

FlitePrep Suite V0.1 ERJ-145LR User Manual

Please read this manual thoroughly before you operate FlitePrep Suite (FPS).

Features:

== Preparation ==

Distance calculator
Fuel calculator including reserves, extra fuel
Weight calculator
Recommended flight level calculator
Set FS time to computer time (via FSUIPC)

== On the ramp ==

Refuel/Defuel facility (via FSUIPC)

== Let her fly... ==

Speed table for take-off and landing (via FSUIPC for OAT/PA)
Altitude alert sound (via FSUIPC)
Trip fuel monitor (via FSUIPC)

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Operating requirements:

FS2004 ("FS") with FeelThere ERJ-145LR PIC ("ERJ145")
FSUIPC (optional)

Installation

Unzip fp-erj145.zip to any folder. Select the "USE FOLDER" option. Be sure all sub-folders are properly placed. Verify that fp-erj145.ini does not exist. FPS does not use the registry. Font: the program has been designed with the font type "OCR Extended". If this font is missing with your Windows installation, the default font may give undesired results.

Reset installation

Deleting fp-erj145.ini will reset the installation to default values.

De-installation

Delete the installation folder. FPS does not use registry entries.

Program run

Start fp-erj145.exe.

If you will prepare a flight and want to load data to your aircraft then it is recommended to start FPS before you start FS2004 or before you load a flight from within FS2004. All data with the exception of fuel can only be loaded to the ERJ145 in FS2004, if the aircraft is not yet loaded to FS.

Linkage to FS2004

FPS will detect FS2004 if installed. If not, you will receive an error message and aircraft configuration functions are not available. (Actually, there is no real use for FPS in this case). If you think you have installed FS2004 properly you may want to check your FS installation's registry entries for correctness. Usually this problem hints to an installation that was copied rather than installed.

For certain functions FPS requires FS to be run. This detection works automatically and is shown in FPS by the green FS light.

Linkage to FSUIPC

FPS will automatically detect when FSUIPC is active, becomes active or becomes inactive.

Data files involved

Data for ERJ flights are widely spread over your PC. It takes to update four files if you want to store a flight configuration properly. Detailed explanations about where and how have been moved to the Appendix.

kgs/lbs

FPS will display weights in either kgs or lbs as selected during the ERJ-145 setup.

Use FPS

General concept of data entry fields:

- **Variable flight data** are to be entered into **white fields** (Origin, Destination, Pax etc). If you enter data into a location field the field color can change to yellow or green, if the airport identifier is partially or fully known.
- **Fixed, but changeable** data are stored in **yellow fields**. These data can be changed but usually remain fixed, like weight per pax. Weight maximum data are also fixed, but can be changed. The field color changes from green to red if a maximum is exceeded for a flight data set.
- **Standard or calculated data** cannot be changed and remain in **gray fields**

The screenshot displays the FlitePrep Suite ERJ-145 interface. At the top, there's a title bar and a menu bar with options like Exit, Help, Sound, CFG, Gauge, FS, and UIPC. The main window is titled 'ERJ-145 LR'. Below the title bar, there are several sections for data entry:

- Origin/Altitude/Reserves:** Origin is EDDH (green), Elev is 53 ft, Press Alt is 53 ft, Reserves is FAA DOM (yellow), Set UTC is 26/04 18:56, and Alert is 5000.
- Destination/Altitude/Reserves:** Dest is EDDT (green), 142 NM, 117 *T, RFL 190, WVC + 0, 00:30 h:m, Rte+ 5 %.
- Altitude/Altitude/Reserves:** Alt is EDDB (green), 14 NM, 141 *T, RFL 010, WVC + 0, 00:07 h:m, and a red warning 'BETA 0.1'.
- Weights:** BOW is 27337 lbs, Pax is 24 x 190 lbs, Cgo is 100 lbs, F/D is 2, F/A is 1, and a Save button.
- Fuel/Weights/Max. Weights:**
 - Fuel:** Taxi 360 lbs, Trip 1526 lbs, Alt 334 lbs, Resrvs 1750 lbs, Pilot's Extra 500 lbs, TTL 4670 lbs, and a Refuel/Defuel button.
 - Weights:** Payload 4660 lbs, ZFW 32517 lbs, Block 37187 lbs, T/O 36827 lbs, Ldg 35301 lbs.
 - Max. Weights:** 12755 lbs, 39462 lbs, 48721 lbs, 48501 lbs, 42549 lbs.
 - Actual/Max. Fuel:** GW 39838 lbs, Fuel 7321 lbs, Used (yellow bar), and a Clear button.
- Mode/Speeds/FS Wx:** Mode is Gross weight: PLAN, OAT is 15°C/65°F, QNH is 1013/2992.
- Take-off/Landing:**
 - Take-off:** V1 111 kts, Vr 113 kts, V2 126 kts, Vfs 131 kts, TGT 155 kts.
 - Landing:** Vref 125 kts, Vga9 145 kts, Vfs 154 kts, TGT 135 kts, and Flaps 22°/45°.
- Active flight/Registration/Operator/Flight:** Active flight is ERJ EDDH Pos 52, Registration is D-ACIR, Operator is Lufthansa, and Flight is 6AH.

Starting FPS

On the screen you will find the main window and a small gauge "Speeds". You can drag both windows over the screen. The positions will be stored when you leave the program.

The main window will take all data entries and show all calculations. You can hide it during flight. The "Speeds" gauge shows the speed calculations for take-off and landing. This gauge remains on top of all windows unless you hide it explicitly (see below).

Main window

Windows bar and taskbar

The FPS icon will be red as long as FPS is not connected to FSUIPC. Then it will change to blue.

Configuration and controls:

In the headline of the main window you find 7 buttons/lights:

- EXIT: press to end the program
- HELP: press to show this help file
- SOUND: button to switch on/off the sound scheme of background engine noise and button/alert sounds (Red: off; Green: on)
- CFG: green shows, that all required files have been found; red: something is wrong.
- GAUGE: button to show/hide the gauge
- FS: Red: not connected to FS; green: connected to FS
- UIPC: Red: not connected to FSUIPC; green: connected to FSUIPC; also button to change scan speeds (see hint when mouse over button)

Bottom bar:

- Selected flight: when saving data the selected flight from this list is the assumed flight. The list scans your private flight folder and shows all flights that are saved with the ERJ145 aircraft
- Registration/Operator: the entries are derived from the saved flight and are without any deeper use. You can change and save them if you like.
- Flight: this entry determines the Flight Number that show up in the ERJ145's RMU

Setup a flight

Start FPS before you start FS2004 or you select ERJ145 or you select a flight that uses ERJ145 if you want to save weight data to the flight. This behavior is due to the FS2004 data load sequence and cannot be changed. You must not be connected to FS2004 or FSUIPC at this stage.

Flight Route Data

Enter **Origin**, **Destination** and **Alternate** to the three named fields. Enter ICAO codes, IATA codes are not recognized. FAA airport codes may be recognized, no guarantee.

When an airport is recognized the field color will turn green. When more than one airport is recognized from a three character input the color will turn yellow. You can use green colored entries only for route calculation.

Whenever data have been entered a **complete new calculation** will be started. Calculation time is below 0.5 sec.

If you fly in a RVSM environment check the **RVSM** checkbox. This will enable RVSM for recommended FL output.

Select the **Reserve fuel** rule from the Reserves listbox. There are four options available. These options are discussed in depth in the Appendix. General rule: for commercial operations use FAA DOM, for private flights use NBAA.

Select an **Average Enroute Wind Component** for the respective legs. This is an average assumption you must take from wind charts for a FL near your final FL. Select "-" for headwind and "+" for tailwind, then the respective wind speed in kts.

In the **RTE+** field enter a route prolongation from great circle distance due to airspace structure or terminal procedures. This does not mean provisions for holding or diversion. For shorter flights 10% is a good figure, while for longer flights 5% is ok.

You can take the Route Data for each leg from the gray fields now:

- **Elev:** the departure airport elevation as used to calculate the Pressure Altitude
- **Pressure Altitude** for the departure airport as calculated from elevation, OAT and QNH
- **Distance** of each leg in NM (great circle)
- **True Track** of each leg in NM (initial true track on great circle)
- **RFL:** recommended flight level according to the length of leg, take-off weight, semi-circular rule, initial true track (which is not the correct method) and the RVSM selection
- **h:m** : the total calculated flight time in hours and minutes

Basic Operating Weight/Payload

Next enter the basic weight data for your flight. You will find more detailed explanations about the data definitions in the Appendix. Whenever you have changed a figure the computer will calculate a new weight scheme.

- **BOW:** the Basic Operating Weight of the airplane. Be aware, there is an inconsistent definition for BOW in FS, ERJ145 and its FMS. The BOW is defined here as the weight of the aircraft ready for dispatch without pilots, flight attendants, fuel, pax and baggage. You should leave this figure as it is.
- **PAX:** the number of passengers who are to board your flight. Enter any number between 0 and 50.
- **F/As:** Flight attendants are calculated automatically, see Appendix.
- The Passenger Weight is standard at 190 lbs. It includes the baggage weight. You can change this value, if you like.
- Extra **Cargo** can be carried in the belly. This is not the passenger or flight crew baggage. There is a maximum of 1.500 lbs or so due to structural limitations. Leave cargo on

Taxi fuel/Extra fuel

You can enter a selection for fuel to start-up and taxi to the runway. On airports where it is really busy take a bit more on board. The standard 360 lbs will be enough for start-up and 20 minutes of taxi.

Extra fuel is entirely at the pilot's discretion. If you expect bad weather, unpredicted headwinds or so, enter what you like. Because fuel generates weight, you need more fuel for the planned route, too, and so on. As extra fuel would not be used at a cruising level but in low altitudes with low speeds a basic value of 1.000 lbs per 30 mins flight is on the safe side.

Check your configuration

Now, that all is done look at the colored weight fields showing the maximum permissible weights below. If they are all green you can accept the data. If there is a red figure you should correct your assumptions. Leave extra cargo on the ground or reduce your extra fuel. On short legs be aware that the Maximum Landing Weight is critical, maybe use a closer Alternate airport.

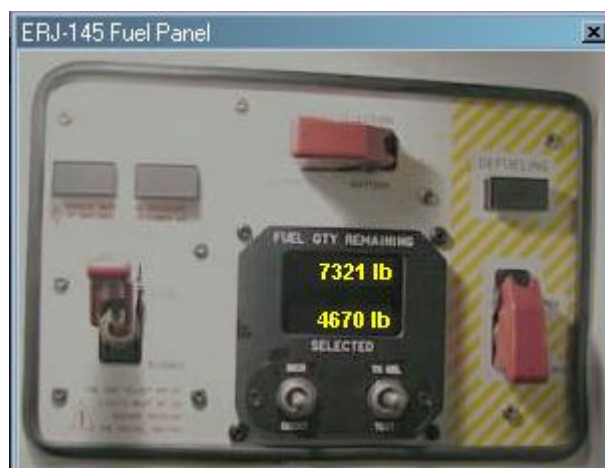
Save your data

Select the flight from the bottom list you want the data to be stored to. Then press SAVE, and all set.

Now start FS2004 and select your flight, wait until your cockpit appears and the FS and UIPC buttons are green.

Fuel/defuel your airplane

After a while you will see GW (Gross weight) and Fuel fields become filled with numbers. These are transmitted from the actual aircraft configuration. If there is less or more fuel on board than indicated in the Fuel field. you need to fuel or defuel your airplane. Press the FUEL/DEFUEL button.



A window will appear representing the ERJ fuel panel. The fuel process is automatic, but you have to press the correct buttons

- To FUEL the airplane engage the fuel valves by pressing the two left upper light buttons. They will say CLSD after a second or so. Then click to the RED safety switch. Fueling will start and you can see the actual state in the display. Fueling will stop automatically and valves are shut when the desired quantity is reached.
- To DEFUEL the airplane engage the DEFUELING button on the right side of the panel. Wait until the desired fuel quantity is reached and defueling has stopped automatically.

Close the window by clicking to the "x".

Now your airplane is ready to operate with the right weights set and fueled up as required.

Set FS time

Because FS2004 will not restore the computer time in saved flights you can set the time to actual by pressing the SET UTC button. Give FS some time to reload scenery data.

Altitude alert

If you tend - like I do - to forget setting QNE/QNH at transition levels you can set an altitude alert. Increase the numbers with the right mouse button and decrease with the left one. Activate the alert by clicking on the ALERT button.

Take-off and landing speeds

Speeds are calculated according to weight and weather. Pressure altitude is calculated taking into account the departure airport elevation. The weather data are taken from FS2004 or can be set manually by the two slide bars. To update the FS weather press **FS WX**.

Weight can be either the calculated gross weight (PLAN) or the current weight (ACTUAL) of the airplane as transmitted by FSUIPC. You will see the current weight in the ACTUAL | GW field. You can toggle the weight mode with the button **MODE**.

Speeds are displayed as they are calculated. For landing select the desired flap setting, too.



Speed gauge

The small speed gauge will stay on-top of your screen when selected. It shows the three major speeds for take-off and landing as a reminder.

Click to the green field to toggle between landing and take-off speeds.

Click to the yellow field to toggle the weight mode between planned and actual weights.

Hide the window with the small button in the title bar (see hint).

Trip Fuel control

For feedback to your dispatcher FPS will track the actual fuel used between lift-off and touchdown in the ACTUAL | USED field. Press CLEAR to clear this value.

=== ENJOY IT ===