



Tech Tip

FUEL FILTERS 156

DURAMAX FUEL FILTERS Making a Fuel Filter Installation

Unless your shop specializes in diesel repair, chances are your diesel knowledge is limited. The same applies to any power-train or system that we are unfamiliar with or have limited access to. It requires some hands on experience to get comfortable and proficient with any system, and there are always those quirks that we must learn to deal with.

When servicing diesel applications, there are some things you must be aware of to prevent some major problems. Precautions must be taken, as the systems produce high pressures that can inflict personal injury if not handled properly. For example, trying to locate a fuel leak on the high pressure side by feeling the connections could result in diesel fuel being injected into your hands or fingers, which could require amputation. Some diesel systems can give you a nasty electrical shock as they operate on high voltage. That could alter your facial expression and you may smell funny for a few days. In making a fuel filter installation, it is unlikely that it will ever be necessary to access the high pressure side of the system. If servicing the system requires accessing the high pressure side, always refer to the vehicle manufacturer's service procedure to prevent damage to the system or personal injury. These precautions should not discourage you from servicing diesel applications, just be aware that servicing the system can be challenging and you can create some performance problems in the vehicle if the proper procedures are not followed.

DRY STARTS

Diesel engines do not perform well when the fuel is aerated. Making a fuel filter installation and attempting to start the engine without purging the air from the system is referred to as a dry start. Chances are you will never get the engine to start. If it does start, it will run poorly until the system is completely purged of air. Let's consider a few tips that can ease the filter installation process on the Duramax:

FILTER REMOVAL

- 1) Removing the right front wheel-well liner rear bolts/ retainers will allow repositioning of the liner to gain access to the fuel filter.
- 2) To reduce the potential for diesel fuel spillage, it is advisable to drain the fuel filter prior to removal. The

procedure is as follows:

- a) Attach a small piece of hose to the drain on the lower portion of the water-in-fuel sensor mounted on the bottom of the fuel filter.
 - b) Place the opposite end of the hose in a catch container.
 - c) Open the drain 3–4 turns and allow the fuel to drain into the catch container. It may be necessary to open the vent valve illustrated in Fig. 2 under Priming the Fuel System.
 - d) Tighten the drain and remove the hose and container.
- 3) Disconnect the water-in-fuel sensor electrical connector.
 - 4) Remove the fuel filter.

Caution: make certain the rubber grommet positioned in the center of the filter comes off with the filter and does not remain attached to the filter adapter (see Fig.1). If it remains attached it will prevent the replacement filter from threading onto the adapter. Numerous filters are discarded due to the installer assuming a thread issue with the filter was the culprit.



FIG. 1

- 5) Before discarding the old fuel filter, remove the water-in-fuel sensor, as it must be transferred to the new filter.

FILTER INSTALLATION

- 1) Prior to installing the new filter, inspect the fuel heater element housing for contamination, which can promote fuel leakage.
- 2) Retrieve the water-in-fuel sensor o-ring that comes packaged with the new filter.
 - a) Lubricate the o-ring with clean engine oil.
 - b) Place the o-ring on the water-in-fuel sensor and attach the sensor to the new filter.
 - c) Tighten the sensor 1/2 turn once the o-ring makes contact with the filter housing. Tighten by hand only, as the sensor is constructed of plastic and is fragile. **Do Not** use pliers to tighten the sensor.
- 3) The mounting end of the filter comes with a pre-lubed o-ring already installed. Even though GM does not specify, we recommend filling the new filter with clean diesel fuel prior to making the installation. Secure the new filter to the filter adapter and tighten 1/3 to 1/2 turn once the o-ring makes contact with the filter adapter.
- 4) Reconnect the water-in-fuel sensor electrical connector.
- 5) Re-position the wheel well liner and secure with retainers.

PRIMING THE FUEL SYSTEM

Once the new filter has been installed, it will be necessary to purge the air from the system. This is a simple process on the Duramax and it can save you much frustration.

- 1) Open the vent valve on the filter adapter by turning the vent screw counterclockwise several full turns (see Fig. 2).

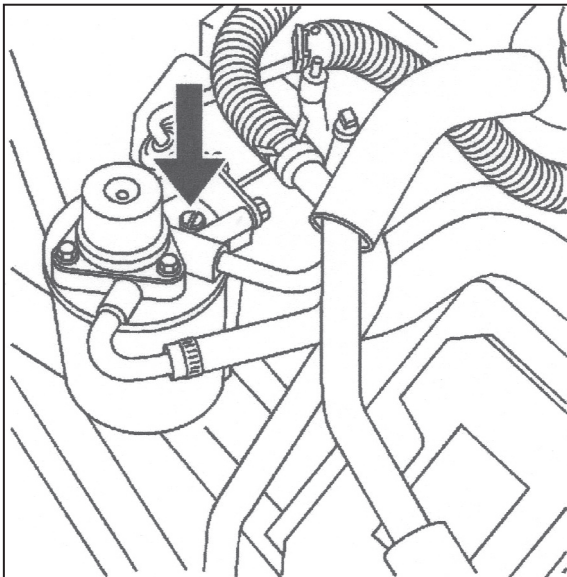


FIG. 2

- 2) Operate the priming pump until a small amount of fuel seeps from the vent valve. Allow the priming pump to fully return to its upright position between pump strokes (see Fig. 3). When fuel is present, the filter should be full of fuel and the system primed.

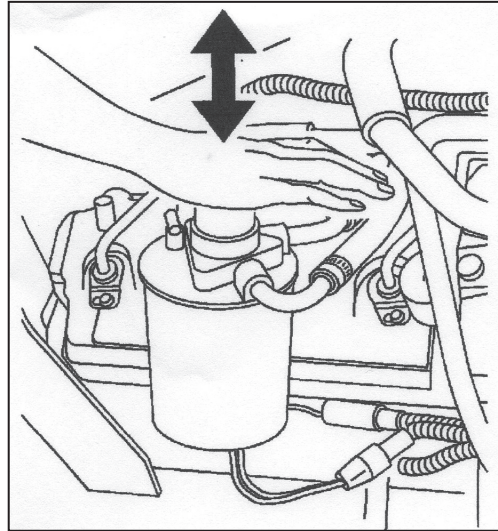


FIG. 3

- 3) Close the vent valve by turning the screw clockwise until seated.
- 4) Clean any fuel from the filter or adapter.
- 5) Start the engine and allow it to idle for a few minutes.
- 6) Check for the presence of fuel leaks.

FUEL FILTER LIFE RESET

If the vehicle is equipped with a Fuel Filter Life reset indicator, it will be necessary to reset it once the filter has been replaced.

For vehicles equipped with steering wheel controls:

- 1) To reset the fuel filter monitor, press and hold the select button for five seconds while the "Fuel Filter Life" message is displayed. The message will appear on the DIC screen for ten seconds.

For vehicles without steering wheel controls:

- 1) Without depressing the pedals, turn the ignition key to the "ON" position, without starting the engine.
- 2) Wait five seconds.
- 3) Press the brake and accelerator pedals simultaneously and hold for ten seconds. The system is now reset.
- 4) Turn the ignition key to the off position.

The next time the engine is started, the message will clear.

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