

AIRCRAFT FUEL VARIABLES

The tables below indicate the properties for the [Simulation Variables](#) that can be used to get and set variables related to the fuel system of the aircraft. For information on the units listed for each variable, please see here: [Simulation Variable Units](#)

NOTE: When Microsoft Flight Simulator is running in multiplayer mode, only a small number of variables are communicated between aircraft. Those variables that are available will say so in the description as being either for "All Aircraft" or for "Shared Cockpit".

You can find a complete index of all available SimVars here: [SimVar Index](#)

General

The majority of these SimVars are only valid for **legacy** aircraft that have set up their fuel using the `[FUEL]` section of the [flight model CFG file](#). Aircraft in Microsoft Flight Simulator should not be using this fuel method nor these SimVars, and should instead be defining things using the `[FUEL_SYSTEM]` section of the CFG file and the [Fuel System](#) SimVars.

Simulation Variable	Description	Units	Settable
<code>FUEL_CROSS_FEED:index</code>	Cross feed valve setting. This will return the current setting for the fuel crossfeed for the indexed engine, based on the current status of the simulation and the Cross Feed key events.	Enum: 0 = Closed 1 = Open 2 = Left to Right 3 = Right to Left	

FUEL DUMP ACTIVE	If 1 (TRUE) then the aircraft can dump fuel.	Bool	
FUEL DUMP SWITCH	If set to 1 (TRUE) then the aircraft will dump fuel at the rate set by <code>fuel_dump_rate</code> parameter in the <code>flight_model.cfg</code> file.	Bool	
FUEL LEFT CAPACITY	Maximum capacity in volume of <i>all</i> the tanks on the left side of the aircraft.	<i>Gallons</i>	
FUEL LEFT QUANTITY	Current quantity in volume of <i>all</i> the tanks on the left side of the aircraft.	<i>Gallons</i>	
FUEL PUMP	<i>Currently not used within the simulation.</i>	Number	
FUEL RIGHT CAPACITY	Maximum capacity in volume of <i>all</i> the tanks on the right side of the aircraft.	<i>Gallons</i>	
FUEL RIGHT QUANTITY	Current quantity in volume of <i>all</i> the tanks on the right side of the aircraft.	<i>Gallons</i>	
FUEL SELECTED QUANTITY: <code>index</code>	Quantity of fuel in the tank referenced by the indexed selector. When using the legacy fuel system, this SimVar will return the quantity of fuel in the tank pointed to by the selector you chose with the index. If passing an index higher than the number of selectors - or when using the modern fuel system - it will return the total fuel quantity available.	<i>Gallons</i>	
FUEL SELECTED QUANTITY PERCENT: <code>index</code>	Percent or capacity for the tank referenced by the indexed selector. When using the legacy fuel system, this	<i>Percent Over 100</i>	

	<p>SimVar will return the percentage of fuel in the tank pointed to by the selector you chose with the index. If passing an index higher than the number of selectors available - or when using the modern fuel system - it will return the percentage of total fuel quantity available.</p>		
FUEL SELECTED TRANSFER MODE	<p>The method of transfer for the fuel. Each of the available transfer options are explained below:</p> <ul style="list-style-type: none">• off - Fuel transfer is switched off.• auto - Automatically balance the fuel between the Center1 and Center2 tanks to maintain the center of gravity.• forward - Fuel will be transferred forwards from the Center1 tank to the Center2 tank.• aft - Fuel will be transferred aftwards from the Center2 tank to the Center1 tank.• manual - Fuel will be transferred for 1 second from the Center1 tank to the Center2 tank at a rate of 1<i>lbs</i>/s.• custom - This requires one or more	<p>Enum:</p> <p>0 = off 1 = auto 2 = forward 3 = aft 4 = manual 5 = custom</p>	

	pumps to have been defined using the <code>fuel_transfer_pump.N</code> parameter in the <code>flight_model.cfg</code> file, as well as their associated electrical circuits.		
FUEL TOTAL CAPACITY	Total fuel capacity of the aircraft for <i>all</i> tanks.	<i>Gallons</i>	
FUEL TOTAL QUANTITY	Current total quantity of fuel in volume for <i>all</i> tanks of the aircraft.	<i>Gallons</i>	
FUEL TOTAL QUANTITY WEIGHT	Current total fuel weight for <i>all</i> tanks of the aircraft	Pounds	
FUEL TRANSFER PUMP ON:index	Returns 1 (TRUE) if the indexed pump is active.	Bool	
FUEL WEIGHT PER GALLON	The weight of the fuel, per gallon.	Pounds	
NEW FUEL SYSTEM	Will return 1 (TRUE) if the aircraft is using the modern <code>[FUEL_SYSTEM]</code> or 0 (FALSE) for the legacy <code>[FUEL]</code> .	Bool	
NUM FUEL SELECTORS	The number of fuel selectors on the aircraft.	Number	
UNLIMITED FUEL	Will return 1 (TRUE) if the unlimited fuel flag has been enabled, or 0 (FALSE) otherwise.	Bool	
UNUSABLE FUEL TOTAL QUANTITY	The total amount of fuel in <i>all</i> tanks of the aircraft which is not usable.	<i>Gallons</i>	

Fuel System

These SimVars are dedicated to controlling the modern *component* fuel system, which you can set up in the `[FUEL_SYSTEM]` section of the `flight_model.cfg`. All aircraft made for Microsoft Flight Simulator should be using this system and these SimVars, and only **legacy** aircraft should be using the `General` SimVars and the `[FUEL]` section of the `flight_model.cfg` file.

Simulation Variable	Description	Units	Settable
<code>FUELSYSTEM ENGINE PRESSURE:index</code>	The pressure of the fuel coming to the indexed engine. The index is the number of the engine <i>N</i> component as defined by the <code>Engine.N</code> parameter.	Kilo pascal	
<code>FUELSYSTEM JUNCTION SETTING:index</code>	This will return the current <i>Option</i> for the indexed junction. The index is the number of the line <i>N</i> component as defined by the <code>Junction.N</code> parameter.	Number	
<code>FUELSYSTEM LINE FUEL FLOW:index</code>	The fuel flowing through the indexed line in <i>Gallons</i> per Hour. The index is the number of the line <i>N</i> component as defined by the <code>Line.N</code> parameter.	<i>Gallons</i> per hour	
<code>FUELSYSTEM LINE FUEL LEVEL:index</code>	The level of fuel in the indexed line in <i>Gallons</i> . The index is the number of the line <i>N</i> component as defined by the <code>Line.N</code> parameter.	<i>Gallons</i>	
<code>FUELSYSTEM LINE FUEL PRESSURE:index</code>	The pressure in the indexed fuel line, measured in KiloPascal. The index is the number of the line <i>N</i> component as defined by the <code>Line.N</code> parameter.	Kilo pascal	

FUELSYSTEM PUMP ACTIVE:index	<p>Whether or not the indexed pump is actually active. The index is the number of the pump <i>N</i> component as defined by the Pump.N parameter.</p>	Bool	
FUELSYSTEM PUMP SWITCH:index	<p>Whether or not the indexed pump is enabled. The index is the number of the pump <i>N</i> component as defined by the Pump.N parameter.</p>	Bool	
FUELSYSTEM TANK CAPACITY:index	<p>Total capacity of the indexed fuel tank. The index is the number of the tank <i>N</i> component as defined by the Tank.N parameter.</p> <div> NOTE: This SimVar can only be used with the modern Fuel System. </div>	Gallons	
FUELSYSTEM TANK LEVEL:index	<p>Quantity of fuel available in the indexed fuel tank. The index is the number of the tank <i>N</i> component as defined by the Tank.N parameter.</p> <div> NOTE: This SimVar can only be used with the modern Fuel System. </div>	Percent Over 100	
FUELSYSTEM TANK QUANTITY:index	<p>Quantity of fuel currently available in the indexed fuel tank. The index is the number of the tank <i>N</i> component as defined by the Tank.N parameter.</p> <div> NOTE: If the fuel system Version is 2 or below, the index value will be one of the Fuel Tank Selection indices. </div>	Gallons	

FUELSYSTEM TANK TOTAL QUANTITY:index	<p>Total quantity of fuel available in the indexed fuel tank, including any unusable fuel. The index is the number of the tank <i>N</i> component as defined by the Tank.N parameter.</p> <p>NOTE: If the fuel system Version is 2 or below, the index value will be one of the Fuel Tank Selection indices.</p>	Gallons	
FUELSYSTEM TANK WEIGHT:index	<p>Weight of fuel available in the indexed fuel tank. The index is the number of the tank <i>N</i> component as defined by the Tank.N parameter.</p> <p>NOTE: If the fuel system Version is 2 or below, the index value will be one of the Fuel Tank Selection indices.</p>	Pounds	
FUELSYSTEM TRIGGER STATUS:index	<p>Whether or not the indexed trigger is active. The index is the number of the trigger <i>N</i> component as defined by the Trigger.N parameter.</p>	Bool	
FUELSYSTEM VALVE OPEN:index	<p>Whether or not the indexed valve is actually fully opened. The index is the number of the valve <i>N</i> component as defined by the Valve.N parameter.</p>	Percent Over 100	
FUELSYSTEM VALVE SWITCH:index	<p>Whether or not the indexed valve is set to be opened. The index is the number of the valve <i>N</i> component as defined by the Valve.N parameter.</p>	Bool	

Fuel Tanks

Simulation Variable	Description	Units	Settable
<div>FUEL TANK CENTER</div> <div>CAPACITY</div> <div>FUEL TANK CENTER2</div> <div>CAPACITY</div> <div>FUEL TANK CENTER3</div> <div>CAPACITY</div>	Maximum capacity in volume of center tank 1/2/3.	Gallons	
<div>FUEL TANK CENTER LEVEL</div> <div>FUEL TANK CENTER2</div> <div>LEVEL</div> <div>FUEL TANK CENTER3</div> <div>LEVEL</div>	Percent of maximum capacity of center tank 1/2/3.	Percent Over 100	
<div>FUEL TANK CENTER</div> <div>QUANTITY</div> <div>FUEL TANK CENTER2</div> <div>QUANTITY</div> <div>FUEL TANK CENTER3</div> <div>QUANTITY</div>	Current quantity in volume of center tank 1/2/3.	Gallons	
<div>FUEL TANK EXTERNAL1</div> <div>CAPACITY</div> <div>FUEL TANK EXTERNAL2</div> <div>CAPACITY</div>	Maximum capacity in volume of external tank 1/2.	Gallons	
<div>FUEL TANK EXTERNAL1</div> <div>LEVEL</div> <div>FUEL TANK EXTERNAL2</div> <div>LEVEL</div>	Percent of maximum capacity of texternal tank 1/2.	Percent Over 100	
<div>FUEL TANK EXTERNAL1</div> <div>QUANTITY</div> <div>FUEL TANK EXTERNAL2</div> <div>QUANTITY</div>	Current quantity in volume of external tank 1/2.	Gallons	

FUEL TANK LEFT AUX CAPACITY	Maximum capacity in volume of the left auxiliary tank.	<i>Gallons</i>	
FUEL TANK LEFT AUX LEVEL	Percent of maximum capacity of the left auxiliary tank.	<i>Percent Over 100</i>	
FUEL TANK LEFT AUX QUANTITY	Current quantity in volume of the left auxiliary tank.	<i>Gallons</i>	
FUEL TANK LEFT MAIN CAPACITY	Maximum capacity in volume of the left main tank.	<i>Gallons</i>	
FUEL TANK LEFT MAIN LEVEL	Percent of maximum capacity of the left main tank.	<i>Percent Over 100</i>	
FUEL TANK LEFT MAIN QUANTITY	Current quantity in volume of the left main tank.	<i>Gallons</i>	
FUEL TANK LEFT TIP CAPACITY	Maximum capacity in volume of the left tip tank.	<i>Gallons</i>	
FUEL TANK LEFT TIP LEVEL	Percent of maximum capacity of the left tip tank.	<i>Percent Over 100</i>	
FUEL TANK LEFT TIP QUANTITY	Current quantity in volume of the left tip tank.	<i>Gallons</i>	
FUEL TANK RIGHT AUX CAPACITY	Maximum capacity in volume of the right auxiliary tank.	<i>Gallons</i>	
FUEL TANK RIGHT AUX LEVEL	Percent of maximum capacity of the right auxiliary tank.	<i>Percent Over 100</i>	
FUEL TANK RIGHT AUX QUANTITY	Current quantity in volume of the right auxiliary tank.	<i>Gallons</i>	
FUEL TANK RIGHT MAIN CAPACITY	Maximum capacity in volume of the right main tank.	<i>Gallons</i>	

FUEL TANK RIGHT MAIN LEVEL	Percent of maximum capacity of the right main tank.	<i>Percent Over 100</i>	
FUEL TANK RIGHT MAIN QUANTITY	Current quantity in volume of the right main tank.	<i>Gallons</i>	
FUEL TANK RIGHT TIP CAPACITY	Maximum capacity in volume of the right tip tank.	<i>Gallons</i>	
FUEL TANK RIGHT TIP LEVEL	Percent of maximum capacity of the right tip tank.	<i>Percent Over 100</i>	
FUEL TANK RIGHT TIP QUANTITY	Current quantity in volume of the right tip tank.	<i>Gallons</i>	
FUEL TANK SELECTOR:index <i>Legacy</i>	<p>Which tank the indexed selector is set to. The index is the selector to check (from 1 to 4), and the return value will be the Fuel Tank Selection index.</p> <div> <p><i>NOTE: This SimVar is only valid for the legacy [FUEL] setup.</i></p> </div>	Enum	

Fuel Tank Selection

Number	Description
0	Off
1	All
2	Left
3	Right

4	Left auxiliary
5	Right auxiliary
6	Center
7	Center2
8	Center3
9	External1
10	External2
11	Right tip
12	Left tip
13	Crossfeed
14	Crossfeed left to right
15	Crossfeed right to left