

&\$%&K ? " '\$@- Fuel System/Fuel Delivery, Diesel/SEPARATOR and FILTER, Fuel and Water/Description

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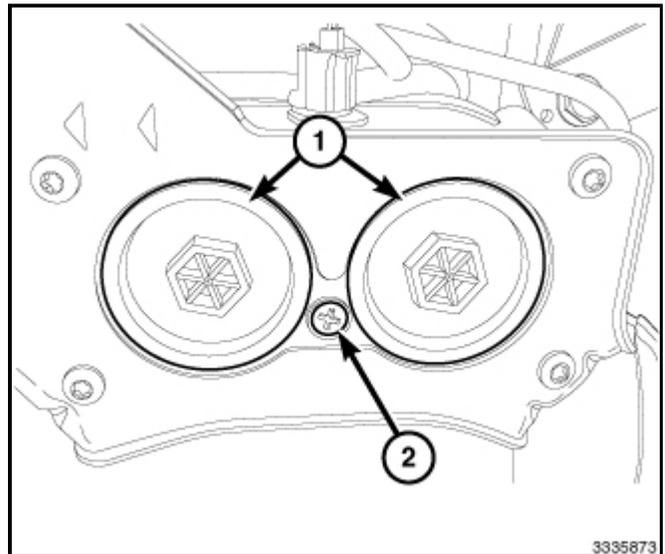
The fuel filter/water separator housing is located on the left side of the vehicle in front of the fuel tank. The filter has the task of cleaning the fuel before it is fed to the high-pressure system and ultimately to the injector nozzles.

1. The fuel filter/water separator housing incorporates the following components:

- Two 5 micron fuel filter element.
- Water separator.
- Drain plug.
- Water In Fuel sensor (WIF).
- Fuel heater/temperature sensor.

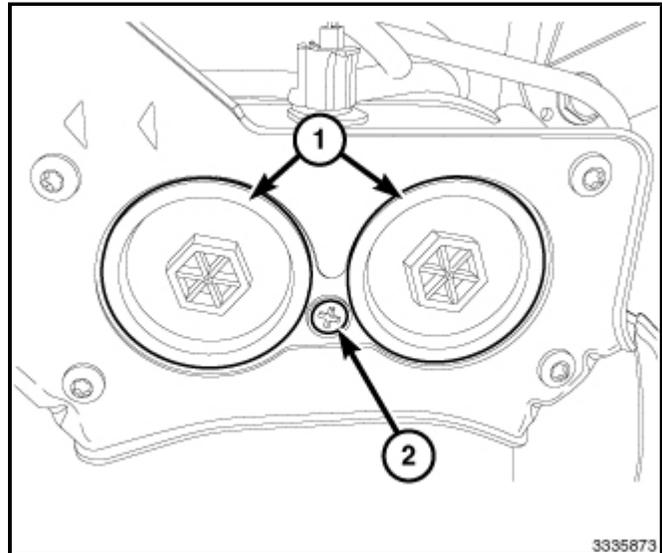
Fuel filtering is critical in common-rail systems. Small amounts of impurities may damage the precision mechanical components over time. Water entering the injection system can also lead to damage. Servicing the fuel filters (1) is done from the bottom of the fuel filter/water separator housing.

A water reservoir is located at the bottom of the filter to collect any water contained in the fuel. A drain plug (2) is located on the bottom of the filter housing. The filter housing should be drained if a Water-in-Fuel message is displayed in the instrument cluster. Water is drained by removing the drain plug.

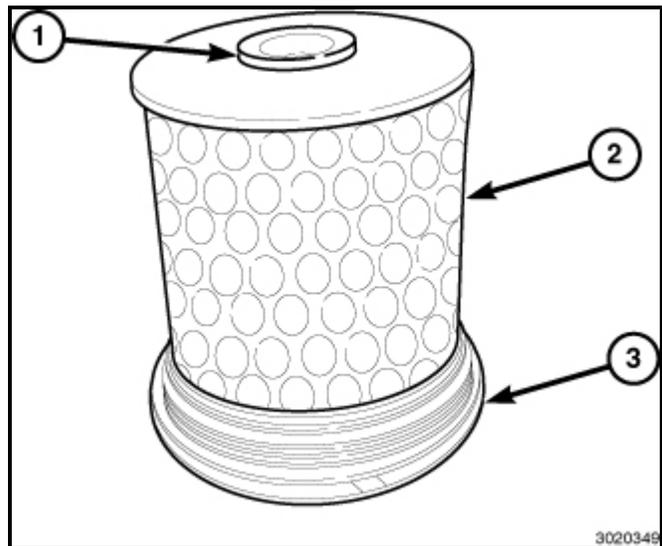


REMOVAL !': Jhyf

1. Remove the transmission skid plate ([Refer to 13 - Frame and Bumpers/Under Body Protection/PLATE, Skid - Removal](#)).
2. Loosen drain plug (2) and drain fuel filter/water separator into a suitable container.
3. Securely tighten drain plug (2).
4. Remove each filter cover (1) and fuel filter.

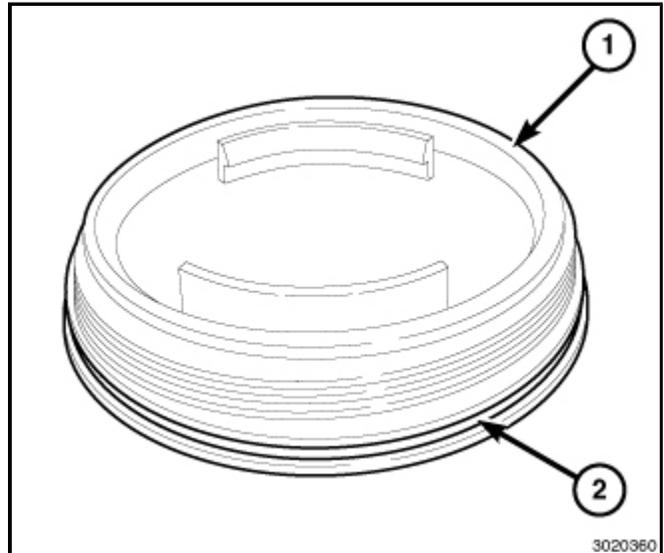


5. While holding the fuel filter cover (3), pull up on fuel filter (2) to separate from cover (3).

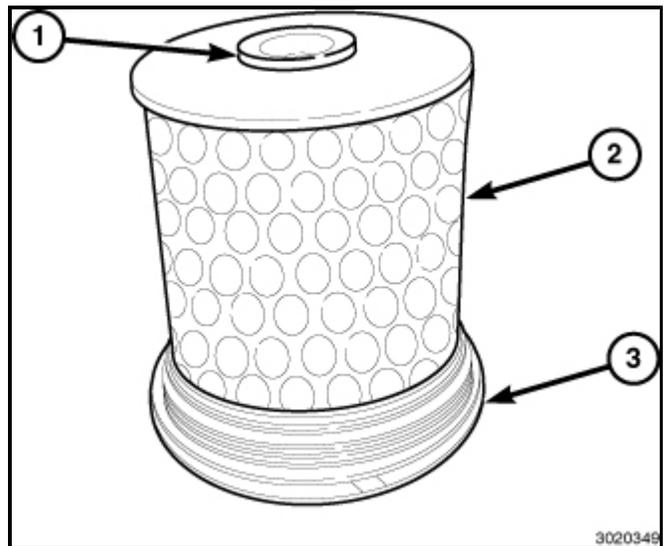


INSTALLATION

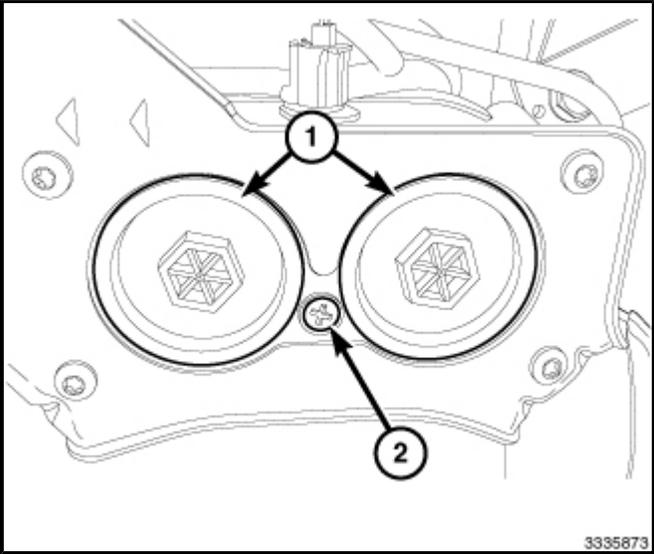
1. Lubricate and install a new O-ring seal (2) onto filter covers (1).



2. Position and push down on new fuel filters (2) to install filter onto cover (3).
3. Lubricate the rubber grommet seal (1) with clean diesel fluid.



4. Install the fuel filters. Tighten each cover (1) to 20 N·m (177 in. lbs.).
5. Install the transmission skid plate ([Refer to 13 - Frame and Bumpers/Under Body Protection/PLATE, Skid - Installation](#)).
6. Lower the vehicle.
7. Start the vehicle and inspect for leaks.

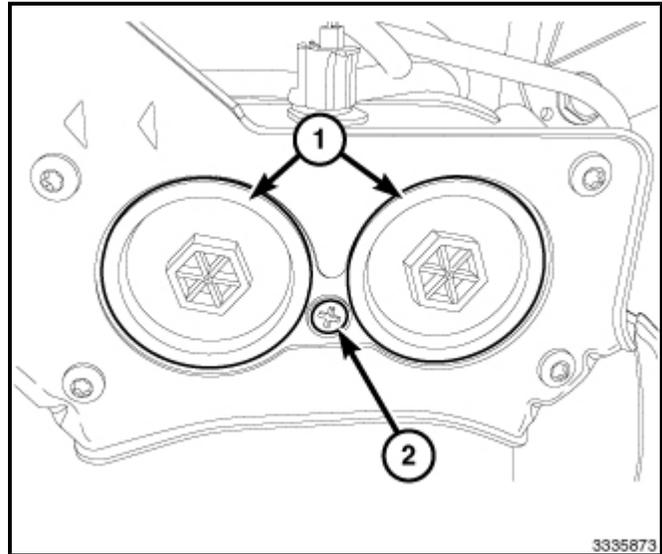


Fuel System/Fuel Delivery, Diesel/SEPARATOR and FILTER, Fuel and Water/Removal

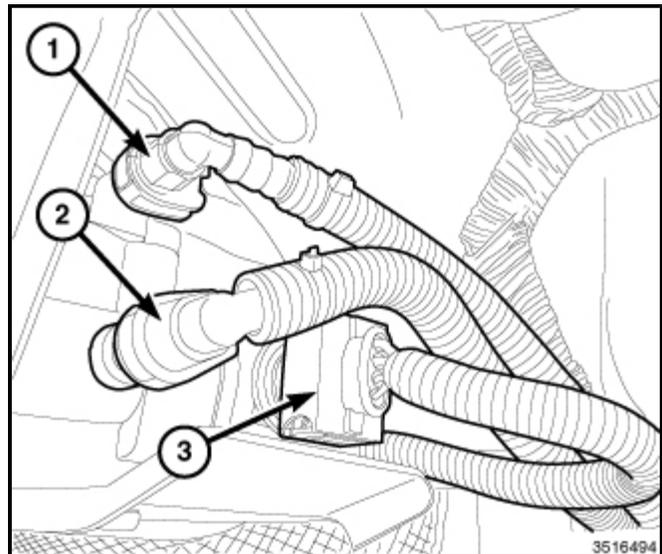
REMOVAL

WARNING: No sparks, open flames or smoking. Risk of poisoning from inhaling and swallowing fuel. Risk of injury to eyes and skin from contact with fuel. Pour fuels only into suitable and appropriately marked containers. Wear protective clothing.

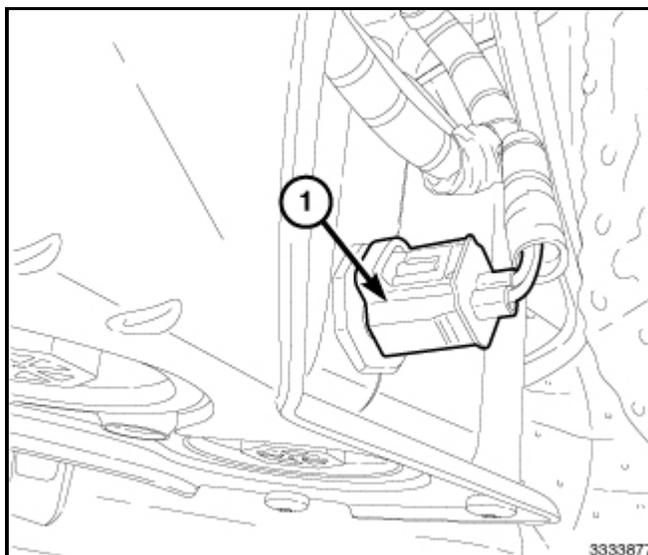
1. Disconnect the negative battery cable.
2. Remove the transmission skid plate (Refer to 13 - Frame and Bumpers/Under Body Protection/PLATE, Skid - Removal).
3. Loosen drain plug (2) and drain fuel filter/water separator into a suitable container.
4. Securely tighten drain plug (2).



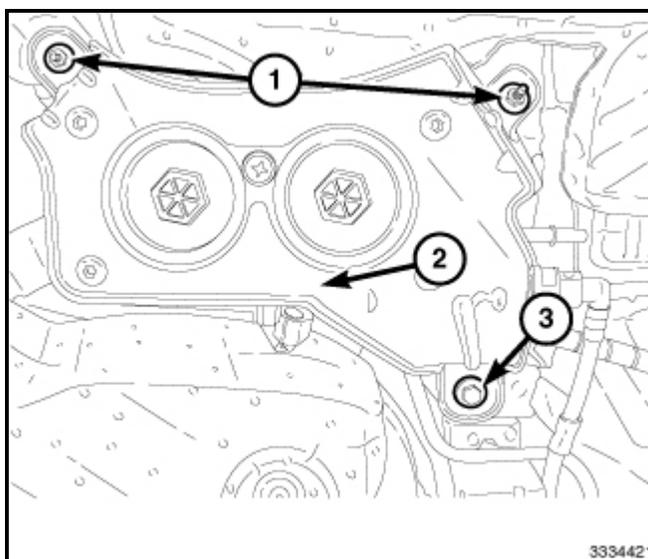
5. Disconnect the fuel filter/water separator outlet fuel line (1) (Refer to 14 - Fuel System/Fuel Delivery/FITTING, Quick Connect - Standard Procedure).
6. Disconnect the fuel filter/water separator inlet fuel line (2) (Refer to 14 - Fuel System/Fuel Delivery/FITTING, Quick Connect - Standard Procedure).
7. Disconnect the combination fuel heater/temperature sensor harness connector (3).



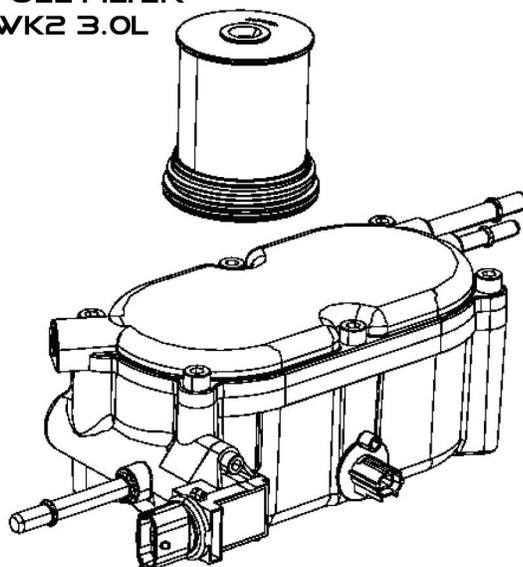
8. Disconnect the Water In Fuel (WIF) sensor harness connector (1).



9. Remove nuts (1) bolt (3), and the fuel filter/water separator assembly (2).



**FUEL FILTER
WK2 3.0L**

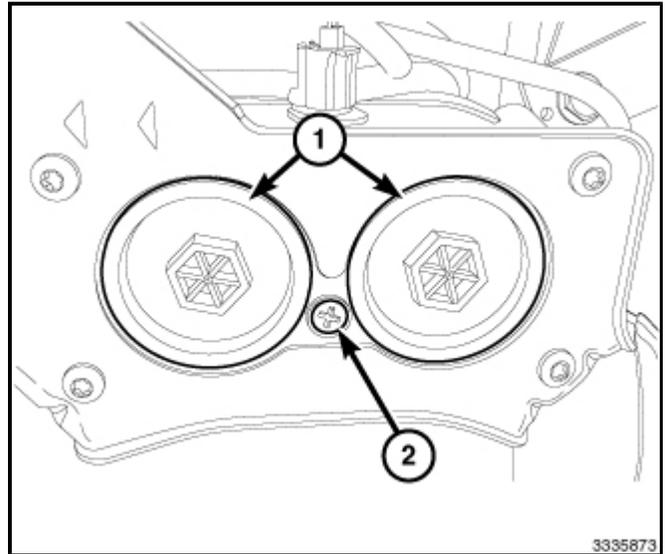


2012 WK " "\$@- Fuel System/Fuel Delivery, Diesel/SEPARATOR and FILTER, Fuel and Water/Installation

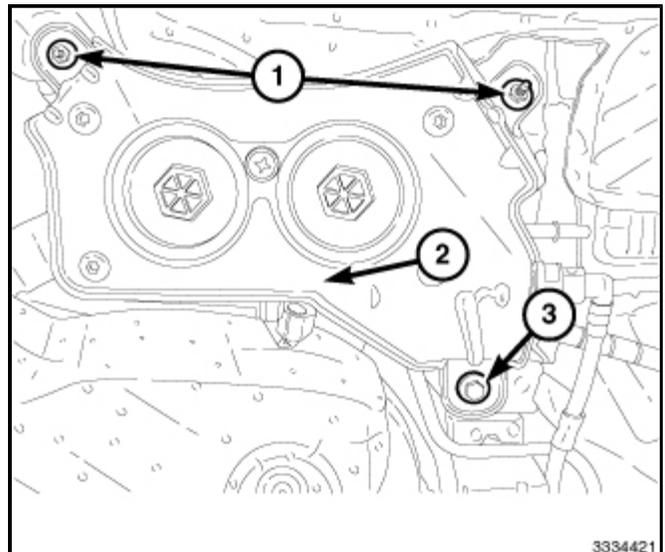
INSTALLATION

WARNING: No sparks, open flames or smoking. Risk of poisoning from inhaling and swallowing fuel. Risk of injury to eyes and skin from contact with fuel. Pour fuels only into suitable and appropriately marked containers. Wear protective clothing.

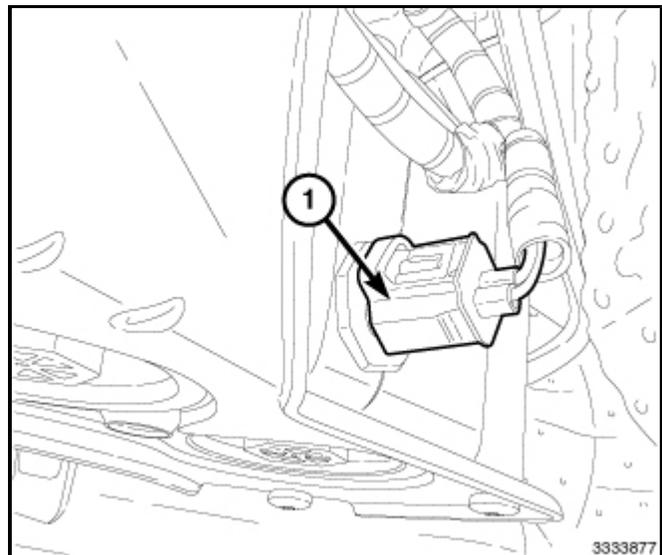
1. Make sure fuel filter drain port (2) is closed.



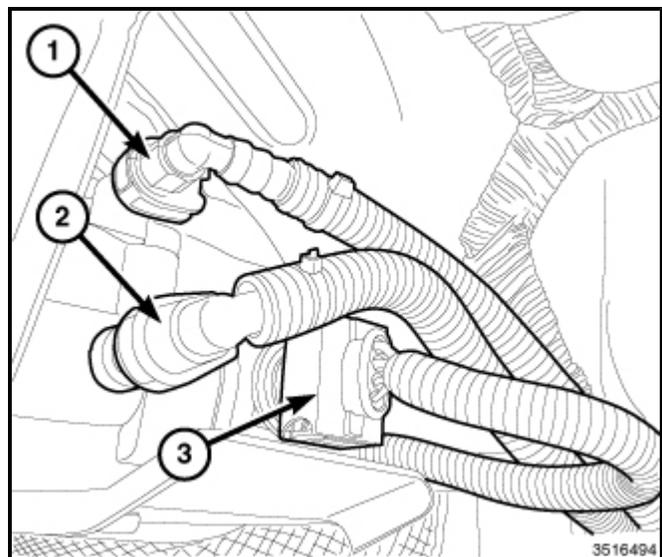
2. Install the fuel filter/water separator assembly (2). Tighten two nuts (1) and one bolt (3) to 20 N-m (177 in. lbs.).



3. Connect the Water In Fuel (WIF) sensor harness connector (1).



4. Connect the combination fuel heater/temperature sensor harness connector (3).
5. Connect the fuel filter/water separator inlet fuel line (2).
6. Connect the fuel filter/water separator outlet fuel line (1).
7. Install the transmission skid plate ([Refer to 13 - Frame and Bumpers/Under Body Protection/PLATE, Skid - Installation](#)).
8. Lower the vehicle.
9. Connect the negative battery cable.
10. Start the engine and inspect for leaks.



STANDARD PROCEDURE - QUICK-CONNECT FITTINGS

Different types of quick-connect fittings are used to attach the various fuel system components, lines and tubes. Some quick-connect fittings require the use of a special tool for disconnection and removal.

These are the quick-connect fittings:

- Redundant Latch Single Button Type Fitting
- Single Button Type Fitting
- Pinch Type Fitting
- Single Tab Type Fitting
- Two Tab Type Fitting
- Plastic Retainer Ring Type Fitting
- Latch Clip Type 1 Fitting
- Latch Clip Type 2 Fitting
- Wing Type Fitting

DISCONNECTING

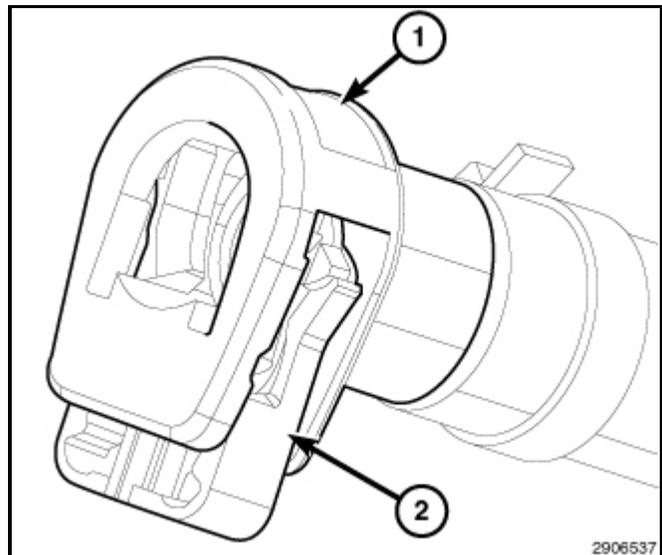
WARNING: The fuel system is under a constant pressure (even with engine off). Before servicing any fuel system hose, fitting or line, fuel system pressure must be released.

CAUTION: Before separating a Quick-Connect fitting, pay attention to what type of fitting is being used . This will prevent unnecessary fitting or fitting latch breakage.

CAUTION: The interior components (O-rings, clips) of quick-connect fittings are not serviced separately, but new plastic spacers and latches are available for some types. If service parts are not available, do not attempt to repair the damaged fitting or fuel line (tube). If repair is necessary, replace the complete fuel line (tube) assembly.

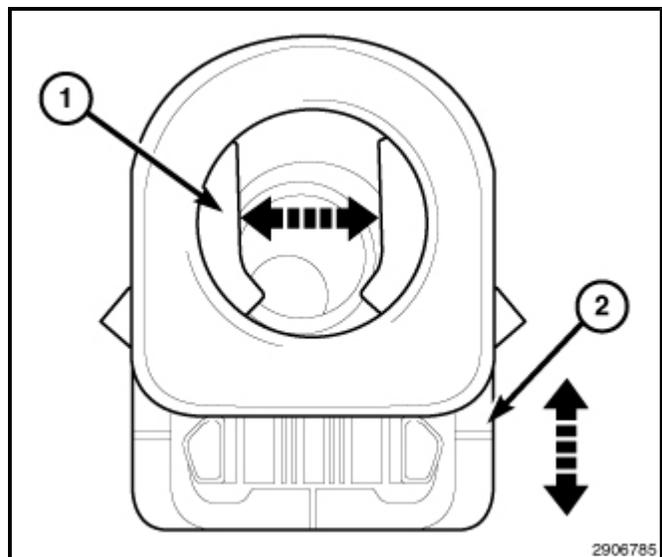
Redundant Latch Single Button Type Fitting:

This type of quick-connect fitting is equipped with a redundant latch (2) and a single push button (1) that releases two internal latches located in the quick-connect fitting. Special tools are not required for removal.



CAUTION: Do not pry or pull up on the push button as damage to the latches of the quick-connect fitting will occur.

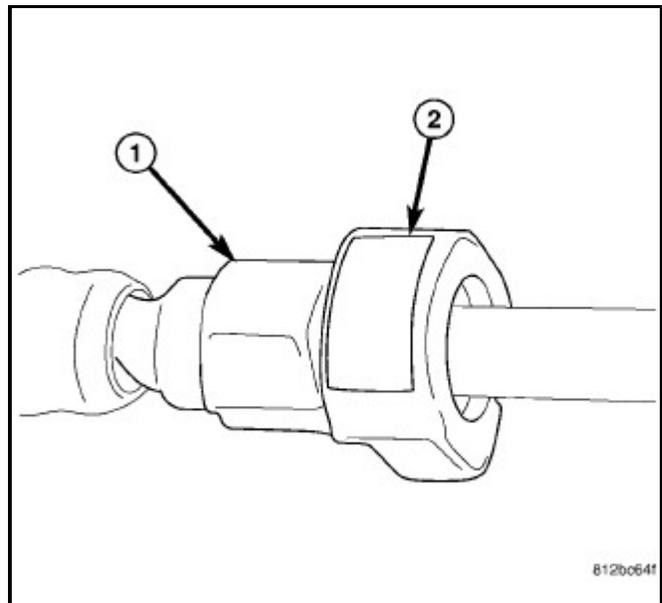
1. Pull the redundant latch (2) out away from the quick-connect fitting.
2. Press on the push button with your thumb, release the internal latches (1) and remove the quick-connect fitting from the fuel system component.



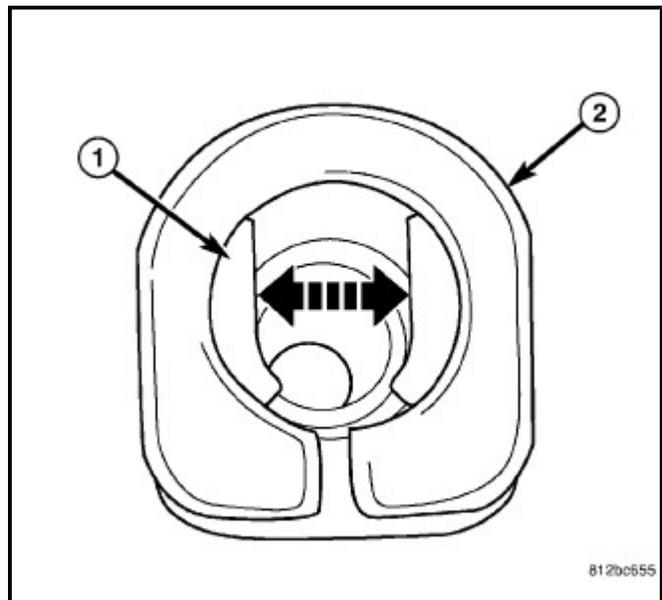
Single Button Type Fitting:

CAUTION: Do not pry or pull up on the push button as damage to the latches of the quick-connect fitting will occur.

This type of quick-connect fitting is equipped with a single push button (2) that releases two internal latches located in the quick-connect fitting. Special tools are not required for removal.



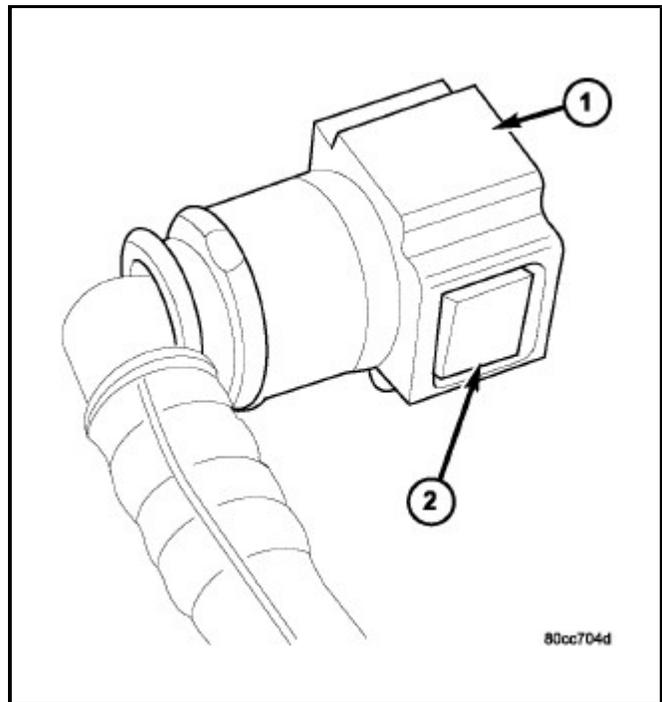
1. Press on the push button with your thumb, release the internal latches (1).
2. Remove the quick-connect fitting from the fuel system component.



2 Button Type Fitting

This type of quick-connect fitting (1) is equipped with two push buttons (2) that releases two internal latches located in the quick-connect fitting. Special tools are not required for removal.

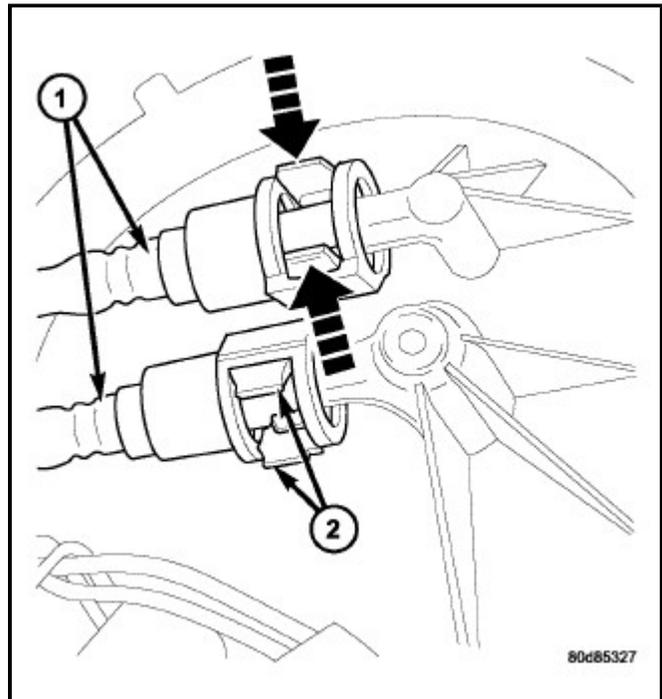
1. Press on both push buttons with your thumb, release the internal latches.
2. While holding the two push buttons simultaneously, remove the quick-connect fitting from the fuel system component.



Pinch Type Fitting

This type of quick-connect fitting (1) is equipped with two finger tabs (2). Special tools are not required for removal.

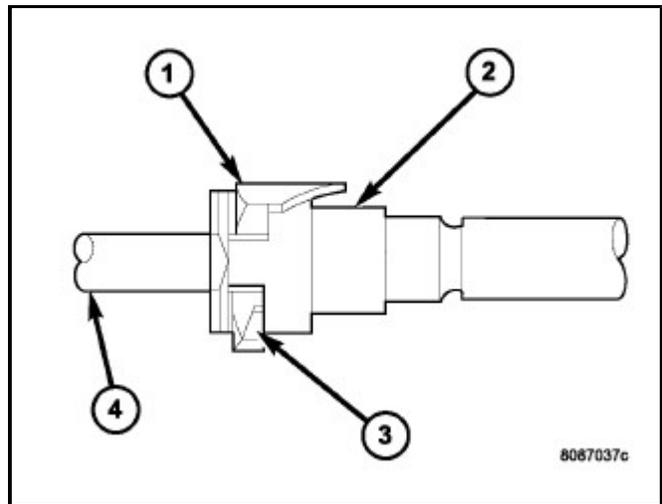
1. Pinch both tabs (2) together and release the quick-connect fitting.
2. Remove the quick-connect fitting from the fuel system component.



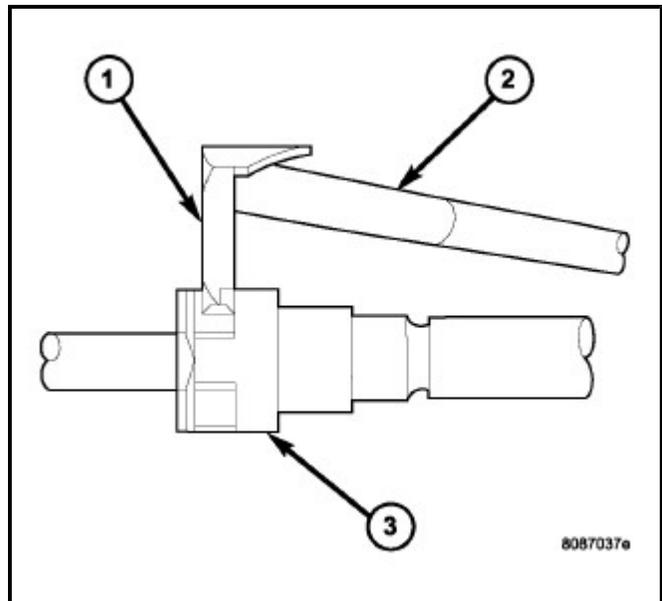
Single Tab Type Fitting

This type of quick-connect fitting (3) is equipped with a

single pull tab (1). The tab is removable. After tab is removed the quick-connect fitting can be separated from the fuel system component. Special tools are not required for removal.



1. Press release tab on side of fitting to release pull tab (1). **If release tab is not pressed prior to releasing pull tab, pull tab will be damaged.**
2. While pressing the release tab on the side of the quick-connect fitting use a screwdriver (2) to pry up the pull tab.
3. Raise the pull tab until it separates from the quick-connect fitting.
4. Remove the quick-connect fitting from the fuel system component.

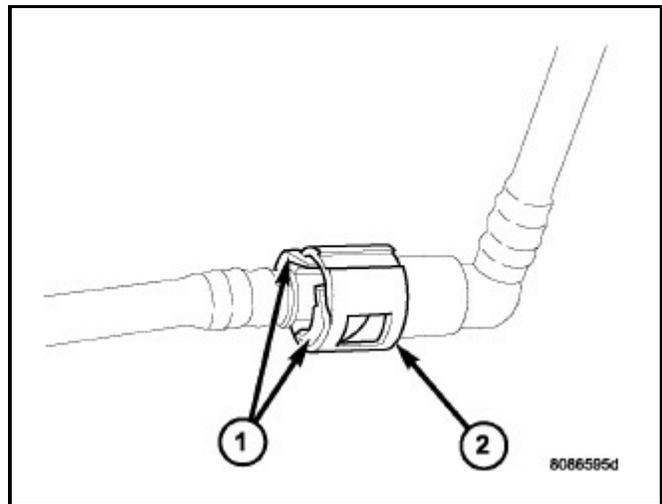


Two Tab Type Fitting

This type of quick-connect fitting (2) is equipped with tabs located on both sides of the fitting (1). These tabs are integral to the fuel system component. The plastic tabs will remain on the component being serviced after the quick-connect fitting is removed. The O-ring and spacer will remain in the quick-connect fitting. Special tools are not required for removal.

1. Squeeze the plastic tabs (1) against the sides of component being serviced with your fingers.
2. Remove the quick-connect fitting from the fuel

system component.

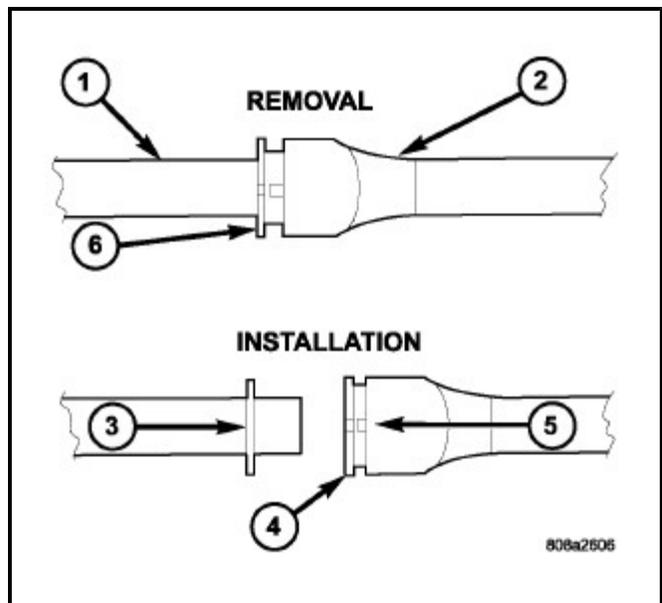


Plastic Retainer Ring Type Fitting

This type of fitting can be identified by the use of a round plastic retainer ring (4) usually black in color. Special tools are not required for removal.

NOTE: The round plastic retainer ring must be pressed squarely into the quick-connect fitting body. If this retainer is cocked during removal it will be difficult to disconnect the quick-connect fitting. Use an open-end wrench on the shoulder of the plastic retainer ring to aid in disconnection.

1. Firmly push the quick-connect fitting (5) towards the component being serviced while firmly pushing the round plastic retainer ring into the quick-connect fitting (6). With the round plastic ring depressed, remove the quick-connect fitting from the fuel system component.



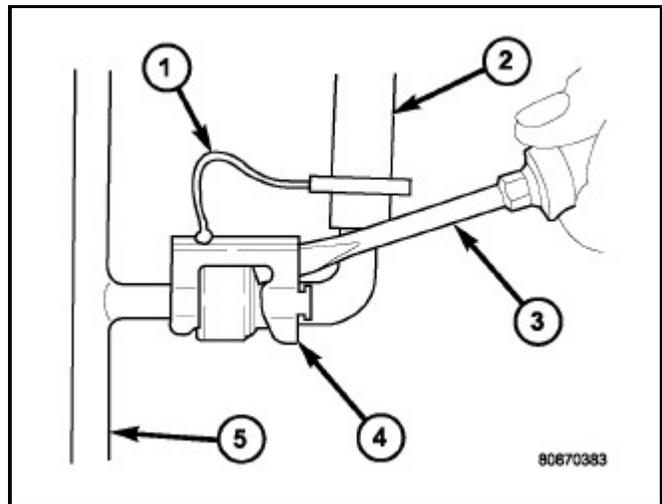
2. After removal the plastic retainer ring will remain with the quick-connect fitting.

Latch Clip Type 1 Fitting

Depending on vehicle model and engine, 2 different types of safety latch clips are used. One is tethered (1) to fuel line and the other is not. A special tool will be necessary to disconnect the fuel line after latch clip is removed. The latch clip may be used on certain fuel line

and fuel rail connections or to join fuel lines together.

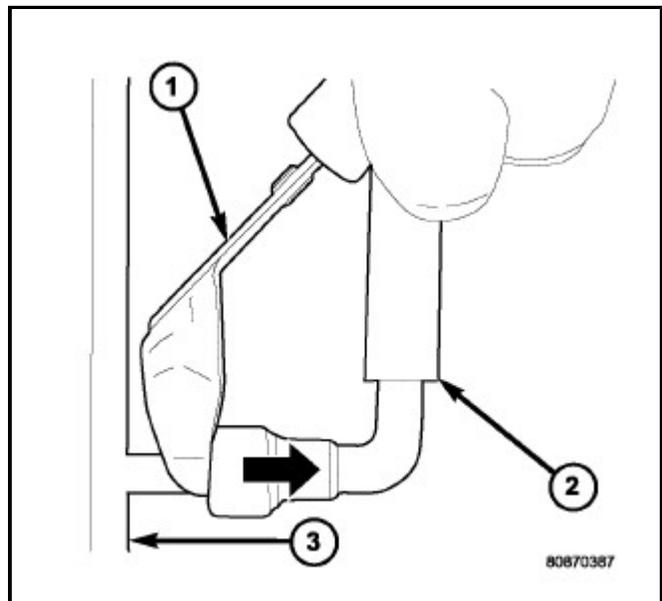
1. Pry up on the latch clip (4) with a screwdriver (3).
2. Slide the latch clip away from the quick-connect fitting while lifting the screwdriver and position aside.



3. Insert the commercially available fuel line removal tool (1) into the quick-connect fitting and release the internal latches.

NOTE: After removal the internal latches will remain in the quick-connect fitting.

4. With the commercially available fuel line removal tool (1) still inserted, remove the quick-connect fitting from the fuel system component.

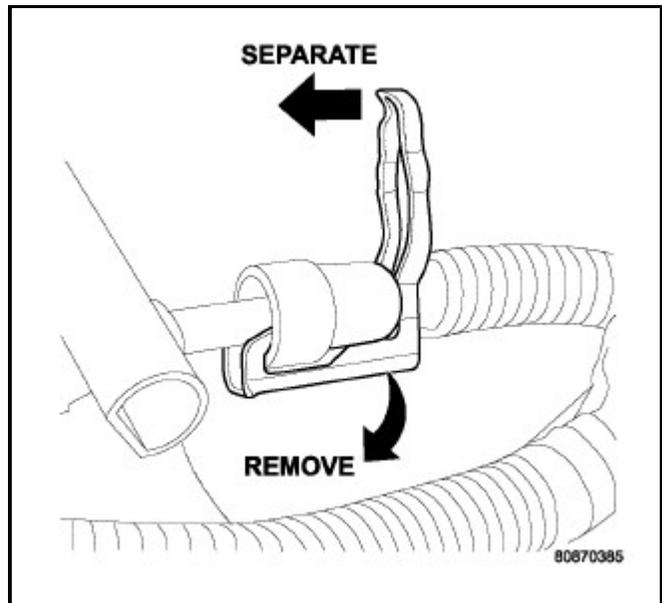


Latch Clip Type 2 Fitting

Depending on vehicle model and engine, 2 different types of safety latch clips are used. One is tethered to the fuel line and the other is not. A special tool will be necessary to disconnect the fuel line after the latch clip is removed. The latch clip may be used on certain fuel line and fuel rail connections or to join fuel lines together.

1. Unlatch the small arms on the end of clip, swing away and separate from the fuel system component.
2. Slide the latch clip away from the quick-connect

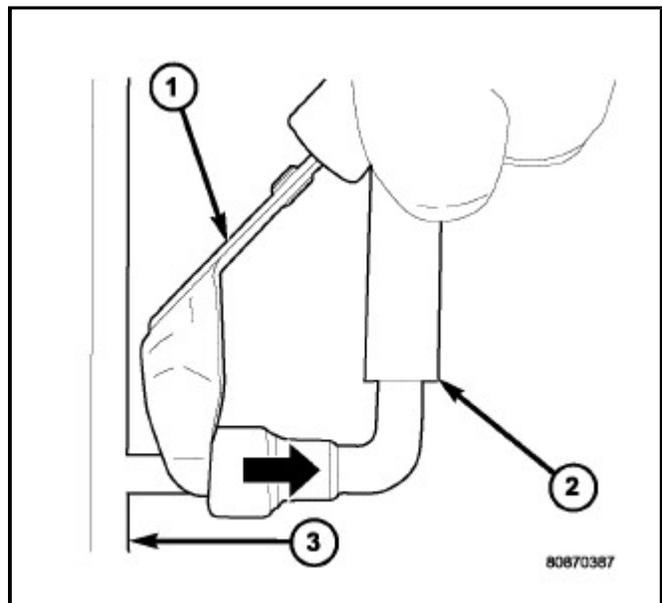
fitting while lifting with a screwdriver and position aside.



3. Insert the commercially available fuel line removal tool (1) into the quick-connect fitting and release the internal latches.

NOTE: After removal the internal latches will remain in the quick-connect fitting.

4. With the commercially available fuel line removal tool (1) inserted, remove the quick-connect fitting from the fuel system component.



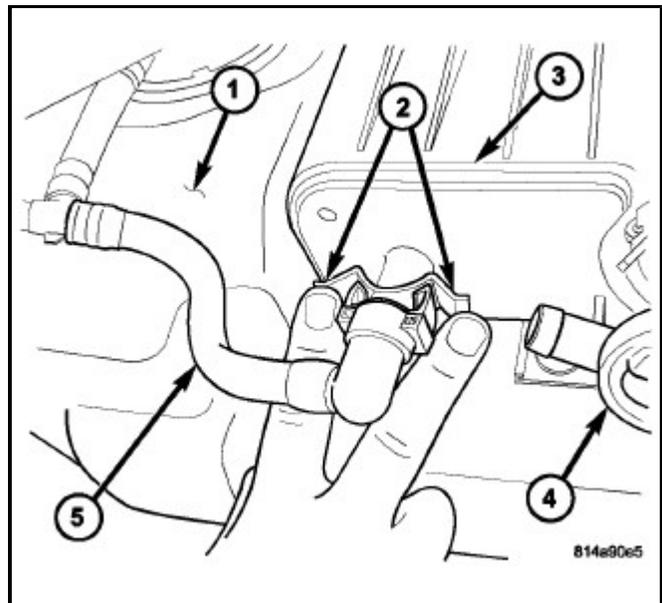
Wing Type Fitting

The wing type fitting is used on fuel system and emission components. The wing type fitting is most commonly used on the EVAP canister (3). Special tools are not required for removal.

1. Using two fingers, press both wings (2) and release the locking tabs.

NOTE: After removal the locking tabs will remain with the quick-connect fitting.

2. While holding the wings, remove the quick-connect fitting from the fuel system component.

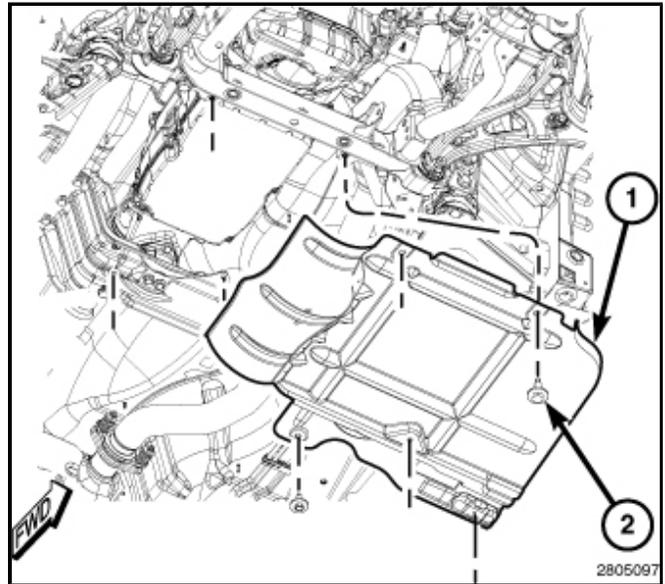


CONNECTING

1. Inspect the quick-connect fitting body and fuel system components for damage. Replace as necessary.
2. Prior to connecting any quick-connect fitting to components, check condition of fitting and components. Clean parts with a lint-free cloth. Lubricate with clean engine oil.
3. Insert the quick-connect fitting onto the fuel tube or fuel system component until the built-in stop on the fuel tube or component rests against the back of fitting.
4. Continue pushing until a click is felt.
5. If Equipped:
 - **Redundant Latch Single Button Type Fitting:** Push redundant latch until it locks into position in the quick-connect fitting.
 - **Single Tab Type Fitting:** Push new tab down until it locks into position in the quick-connect fitting.
 - **Latch Clip Type Fitting:** Install latch clip (snaps into position). **If latch clip will not snap into position, this indicates the quick-connect fitting is not properly installed onto fuel system component, recheck the connection.**
6. Verify a locked condition by firmly pulling on the quick-connect fitting connection of the fuel system component.

REMOVAL - Transmission Skid Plate

1. Raise and support the vehicle.
2. Remove the five fasteners (2) and remove the skid plate (1).

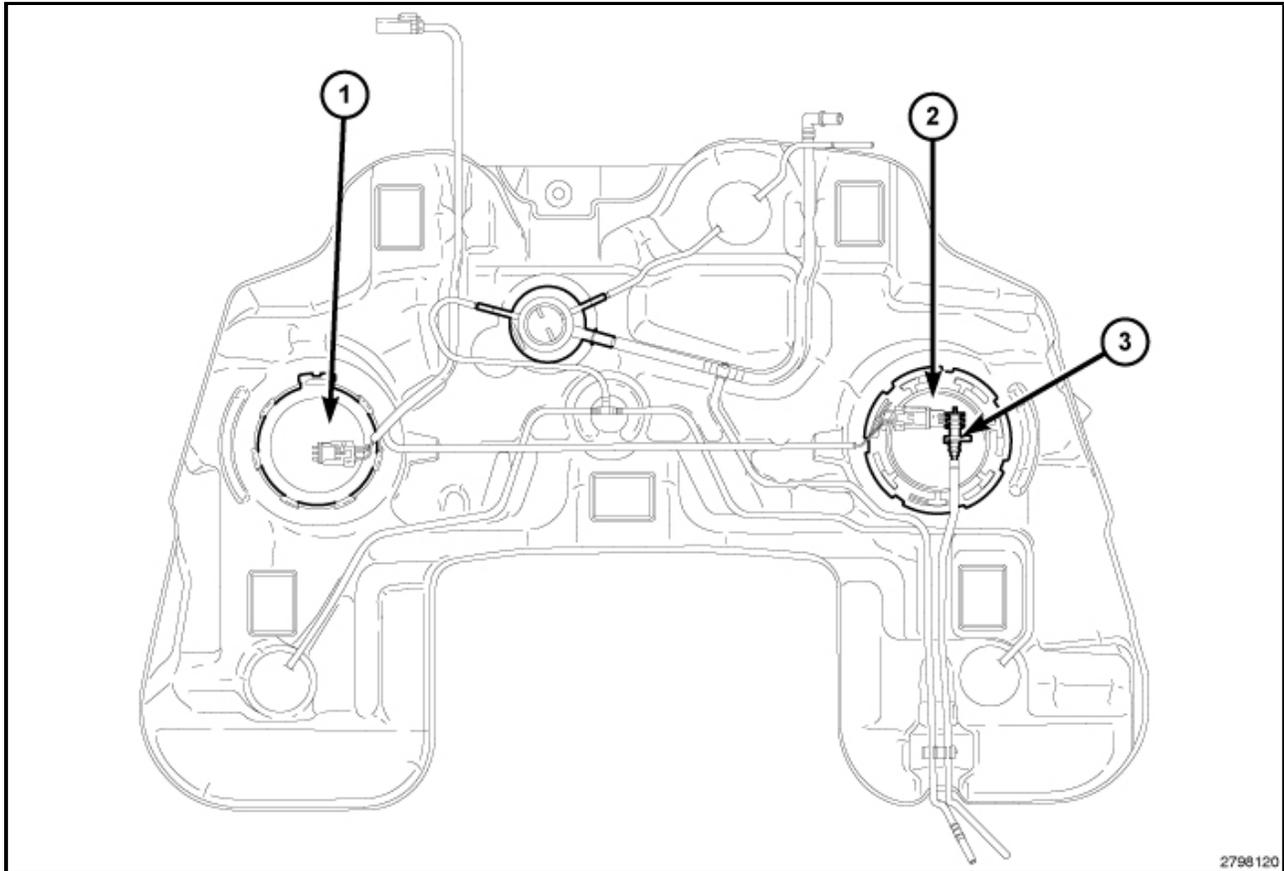


&\$%&K ? " '\$@- Fuel System/Fuel Delivery, Diesel/Specifications

TORQUE

DESCRIPTION	N·m	Ft. Lbs.	In. Lbs.
Crossmember Brace Bolts	55	41	—
Fuel Filter Cap	20	—	177
Fuel Filter/Water Separator Bracket Bolt	20	—	177
Fuel Filter/Water Separator Bracket Nuts	20	—	177
Fuel Heater/Temperature Sensor Bolts	10	—	89
Fuel Injection Pump Cover Bolts	25	18	—
Fuel Injection Pump Gear Nut	80	59	—
Fuel Injection Pump Bolts	25	18	—
Fuel Rail Bolt	25	18	—
Fuel Tank Strap Bolts	68	50	—
Fuel Tube Union Nut at Fuel Injector	11 + 75°	—	97 + 75°
Fuel Tube Union Nut at Fuel Rail	5 + 75°	—	44 + 75°
High Pressure Crossover Fuel Tube Union Nut	5 + 75°	—	44 + 75°
High Pressure Pump Fuel Tube Union Nut at Fuel Rail	5 + 75°	—	44 + 75°
High Pressure Pump Fuel Tube Union Nut at High Pressure Pump	11 + 75°	—	97 + 75°
High Pressure Fuel Tube support Bracket Bolt	11	—	97
High Pressure Fuel Tube Support Bracket Nut	11	—	97

DESCRIPTION - Fuel Pump Module



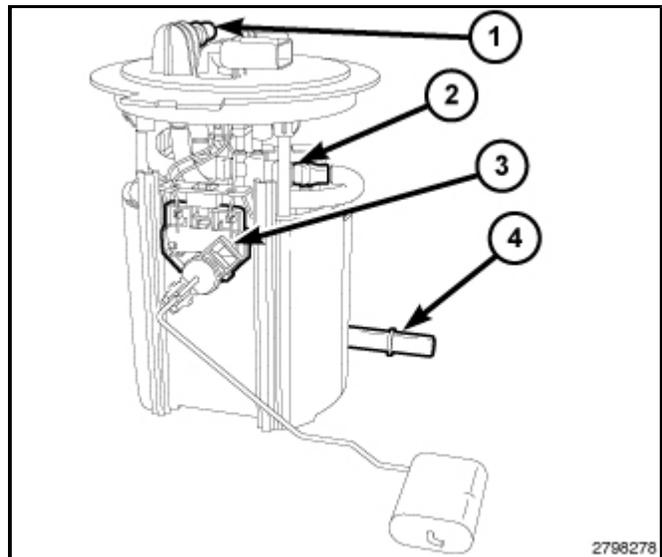
This vehicle uses a saddle type tank that has a reservoir on both sides of the drive shaft. The auxiliary fuel pump module assembly (1) is located on the right side top of fuel tank. The main fuel pump module (2) is located on the left side top of fuel tank. The fuel supply fitting (3) is located on top of the main fuel pump module.

MAIN FUEL PUMP MODULE

The main fuel pump module assembly contains the following components:

- An internal fuel filter
- A separate fuel pick-up, or inlet filter
- A fuel pressure regulator
- Fuel supply fitting (1)
- An electric fuel pump (2)
- A lock-ring to retain pump module to tank
- A soft gasket between tank flange and module
- A fuel gauge sending unit (fuel level sensor) (3)
- Auxiliary fuel pump module supply line connection (4)

If the electrical fuel pump, primary inlet fuel filter, internal fuel filter, or fuel pressure regulator require service, the fuel pump module must be replaced as an assembly.



Electric Fuel Pump

The electric fuel pump is located inside of the main fuel pump module. A 12 volt, permanent magnet, electric motor powers the fuel pump. The electric fuel pump is not a separate, serviceable component.

Fuel Filters

Two fuel filters are used, the first one is located at the bottom of the fuel pump module. The second fuel filter/water separator is located on the frame rail of the body.

The fuel filter in the pump module is designed for extended service and do not require normal scheduled maintenance. The fuel filter/water separator on the frame rail of the body does require servicing.

Fuel Pressure Regulator

The fuel pressure regulator is located within the fuel pump module.

Fuel Gauge Sending Unit (Fuel level sensor)

The fuel gauge sending unit (fuel level sensor) is attached to the side of the fuel pump module. The sending unit consists of a float, an arm, and a variable resistor track (card) and should only be replaced if a diagnostic procedure indicates to do so.

AUXILIARY FUEL PUMP MODULE

The auxiliary fuel pump module assembly contains the following components:

- An internal inlet fuel filter
- A separate fuel pick-up

- A lock-ring to retain pump module to tank
- A soft gasket between tank flange and module
- Auxiliary fuel pump module supply line connection (1)
- A fuel gauge sending unit (fuel level sensor) (2)

If the fuel gauge sending unit or internal inlet fuel filter require service, the auxiliary fuel pump module must be replaced as an assembly.

