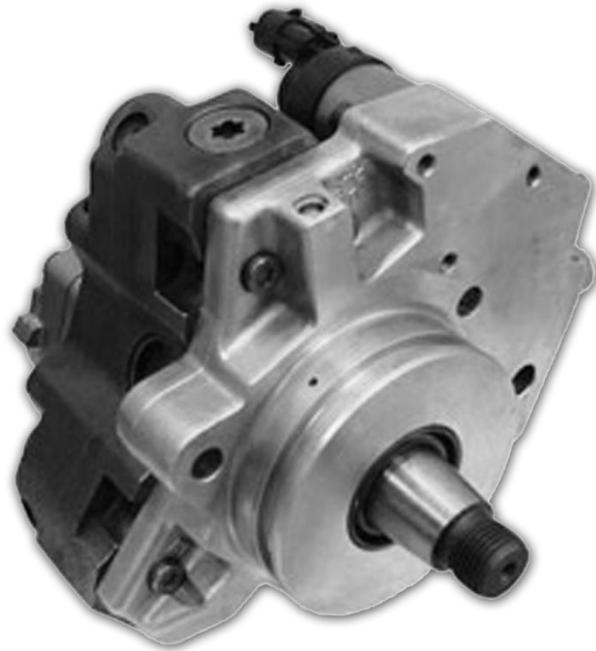




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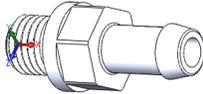
BD High Flow CP3 Pump Kit

1050551

**Dodge Cummins 03-18
5.9L/6.7L**

PLEASE READ ALL INSTRUCTIONS BEFORE INSTALLATION

SEE APPENDIX A FOR PUMP FLOW VS. COMMAND DETAILS***Kit Contents***

1502019	1500680	1502041
		
M12 Seal Washer Qty: 2	High Pressure Outlet Fitting Qty: 1	5/16" Barb 12mm Fitting Qty: 1
FT-0480748	CTL-8.5	1604031
		
O-ring 2mm x 9mm Qty: 1	Hose Clamp Qty: 2	5/16" Fuel Hose Qty: 12"

Tools Required

- 17,19mm Wrench
- 13mm & 15/16" Socket
- 3/8" Ratchet
- Gear Puller
- 1 3/8" Socket (Filter)
- Torque Wrench (up to 77 ft/lbs)

Removal

1. Disconnect both negative battery cables at both batteries. Cover and isolate ends of both cables.
2. Remove intake manifold air intake tube (above injection pump) and its rubber connector hose.
3. Remove accessory drive belt.
4. Thoroughly clean rear of injection pump, and attachment points for its fuel lines. Also clean the opposite ends of these same lines at their attachment points.



Caution: Whenever a fuel line fitting is connected to a secondary fitting, always use a back-up wrench on the secondary fitting. Do not allow the secondary fitting to rotate.

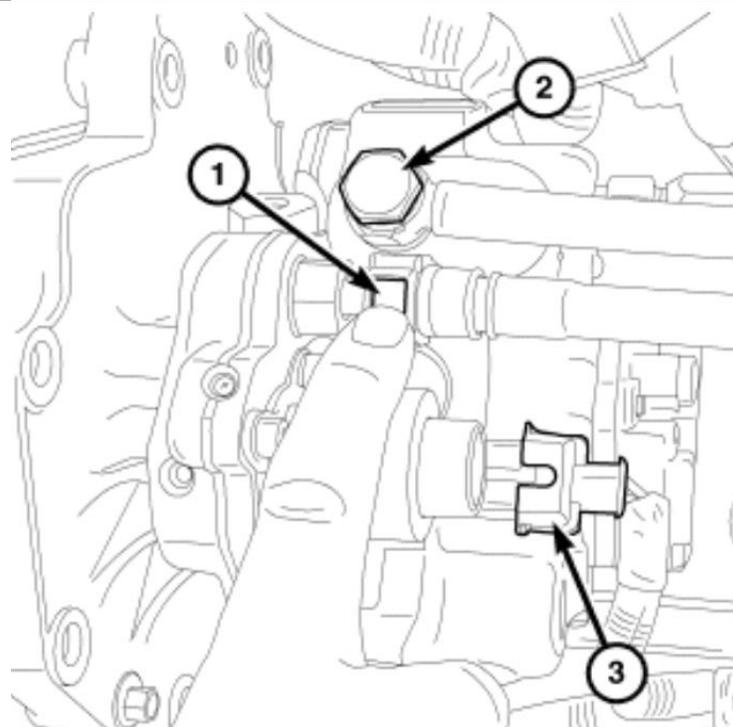
5. Disconnect quick-connect fitting by pressing on button (1).

Note: 5.9L will have a banjo at this connection and a spring clamp at the hard line to fuel bowl to remove with hose section.

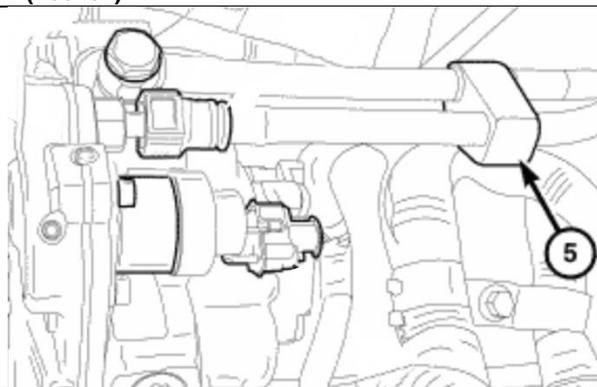
6. Remove high-pressure fuel line to fuel rail.

7. Remove banjo bolt (2).

8. Disconnect FCA (Fuel Control Actuator) electrical connector (3).

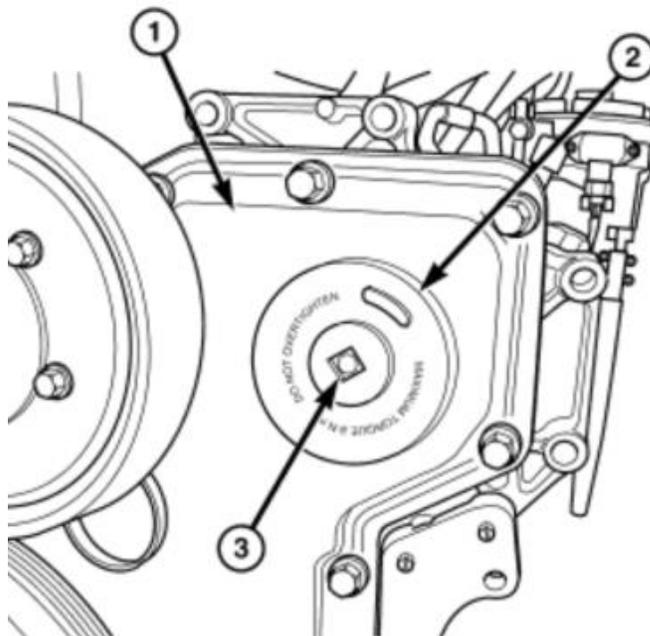


9. Remove line clamp (5).



10. Remove fuel pump drive gear access cover with a 3/8" drive ratchet. Access cover (2) is threaded to timing gear cover.

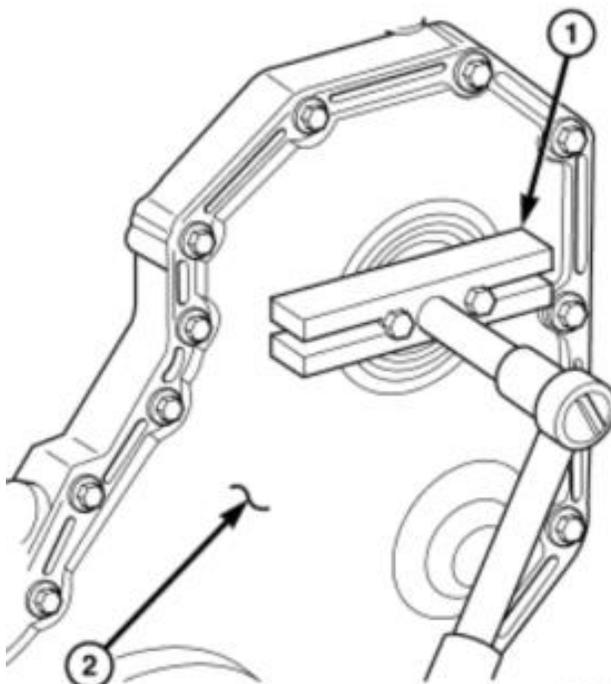
Number	Description
1	Front Timing Gear Cover
2	Gear Access Plate (Cover)
3	Square Drive (For Cover Removal)



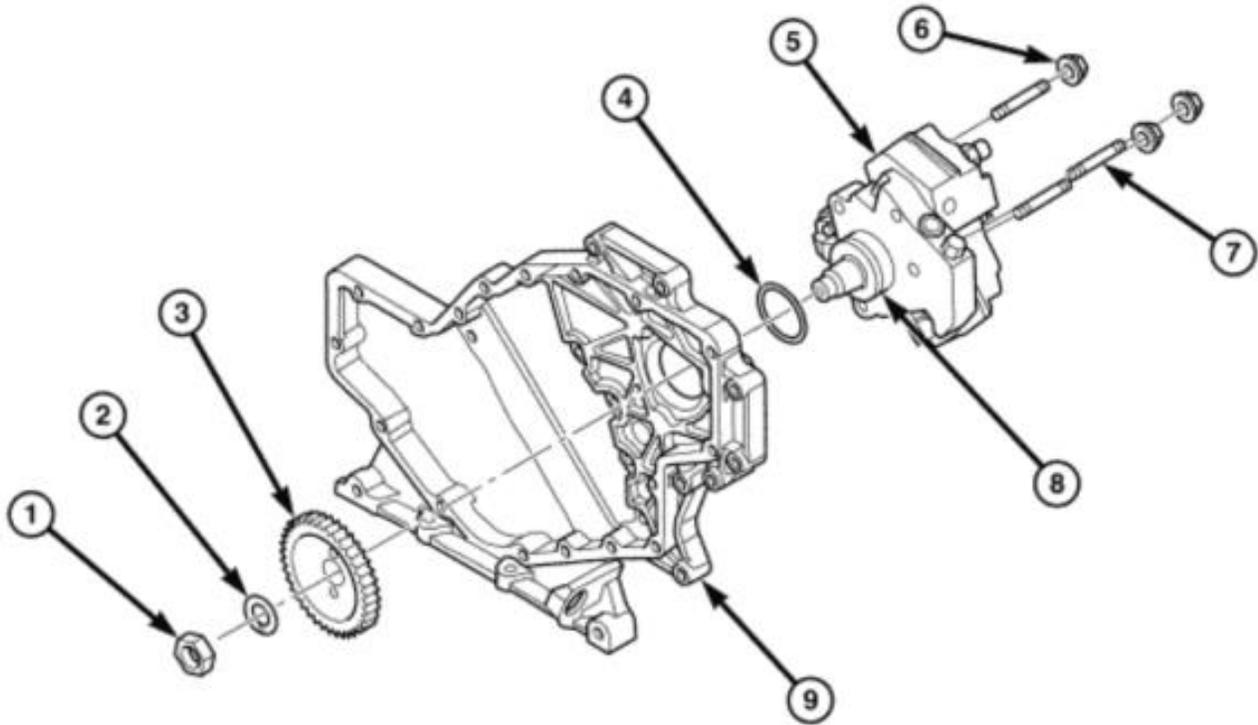
11. Remove fuel pump drive gear mounting nut and washer.

12. Attach C3428B, or L4407A (or equivalent) gear puller to pump drive gear with 2 bolts, and separate gear from pump (a keyway is not used on this particular injection pump). Leave drive gear hanging loose within timing gear cover.

<i>Number</i>	<i>Description</i>
1	Front Timing Gear Cover
2	Gear Puller Tool



13. Remove three injection pump mounting nuts (6), and remove pump from engine.



<i>Number</i>	<i>Description</i>	<i>Number</i>	<i>Description</i>
1	Pump Drive Gear Nut	6	Pump Mounting Nuts
2	Washer	7	Pump Mounting Studs
3	Pump Drive Gear	8	O-Ring Machined Groove
4	Rubber O-ring	9	Front Timing Gear Housing
5	Fuel Injection Pump		

Installation

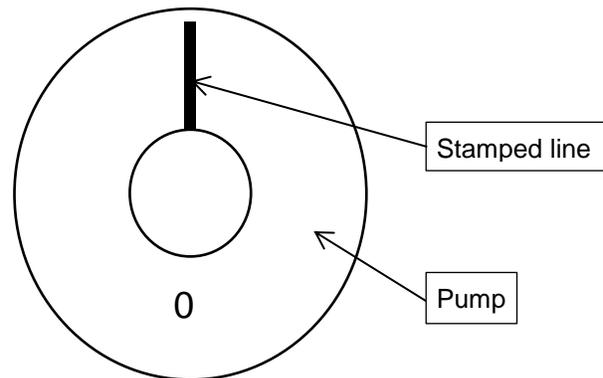
⚠ Caution: Cleanliness cannot be overemphasized when handling or replacing diesel fuel system components. This especially includes the fuel injectors, high-pressure fuel lines and fuel injection pump. Very tight tolerances are used with these parts. Dirt contamination could cause rapid part wear and possible plugging of fuel injector nozzle tip holes. This in turn could lead to possible engine misfire. Always wash/clean any fuel system component thoroughly before disassembly and then air dry. Cap or cover any open part after disassembly. Before assembly, examine each part for dirt, grease or other contaminants and clean if necessary. When installing new parts, lubricate them with clean engine oil or clean diesel fuel only.

1. Inspect pump mounting surfaces at pump and mounting flange and pilot bore for nicks, cuts or damage. Inspect O-ring surfaces for nicks, cuts or damage.
2. Clean injection pump mounting flange and pilot bore at gear housing. Also clean front of injection pump.
3. Apply clean engine oil to injection pump O-ring and pilot bore only. The machined tapers on both injection pump shaft and injection pump gear must be absolutely dry, clean and free of any dirt or oil film. This will ensure proper gear-to-shaft tightening.
4. Clean pump gear and pump shaft at machined tapers with an evaporative type cleaner such as brake cleaner.

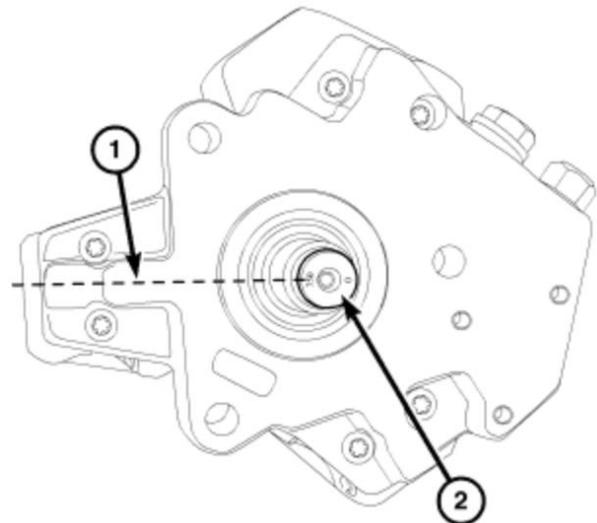
Note: 5.9L Models please refer to section on pages 10 and 11 before proceeding.

5. **FUEL INJECTION PUMP PHASING:** Perform the following phasing procedure anytime the injection pump has been removed and re-installed.

6. Locate the end of the fuel injection pump shaft, a "line" is stamped into the end of the shaft.

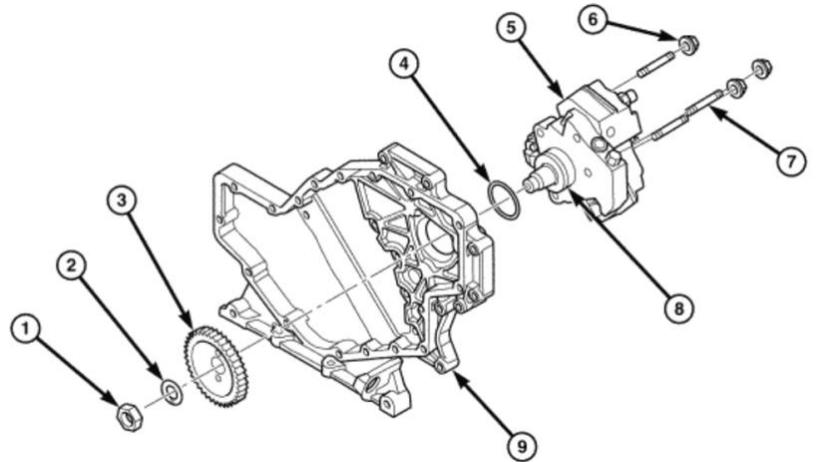


7. Rotate the injection pump shaft until the "line" is positioned at 9 o'clock (1).



8. Position injection pump to mounting flange on gear housing while aligning injection pump shaft through back of injection pump gear. Be sure the “line” is still at the 9 o'clock position (1).
9. Bring the engine to TDC position. Do this by rotating the crankshaft until the TDC mark on the crankshaft damper is at 12 o'clock position. It does not matter if cylinder #1 or #6 is at TDC. Again, check to be sure the “line” is still at the 9 o'clock position (1). Rotate pump shaft accordingly.

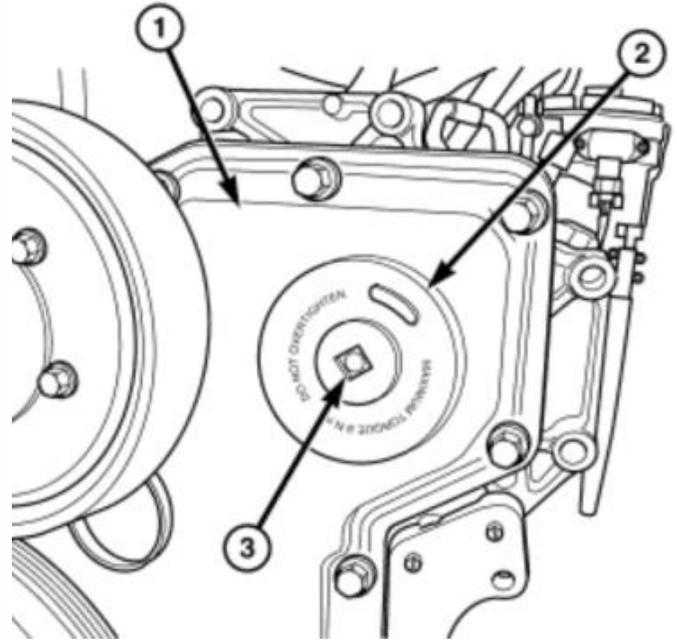
<i>Number</i>	<i>Description</i>
1	Pump Drive Gear Nut
2	Washer
3	Pump Drive Gear
4	Rubber O-ring
5	Fuel Injection Pump
6	Pump Mounting Nuts
7	Pump Mounting Studs
8	O-Ring Machined Groove
9	Front Timing Gear Housing



10. After pump is positioned flat to mounting flange, install three pump mounting nuts (6) and tighten **finger tight only**. Do not attempt a final tightening at this time. **Do not attempt to tighten (pull) pump to gear housing using mounting nuts. Damage to pump or gear housing may occur. The pump must be positioned flat to its mounting flange before attempting to tighten three mounting nuts.**

11. To prevent damage or cracking of components, install and tighten nuts in the following sequence:
- Install injection pump shaft washer and nut to pump shaft. Tighten nut **finger tight only**.
- Do preliminary (light) tightening of injection pump shaft nut (1).
 - Tighten three injection pump mounting nuts to 24 N.m (18 ft. lbs.).
 - Do a final tightening of pump shaft nut (1) to 105 N.m (77 ft. lbs.).

Number	Description
1	Front Timing Gear Cover
2	Gear Access Plate (Cover)
3	Square Drive (For Cover Installation)

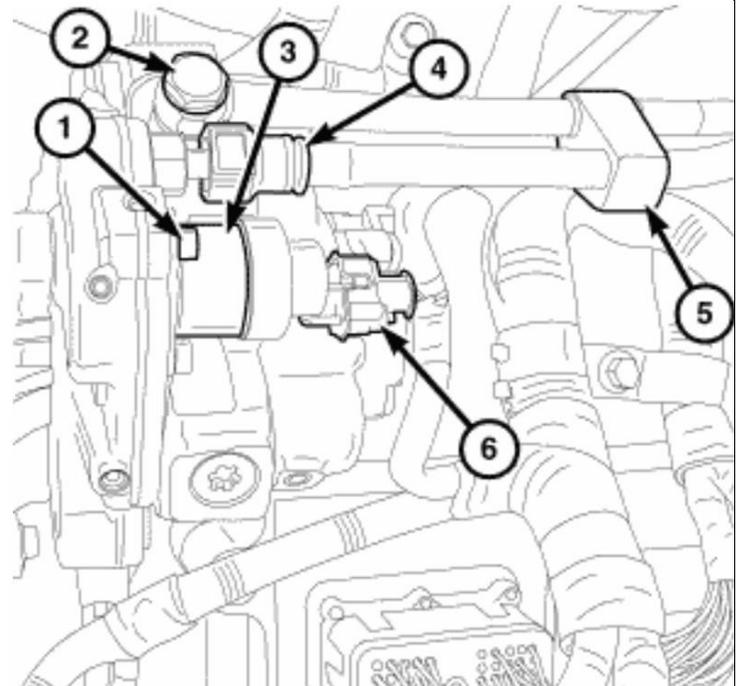


12. Install drive gear access cover (2) using a 3/8" drive ratchet. Access cover is threaded to timing gear cover. Tighten to 8 N.m (71 in. lbs.) torque.

13. Install fuel return line with supplied seal washers (1502019). Tighten banjo bolt (2) to 24 N.m (18 ft. lbs.) torque.

14. Install quick-connect fitting (4).

Note: For 5.9L engines BD has supplied a new fuel inlet fitting #1502041 in the CP3. You will need to discard the factory hard line if you have not already. Use the #**CTL-8.5** spring clamps and the 12" section of **5/16" fuel hose** to connect to the fuel filter. (BD has 1/2" fittings available for high performance applications # 1502040.)

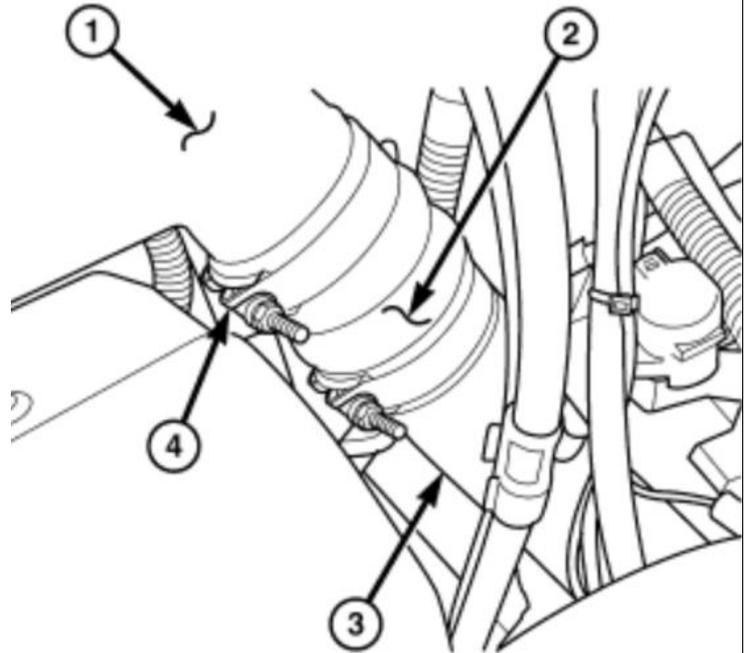


15. Install fuel line (injection pump-to-fuel rail). Using a backup wrench, tighten fitting at fuel pump to 40 N.m (30 ft. lbs.) torque. Tighten fitting at fuel rail to 40 N.m (30 ft. lbs.) torque.

16. Install clamp (5).

17. Connect Fuel Control Actuator (FCA) electrical connector (6) to rear of injection pump.

18. Install rubber intake manifold air intake tube (2). Tighten clamps (4).

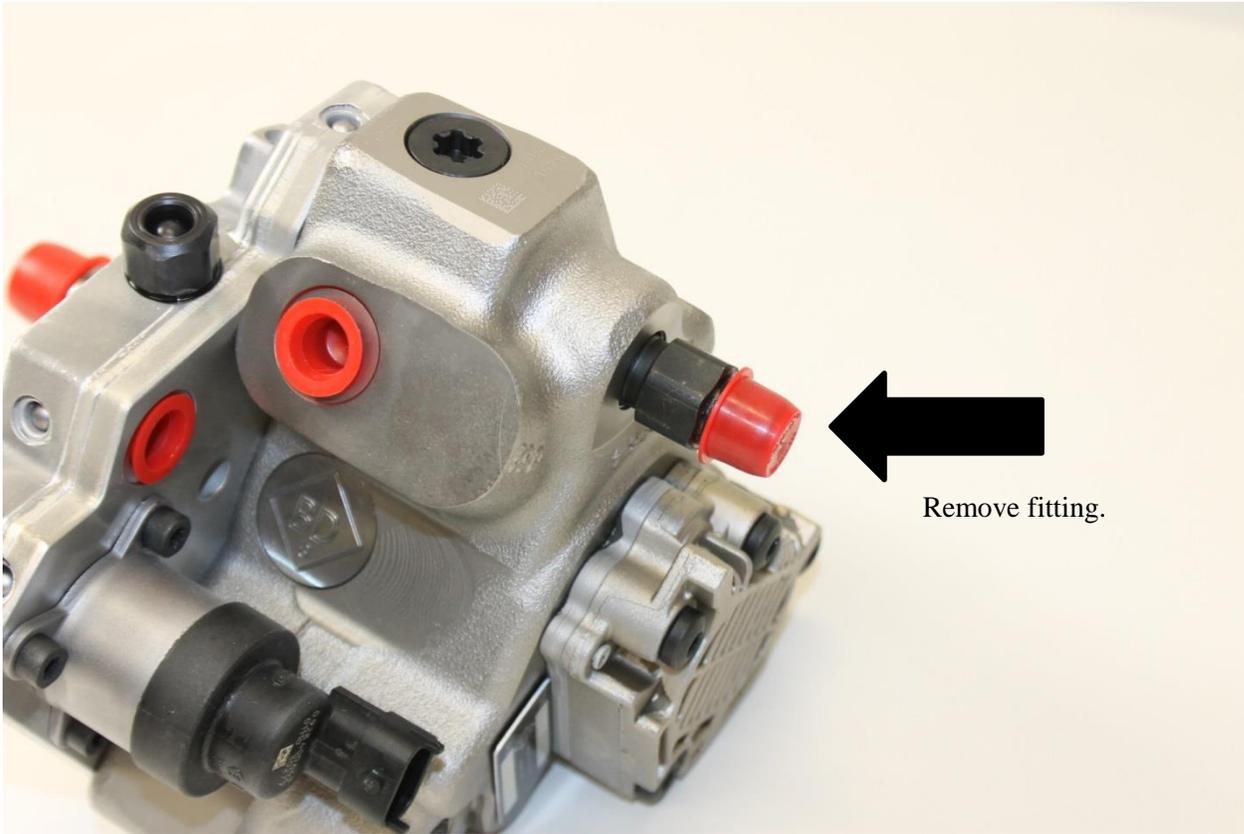


19. Install accessory drive belt.

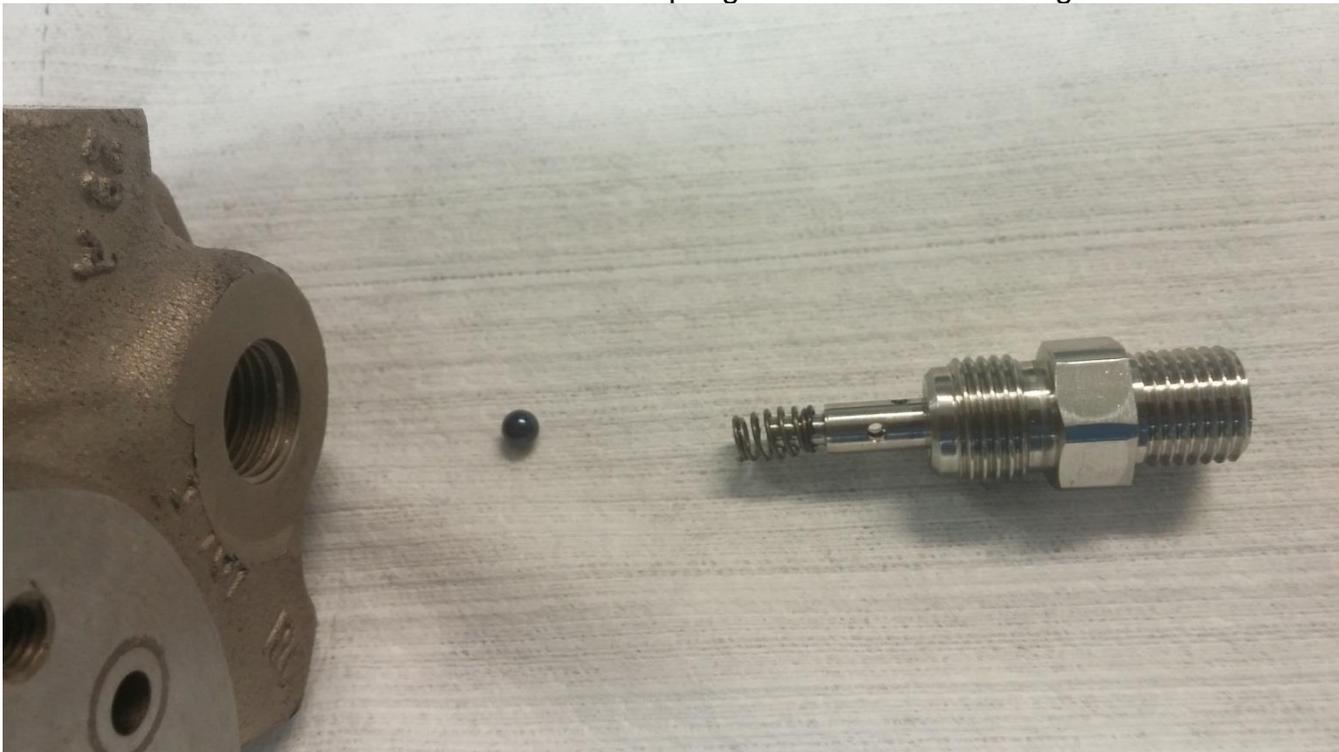
20. Connect both negative battery cables to both batteries.

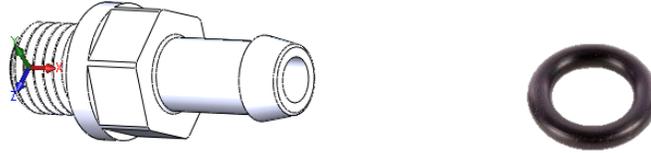
21. Check system for fuel or engine oil leaks.

5.9L Special Steps

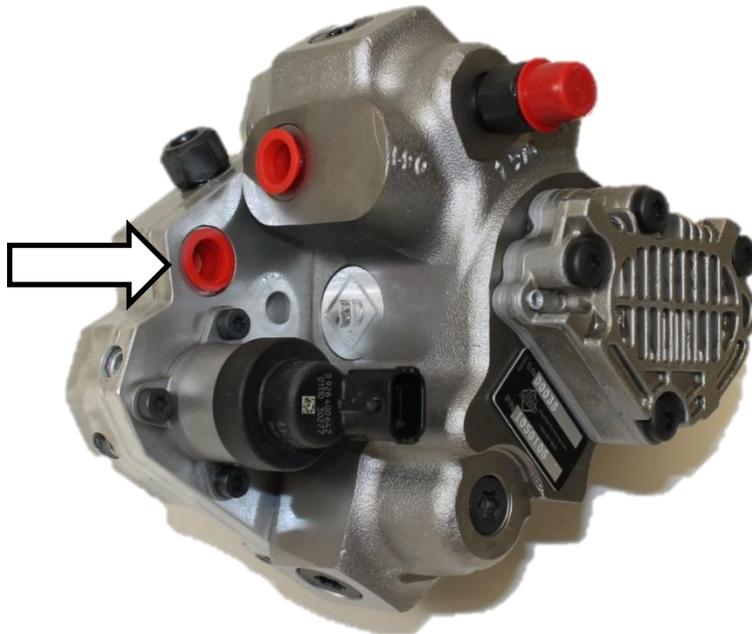


Transfer Ball and Spring to # 1500680 BD fitting.





Install #1502041 5/16" Barb Fuel Supply fitting here with supplied #FT-0480748 Oring



Appendix A

The below chart shows R900 CP3 pump output flow versus Fuel Control Actuator (FCA) command.

