Miltech Simulations-Microsoft C-17 Globemaster III

Fuel System

C17's Fuel Supply System is designed to provide an uninterrupted flow of fuel under all conditions, attitudes, and altitudes encountered in normal operations. The system consists of four Main Wing tanks, one Extended Range Tank (ER Variant modeled), eight + four boost pumps, four tank transfer pumps, a jettison system, Aerial Refueling valves and all associated indicators.

Fuel Tanks

This rendition of the C17 (ER Variant) Features a total of five fuel tanks:

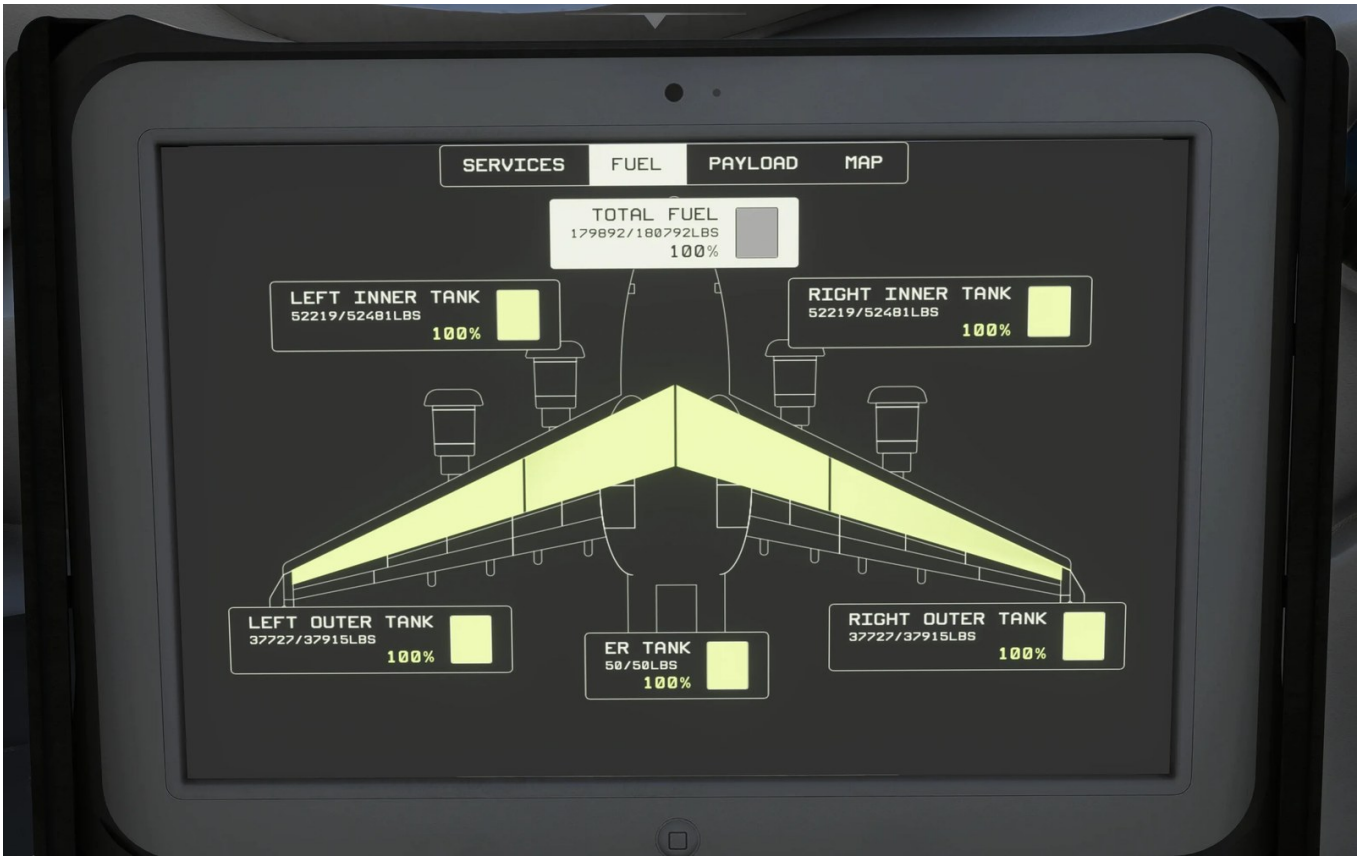
- Two Outboard wing fuel tanks (No. 1 and No. 4), with a capacity of 37,915 lbs each.
- Two Inboard wing fuel tanks (No. 2 and No. 3), with a capacity of 52,481 lbs each.
- One Extended Range fuel Bladder, with a capacity of 64,433 lbs

Total fuel capacity is therefore 245,226lbs

Fuel is automatically transferred from the ER Tank into the Inboard tanks, and then to the engines. The ER tank has four electrical boost pumps to increase fuel flow outboard from the tank.

After ER tank is depleted completely, fuel will flow out from all four tanks and into the engines, each aided by its boost pump. However, the engines can operate normally without any fuel pumps by a combination of gravity feed and suction feed from the engines.

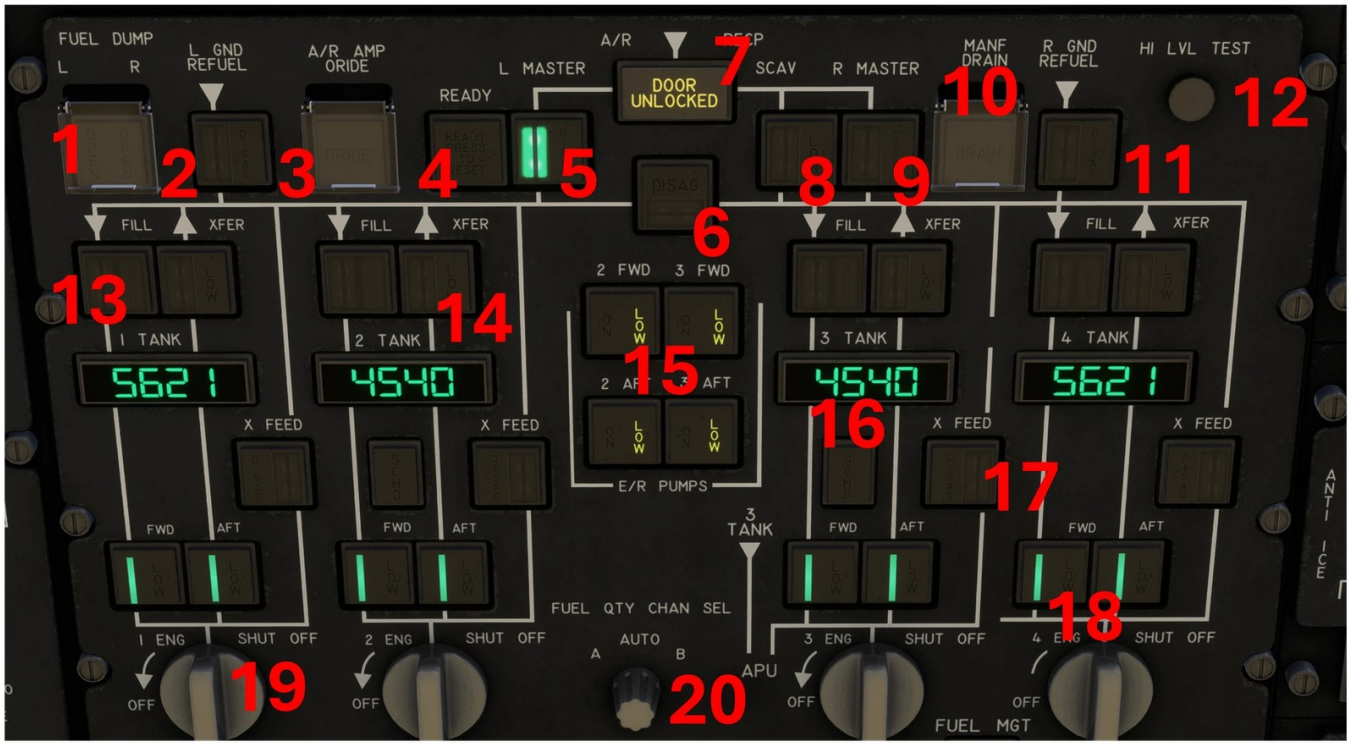
Fuel capacities and system overview can be seen on the Electronic Flight Bag, Fuel Page.



Fuel Page, EFB

Fuel Panel

The fuel panel is located on the overhead panel of the aircraft, right above the Engine Panel and next to the Electrical Panel.



Fuel Panel, Overhead

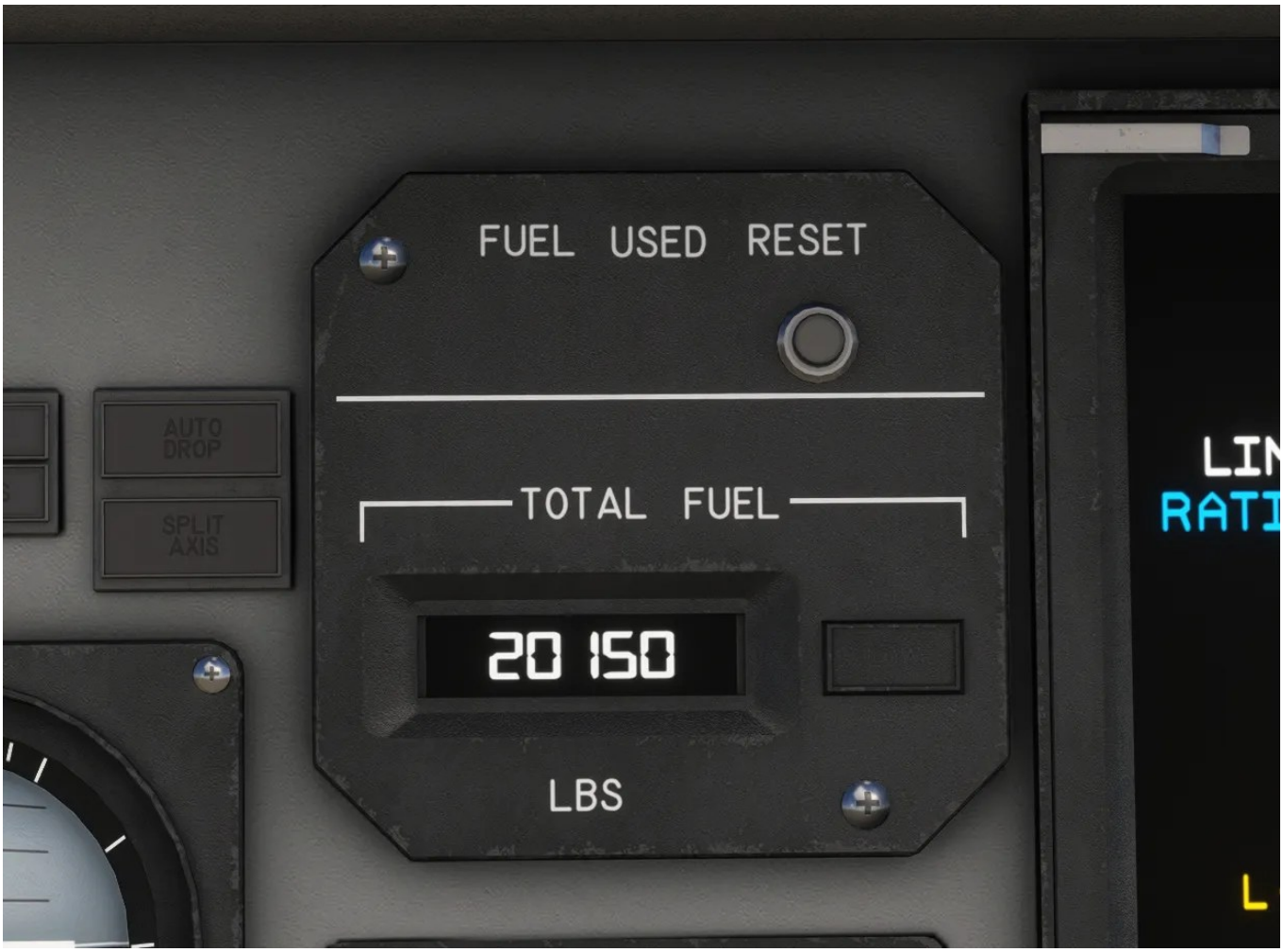
1. **Fuel Dump Valves, L and R:** Open valves for fuel dumping. See section below for Fuel Dumping.
2. **L Ground Refuel:** INOP. These valves are used to pump fuel from ground to the tanks given the elevation of the wings during single-point refueling, resulting in the "Moose sounds". This is not necessary on MSFS.
3. **A/R AMP ORIDE:** INOP
4. **A/R READY:** INOP
5. **A/R Left Master:** Master Left Aerial Refueling Pump. Opens the AR Slipway and turns on flow of fuel towards the fuel tanks during AAR Operations.
6. **Separation Var:** Separates the left and right side of the fuel manifold. It is required to be opened for crosfeeding and fuel transfering operations.
7. **A/R Door Status Light:** Turns on if Aerial Refueling door is unlocked/opened.
8. **↔ Scavange Pump Switch:** INOP
9. **A/R Right Master:** Master Right Aerial Refueling Pump. Opens the AR Slipway and turns on flow of fuel towards the fuel tanks during AAR Operations.
10. **Main Drain:** INOP
11. **R Ground Refuel:** INOP. These valves are used to pump fuel from ground to the tanks given the elevation of the wings during single-point refueling, resulting in the "Moose sounds". This is not necessary on MSFS.
12. **HI LVL TEST:** INOP

13. **Fill Valves (x4):** Provide pressure into fuel tanks for fuel transferring operations.
14. **XFER Valves (x4):** Provide pressure out from fuel tanks for fuel transferring operations.
15. **ER Pumps (x4):** Provide additional pressure to fuel flowing outwards from the ER Tank. If pumps are off, the fuel will continue flowing due to gravity.
16. **Tank Quantity Indicator (x4):** Provides a continuous digital reading to the nearest 100 pounds of fuel of each associated tank. This is, other than the EFB, the only display of fuel quantity per tank on the aircraft.
17. **Crossfeed Valve (x4):** Controls the associated crossfeed valve for fuel transfer operations.
18. **Forward/Aft Fuel Boost Pumps (x4 of each):** Provide additional fuel pressure to each associated tank. If pumps are off, the fuel will continue flowing due to gravity feed and suction feed. APU requires Boost Pump 3 FWD and/or AFT to function continuously.
19. **Engine 1/2/3/4 Shutoff Valve:** Control fuel to the respective engine. Closing the valve will shut down the engine due to fuel starvation.
20. ◇ **Fuel Qty Fuel Selector:** INOP

Total Fuel Indicator

Additional to the overhead displays, a Total Fuel Indicator is located in between the two pilot MFDs. It provides a continuous display of total fuel quantity, equal to the sum of fuel available on all tanks, including the ER Tanks in pounds.

The LOW amber alert lights up when fuel quantity is under 16,000 pounds. Additionally, Master Caution and Low Fuel WAP will illuminate.



Total Fuel Indicator

Crossfeeding

Note
Crossfeeding, Fuel Transfer and Fuel Dumping are only available starting Update 1 (v.1.0.5)

Note
Crossfeeding and Fuel Transfering is not currently possible at the same time. The Aircraft will automatically manage the fuel panel valves and pumps to avoid crossfeeding/fuel transfer overlaps.

Engines and APU can feed from different tanks as desired. To crossfeed from one engine to another, activate the corresponding XFEED pumps from the two engines you want to feed. The tank with highest fuel qty OR fuel pressure will feed the engine receiving the lowest fuel qty/pressure.

Fuel Transfer

Fuel can be manually transferred from any tank (except the ER Tanks) into any other tank. A fuel manifold exists to facilitate the transfer. The manifold is separated by a Separation Valve, keeping the left and right side of the aircraft disconnected, except in case this valve is opened.

To transfer fuel from one tank to another, the XFER Pump on the feeder tank would be engaged, and the FEED valve would be opened in the receiver tank. Fuel will flow through the manifold. Use Separation valve as required if fuel needs to flow from one side of the aircraft to another. Multiple feeder/receiver tank operations are supported, and flowrates are added/divided accordingly.

This process is "active", meaning that it will not stop automatically when tanks are balanced. Fuel transfer stops automatically if feeder tank is empty, or receiving tank(s) is at maximum capacity. The real aircraft has an automatic fuel transfer system to keep the outboard tank balanced out with the inboard tanks. This has not been implemented at this time.

Fuel Dumping

Fuel dumping is supported. Lift the switch cover and press the button controlling Fuel Dump Valves to initiate dump procedure. Fuel dumps from all tanks at the same time, at a rate of approx. 6700 pounds per minute. Fuel dumping automatically stops when total fuel quantity is 20,000 pounds.

Aerial Refueling

Aerial Refueling will be supported by 3rd party addons such as the upcoming Aerial Refueling Pro by Miltech Simulations. The AR Slipway door can be opened by pressing the A/R MASTER Button (L or R), or through the EFB Services tab.