livery Manager Version 1.5
============================================
```

Enhancement: Processes Parking Spots from .QWL files
Enhancement: Processes multiple liveries

```
============================================
Aircraft Model & Flight Dynamics
============================================
```

Fix: Addressed Yaw Control issues
Fix: Addressed Differential Braking Issues
Improvement: Aircraft Contact points adjusted to improve the way exterior model sits on the ground

Enhancement: FSX Native Models compiled [FSX] (will come as a free post-SP1 update)

```
============================================
Config Options
============================================
```

Enhancement: 'WeightUnit=Kgs' option added, to display FMS weights in Kgs
Improvement: Added Config option to set Gauge Refresh Rates

```
============================================
Sounds
============================================
```

Fix: Takeoff callouts occasionally trigger on approach.
Fix: Spoiler Rumble Volume Adjusted (Release file will be available for those who liked louder rumble)
Fix: Panel Click Sounds Volume Adjusted

Enhancement: Reconfigured/Added Sounds for Cold and Dark
Enhancement: Added Pack Sound

```
============================================
Virtual Cockpit
============================================
```

Enhancement: Added click area to shorten Control Yoke in VC (Clears view of EHSI)
Improvement: Split Panel light and landing light controls

Service Pack 1 Hot-Fix
Version 1.1a
Release Date June 14, 2010

ADDITIONS:
- Cfg option to display digital and wind arrow vector from magnetic north instead of true (WindVectorDegVar)

MODIFICATIONS:
- Ext Power no longer available if APU is running. (1)
- VNAV descent rates adjusted to better allow the aircraft to meet descent speeds.
- VNAV Descent thrust lever logic applied to improve speed control in VNAV descent.
- VREF Approach Speeds for 210k lbs Grwt and below increased (2)
- Above 190K Flaps 25 Vref increased from 136 kts -> 142 kts (2)
- Below 190K Flaps 25 Vref increased from 128 kts -> 135 kts (2)
- Yaw Dampers now turn on automatically when switching to LITE mode.

FIXES:
- FMS - APP page - Approach List does not filter when STAR/Runway is selected on ARR page.
- Aircraft accelerates to climb speed approx 200 ft below accel ht.
- ND/MFD not drawing route line from plane to new DCT TO waypoint is entered in FMS.
- Landing checklist (LdgCheckList=1) .cfg setting not being set on startup.
- FMC not applying STAR database altitude restrictions correctly on LEGS page.
- FMS Place/Bearing/Distance function on Legs page not working (displays invalid entry).
- Retro PFD alt bug does not match MCP alt window when on ground.
- ND map mode remains oriented to heading rather than track in Map mode.
- Takeoff callouts do not play when EADI does not have speed tape displayed.
- Premature switch to alt restriction speed in VNAV descent.
- EADI Round mode - Fast Slow indicator speed bug displays in reverse.
- MCP - when switching to LITE mode, A/P modes not in synch with MCP panel mode windows.
- Vnav descent - Speed changes back to CRZ speed when at intermediate level off altitude.
- MCP - FD sometimes won't engage if a/c is loadd from default Cessna C&D situation.
- Aircraft pitching up and then down during Glideslope capture. This caused a diving issues.

New QW Config options:

WindVectorDegVar=1 - This setting displays the wind vector and digital wind display from source Magnetic North instead of True (default).
ExtPwrAvailWithApuOn=1 - This setting keeps external power available when the APU is on (ext pwr is now off when the APU is on by default)
UseATForVnavDesc=1 - This setting uses the autothrottle to control speed during VNAV descent (by default now the a/c adjusts the throttle directly in VNAV descent for speed hold. This allows the thrust levers to be moved to idle when the aircraft is faster than the target VNAV speed.
FlchMinIas= - Minimum indicated IAS FLCH will engage at (default is 150 kts)
FlchMaxIas= - Minimum indicated IAS FLCH will engage at (default is 340 kts)

Notes:

(1) For the purposes of compability with ground programs such as AES.
(2) Address issue of Aircraft falling below GS on approach by increasing the approach speeds for a more stable approach.

Service Pack 2
Version 1.2
Release Date November 2, 2010

FIXES:
- Retro ND - When resizing popup window CTD occurs.
- Callouts - Takeoff callout for flaps 5 when aircraft is already at flaps 5
- Sound   - Flap handle sound does not play when full retract/extend called (i.e. via F5/F8)
- COMM   - Comm radio displays wrong freq sequence.
- Landing Gear Lever inconsistent in VS until after 2D panel loaded
- TCAS Inop until 2D panel loaded
- FSX: Multiplayer Crash to Desktop
- FS9: Fan Blades Mirrored
- MCP Button Color Inconsistencies (Green and White)
- Fuel Quantity Temperature does not read in negative numbers
- Stab Trim Indicator inconsistencies between 2D/VC
- Overhead Panel Entry Door annunciations
- Freighter Payload too low
- 757 No longer classified as Heavy
- 757-300 Eyepoint Adjustment
- A/T and FMC annunciators misplaced in VC
- FS Passengers compatibility problems
- High MCP speed when changing from VNAV to V/S or VNAV to APP.
- TCAS does not initialize.

FSX EXCLUSIVE ADDITIONS:
Modification/Improvement: FSX Native Models now included offering better sim performance
Modification/Improvement: QWHDT Exterior Textures (FSX Native benefit)
Modification/Improvement: Higher Quality VC Textures (FSX Native benefit)
Modification/Improvement: Virtual Cockpit lighting system revamped
Fix: Multiplayer CTDs

ADDITIONS:
- GPWS - Mode 3 altitude loss after takeoff ('don't sink' callout)
- GPWS - Mode 5 Excessive glideslope deviation ('glideslope' callout)
- QWPAS Cabin Announcements.
- Mechanical checklist.
- MCP - FLCH does not climb/descend to the new MCP alt if MCP alt is changed while FLCH is active.
- MCP - SPD window remains blanked out when switching from VNAV to V/S
- EHSI - Shows HR:60 mins instead of advancing to the next hr and setting the mins to 0
- FMC crossing alt/restr incorrect when ARR page sequence selected is APP/STAR/APP Trans

MODIFICATIONS:
- External power no longer available automatically when Engs off and Parking brake set (requires AutoExtPwrAvail=1 setting).
- Livery Manager Enhancement: Ability to choose individual cockpit options
- Ability to open QW Ctrl Panel from the VC

WORK-AROUNDS:
Autobrakes System
- For users using controllers where autobraking is not working, use qw757.cfg option
  UseAxisAutoBraking=1
- Can use default FS autobraking if all else fails via qw757.cfg entry.
UseDefAutoBrakes=1

12 NEW CONFIG OPTIONS:
PlayAnnouncements=1   // Plays Cabin announcements (default =0)
UseDefAutoBrakes=1   // Uses FS default autobraking system.
UseAxisAutoBraking=1   // Uses Joystick?Controller Axis braking for Autobrakes
DisplayVCOnLoad=0   // Loads aircraft with VC Off
DisplayWVOnLoad=0   // Load Aircraft with WV Off
AutoLandApDiscSpd=   // Speed when below autopilot is disconnected during autoland.
WindVectorDegVar=Mag   // Show the Wind vector as degrees 'Mag' or 'true' (default)
UseATForVnavDesc=1   // Uses default autothrottle for VNAV descent
ExtPwrAvailWithApuOn   // External Power becomes available without APU on.
AutoExtPwrAvail=1   // Automatically makes External Power available when conditions warrant.
FlchMinIas=   // Minimum Ias FLCH will engage.
FlchMaxIas=   // Maximum Ias FLCH will engage.
ActLnavWoIntHdg=1   // Allows LNAV to activate when aircraft is not on Intercept heading.
WeightUnit=KGS   // displays weighs in FMS as LBS (def) or KGS.
FmcShowResetMCPMsg=0   // Disables 'Reset MCP' message in FMC

Service Pack 3
Version 1.3
Release Date February 2014

PLATFORM SUPPORT:
Product installation into Prepar3D now available (UNSUPPORTED)

FIXES:
- 2D Panel (757-300) - Flap Placard Typo showing 757-200
- 2D Panel (757-300) - Flap Placard Speeds Incorrect
- 2D Panel - Unable to switch from standby to active Comm frequency in 2D popup
- Aircraft Performance: Max Indicated Airspeed Value corrected (Was too low contributing to premature acft Overspeed warnings during certain conditions)
- Autopilot - Aircraft drifts off LNAV course in direct crosswinds.
- Autoflight (FLCH Mode) - when leveling off A/T grabs the current speed instead of the MCP window speed.
- Autopilot - In descent when transitioning from VNAV to SPD or FLCH to SPD a high speed value is entered into speed window causing Overspeed.
- Exterior Models - Specular Shine Excessive
- Exterior Models - Logo Light Mapping Issue
- Exterior Models - MLG Door Mapping Issue
- Exterior Models - Bump Map MIP Maps Added for better visual quality across broad range of views
- FMS - Legs Page, Intersecting Radials, not always calculated correctly.
- FMS - CTD when airport with large number of Approach waypoints is selected (LFRS, EDDF)
- FMS -Flight plan does not clear when power goes out.
- FMS - 'FIX' page does not display DTG, ALT, etc. info, add this info to the Fix page.
- FMS - 'FIX' page does not allow distance only, or radial only entry.
- FMS - VNAV Climb ignores LEGS altitude restrictions
- FMS - incorrect scratchpad entry when restriction LSK (R) is selected.
- EFIS - ND/EHSI draws flight plan route line through Discontinuity point(s).
- EFIS - Vert Dev display sometimes not correct
- Sounds: Residual Engine Sounds after engine shutdown
- TMSP - Add CLB1, CLB2 TMSP support.

FSX EXCLUSIVE MODS/IMPROVEMENTS/ADDITIONS:
- Modification/Improvement: Cockpit Graphics refreshed
- Modification/Improvement: Engine Sounds Cones now available
- Modification/Improvement: New Red Anti-Collision light Effect

MODIFICATIONS:
- Autopilot - FLCH function available with autopilot off.
- Sounds - Lowered Volume on panel Click Sounds
- Sounds - Modified Flap Lever sound for realism
- Sounds - Various sound quality improvements
- Sounds- .cfg option to inhibit some cockpit sounds while external view is open.
- Sounds (QWPAS) - Disable co pilot callouts when in slew mode, so they don't constantly play while slewing around.
- Sounds - Delay Positive Rate of Climb Gear Up Callout
- Systems (Engine Start) - Inhibit auto fuel switch for standard mode on Engine Starts (Engine will not start until user manually moves fuel switch) (Requires use of new Cfg option)

ADDITIONS:
- Autopilot - Add support for input for external hardware (GoFlight etc).
- FMS - add user files (user custom data files, that will not be overriden by Navigraph Updates)
- FMS - Add QWPAS Announcement status page.
- FMS - Add Airport Elevation to Approach Page.
- 2D Panel (Radio Panel) - Add transponder support for SquawkBox/ FSINN (2D panel ONLY)
- Systems - Added Altitude Alert Deviation Mode.

2 NEW CONFIG OPTIONS:

EnableManualEngStart=1   // Turns off Automatic transition of Fuel Control Switch during engine start

InhibitCockpitSoundsOnStopSound=1   //inhibits cockpit sounds when view is outside the cockpit (ie when other sounds are also disabled).   Includes slew mode as well.

Service Pack 4
Version 1.4
Release Date May 2019

PLATFORM SUPPORT:
Prepar3D v4 support now available

FIXES:
- CDU - Transitions for some SIDS do not display on Page 2
- CDU - Displays only page 1 of approach transitions if Star is selected followed by approach
- CDU - Text overlap when STAR is selected. Selected Star should display next to LSK2 but displays next to LSK1 causing text overlap
- CDU - When an approach has more than one page of transitions in the database, the FMS is not showing the subsequent pages beyond page 1
- Radio Stack - ADF1 2nd digit (10's) not able to decrease value
- MCP - Mach/Ias toggle disables Spd mode when pressed
- MCP - VNAV applying thrust when auto-throttle is disarmed
- ND - Intersections missing triangle symbol
- VNAV - Speed dropping after 30,000 feet
- Radio Stack - window close button on upper right corner not working
- EFIS popup in retro NAV AID-ARPT-DAT-WPT buttons dont light up but info shows on ND
- ND - Vertical deviation display not correct in descent
- Retrofit - Groundpseed display missing on ND
- Retrofit - EHSI DME info added
- Retrofit - 2D popup gauges resized/repositioned
- Retrofit - Stby ADI remains on as long when Stby power is in AUTO, even if Battery is off
- Retrofit - when Middle Marker displays on PFD, the radio altitude shows in the amber circle instead of "MM"
- Retrofit - ADF bearing top pointer not displaying on ND
- Retrofit - Traffic display does not adjust for range on minimap. Only responds to range of ND and not mini-map range
- TCAS - reworked to comply with other QW products
- QW Dispatcher - reworked to comply with other QW Products

ADDITIONS:
- VC - FMS buttons functionality added
- VC - Gauge surface added in front of throttle quadrant for third party weather radars
- VC—Retrofit EFIS control panel functionality added
- Exterior - P3D Dynamic Lighting added (P3Dv4 only)
- Config Option "synchfplanwithfsgps=1": Any modification to the FMS updates the default GPS flightplan