

FUEL SYSTEM

The fuel system (figure 1-17) is comprised of two independent integral fuel systems, one for each engine, with a crossfeed line which may be opened to allow either engine to be supplied by the opposite tank, or both engines to be supplied by either tank.

NOTE

Fuel transfer from one tank to the other is not permitted as there are no provisions to prevent overfilling, which would force fuel overboard through the tank vents.

Each wing, outboard of the nacelle, has a fuel-tight compartment which serves as a fuel tank. The compartment in one wing is not connected with the compartment in the other wing. A line leads inboard to an electrically operated fuel boost pump in each nacelle. A crossfeed line, fitted with two valves operated electrically and simultaneously by a crossfeed switch on the fuel control panel, crosses from one nacelle to the other and interconnects the two fuel lines downstream from the boost pumps. The boost pump on either side is thus able to help feed fuel to the opposite engine during crossfeed operation, as well as to its own engine, as required. An electrically operated main fuel shutoff valve is installed in each nacelle upstream from the boost pump. Each engine has an engine-driven fuel pump. A fuel shutoff valve operated mechanically by the corresponding engine fluid-off handle on the fire control panel is installed at the firewall in each nacelle. Branch lines to the oil dilute valve and engine prime valve are provided in each nacelle. A fuel quantity gage for each tank and dual indicating fuel flowmeters and fuel pressure gages are located on the engine

instrument panel. The red fuel-pressure-low warning lights (29, figure 1-8) on the engine instrument panel serve both sides of the fuel system. These lights provide a visual indication of low fuel pressure when the corresponding fuel system pressure falls below 19 psi. The lights are powered by direct current from the main bus. The system is protected by circuit breakers on the main circuit breaker panel.

WARNING

Extreme wing low cross-control attitudes for prolonged periods of time will cause fuel starvation of the engine on the low wing due to fuel flowing away from the wing fuel tank outlets.

Fuel Specification and Grade

Refer to figure 1-63.

Fuel System Controls and Indicators.

MAIN FUEL SHUTOFF VALVE SWITCHES

A cover-guarded switch for each of the two main fuel shutoff valves is located on the fuel control panel (figure 1-18). The switches have two positions: OPEN and CLOSED. The switches open and close the main fuel shutoff valves located on the main landing gear support beam where the fuel line enters the nacelle from the tank. The switches are powered by direct current from the emergency bus and the circuit breakers are located adjacent to the switches on the fuel control panel.

NEW
NEW
NEW
NEW

EMERGENCY POWER-OFF SWITCH.

A two-position switch (figure 1-18) guarded in the NORMAL position is located on the fuel control panel adjacent to the main fuel shutoff valve switches. In the NORMAL position the switch allows direct-current power to be supplied to the main fuel shutoff valve actuators. Placing the switch in the OFF position disconnects direct-current electrical power from the emergency bus to the fuel valve actuators in the event of a crash landing or ditching. Refer to Landing Emergencies, and Ditching, Section V.

FUEL BOOST PUMPS AND SWITCHES

A fuel boost pump is installed in the main fuel line in each nacelle upstream from the cross-feed line connection. The pumps are powered by direct current from the main bus and are turned on and off by the fuel boost pumps switches (7, figure 1-9). The switches have two positions: ON and OFF. Fuel boost pump power is sufficient to provide normal fuel pressure at the carburetors indefinitely, in event of failure of an engine-driven fuel pump.

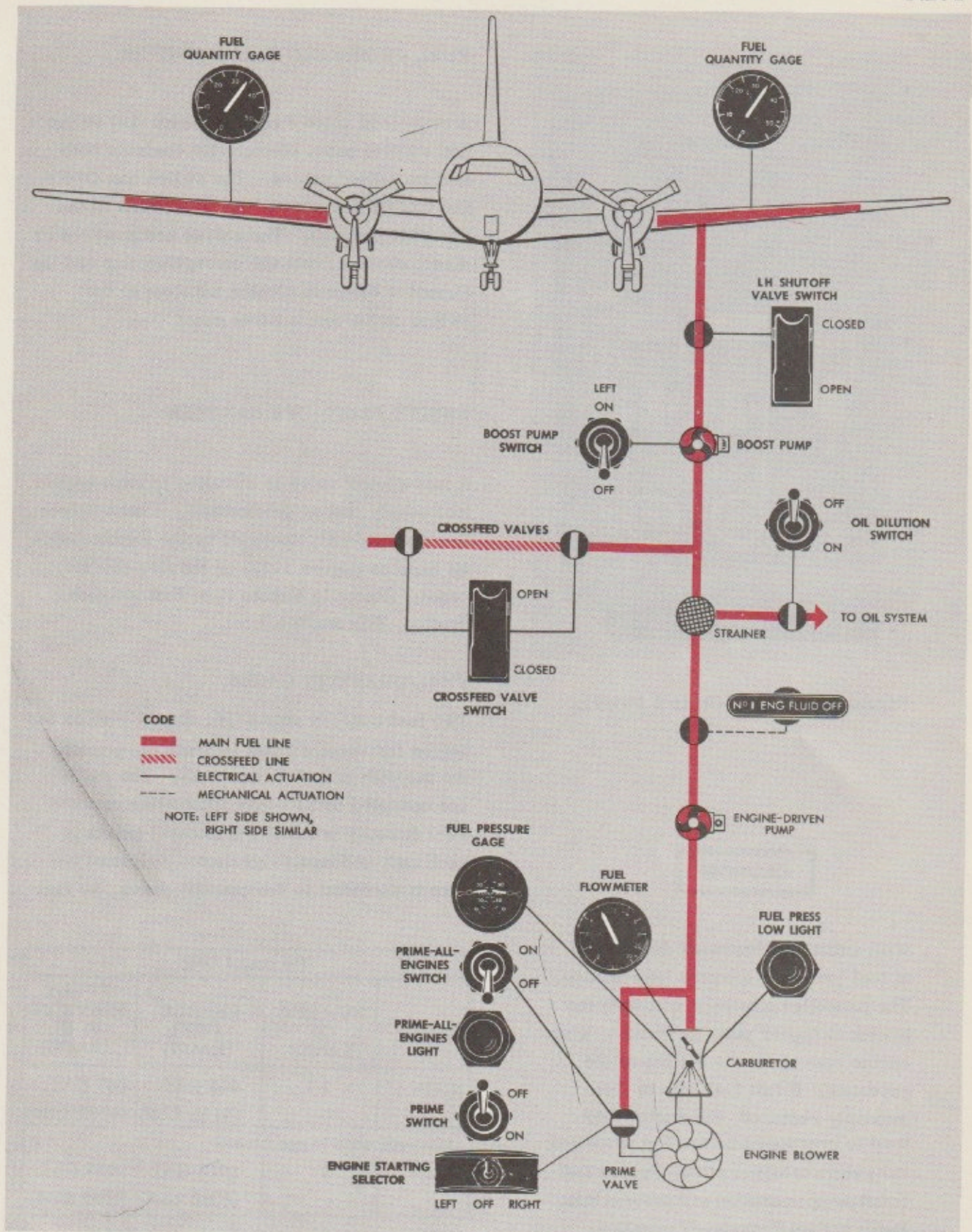


Figure 1-17. Fuel System

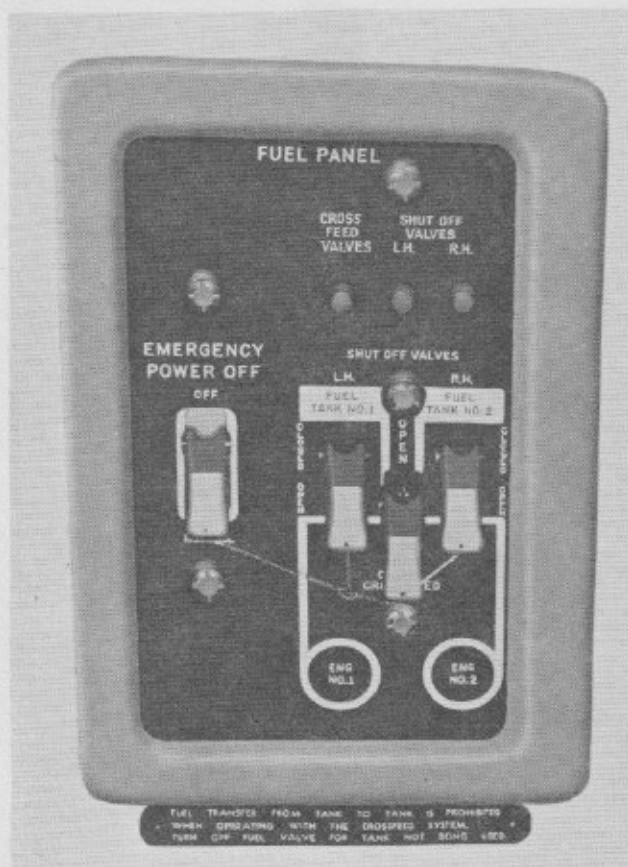


Figure 1-18. Fuel Control Panel

CAUTION

With sufficient downward fluctuation of fuel pressure a power loss occurs. The propeller governor will turn the blades to flatter pitch in order to keep engine rpm up to the setting of the governor. If full fuel flow is then suddenly restored, the engine may tend to overspeed before the propeller can return to higher pitch. Proper fuel boost pump operation will prevent this. Refer to Fuel Crossfeed Operation, Section III, Part 4.

FUEL CROSSFEED VALVE SWITCH

A crossfeed valve switch (figure 1-18) on the fuel control panel electrically controls both fuel crossfeed valves. The switch has OPEN and CLOSED positions and is guarded to the CLOSED position. The valves are powered by direct current from the emergency bus and the circuit breaker is located adjacent to the switch on the fuel control panel.

ENGINE FLUID-OFF HANDLES

A fuel shutoff valve is installed in each engine fuel supply line at the firewall. These valves are mechanically operated by the engine fluid-off handles (figure 1-35) on the fire control panel. (Refer to Engine Fire Extinguisher System, this Section.)

FUEL QUANTITY GAGES

Two fuel quantity gages (36, figure 1-8) on the engine instrument panel indicate, in pounds, the quantity of fuel in the tanks. The gages are operated by 115-volt alternating current. Fuel quantity is sensed at several points in each tank and these signals are balanced before transmittal to the quantity gages, so that

US GALLONS			
TANK	NUMBER OF TANKS	USABLE FUEL (EACH)	FULLY SERVICED FUEL (EACH)
MAIN	2	865 GAL (5190 LBS)	867 GAL (5202 LBS)
(Aircraft with large tanks)			
MAIN	2	1015 GAL (6090 LBS)	1017 GAL (6102 LBS)

Figure 1-19. Fuel Quantity Data Table