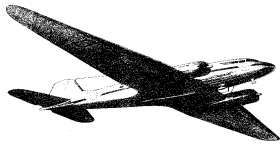


SECTION 9

FUEL SYSTEM

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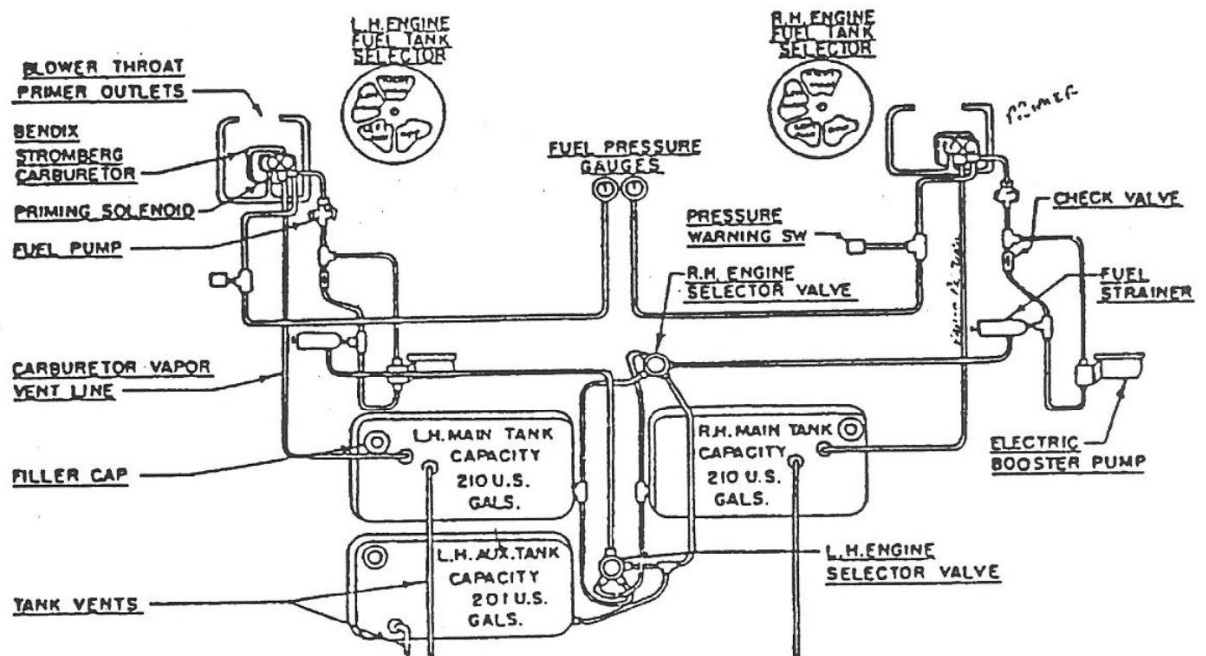


GENERAL

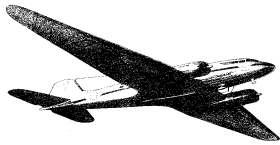
- A. **Fuel Tanks** – The dual fuel system has a total capacity of 621 gallons of avgas consisting of two main tanks (210 gallons each) and one auxiliary tank (201 gallons). The left main tank normally supplies fuel to the left engine and right main tank supplies fuel to the right engine. However, the system provides for operating either engine with fuel supplied from either main tank or the auxiliary tank. No crossfeed capability exists.

The main tanks are mounted in the center section between the front and center spars. The auxiliary fuel tank is mounted directly behind the left main tank.

Refueling is accomplished through gravity flow fillers recessed into the wing upper surface between each nacelle and the fuselage. Each tank is equipped with a water sump and drain valve beneath the center section surface.



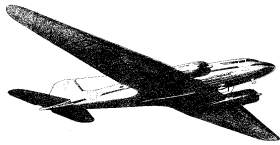
Fuel system



- B. Engine selector valves** – Each engine is equipped with an engine selector valve which provides for connections to each main tank and the auxiliary tank. Each selector has an “OFF” position, “RIGHT MAIN” position, “LEFT MAIN” position, and a “LEFT AUX” position. A selector valve control is located on each side of the control pedestal. See picture below.



- C. Fuel Strainers** – Each engine system is equipped with a C-3 type strainer located on the inboard side of each nacelle to remove foreign matter from the fuel and act as a water trap. Each strainer is equipped with a water drain valve.
- D. Boost pumps** – Each engine is provided with an electrically driven, vane type single speed pump controlled from the cockpit by switches on the right overhead switch panel.
- E. Engine driven fuel pump** - Each engine is also equipped with an engine driven fuel pump. Either pump will operate the engine. The engine driven fuel pump is mounted on the accessory drive case of each engine. This pump incorporates a by-pass to permit the electric boost pump to supply fuel to the engine for starting and in the event of failure of the engine-driven pump. The engines cannot be started without boost pump pressure.

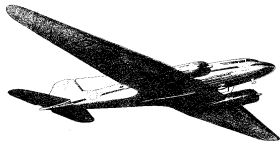


- F. Check Valve** – The main fuel line has a check valve on the outlet side of the strainer to prevent pressure output of the boost pump from returning to the pump inlet.
- G. Carburetor** – See powerplant section for more detail. As the fuel enters the carburetor, a vapor vent return line, incorporating a float actuated valve returns to the respective main tank any vapor present in the fuel along with a small amount of fuel.
- H. Primer** – The primers are deactivated on this airplane.
- I. Fuel Quantity indicator** – A multiple gauge on the First Officer's instrument panel indicates the fuel quantity in each tank in gallons. The system operates electrically with DC bus power. NOTE – a fuel measuring stick is located in the aft baggage compartment. The stick has two sides – Main and Aux. Use the correct scale for each respective tank. The stick should be placed perpendicular to the ground when measuring fuel.
- J. Fuel Pressure Gauge** – A dual indicating gauge on the center instrument panel indicates fuel pressure existing at the carburetor inlet of each engine. Normal pressure is approximately 15 psi.
- K. Fuel Pressure Warning Light** – A red warning light for each fuel system is mounted below the fuel pressure gauge and is operated by a pressure switch connected to the pressure gauge line in each nacelle. The pressure switch is adjusted to illuminate the light when fuel pressure decreases to 11 psi.

OPERATION

- A.** Minimum fuel for takeoff from any station is 125 gallons and should be evenly distributed between the left and right main tanks.
- B. Use of fuel boost pumps**
 - a. for starting engines
 - b. When there is an indication of fuel pressure fluctuation
 - c. When engine drive fuel pump fails
 - d. During take-off and landing

CAUTION – Do not operate boost pump when it is known or suspected that a leaking or broken fuel line exists.
- C. Fuel Usage Procedures** –
 - a. Selecting and changing fuel tanks – the selection and changing of fuel tanks in flight is the divided responsibility of both pilots as is monitoring fuel remaining in each tank. When changing fuel tanks turn respective electric boost pump to ON position prior to making the change. When engine is stabilized on the new tank you can then turn OFF the boost pump.



- b. Sequence of using tanks – Use the respective MAIN tank for takeoff and landing. When main tanks are full operate on MAIN tanks for 30 minutes prior to switching to the AUX tank. AUX tank should be used until most of the fuel in that tank has been consumed.

NOTE – Do not operate both engines on any one tank if that tank has 50 gallons or less in it. Do not operate an engine from any tank containing less than 20 gallons of fuel unless necessary.

- c. Procedure for using all fuel in any one tank.
 - 1. Place mixtures in FULL RICH
 - 2. Turn Fuel Boost pump ON
 - 3. Operate engine until fuel pressure fluctuates and a drop in pressure is noted.
 - 4. Immediately switch fuel selector to a tank containing fuel.

NOTE: A loss in power will not normally occur. However, use of the boost pump may be necessary to aid fuel flow.

D. Limitations

Normal Fuel pressure –

- 1. Electric fuel pump – 14-16 psi
- 2. Engine driven pump – 14-16 psi

Fuel pressure warning light

- 1. Illuminates at 11 psi \pm 1

E. Troubleshooting

A. Low or no fuel pressure

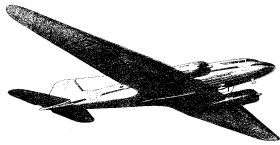
Starting – If warning light is ON check the following:

- 1. Fuel selector to tank containing fuel
- 2. Boost pump circuit breaker

If no warning light check the following:

- 1. Push to test fuel pressure warning light
- 2. Warning light circuit breaker No. 25

Low or no fuel pressure in flight



1. If warning light is on check the following – Engine selector to tank containing fuel
2. Turn electric boost pump ON

B. Loss of fuel pressure with normal engine operation

CAUTION: Loss of fuel pressure accompanied by a fuel pressure warning light and with the engine operating normal with boost pump ON or OFF may indicate a broken fuel pressure gauge line. The this produces a potential fire hazard, the engine should be shut down and engine fuel system turned OFF.