INSTALLATION INSTRUCTIONS

PRODUCT: FUEL SYSTEM UPGRADE KIT WITH POWERFLO® LIFT PUMP FOR 2003-2004.5 DODGE RAM CUMMINS

FITMENT: 2003 – 2004.5 Dodge Ram 2500/3500 with 5.9L 24V Cummins

KIT P/N: FPE-34755

ESTIMATED INSTALLATION TIME: 3-4 Hours – Installation completed with the use of a vehicle hoist

TOOLS REQUIRED: 1/4" drive ratchet, 1/4" drive 7mm socket, 1/2" drive impact or ratchet, 1/2" drive 10, 13 and 15mm sockets, 11/16” wrench, large hammer, and punch or chisel, strap wrench, needle nose pliers

KIT CONTENTS:

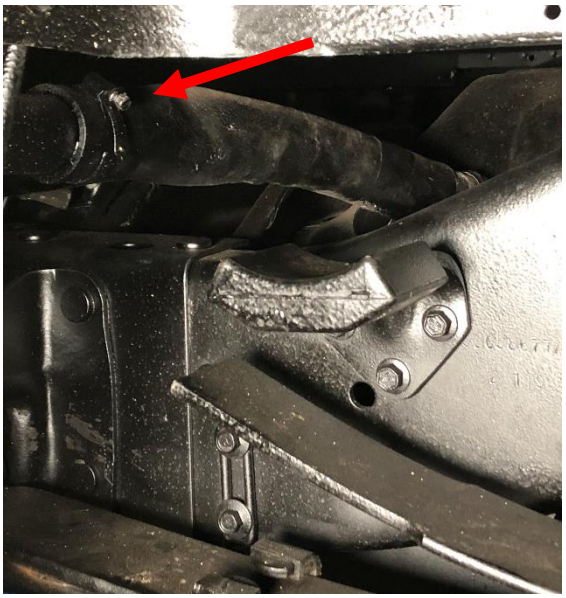
Item	Description	Qty
1	PowerFlo lift pump assembly with float arm	1
2	Donaldson 3 Micron Fuel Filter	1
3	Single filter base mount	1
4	Distribution filter block to filter coupler (pre-installed)	1
5	-8 to ¾”-16 straight fitting	2
6	¾”-16 hex plug socket	1
7	M12 to -8AN fitting	1
8	-8, 45deg to hose barb fitting	3
9	-8, 90deg to hose barb fitting	1
10	1/8” NPT socket plug (pre-installed)	1
11	½” push lock hose	16 ft
12	12mm sealing washer	1
13	Fuel line retaining clip	1
14	Zip ties (not shown)	10
15	Fuel Filter Delete Kit	1
16	Mounting bracket and fasteners	1
17	Water in fuel sensor	1

WARNINGS:

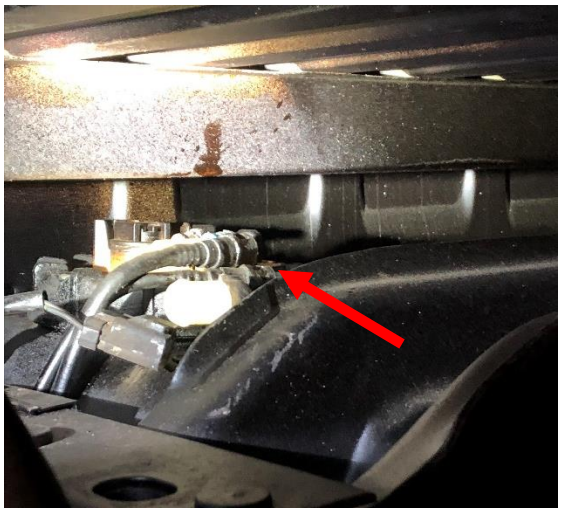
- Fuel lines must be clean before installation.
- The purchaser and end user releases, indemnifies, discharges, and holds harmless Fleece Performance Engineering, Inc. from any and all claims, damages, causes of action, injuries, or expenses resulting from or relating to the use or installation of this 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.

PUMP INSTALLATION PROCEDURE:

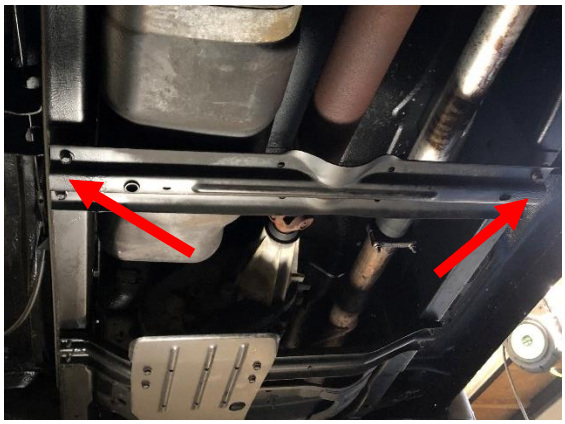
STEP 1: With the truck on a hoist, disconnect the fuel filler hose and vent with a 7 mm socket.



STEP 2: Reaching over the top side of the tank, disconnect the fuel lines and electrical connection for the OEM sending unit.

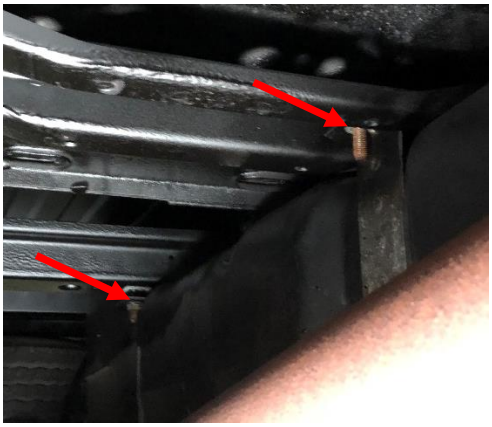


STEP 3: Remove the cross-member located at the front of the fuel tank. There will be four 15mm bolts to remove.



STEP 4: Secure the tank with a lift or jack to lower the tank down to the ground on.

STEP 5: Remove the two 15 mm nuts that retain the fuel tank hanger brackets at the front and rear of the tank. Remove the hangers.



STEP 6: Slowly lower the tank.

STEP 7: SENDING UNIT REMOVAL
With the tank on the ground, make note of the orientation of the OEM sending unit in the tank. The PowerFlo pump will be oriented in the same manner during installation.

Using a strap wrench, or MATCO tool #FTR730, rotate the sending unit's retaining ring (OE P/N: 52005389) counterclockwise. MATCO tool shown at right for reference. Remove the retaining ring and remove the sending unit assembly from the tank. Have a bucket nearby to catch fuel from the OE sending unit when removed.

Remove the retaining ring and remove the sending unit assembly from the tank. Have a bucket nearby to catch fuel from the OE unit when removed.

STEP 8: Remove the original gasket from the tank.

STEP 9: Install the new gasket included in the kit into the fuel tank. Clean the original retaining ring of debris and prepare it for re-use onto the new PowerFlo pump.

STEP 10: Install the fuel level float arm onto the PowerFlo lift pump by gently clipping the arm into the fuel level sensor. With the pump resting on a flat surface, press down on the cap to simulate the installed the position of the cap - move the float arm up and down and ensure that the arm does not contact the pump wires or fuel tubes in the full up or full down position. If the tubes or wires contact the float arm, this will affect the fuel gauge reading. Check and confirm clearance before installing.

STEP 11: Install the PowerFlo pump assembly into the tank. Check that the gasket is fully seated.

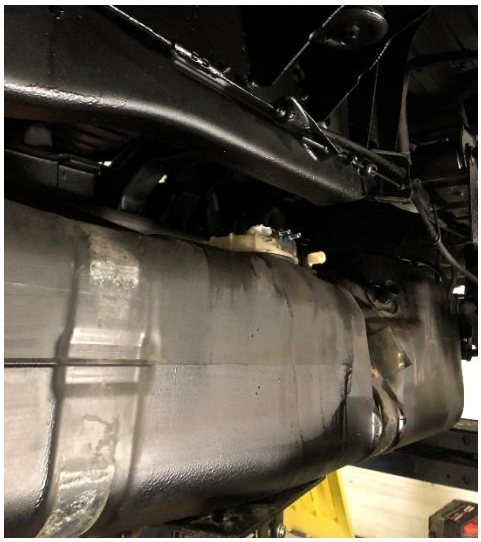
STEP 12: Reinstall the retaining ring using your hammer and punch or a strap wrench by rotating it clockwise to the fully engaged position. Ensure proper orientation of the pump and fitting by matching the orientation of the original sending unit.

Apply white lithium grease to the inside edge of the retaining ring where it contacts the lift pump cap. Reinstall the retaining ring and tighten using a hammer and punch or a strap wrench by rotating it clockwise to the fully engaged position.

NOTE: Use caution when installing the pump to not damage the float arm. When tightening the retaining ring, DO NOT allow the pump cap to rotate once the pump is installed in the tank, you will damage the float arm or sending unit if the flange rotates when the retaining ring is tightened.

STEP 13: Remove the protective shipping caps from the pump cap and install the new fuel line locking tab that is included in your kit onto the return side fitting.

STEP 14: Lift the fuel tank into place. Re-install the two strap hangers that secure the tank with the two 15mm nuts. Install the center support with the 4, 15mm bolts that were removed.



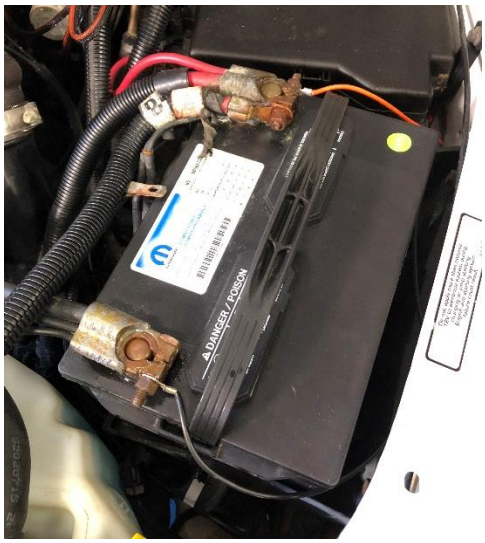
STEP 15: With the tank mounted in place, access the top side of the tank from the rear wheel-well and make the fuel line connections at the sending unit.

STEP 16: ROUTE FLEECE HARNESS TO THE ENGINE BAY

Route the Fleece harness along the frame rails to the engine bay and battery. Route the harness in a manner that it will not interfere with any moving parts and retain it with zip ties. Mount or secure the relay in the engine bay.

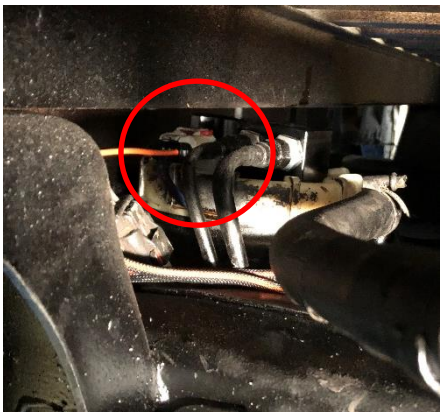
STEP 17: BATTERY CONNECTIONS
Run the orange fused line to the positive (+) terminal of the battery. Run the black line to the negative (-) terminal of the battery.

IMPORTANT: Never use a higher rated fuse than provided with the harness. If you experience a blown fuse always troubleshoot the problem before replacing the fuse. A blown fuse can be an indication of a short to ground in the harness, the relay, or inside the pump assembly.



STEP 18: SWITCHED POWER
Connect the switched power lead for the PowerFlo pump to the OE pump signal line, located near the starter.

STEP 19: From the driver's side rear wheel-well, connect the electrical wiring harness to the PowerFlo lift pump connector.



STEP 20: Add sufficient fuel back into the tank to submerge the pump bucket.

CAUTION: *Never run the pump dry or without fuel in the tank, damage will occur to the pump.*

FILTER BLOCK AND PLUMBING:

To injection pump feed (use new sealing washer)

Cut hose to length for routing from filter block to the high pressure pump

Spare outlet port – use o-ring fitting to block-off if not utilized

Cut hose to length for routing from lift pump to filter block

To PowerFlo Lift Pump Outlet

IMPORTANT NOTES:

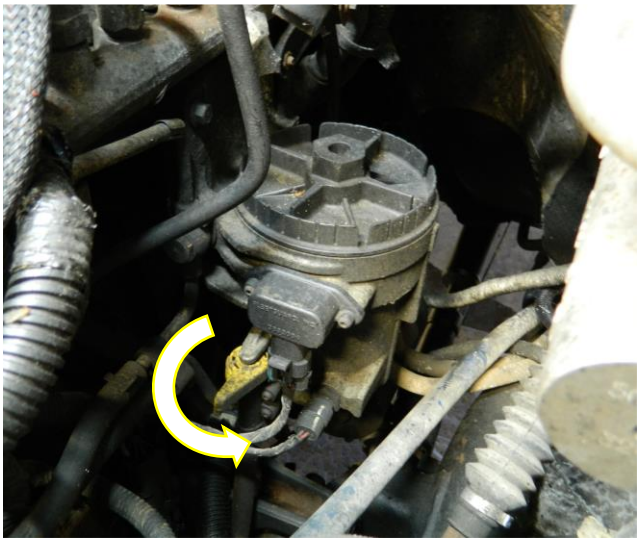
- For trucks equipped from the factory with a rear fuel filter housing equipped with WIF and fuel heater – the rear fuel filter housing will not be removed when installing this kit. Removal of the rear fuel filter housing or unplugging of the rear WIF and fuel heater will result in the illumination of a check engine lamp.

- If your truck is equipped with APPS, it may need to be relocated. This kit **DOES NOT** include an APPS relocation bracket. Brackets can be purchased through other companies such as Pusher Intakes and Diesel Power Products.

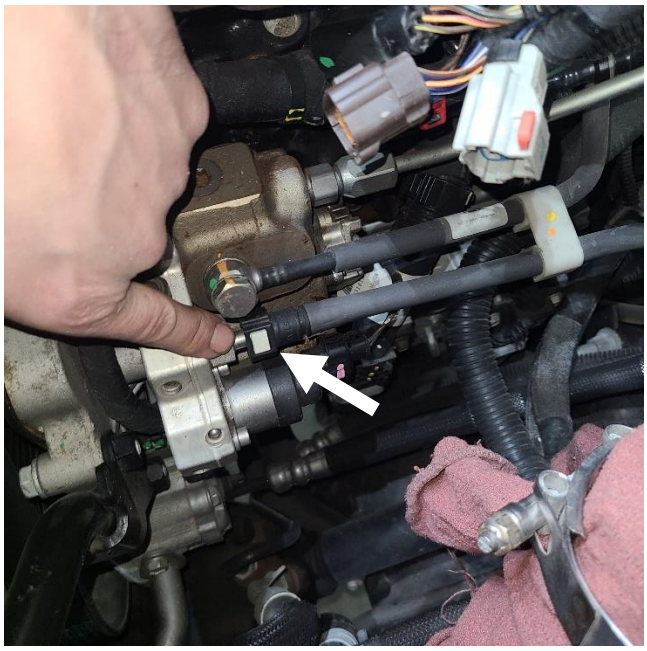
STEP 21: Disconnect the batteries.

STEP 22: Remove the intake horn and associated components to allow for improved access to the OE fuel filter housing.

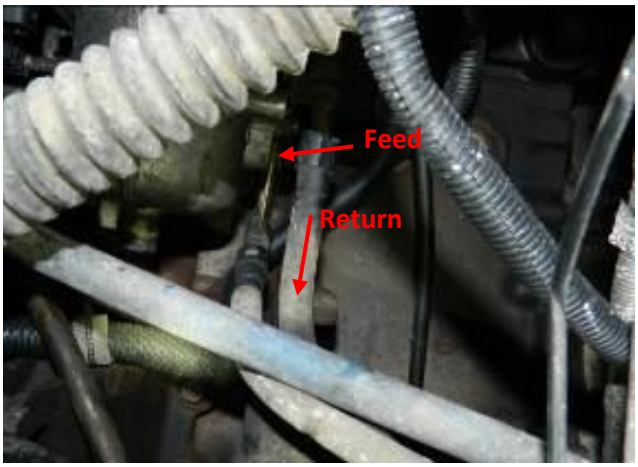
STEP 23: Drain the OE fuel filter housing by twisting the yellow drain valve handle counter-clockwise.



STEP 24: Disconnect the fuel supply line from the high-pressure injection pump. Remove the fitting from the pump body.



STEP 25: Remove the fuel filter supply line from the rear of the filter housing. Use a 10mm socket to remove the fuel return line support bracket bolt.



STEP 26: Unplug the electrical connectors for the water in fuel (WIF) sensor and fuel heater.

STEP 27: Use a 17mm socket to remove the two fuel return line banjo bolts. One is on the front, and one is on the rear of the housing.

STEP 28: Use a 10mm socket or wrench to remove the two bolts retaining the filter housing to the engine block.

STEP 29: Install the plug into the bottom port on the fuel distribution block as shown at right.

STEP 30: Use the bolts removed from the OE fuel bowl to mount and retain the new fuel distribution block as shown at right. Leave the bolts loose as they will be removed and reinstalled upon installation of the fuel filter base.

STEP 31: Using the included copper washers, install the factory banjo bolts onto the sides of the distribution block using a 17mm socket or wrench. Tighten the two mounting bolts.

NOTE: The factory fuel feed line from the tank will not be used with this kit. You may either cover the ends of the line or remove the line from the vehicle.

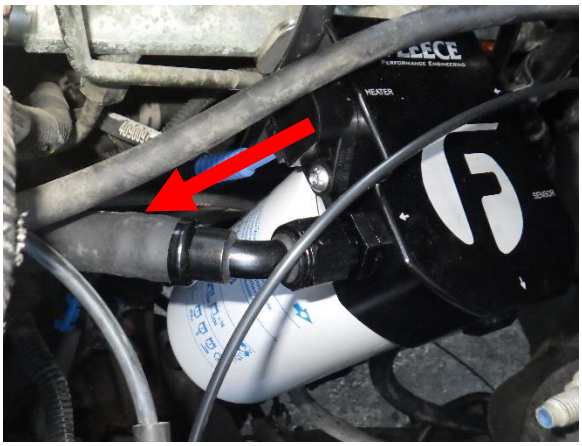
STEP 32: Install the bracket onto the filter base as shown.

STEP 33: Use the factory fuel bowl bolts to mount the filter and fuel distribution block assemblies to the engine. Insert the bolts through the mounting bracket and the distribution block holes to secure the assemblies to the cylinder head.

STEP 34: Install the included o-ring onto the filter snout on the filter base assembly. Install the WIF sensor onto the fuel filter. Install the filter onto the filter base assembly. Connect the WIF sensor harness to the sensor on the bottom of the fuel filter. Install the o-ring to AN adapters onto the filter base assembly.

STEP 35: Install the 45 degree push-lock fittings on the feed and return sides of the filter base.

STEP 36: Install the new 12mm sealing washer and 12mm to -8AN fitting onto the high-pressure pump. Ensure that the original sealing washer has been removed from the pump surface. Install the 90-degree hose barb fitting onto the adapter fitting.



STEP 38: Cut the push-lock hose to fit between the 45-degree fitting on the filter base and the 90-degree fitting on the fuel pump.

STEP 39: Route the push-lock hose from the lift pump and along the frame rail to the 45-degree fitting on the rear of the fuel filter housing.

STEP 40: Prime the fuel system, then start the vehicle. Inspect for leaks and ensure that the fuel system is functioning properly.