

Excerpt from the Diamond DA20-C1 Maintenance Manual

FUEL1. General

This chapter describes the general data about the airframe fuel system. Refer to the Continental Engine manuals for data about the engine fuel system.

2. Description

Figure 1 shows the fuel system schematic diagram. The DA20-C1 aircraft has the following fuel system components:

- A 24.5 US gallon (92.7 liters) fuel tank. The fuel tank is located in the fuselage behind the seats
- An optional 20 US gallon (75.7 Liters) fuel tank. This tank is located in place of the standard 24.5 US gallon (92.7 liters) fuel tank
- A fuel shut-off valve. The fuel shut-off valve is located on the aft side of the firewall. The control lever for the shut-off valve is on the forward part of the center console
- A optional console mounted fuel shut-off valve. This shut-off valve is located between the pilot and co-pilot seats. The console mounted fuel shut-off valve is installed in place of the firewall mounted shut-off valve
- A maintenance shut-off valve. The maintenance shut-off valve lets you remove the filter screen from the gascolator or the electrical pump without draining the fuel tank. The maintenance shut-off valve is located below the fuel tank
- A gascolator. The gascolator is located below the fuel tank. It has a 120 micron filter screen. The optional Andair gascolator has a 70 micron filter screen
- An electrical fuel pump. The electrical fuel pump is located below the fuel tank
- A check valve. The check valve is located in the return line beside the fuel tank
- A fuel quantity sensor. The fuel quantity sensor is located in the top of the fuel tank
- A fuel quantity gauge. The fuel quantity gauge is located on the right instrument panel
- A fuel pressure sensor. The fuel pressure sensor is located on the top right-hand side of the engine mount. Alternatively, some aircraft may have the fuel pressure sensor located behind the left-hand side of the aft engine baffle
- A fuel pressure gauge. The fuel pressure gauge is on the right side of the instrument panel
- A fuel tank drain valve. The drain valve is located below the fuel tank. A spring holds it closed
- Two maintenance drain taps. The low point of each supply and return pipe has a maintenance drain tap
- Flexible fuel hoses.

The debris in the metering orifice measured about 1/16" square which is about 1,590 microns

Continental Motors Service Bulletin

SERVICE BULLETIN

Contains Important Information Pertaining to Your Aircraft Engine
Compliance Will Enhance Safety

SB08-4A

Supersedes SB08-4
TECHNICAL PORTIONS
FAA APPROVED

SUBJECT: FUEL INJECTION SYSTEM CONTAMINATION

PURPOSE: To provide guidelines to prevent contamination of Continental Motors (CM) fuel injection systems during installation and maintenance.

COMPLIANCE: Anytime a CM continuous flow fuel injection system component is removed for replacement or repair.

MODELS

AFFECTED: All with CM Continuous Flow Fuel Injection Systems

Continental Motors has continued to receive fuel injection system components from the field which have been contaminated with foreign material during installation or maintenance procedures. It is imperative that fuel injection system components be kept free from contamination during all installation and maintenance procedures. The following guidelines must be followed during fuel injection system maintenance:

- All caution must be exercised during reassembly of the fuel system to NOT allow any contaminants to enter the components, lines and fittings during installation.
- All surfaces surrounding the area where components are to be installed must be clean and free of all forms of contaminant before and during installation.
- All hose assemblies must be flushed and verified to be free of contamination prior to installation.
- All fuel system component and lines must be capped and remain capped until flushed and ready for installation.
- The engine, tools and environment must be clean to minimize any potential for fuel system contamination.
- All fuel system components, regardless of their source, must be purged at time of installation.

WARNING

Fuel system contamination may lead to fuel system component damage, erratic engine operation, loss of power, or engine shutdown.

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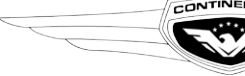
FUEL SYSTEM PURGING PROCEDURES

1. Fuel Pump Installation

- a. Install fuel pump using the latest revision of the applicable engine Maintenance and Overhaul Manual.
- b. Remove the protective cap from the fuel inlet line. Direct the fuel inlet line into a clean bucket. Utilizing the airframe boost pump, flush a minimum of 1 quart of fuel from the fuel pump inlet hose into a clean, dry container.
- c. Inspect the flushed fuel. If free from contamination, proceed to the next step. If contamination is found, locate the source and correct the issue before proceeding further.
- d. Remove the fuel pump inlet fitting cap and install the inlet fuel line using the installation instructions contained in the latest revision of the applicable engine Maintenance and Overhaul Manual.
- e. Remove the cap from the fuel outlet line and install the line using the applicable engine Maintenance and Overhaul Manual. (If line is installed or partially installed, the line will have to be removed to facilitate the flush process.)
- f. Utilizing the airframe boost pump, flush a minimum of 1 quart of fuel through the fuel pump into a clean, dry container. If the fuel pump is equipped with a mixture control, operate the mixture control slowly through its full range of motion several times during the flushing procedure.
- g. Inspect the flushed fuel. If free from contamination, proceed to the next step. If contamination is found, locate the source and correct the issue before proceeding further.
- h. If the fuel pump and associated lines are verified to be free from contamination, complete the fuel pump installation and setup procedures in accordance with the latest revision of the applicable Maintenance and Overhaul Manual, and the latest revision of M-0, Standard Practice Maintenance Manual.

2. Fuel Control Unit

- a. Install the fuel control unit using the latest revision of the applicable engine Maintenance and Overhaul Manual.
- b. Remove the protective cap from the fuel control inlet line. Direct the fuel control inlet line into a clean bucket. Utilizing the airframe boost pump, flush a minimum of 1 quart of fuel from the fuel control inlet hose into a clean, dry container.
- c. Inspect the flushed fuel. If free from contamination, proceed to the next step. If contamination is found, locate the source and correct the issue before proceeding further.
- d. Remove the cap from the fuel control inlet line and install the line using the applicable engine Maintenance and Overhaul Manual.
- e. Remove the cap from the fuel control outlet. Install the fuel control outlet line using the applicable engine Maintenance and Overhaul Manual. (If line is installed or partially installed, the line will have to be removed to facilitate the flush process.)

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- f. Utilizing the airframe boost pump, flush a minimum of 1 quart of fuel from the fuel control inlet hose into a clean, dry container. If the fuel control is equipped with a mixture control, operate the mixture control slowly through its full range of motion several times during the flushing procedure.
- g. Inspect the flushed fuel. If free from contamination, proceed to the next step. If contamination is found, locate the source and correct the issue before proceeding further.
- h. If the fuel control unit and associated lines are verified to be free from contamination, complete the fuel control unit installation, additional fuel system component installation if required, and setup procedures in accordance with the latest revision of the applicable Maintenance and Overhaul Manual, and the latest revision of M-0, Standard Practice Maintenance Manual.

3. Fuel Manifold Valve

- a. Install the fuel manifold valve using the latest revision of the applicable engine Maintenance and Overhaul Manual.
- b. Remove the protective cap from the fuel manifold valve inlet line. Direct the fuel manifold valve inlet line into a clean bucket. Utilizing the airframe boost pump, flush a minimum of 1 quart of fuel from the fuel control inlet hose into a clean, dry container.
- c. Inspect the flushed fuel. If free from contamination, proceed to the next step. If contamination is found, locate the source and correct the issue before proceeding further.
- d. Remove the cap from the fuel manifold valve inlet and install the line using the applicable engine Maintenance and Overhaul Manual.
- e. Install the fuel injector lines. Torque each fitting at the manifold valve to 55-60 in-lbs.
- f. Utilizing the airframe boost pump, flush fuel from the fuel injector lines into appropriate, clean, and dry containers.
- g. Inspect the flushed fuel. If free from contamination, proceed to the next step. If contamination is found, locate the source and correct the issue before proceeding further.
- h. If the fuel manifold valve and associated lines are verified to be free from contamination, complete the fuel manifold valve installation, additional fuel system component installation if required, and setup procedures in accordance with the latest revision of the applicable Maintenance and Overhaul Manual, and the latest revision of M-0, Standard Practice Maintenance Manual.

4. Bypass Fuel Filter (Where Installed)

- a. Install the bypass fuel filter assembly using the latest revision of the applicable engine Maintenance and Overhaul Manual
- b. Remove the protective cap from the bypass fuel filter inlet line. Direct the fuel inlet line into a clean bucket. Utilizing the airframe boost pump, flush a minimum of 1 quart of fuel from the bypass fuel filter inlet hose into a clean, dry container
- c. Inspect the flushed fuel. If free from contamination, proceed to the next step. If contamination is found, locate the source and correct the issue before proceeding further.

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- d. Remove the cap from the bypass fuel filter inlet line and install the line using the applicable engine Maintenance and Overhaul Manual.
- e. Utilizing the airframe boost pump, flush a minimum of 1 quart of fuel from the bypass fuel filter inlet hose into a clean, dry container.
- f. Inspect the flushed fuel. If free from contamination, proceed to the next step. If contamination is found, locate the source and correct the issue before proceeding further.
- g. If the bypass fuel filter and associated lines are verified to be free from contamination, complete the bypass fuel filter installation, additional fuel system component installation if required, and setup procedures in accordance with the latest revision of the applicable Maintenance and Overhaul Manual, and the latest revision of M-0, Standard Practice Maintenance Manual.

NOTE: Operational verification of the engine fuel system in accordance with the latest revision of M-0, Standard Practice Maintenance Manual is required any time one of the following circumstances occurs: (1) at engine installation, (2) during 100 hour and annual inspections, (3) whenever a fuel system component is replaced or adjusted, (4) when changes occur in the operating environment.

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