

Fuel Filter Cleaning

The firewall fuel filter is shown in Figure 37. This fuel filter may be a Fram FS 1133-PLM fuel filter or an Air Tractor p/n 53114-2 fuel filter. Both fuel filters use the Air Tractor p/n 52351-1 fuel filter element. Inspection and maintenance procedures for both fuel filters are almost identical. The filter should be cleaned and inspected for general condition in accordance with Service Letter #229 (Fram FS1133-PLM fuel filter) or Service Letter #229A (Air Tractor p/n 53114-2 fuel filter). A copy of this Service Letters are found in the Service Letter Book that is included with each OWNERS MANUAL.

When the fuel filter bowl has been removed for filter cleaning, it must be remembered that the fuel lines from the engine fuel control to the header tank have been drained, and these lines will be air-locked if a start is attempted without first priming the lines with fuel. Use the electric boost pump for this.

The engine also has a disposable fuel filter on the high pressure pump located at the 3 o'clock position on the accessory case. This element is an AN6235-3A. This filter should be changed anytime the firewall filter is found contaminated or every 300 hours. See the proper engine manual in INSTRUCTIONS FOR CONTINUED AIRWORTHINESS in Section 1 for details on removing and replacing this filter

CAUTION

If any contamination is found in either fuel filter, investigate the cause and rectify the problem.

Fuel Header Tank Sump Draining

Drain the fuel header tank sump DAILY to remove any moisture in the fuel system from condensation or contamination. Draining the sump daily also will prevent the drain valve from freezing up from contact with fertilizer and chemicals. The location and access to this drain is shown in Figure 38.

Negative Fuel Pressure Warning

Your Air Tractor is equipped with an electric fuel boost pump and an engine driven low pressure fuel pump. The electric boost pump is installed as a back-up for the engine driven low pressure pump. It also fills the fuel lines prior to starting. The high pressure fuel pump alone can keep the engine running normally; if a positive flow of pressure is lost, (loss of either the electric boost pump or the engine-driven low-pressure pump), then the high pressure pump has a 10 hour life limit.

The AT-602 has a negative pressure switch and warning light with the switch on the outlet side of the fuel filter. If this warning light should come on, turn on the electric boost pump and have the problem corrected promptly. A check of the fuel filters is in order here, as one may be starting to clog because of fuel contamination. Refer to Figure 37 and your Engine Maintenance Manual for details on replacing the filter. The wiring schematic for this negative-pressure warning light is shown in Figure 27. In this figure, the light is marked FUEL FILTER PRESS SW.

Remove the finger-strainer screen fitting from each wing tank as follows:

1. De-fuel both wing tanks as described in the fuel tank sealing section.
2. Remove the hose-end fitting from the elbow fitting that enters the fuel cell through the inboard rib of the wing.
3. Remove the elbow fitting from the tank. The strainer screen is part of the elbow fitting.

After inspection and cleaning, the strainer and its fittings may be replaced by reversing the steps shown above. The threads of the elbow fitting should be cleaned and re-coated with Rector-Seal 5 or equivalent fuel-resistant pipe-thread sealer.

The firewall fuel filter is shown in Figure 37. The filter can be replaced by following these procedures:

1. Remove safety wire and loosen the long bolt on top of the filter base that secures the cartridge and the canister cover to the filter base.
2. Carefully lower the canister and filter, protecting the washers, gaskets, and seals.
3. Insert the new filter and the new O-ring into the canister.
4. After inspecting the gaskets and seals for condition, re-attach the filter and the canister cover to the filter base.
5. Torque the long bolt to 12-to-14 lb-ft.
6. Run the electric boost pump to pressurize the filter. Check for leaks.
7. Replace safety wire that secures the long bolt.
8. The firewall mounted fuel filter may be a Fram FS1133-PLM or an Air Tractor p/n 53114-2 fuel filter. Both fuel filters use the Air Tractor p/n 52351-1 fuel filter element. Inspection and maintenance procedures are almost identical. See SL #229 and #229A for more details.

Airframe Fuel Pump

The airframe pump has a pressure adjustment that has been set at the factory for approximately 20 psi with the engine operating at 80% power.

If a new airframe pump is installed, and if a negative pressure is read on start-up, it is a sign that the airframe pump is not set up for proper rotation, and the body of the pump can be removed and rotated 180° to obtain a positive reading.

Fuel System

1. (100) Inspect the fuel-filter element in the firewall mounted fuel filter and replace if necessary. (Air Tractor p/n 52351-1). If contamination is found, replace the filters (2) on the FCU pump. See Engine Maintenance - FUEL. Also see Service Letters #229 and #229A for the firewall mounted fuel filter. See the appropriate Pratt & Whitney maintenance manual for the FCU pump filters.
2. (100) Check all drain fittings and valves for leaks.
3. (100) Check for fuel line chafing from fuel tanks to header tank.
4. (100) Check fuel tank for leaks.
5. (300) Replace high-pressure fuel-pump filter element. (See Engine Maintenance – FUEL for removal and replacement procedures).
6. (Annual) Check operation of the fuel filter warning system by removing the hose and attaching a gauged vacuum source to the bottom of the vacuum switch. Apply decreasing pressure gradually (vacuum). The battery switch should be “ON”, and someone in the cockpit to tell when the “FUEL FILTER” warning light goes on. This should occur at 80 (+/- 1) inches of water (vacuum).
7. (Annual) Drain fuel tanks and check E position of fuel receiver. (Reference Maintenance Section, FUEL TANK RECEIVER).
8. (Annual) Check functionality of Low Fuel Warning Light. Light should illuminate when approximately 13 gallons of fuel remain in each wing tank.
9. (Annual) Inspect exterior of header tank on lower side for signs of corrosion from within tank, and interior of tank for contamination per S/L #148.
10. (Annual) Remove finger strainers (steel elbow) from fuel tank and clean. Inspect for fuel contamination per Service Letter #148.
11. (Annual) Fill fuel tanks and check F position on fuel receiver.
12. (---) Clean fuel nozzles, check flow and pattern. (See Engine Maintenance - FUEL for instructions).

Air Tractor Inc., AT-602
July 15, 2002

FIGURE 37
Firewall Fuel Filter

