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BD's Revolutionary New Heavy-Duty Lift Pump System

2003-04½ DODGE CUMMINS BD FLOWMAX LIFT PUMP KIT

Installation Instructions

P/N# 1050305D

PLEASE READ ALL INSTRUCTIONS CAREFULLY BEFORE INSTALLATION.

The BD auxiliary lift pump kit will provide the safety and performance of enhanced fuel flow to your Cummins engine. This pumps idle pressure will be 17-19 psi, rather than 13-15 psi.


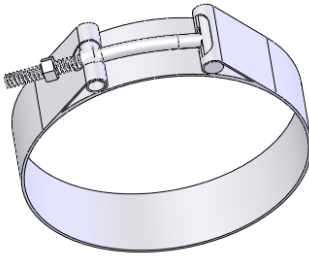
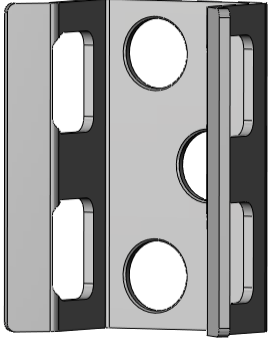
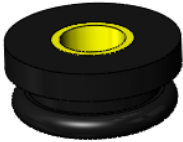






BD Engine Brake Inc.

Plant Address: 33541 MacLure Rd. Abbotsford, BC, Canada V2S 7W2

U.S. Shipping Address: 88-446 Harrison St, Sumas, WA 98295 U.S. Mailing Address: P.O. Box 231, Sumas, WA 98295

Phone: 604-853-6096 | Fax: 604-853-8749 | Internet: www.bd-power.com

Kit Contents:








1500365-P1		1500358		1500355	
					
FlowMAX Lift Pump V3		T-Bolt Clamp		Mounting Bracket	
Qty: 1		Qty: 2		Qty: 1	
1500356		1604110		1900015	
					
FlowMAX Anti-Vibration Mount		Elbow Fitting 1/4" NPT – 3/8" barb		Flange M8 X 30mm	
Qty: 3		Qty: 1		Qty: 3	
1500310-D					
FlowMAX Pump Wiring Harness		FlowMAX Pump Wiring Harness			
Qty: 1		Qty: 1			
1604053		1500311		1500311-M	
					
3/8 Fuel Hose		-AN 8 ORB x 3/8" Barb		Filter Fitting	
Qty: 84		Qty: 1		Qty: 1	



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1402609	1500357	1500359	1505001	1502028	1502029	1300529
						
M8 Flat Washer	3/8" Flat Washer	Self Threading 3/8" Bolt	Hose Clamp	OEM Lift Pump Adapter	O-Ring	Self Tapping Screw
Qty: 3	Qty: 3	Qty: 3	Qty: 5	Qty: 1	Qty: 1	Qty: 1

1500372	1500392
	
Flowmax Bracket (box frame)	Mount Strap 20.7"
Qty: 1	Qty: 2

Before You Begin

The FlowMax pump is designed to be a stand-alone pump system and is not designed to be used in conjunction with stock lift pumps. If your truck has been retrofitted with the Chrysler in-tank lift pump you will have to lower the fuel tank & delete the pump from in the tank. BD offers a simple retrofit kit complete with instructions & the pieces needed to do this, part number 1050302. If you are unsure if your truck has been retrofitted simply check that the factory lift pump is still in place on the engine next to the fuel filter housing (see diagram on page 4); if it is not there then your truck has the in-tank pump.

Optional Accessories:

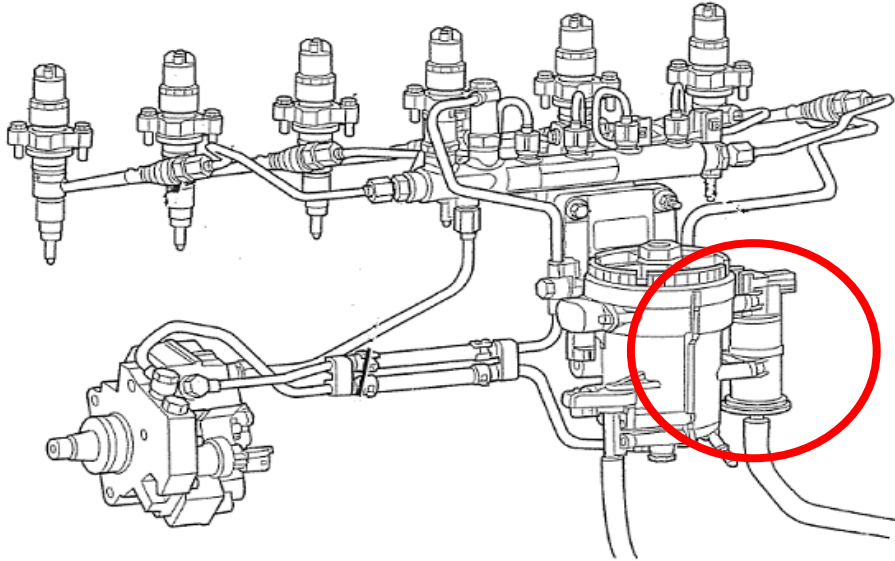
- **1081130** - Low Fuel Pressure LED Alarm kit
- **1050340-WSP** – Water Separator with Head Kit
- **1050340-PFF** – Post filter with Filter Head Kit
- **1050350** – Water in Fuel Sensor.

Required Tools:

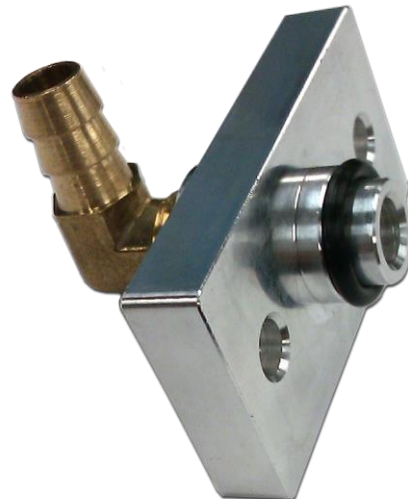
- 5mm Allen wrench
- Drill
- 1/8" and 21/64" Drill bits
- Pliers
- 3/16" Flat Screwdriver
- 9/16" Socket or Wrench
- 10 mm Socket or wrench
- Small Pipe Cutter
- Knife To Cut Fuel Hose
- 7/16" Socket or Wrench

Installation

1. Disconnect both batteries.
2. Raise the vehicle and support it safely.
3. Locate and remove the factory lift pump. The pump is supported by four, 5mm socket cap screws.



4. Install the brass 90° NPT to barb fitting into the supplied aluminum pump bypass bracket. The brass elbow should be orientated so that the barbed end points down or oriented 90° to the mounting holes. You will need to use Teflon sealant to seal the threads.
5. Install the new o-ring on the fuel filter end of the adapter. Be sure to lubricate the o-ring before installing.
6. Position and press the bypass adapter onto fuel filter housing. **Do not use mounting bolts to draw bypass adapter in to the filter housing.**
7. Be sure the bypass adapter is positioned flat to the fuel filter housing. Install mounting bolts and evenly tighten to 7 N·m (61 in. lbs).
8. Connect one end of the supplied fuel line to the brass barb fitting and run it down the frame rail to where the Flomax pump will be mounted. The existing factory fuel line will not be used between the Flomax and the fuel filter housing. Make sure that the hose won't rub on anything or come to close to major heat sources. You can clamp or plug off this line during the rest of the installation to prevent fuel from being siphoned out of the fuel filter.



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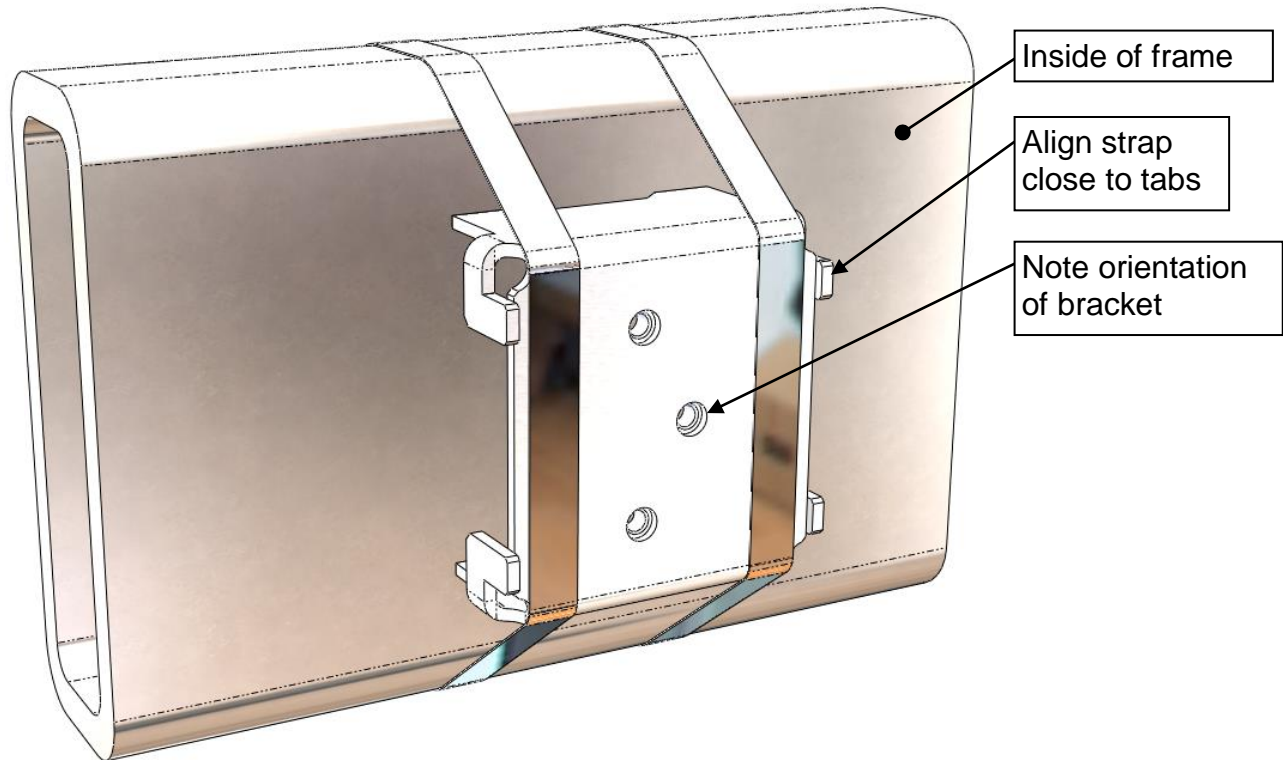
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Mounting Option 1 - Mounting Bracket using straps

9. Find a suitable place to mount the bracket to the inside of the frame; closest to the fuel tank. Avoid mounting where the bracket could rub on fuel lines, break lines and cables. Install straps around frame and bracket and torque to 80-90 in/lbs.

NOTE: The Nylock nut must be on the opposite side of the frame from the bracket.

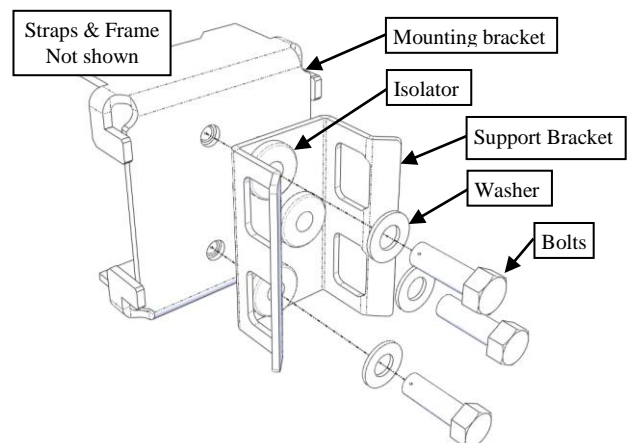


10. Insert the three rubber isolators into the support bracket. Use some water to aid in lubricating the isolators as they slide into the bracket.

Place the large washers on the inside of the bracket against the rubber isolator.

Tighten the supplied M8 bolts through each vibration isolator of the support bracket and into mounting bracket (PEM) nut. Repeat this step for the other 2 bolts.

Torque the three bolts to **10-14ft-lbs.**



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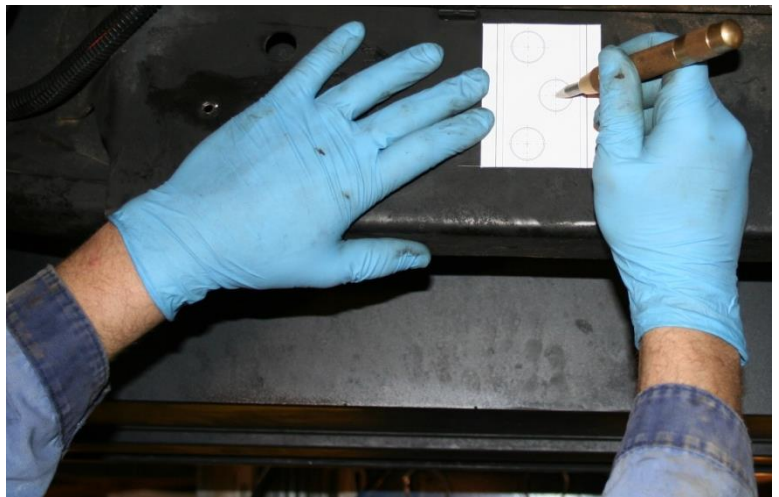
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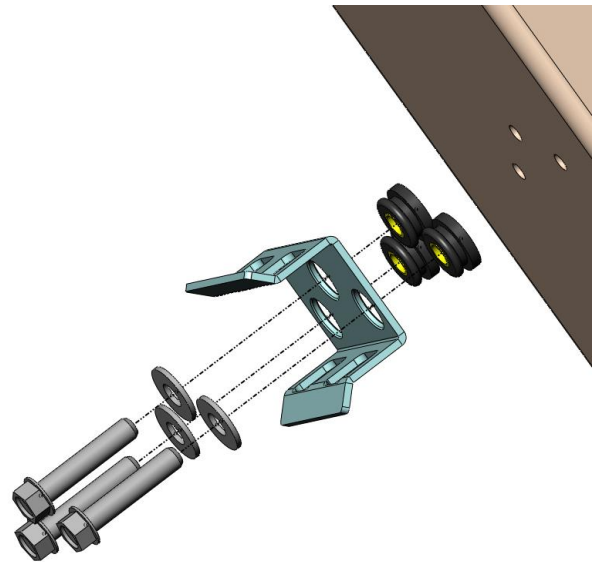
Mounting Option 2 - Mounting the Pump Bracket to the Frame

9. From underneath the vehicle locate the cross member bracket on the inside of the driver's frame rail. Position and tape drill template (from the back of this manual) onto the frame rail just above the weld. Place fuel pump and bracket in place to ensure ample clearance.



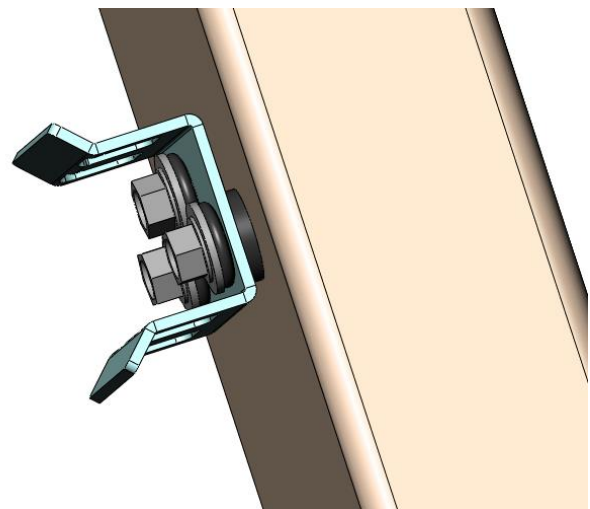
Mark holes with center punch. Remove drill template and drill pilot holes to 1/8". Drill main holes to 21/64".

10. Insert the three rubber isolators (1500356) into the support bracket. Use some water to aid in lubricating the isolators as they slide into the bracket.



Place the large washers (1500357) on the inside of the bracket against the rubber isolator.

Using an air ratchet (9/16" socket) tighten the self-threading 3/8" bolt (1500359) through each hole of the support bracket assembly and into the frame. Repeat this step for the other 2 bolts.



Torque the three bolts to **25ft-lbs**

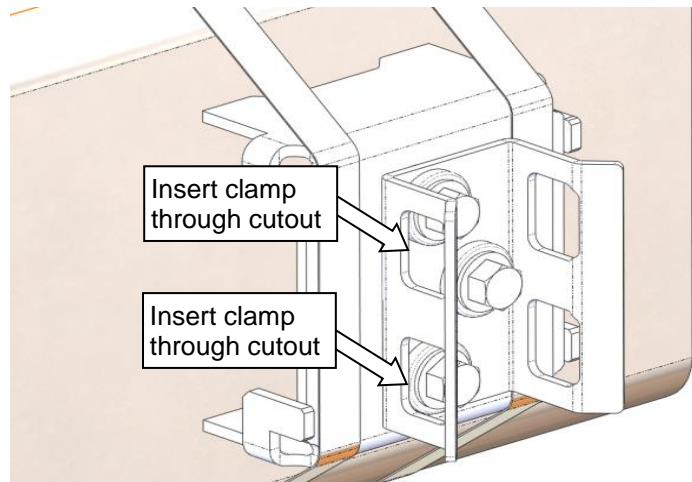
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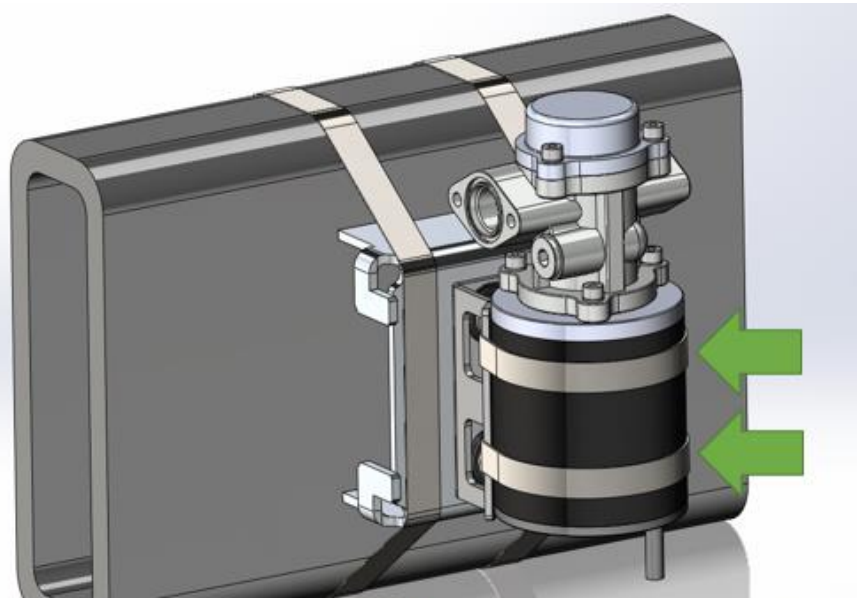
11. Locate the two supplied T Bolt band clamps; unthread the nut (7/16" Socket) from each of them. Spread the clamps apart and insert them through boxed cutouts.



With both clamps inserted, place the pump into place and align the inlet and outlet parallel to the frame.

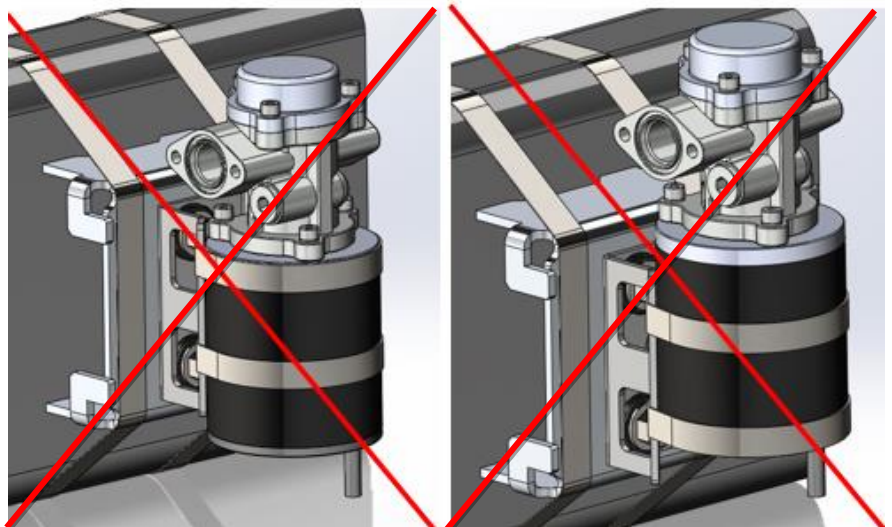
The pump inlet "IN" and fuel filter are pointed to the tank fuel pickup.

Tighten the clamps around the motor body, as seen in photo.

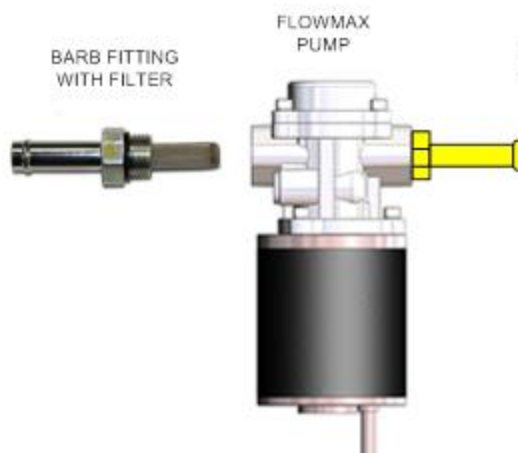
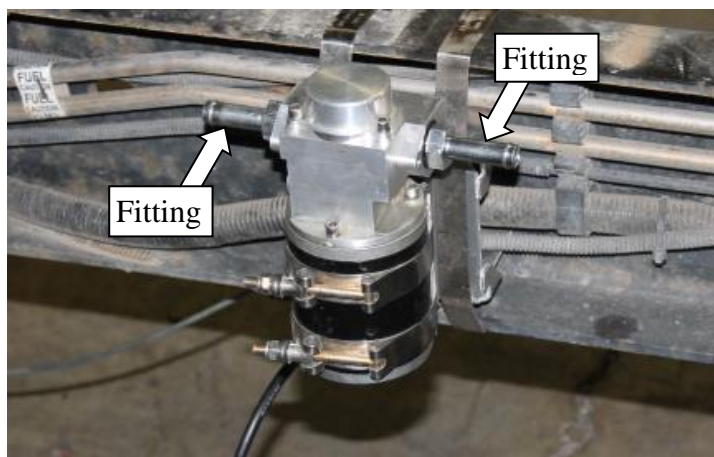


Do not tighten clamps around the pump end caps as seen in the two bottom photos. Make sure the clamps are evenly spaced on the motor body.

Torque nuts to no more than 72 in-lbs.



12. Insert the Filter fitting (1500311-M) into the (IN) side of the pump and the ORB fitting (1500311) into the outlet of the pump. Do not over tighten as they use an o-ring for sealing.



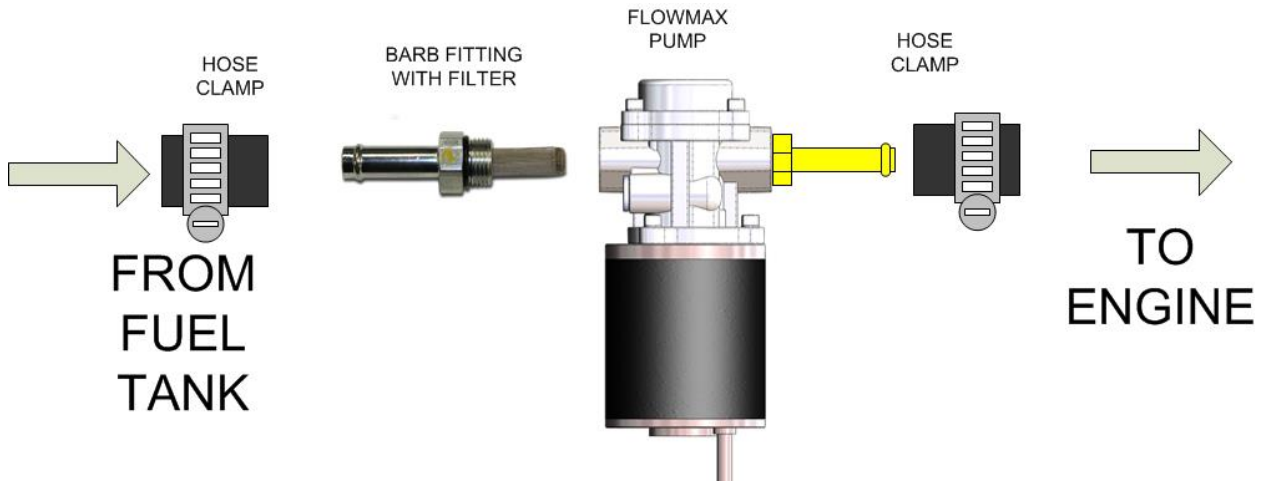
NOTE: If installing a filter kit, skip this step and refer to the Flomax Filter Kit manual for the install procedure for the water separator and fuel filter. Once Filter install is complete; continue to step 13.

13. With the pump mounted, cut the hard fuel line about 12" from the outlet side of the pump on the inside of the frame rail. The fuel supply line is the thickest of all three lines. Discard the remainder/cut portion of the cut fuel line.



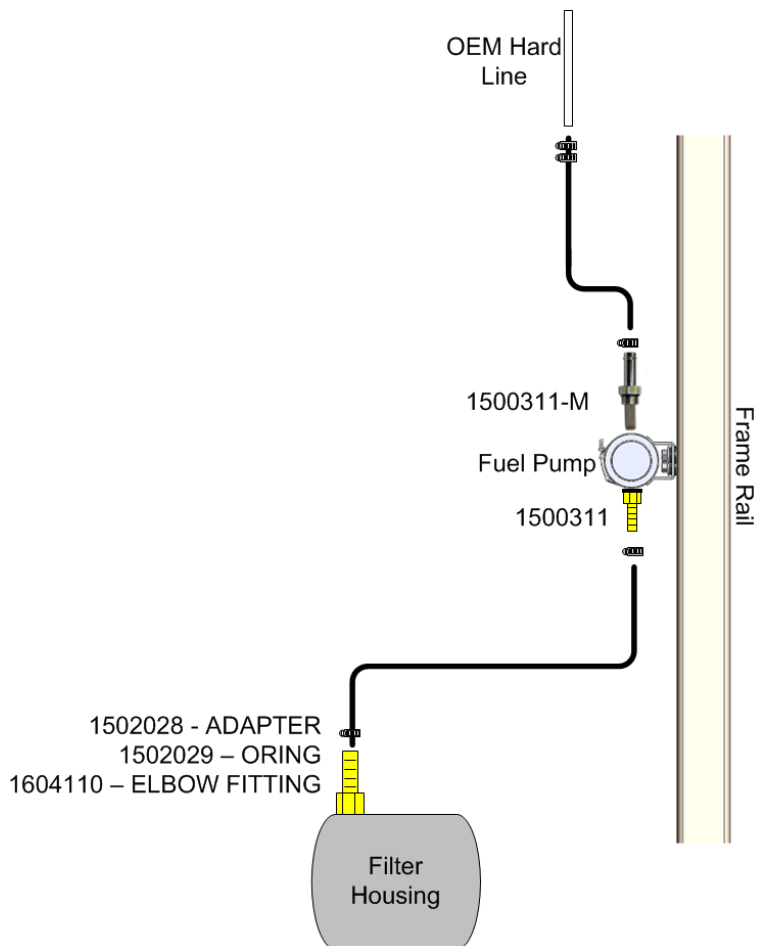
A tube cutter does not need to be used for this cut.

14. Trim and connect the 3/8” fuel hose from step 8 to the outlet of the pump. Use a hose clamp to secure this connection. The remainder of the hose will be used for the inlet of the pump.



15. Cut the hard fuel supply line once again, this time about 8” before the inlet of the pump. This time you will need to use a tube cutter.

Install a small section of hose to the hard line. Then to the pump inlet which will be on the other side of the frame rail.

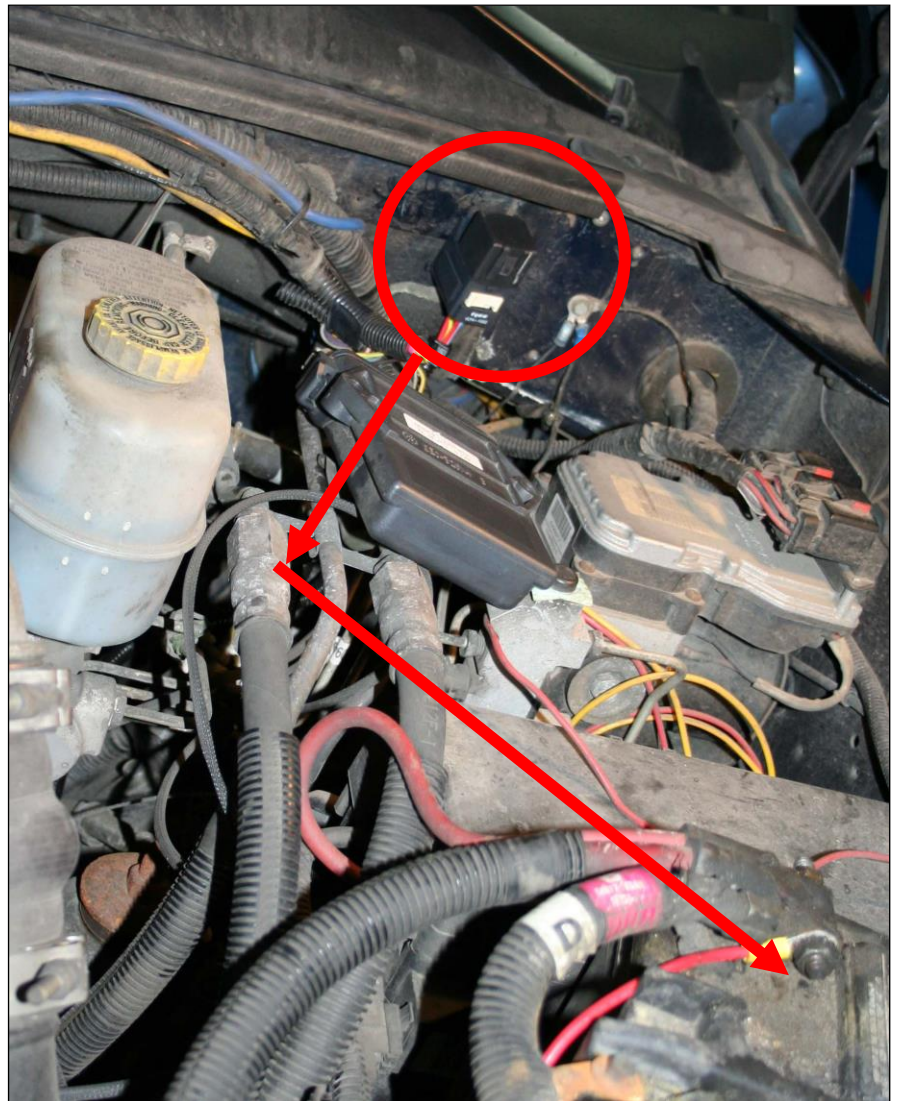


16. Secure each connection with a hose clamp. Use two hose clamps when securing the rubber hose to the hard line.



17. Lay out the wiring harness so that it can be plugged into the stock fuel pump harness, plug into the new FlowMAX Fuel Pump, and place the positive and negative terminals in their approximate routing.

Once the routing paths have been chosen and laid out, install the relay to the firewall with the use of self tapping screw.



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18. Wiring should be attached with the use of supplied tie wraps so that the wiring will be away from contacting hot surfaces and/or moving components. Once the wiring is attached and everything is in place the positive and negative terminals can be attached to the battery.



19. Make certain that all fuel lines, wiring harness' are fixed in place well.

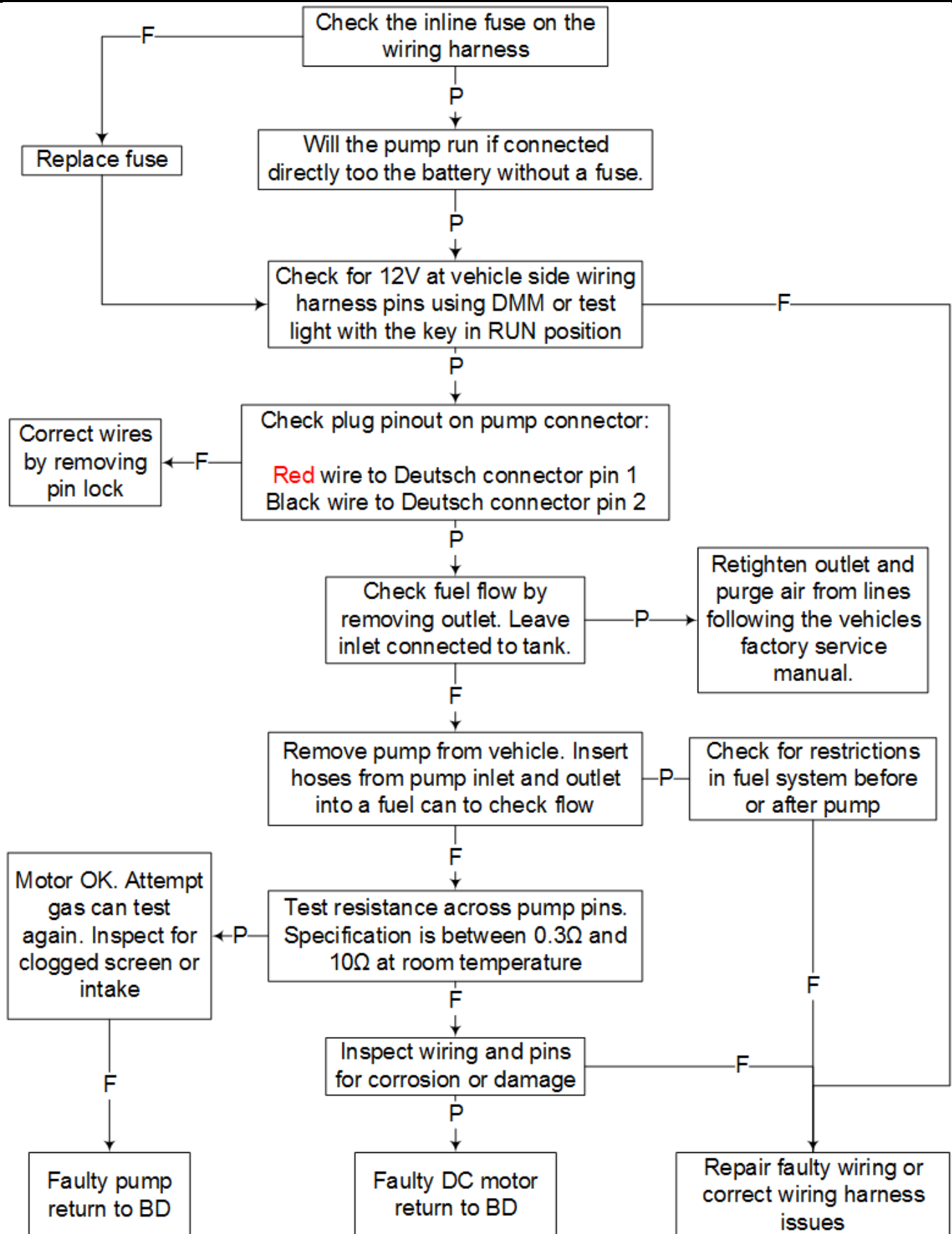
20. Lower the vehicle and re-install the battery cables.

21. Take the truck for a test drive and measure pump output pressures. The pump pressure sure idle at 17-19 psi.

Flow Specifications

- Flowrate should be MINIMUM 2.5GPM(150GPH) @ 14VDC
- OR
- Filling a 1 gallon container every 24 seconds @ 14VDC

Trouble Shooting



If you experience any problems or difficulties with this kit, please contact the BD Technical Department at 1-604-853-6096 or fax at 1-604-853-8749, between 8:00am and 4:30pm Pacific Time.