



Flow-Max^{V2}

BD's Revolutionary New Heavy-Duty Lift Pump System

2003-04½ DODGE CUMMINS BD FlowMax LIFT PUMP KIT

Installation Instructions

P/N# 1050305B

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.




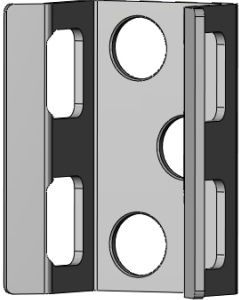
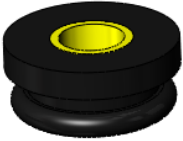

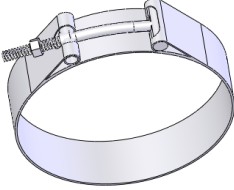
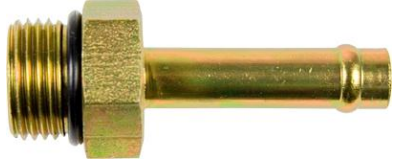

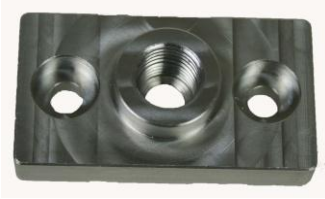
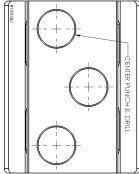





BD Engine Brake Inc.

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:

1500350-L-REV-A	1500357	1500359	1500355
			
FlowMAX Lift Pump	Flat Washer	Self Threading 3/8" Bolt	Mounting Bracket
Qty: 1	Qty: 3	Qty: 3	Qty: 1
1500356	1505001	1500358	1500311
			
FlowMAX Anti-Vibration Mount	Hose Clamp	T-Bolt Clamp	-AN 8 ORB x 3/8" Barb
Qty: 3	Qty: 7	Qty: 2	Qty: 2
1604110	1502028	1500361	1500340
			
Elbow Fitting 1/4" NPT - 3/8" barb	OEM Lift Pump Adapter	Drill Jog	3/8" Fuel Strainer
Qty: 1	Qty: 1	Qty: 1	Qty: 1
1500310-B	1502029	1502021	1300529
			
FlowMAX Pump Wiring Harness	O-Ring	3/8 Fuel Hose	Self Tapping Screw
Qty: 1	Qty: 1	Qty: 84	Qty: 1

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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
- **1085220** – X-Monitor Digital Gauge Package (2003-07)
- **1080156** – Fuel Pressure Kit (X-Monitor Accessory)

Required Tools:

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

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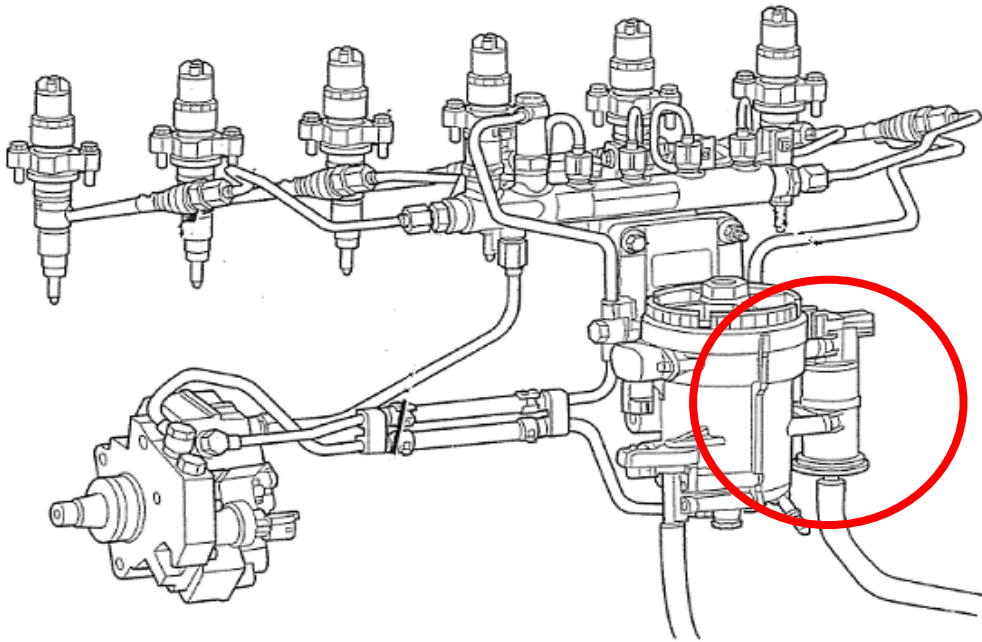
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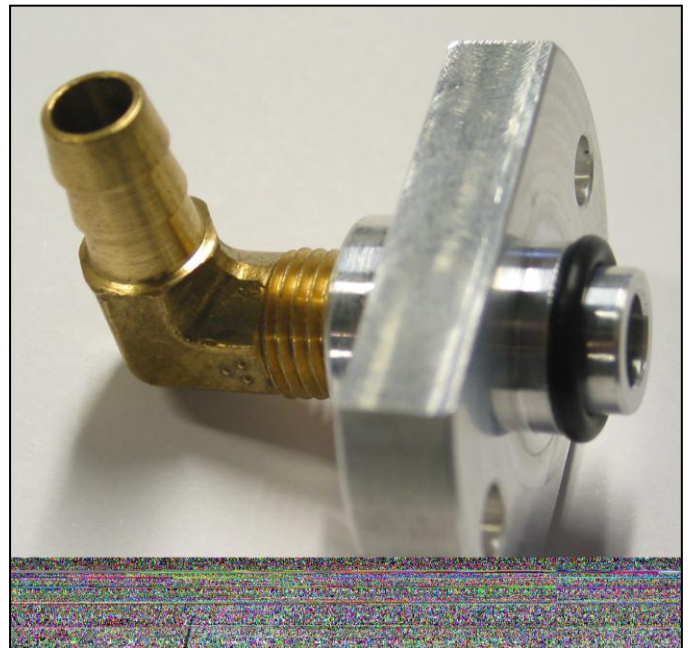
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Installation:

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 fuel line extension hose to the brass barb fuel fitting. Make sure that by re-routing the hose it doesn't rub on anything. Allow the hose to hang during pump installation (optional: pinch the hose with some vise grips or clamps of some sort to prevent fuel leakage).



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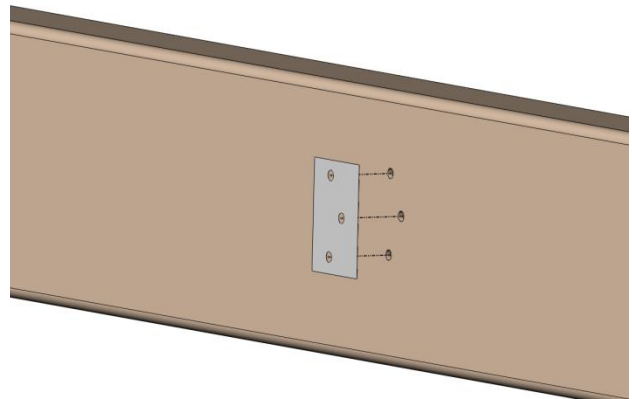
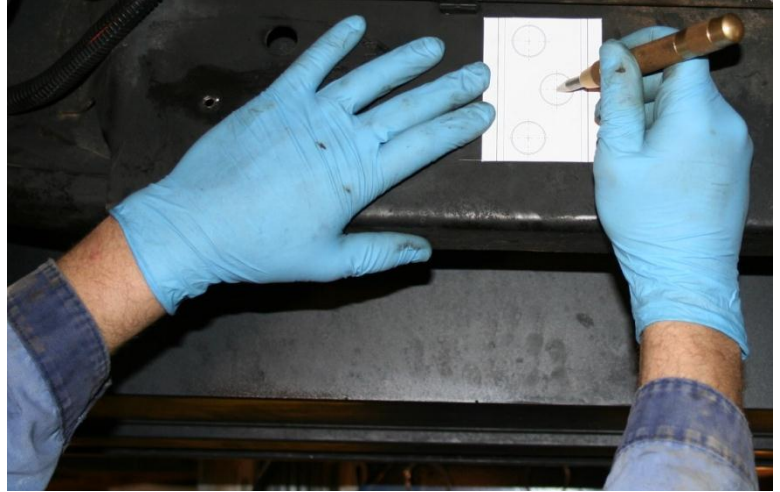
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Pump Installation

9. From underneath the vehicle locate the cross member bracket on the outside of the driver's frame rail. Position and tape drill template onto frame rail just about 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".

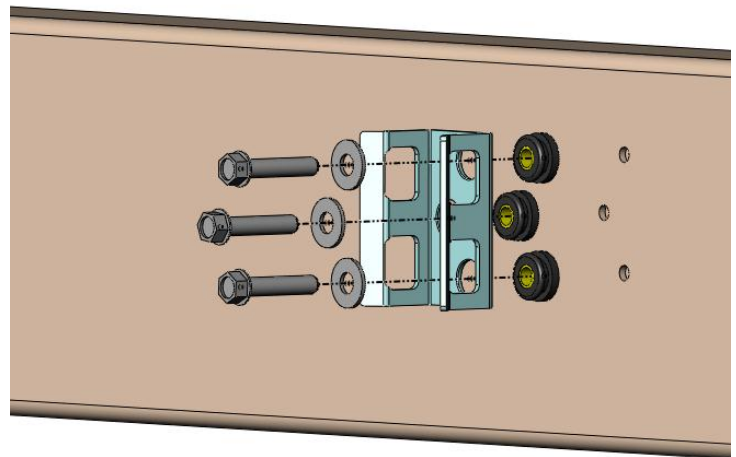


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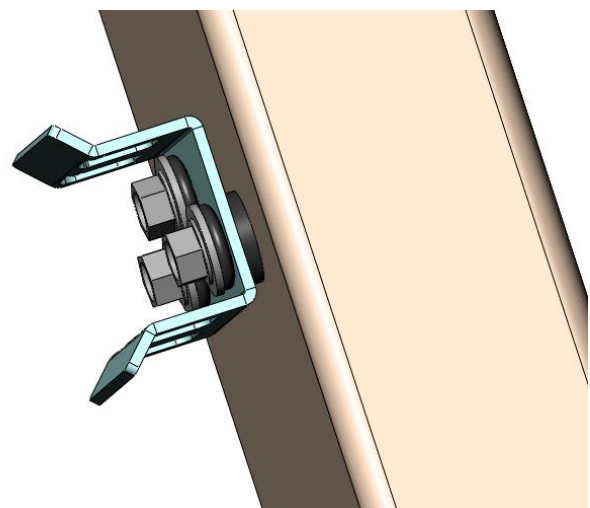
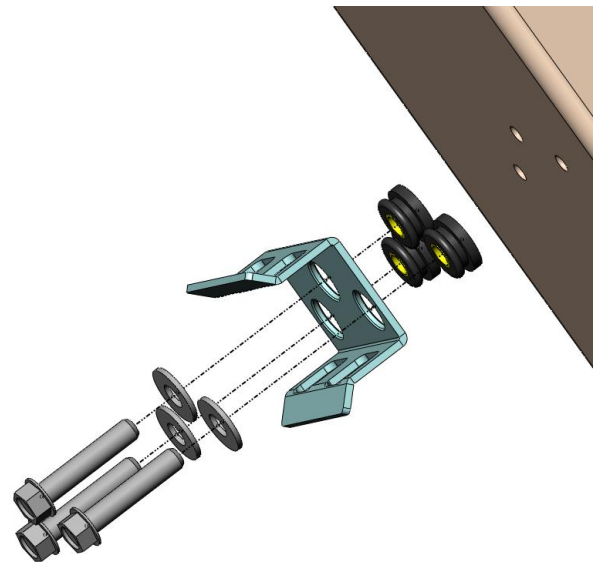


10. Insert the three rubber isolators into the support bracket. Use some water to aid in lubricating the isolators as they slide into the bracket.

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

Using an air ratchet (9/16" socket) tighten the self-threading 3/8" bolt 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.**



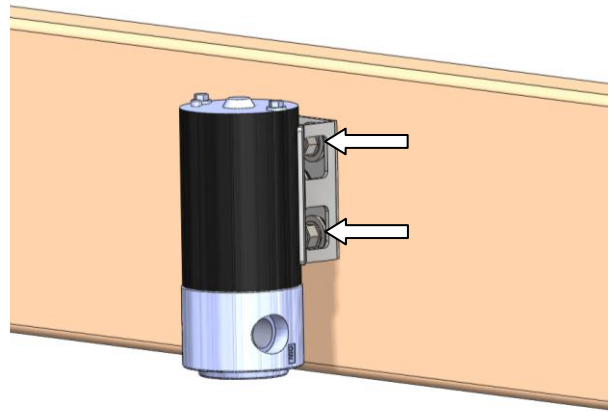
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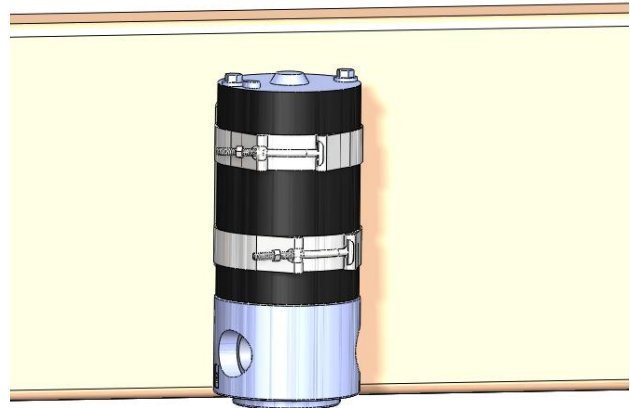
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11. Locate the two supplied T Bolt band clamps; unthread the nut (7/16" Socket) from each of them. Spread the clamps apart and insert them through boxed cutouts.

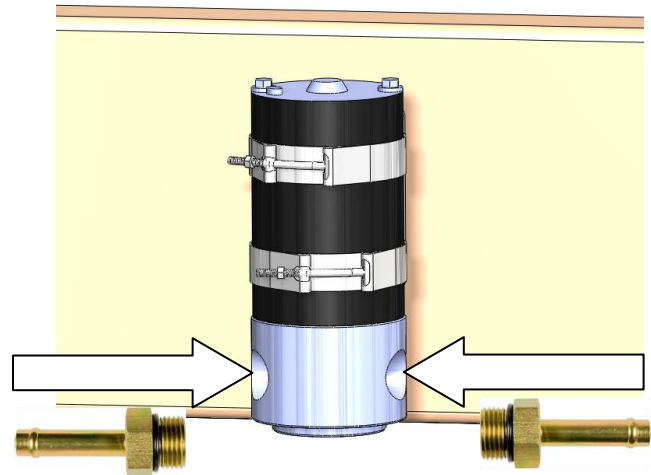


With both clamps inserted, place the pump into place and align the inlet and outlet parallel to the frame. The **inlet** should be pointed towards the fuel tank.



Tighten the clamps around the motor body, rather than the aluminum pump head. Torque nuts to **80 in-lbs.**

12. Insert the ORB-Barb fittings to the inlet and outlet of the pump. Do not over tighten as they use an o-ring for sealing.



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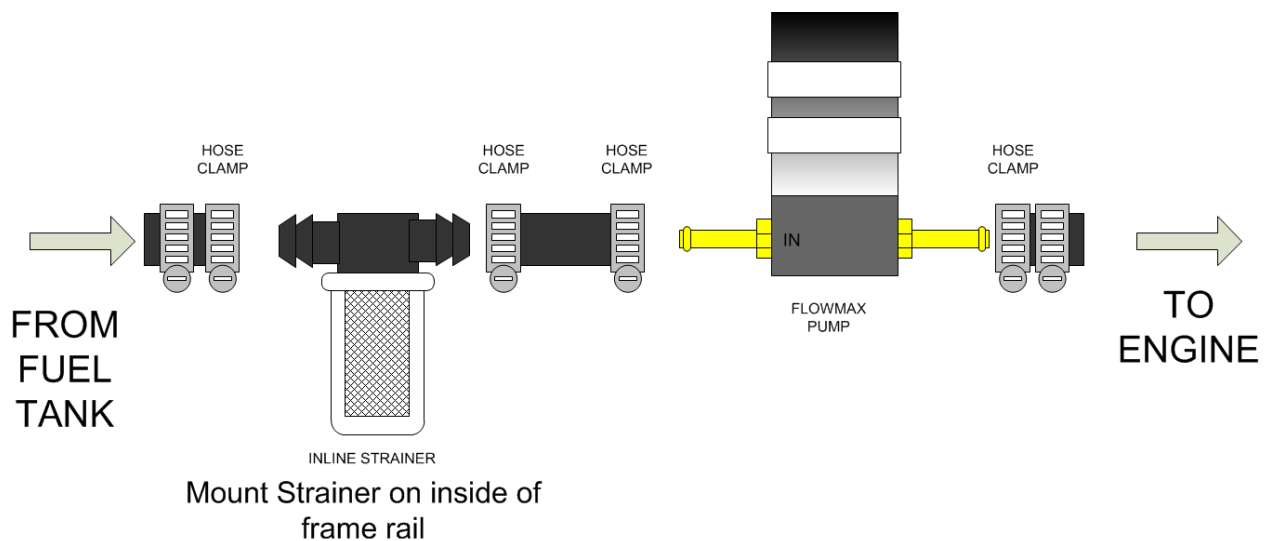
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13. With the pump mounted, cut the hard fuel line about 12" ahead of the pump on the inside of the frame rail. The fuel supply line is the thickest of all three lines. Discard the remainder/cut portion of the cut fuel line.

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

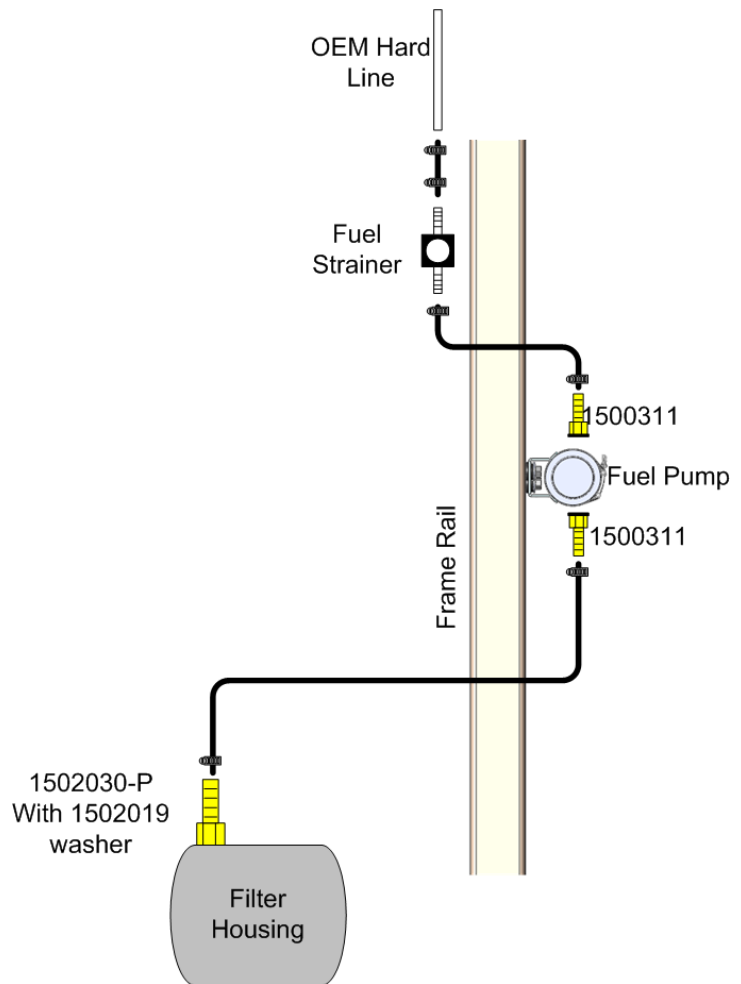


14. Route the fuel line that you connected from the front of the vehicle to the outlet of the pump. Use a hose clamp to secure this connection. Trim to fit, the remainder of the hose will be used for the inlet of the pump.



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, then the fuel strainer. Finally connect the outlet of the fuel strainer to the inlet of the pump which will be on the other side of the frame rail.

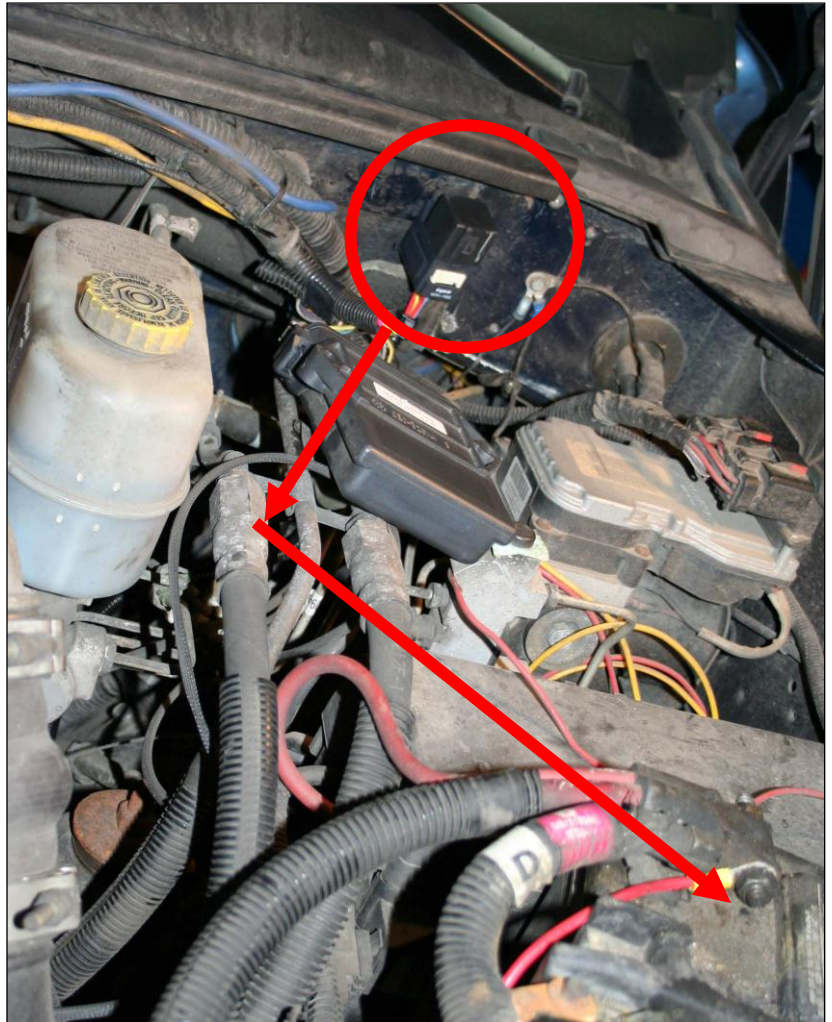


16. Secure each connection with a hose clamp. Use two hose clamps when securing the rubber hose to the hard line.



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.



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 15-18psi.

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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.



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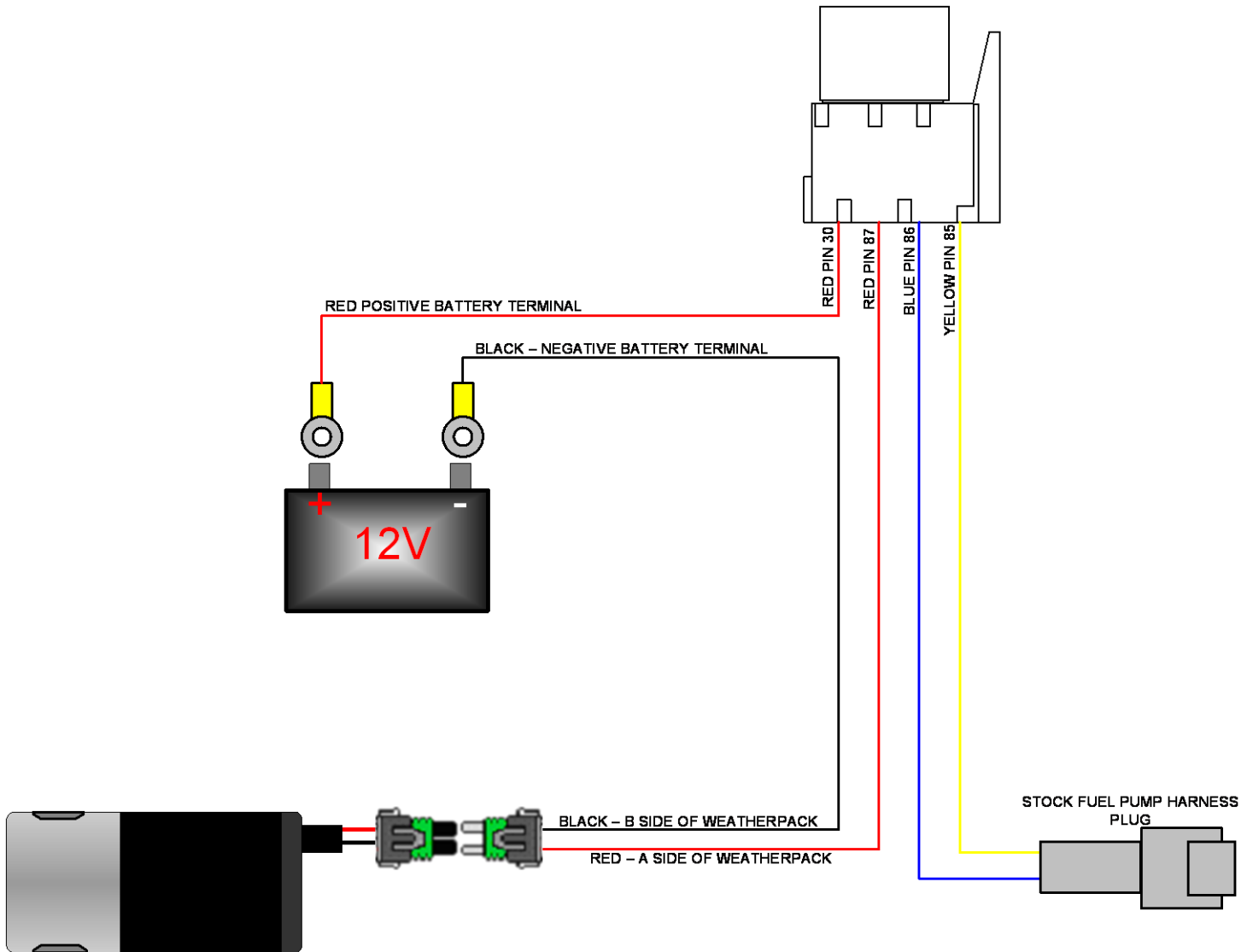
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Trouble Shooting

Wiring harness diagram



If you have problems, complete the following tests or procedures,

- Clean and re-tighten battery terminals.
- Ensure there are no crimped/pinched sections of fuel line.
- Change Fuel Filter
- Check that you have at least 12 volts at the electrical connector at the pump.
- Check that fuse in supplied harness near battery terminal is not blown.
- Check that all plugs are securely clipped together
- Run a hose from a fuel can full of diesel to the pump inlet to see if the pressure changes. If the pressure increases the problem is a restriction in the line possibly a clogged fuel screen.

The pump should operate between 16 and 18psi with 14V at idle. If you have lower voltage, then the pump pressure will also be lower.

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