INSTALLATION INSTRUCTIONS

SUBJECT: LIFT PUMP FOR 2016-2019 NISSAN TITAN XD CUMMINS

FITMENT: 2016-2019 Nissan Titan XD with 5.0L Cummins
KIT P/N: FPE-LP-TITAN-1619
INSTALL TIME: 2 hours
TOOLS REQUIRED: 10mm socket or wrench, 12mm socket or wrench, 19mm socket or wrench, 28mm socket or wrench, T25 torx bit, 5-gallon bucket, 2-3 feet of ½" fuel hose

KIT CONTENTS:

Item	Description	Qty
1	Lift pump	1
2	Dash #227 O-ring	1
3	Dash #117 O-ring	2
4	Dash #019 O-ring	1
5	14mm wide x 2.4mm thick O-ring	1
6	Fleetguard underbed filter (Nissan 16403-EZ40A)	1
7	Fleetguard underhood filter (Nissan 16403-EZ41A)	1
8	½" Quick Connect Fitting Plug	1
9	3/8" Quick Connect Fitting Plug	1



IMPORTANT NOTE: *Once the installation of this kit has been completed, the fuel pump* ***MUST*** *be primed per the instructions found on pages 2 and 10 of this document. Damage to the pump* ***WILL OCCUR*** *if these priming instructions are not followed. For additional information, reference Nissan TSB NTB18-024.*

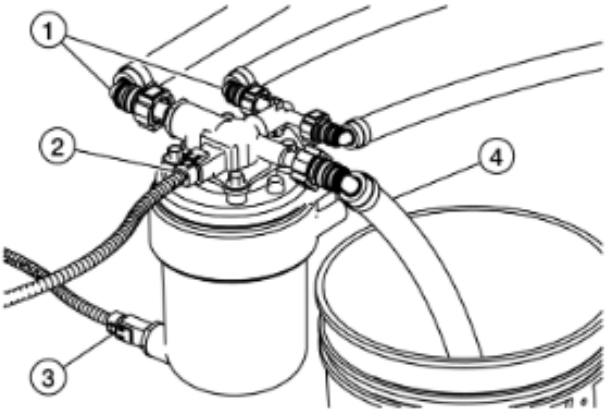
WARNINGS:

- User assumes sole responsibility for the safe & proper use of the vehicle at all times.
- The purchaser and end user releases, indemnifies, discharges, and holds harmless Fleece Performance Engineering, Inc. from any and all claims, damages, causes of action, injuries, or expenses resulting from or relating to the use or installation of this product that is in violation of the terms and conditions on this page, the product disclaimer, and/or the product installation instructions. Fleece Performance Engineering, Inc. will not be liable for any direct, indirect, consequential, exemplary, punitive, statutory, or incidental damages or fines cause by the use or installation of this product.

FUEL PUMP PRIMING INSTRUCTIONS

IMPORTANT: THE FOLLOWING PRIMING STEPS MUST BE FOLLOWED TO ENSURE PROPER PUMP OPERATION AFTER REPLACEMENT

This priming procedure must be performed after the fuel pump and filter replacement are complete and prior to first engine cranking. This process ensures that all air is cleared from the fuel system, allowing the pump to build adequate fuel pressure. Failure to follow this procedure will result in low fuel feed pressure and a "long start" engine.



STEP 1: Connect a ½" ID fuel hose to the supply outlet of the filter housing (4) of the fuel filter housing. Allow the open end of the ½" ID hose to flow into a clean 5-gallon bucket.

STEP 2: Connect the chassis harness connector to the lift pump (2) at the top of the fuel filter housing.

STEP 3: Connect the chassis harness to the water in fuel sensor (3) at the bottom of the fuel filter housing.

STEP 4: Key the vehicle ON but do not start the engine. Allow the lift pump to run for 30-60 seconds. During this time, the pump will prime, and fuel should begin to flow freely into the bucket. Once free flowing fuel has been obtained, remove the ½" ID hose from the supply outlet of the pump and connect the fuel supply lines that feed the upper, under hood filter assembly. If fuel does not flow freely after 60 seconds, cycle the key and repeat the process of allowing the pump to prime.

NOTE: The fuel pump control module will not allow the fuel pump to run for longer than 60 seconds without cranking, after which it will turn off automatically. Normal lift pump supply pressure will be between 51-87 psi during engine cranking and vehicle operation.

PROCEDURE:

STEP 1: Park the vehicle on a flat and level surface. Disconnect the negative battery terminals and isolate.

STEP 2: Locate the under-bed fuel filter assembly. Place a clean bucket or drain pan underneath the filter assembly and twist the yellow drain knob counterclockwise to drain the fuel from the filter.

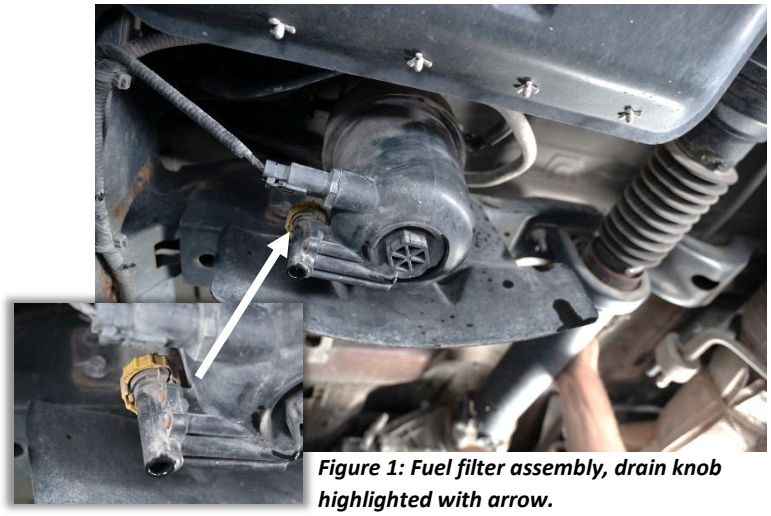


Figure 1: Fuel filter assembly, drain knob highlighted with arrow.

STEP 3: Disconnect the chassis harness connectors for the fuel pump power and the water-in-fuel (WIF) sensor. Using a 19mm socket or wrench, remove the WIF sensor from the lower fuel filter housing.

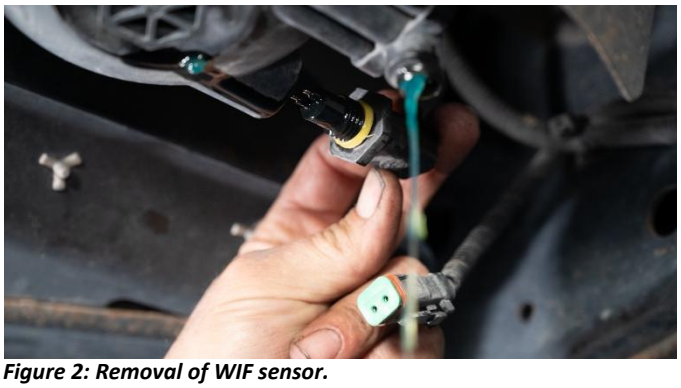


Figure 2: Removal of WIF sensor.

STEP 4: Remove the lower fuel filter housing using a 28mm socket or wrench.

STEP 5: Remove the fuel filter from the lower fuel filter housing by turning the filter counterclockwise. Remove the O-ring from the lower fuel filter housing located at the bottom of the threads.



Figure 3: Removal of fuel filter housing.

STEP 6: Disconnect the two quick connect fittings (red and green locking tabs) <u>on the driver's side of the fuel filter housing.</u>

Lift the locking tab from the fitting as shown at right. Pull the fittings away from the filter assembly to disconnect. Allow the lines to drain into a clean bucket or catch pan. Into the larger fitting with the green locking tabs, install the included ½" quick connect fuel line plug. Install the included 3/8" fuel line plug into the smaller quick connect fitting with red locking tabs. These plugs are intended to keep the fuel lines from completely draining the fuel tank.

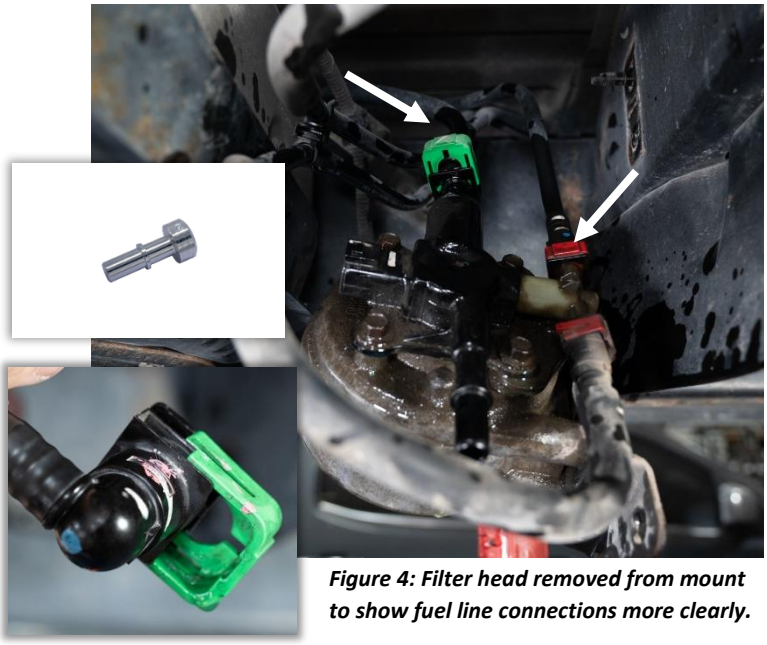


Figure 4: Filter head removed from mount to show fuel line connections more clearly.

STEP 7: Disconnect the two quick connect fittings from the <u>passenger side of the fuel filter assembly</u>.

Follow the procedure in **STEP** 6 to disengage the locking tabs. A small amount of fuel may drain from these lines but plugging them off is not necessary.

STEP 8: Remove the two nuts and two bolts retaining the upper fuel filter and pump assembly using a 12MM socket or wrench.

NOTE: The image at right shows only the mounting hardware for the driver's side of the unit. The hardware on the passenger side of the unit is identical.



Figure 5: Retaining hardware for fuel filter and pump assembly.

STEP 9: Remove the two screws retaining the fuel pump housing to the filter assembly using a T25 torx bit or socket. Remove the fuel pump housing and pull the pump from the filter assembly. *Remove the black rubber seal from the outlet of the pump and set aside as the seal will be <u>reused</u>.*



Figure 6: Fuel filter assembly and fuel pump, black seal highlighted with arrow to be <u>reused</u>.

STEP 10: Remove the four bolts retaining the upper fuel filter assembly using a 10mm socket or wrench.

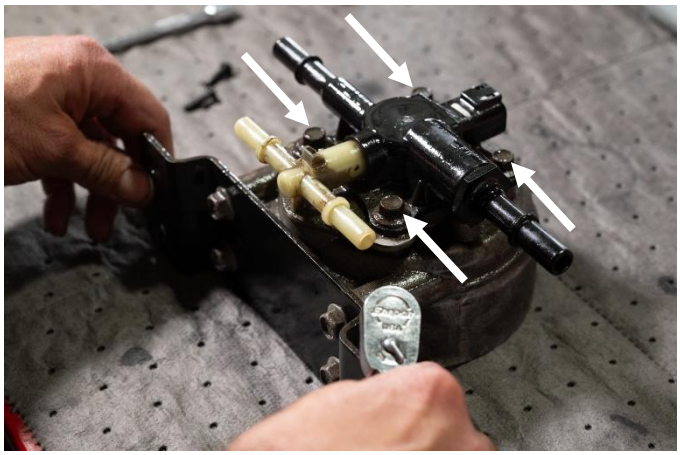


Figure 7: Fuel filter and fuel pump assembly, 10MM retaining bolts highlighted.

STEP 11: Using a flathead screwdriver or prying tool, gently pry the upper filter assembly from the filter housing. Separate the upper filter assembly from the filter housing.



Figure 8: Fuel filter and fuel pump assembly, two parts separated.

STEP 12: Pull the fuel return (opaque plastic) passthrough from the upper filter assembly. Note the position of the metal plate. The plate will be reused in the reassembly process.

STEP 13: Remove the three blue O-rings from the fuel return passthrough. Two can be found on the underside and the third is located on the end with the metal check valve.

STEP 14: Remove the blue o-ring on the underside of the upper filter assembly.

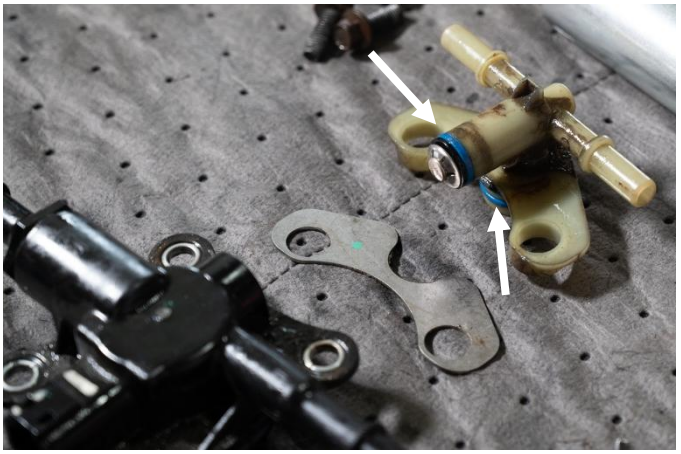


Figure 9: Note orientation of the metal plate, removal of blue O-rings from fuel return pass through.

STEP 15: Using a 19mm socket or wrench, remove the plastic quick connect fitting on the side of the upper filter assembly. Remove the O-ring from the fitting.

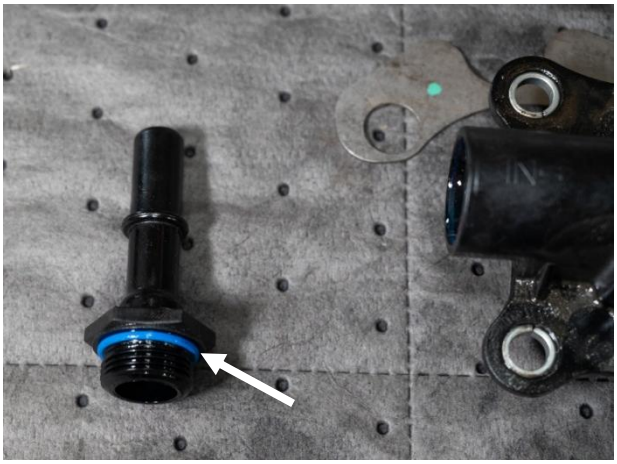


Figure 10: Plastic quick connect fitting removed, O-ring Highlighted with arrow.

STEP 16: Thoroughly clean all disassembled parts with an appropriate solvent.

STEP 17: Lubricate the new O-ring (*item 4 in kit*) with clean fuel or grease and install it onto the quick connect fitting. Using a 19mm socket or wrench, install the fitting back onto the upper fuel filter assembly.

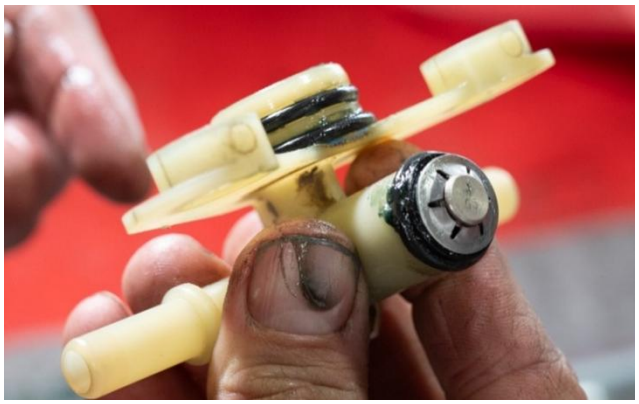


Figure 11: New O-rings installed on fuel return passthrough.

STEP 18: Lubricate with clean fuel or grease and install the new O-rings in your kit onto the fuel return passthrough. Two O-rings (*item 3 in kit*) will be installed onto the underside of the passthrough and the third (*item 5 in kit*) will be installed onto the end with the metal check valve.



Figure 12: Reinstallation of fuel return passthrough.

STEP 19: Install the fuel return passthrough back onto the upper filter housing. Insert the snout with the metal check valve into the hole on the upper filter assembly and press the two pieces together until fully seated.

NOTE: The two pieces are fully seated when the holes used to mount the assembly to the filter housing are lined up and a bolt can be installed through both.

STEP 20: Lubricate with clean fuel or grease and install the new O-ring (*item 2 in kit*) onto the underside of the upper filter assembly.



Figure 13: Installation of O-ring onto underside of upper fuel filter assembly.

STEP 21: Install the upper filter assembly onto the fuel filter housing by pressing it into place. Using a 10mm socket or wrench, install the four bolts retaining the upper filter assembly to the filter housing.

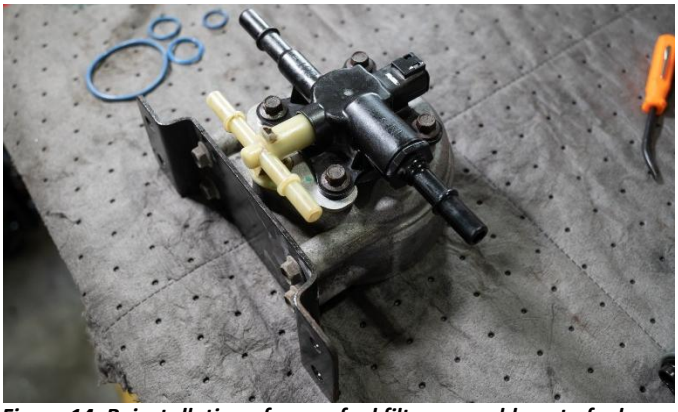


Figure 14: Reinstallation of upper fuel filter assembly onto fuel filter housing.

STEP 22: Install the rubber seal set aside from **STEP 9** onto the new fuel pump. Fully seat the seal onto the barbed fitting on the pump.



Figure 15: Reinstallation of rubber seal from STEP 9.

STEP 23: Install the pump into the underside of the upper filter assembly. The outlet of the pump will insert into the hole shown at right. Line up the electrical connectors with the terminals on the upper filter assembly. Carefully press the pump into place until fully seated.

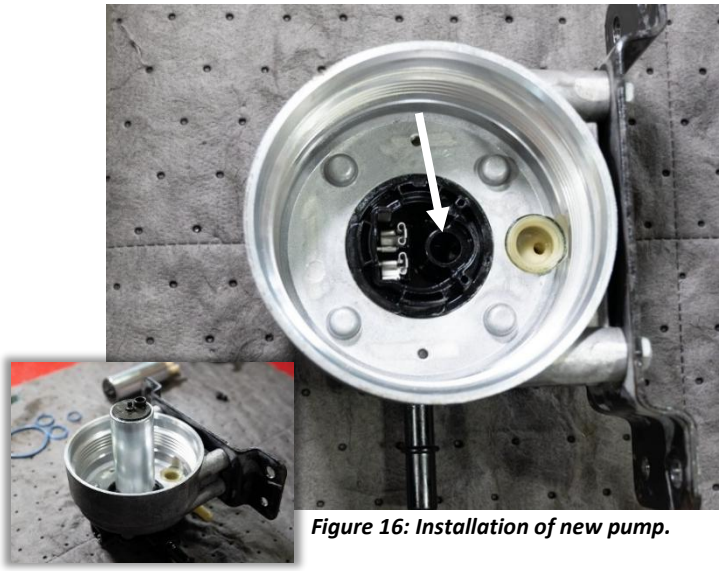


Figure 16: Installation of new pump.

STEP 24: Install the fuel pump housing over the pump. Using a T25 torx bit, install the two screws to retain the housing.



Figure 17: Reinstallation of fuel pump housing.

STEP 25: Install the included Fleetguard filter (*item 6 in kit*) into the lower fuel filter housing. Turn the filter clockwise to lock it into place. Install the O-ring included with the filter onto the lower filter housing in the location indicated at right.

STEP 26: Install the lower fuel filter housing onto the main filter housing and pump assembly. Use a 28mm socket or wrench to tighten until snug. Install the WIF sensor into the lower fuel filter housing using a 19mm socket or wrench and tighten until snug.



Figure 18: Installation of new fuel filter, O-ring grove highlighted with arrow.

STEP 27: Install the filter and pump assembly onto the vehicle. Using a 12mm socket or wrench, install the two nuts and two bolts to retain the filter and pump assembly.

STEP 28: Connect the passenger side fuel lines to the quick connect fittings on the upper filter assembly. Engage the locking tabs by pushing them into the center of the fitting.

STEP 29: Place a clean bucket or rag underneath the filter and pump assembly to catch any spilled fuel. Remove the quick connect plug from the driver's side fuel lines. Connect the driver's side fuel lines to the upper filter assembly. Engage the locking tabs.

STEP 30: Connect the power and WIF sensor harnesses to the filter and pump assembly.

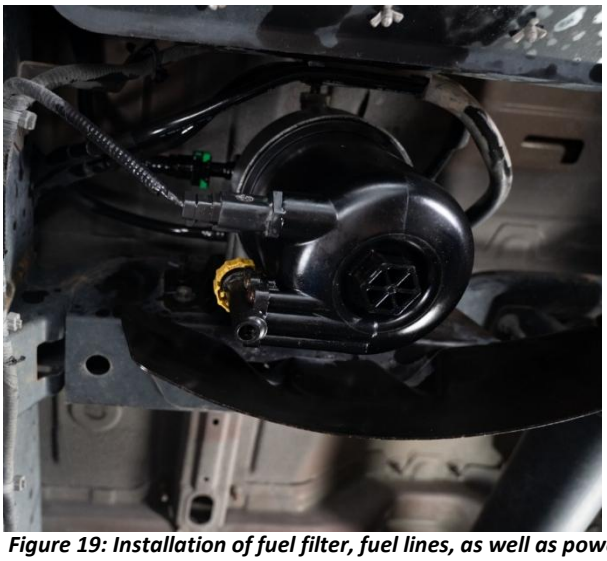


Figure 19: Installation of fuel filter, fuel lines, as well as power and WIF sensor harness.

STEP 31: Locate the cap of the underhood fuel filter assembly. Using a 28mm socket or wrench, remove the cap. Remove the fuel filter and the O-ring from the cap.

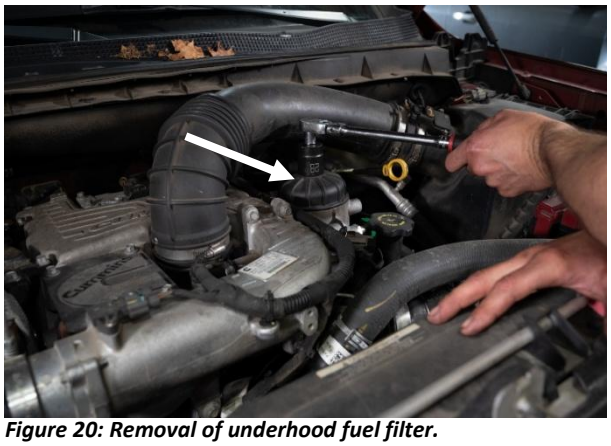


Figure 20: Removal of underhood fuel filter.

STEP 32: Lubricate the included O-ring withwith clean fuel or grease. Install the O-ring onto the filter cap as shown at right. Install the filter into the filter cap. Install the filter and cap into the housing in the engine bay. Tighten the cap by hand until snug. Using a 28mm socket or wrench, tighten the cap until it is fully seated into the housing.

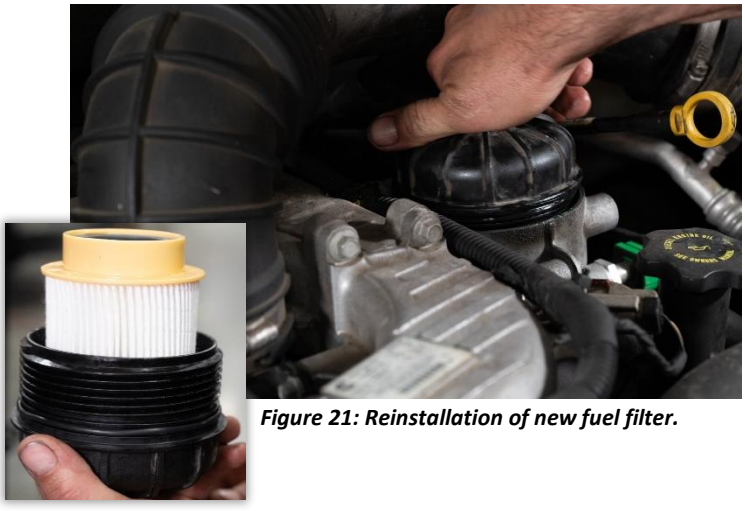
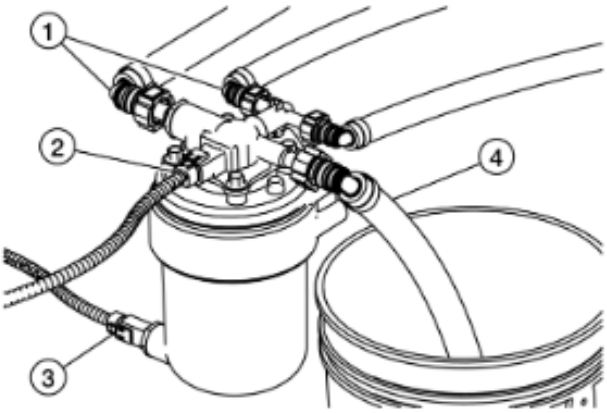


Figure 21: Reinstallation of new fuel filter.

FUEL PUMP PRIMING INSTRUCTIONS

NOTE: Failure to follow these steps will result in damage to the lift pump and a no-start condition.



STEP 33: Locate the fuel feed line coming from the underbed filter assembly (labeled 4 at right). Disconnect the line and install a ½" rubber hose onto the fitting. Route the hose into a clean 5 gallon bucket of fuel.

STEP 34: Key the vehicle ON but do not start the engine. Allow the lift pump to run for 30-60 seconds. During this time, the pump will prime, and fuel should begin to flow freely into the bucket. Once free flowing fuel has been obtained, remove the ½" ID hose from the supply outlet of the pump and connect the fuel supply lines that feed the upper, under hood filter assembly. If fuel does not flow freely after 60 seconds, cycle the key and repeat the process of allowing the pump to prime.

STEP 35: Once the pump has been primed, disconnect the hose and remove the bucket from underneath the vehicle. Reconnect the fuel line to the filter assembly (location 4 at right).

STEP 36: Key the vehicle to on and allow the lift pump to run for 10-15 seconds. Start the vehicle and check for leaks.