



BD High Flow CP3 Pump Kit

For Dodge Cummins 03-07 5.9L

-- Installation Instructions --

P/N#	1050500
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PLEASE READ ALL INSTRUCTIONS BEFORE INSTALLATION

Tools Required

- | | |
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| <ul style="list-style-type: none"> ➤ 17,19mm Wrench ➤ 13mm & 15/16" Socket ➤ 3/8" Ratchet | <ul style="list-style-type: none"> ➤ Gear Puller ➤ 1 3/8" Socket (Filter) ➤ Torque Wrench (up to 77 ft/lbs) |
|--|--|

BD Engine Brake Inc.

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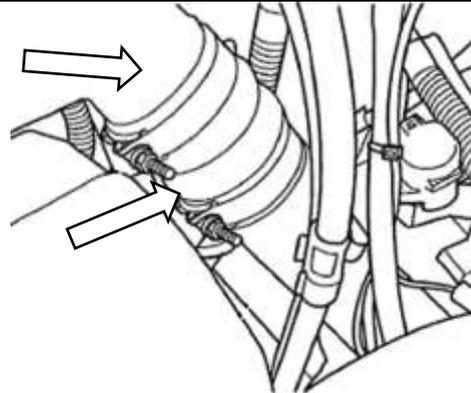
Procedure

CAUTION: Cleanliness cannot be overemphasized when handling or replacing diesel fuel system components. Very tight tolerances are used with these parts. Dirt contamination could cause rapid part wear. 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. Disconnect both negative battery cables at both batteries. Cover and isolate ends of both cables.

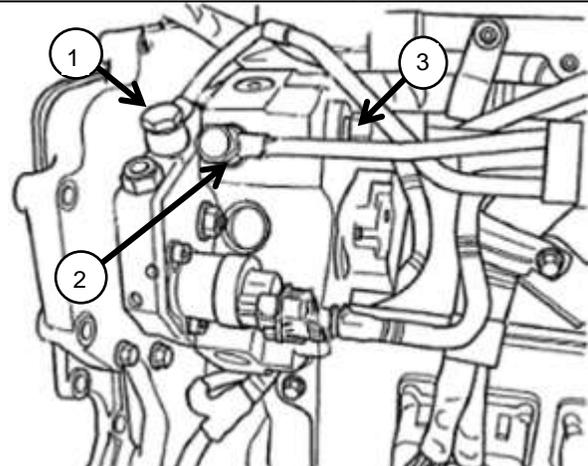
2. Remove intake manifold air intake tube (above injection pump) and its rubber connecting hose.

3. Remove accessory drive belt.



4. Thoroughly clean the rear of injection pump, and attachment points for its 3 fuel lines (Feed (1), Return Line (2) and High Pressure Line (3)).

Also clean the opposite ends of these same 3 lines at their attachment points.



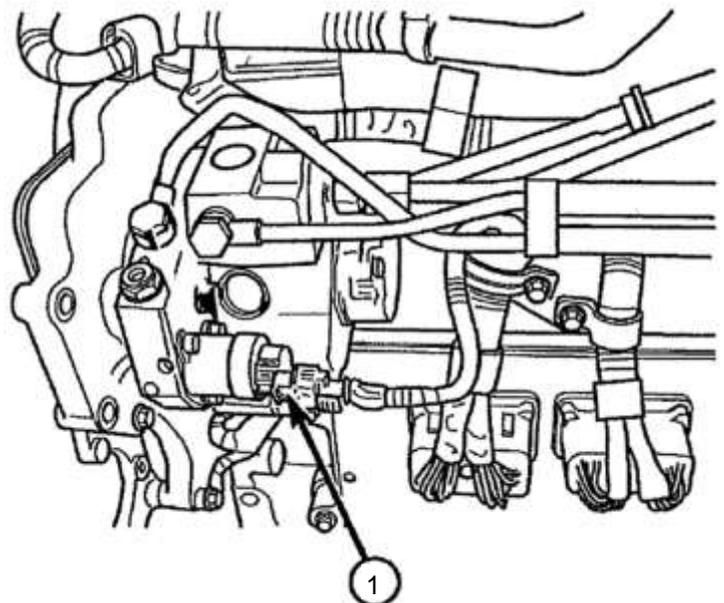
5. Disconnect Fuel Control Actuator (FCA) electrical connector (1) at rear of injection pump.

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.

6. Remove feed line (injection pump-to-fuel pressure limiting valve).(19mm wrench)

7. Remove return line (injection pump-to-fuel filter housing). (19mm wrench)

8. Remove high pressure line (injection pump-to-fuel rail). Use back-up wrench on fitting at fuel pump. (19mm wrench)



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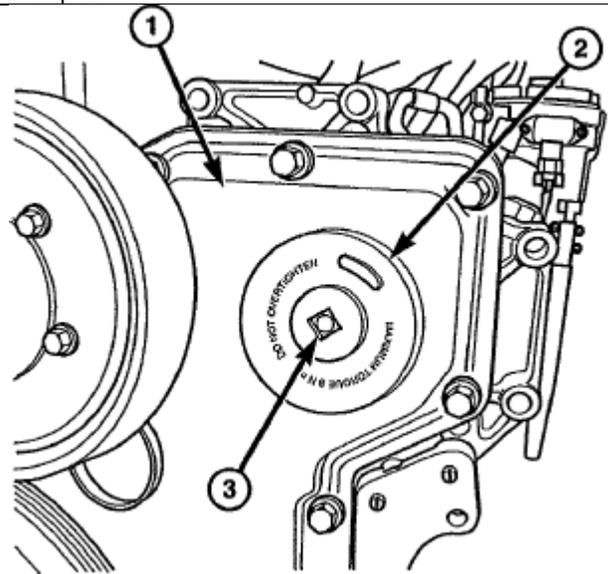
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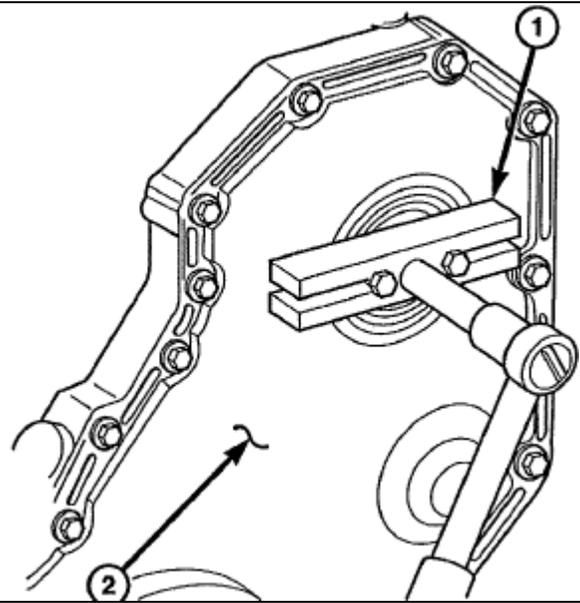
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9. Remove fuel pump drive gear access cover with a 3/8" drive ratchet. Access cover (2) is threaded to timing gear cover (1).

10. Remove fuel pump drive gear mounting nut and washer. (1 1/16" socket)

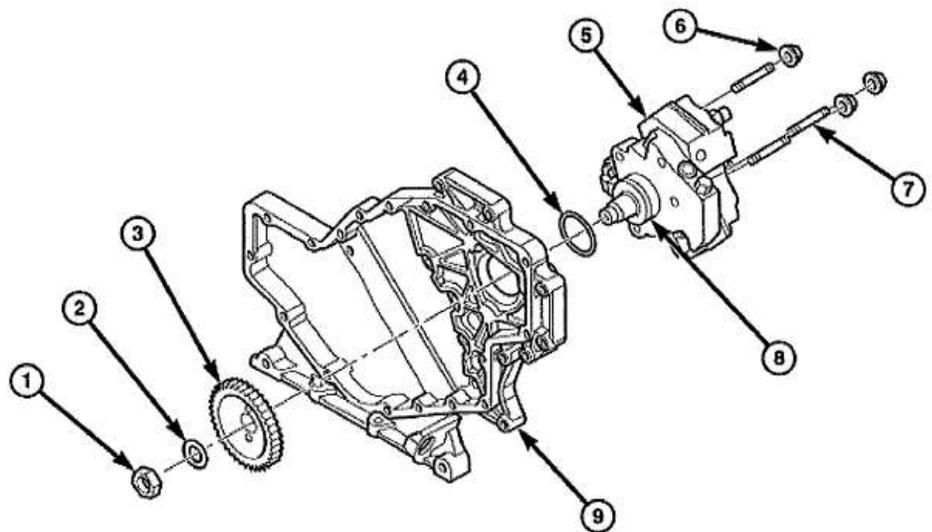


11. Attach C3428B, or L4407 A (or equivalent) gear puller (1) to pump drive gear with two bolts (M8-1.25), and separate gear from pump (a keyway is not used on this particular injection pump). Leave drive gear hanging loose within timing gear housing.



12. Remove 3 injection pump mounting nuts (6), and remove pump from engine.

1 - PUMP DRIVE GEAR NUT
2 - WASHER
3 - PUMP DRIVE GEAR
4 - RUBBER O-RING
5 - FUEL INJECTION PUMP
6 - PUMP MOUNTING NUTS (3)
7 - PUMP MOUNTING STUDS (3)
8 - O-RING MACHINED GROOVE
9 - FRONT TIMING GEAR HOUSING



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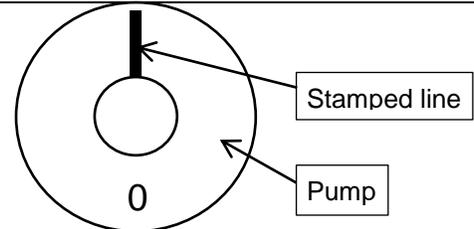
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INSTALLATION

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 and pilot bore on pump and gear housing 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. Install new rubber O-ring (square) into machined groove on pump mounting area.
4. 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.
5. Clean pump gear and pump shaft at machined tapers with an evaporative type cleaner such as brake cleaner.
6. ***IMPORTANT*** - Fuel Injection Pump Phasing procedure is required before installation of the new pump. Steps 6a through 6d outline the procedure to be followed.

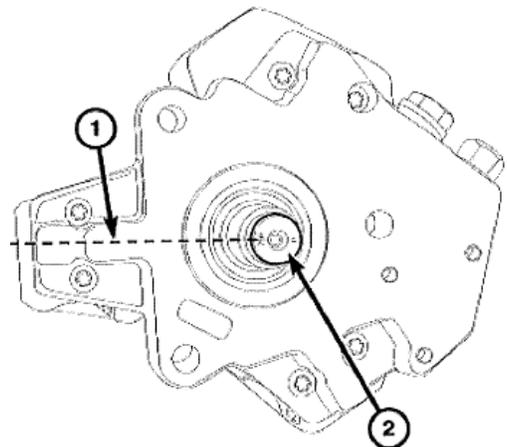
6a. Locate the stamped line in the end of the fuel injection pump shaft.



6b. Rotate the injection pump shaft until the shaft line (2) is positioned at 9 o'clock (1).

6c. Slide injection pump onto mounting studs, ensure the shaft remains at the 9 o'clock position. Do not tighten down mounting studs.

6d. Rotate 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 on the pump shaft is still at the 9 o'clock position. Rotate pump shaft accordingly.



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7. Once shaft is correctly aligned and pump is positioned flat to mounting flange, install 3 pump mounting nuts 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 3 mounting nuts.
8. To prevent damage or cracking of components, install and tighten nuts in the following sequence:
 - a. Install injection pump shaft washer and nut to pump shaft. Tighten nut finger tight only.
 - b. Do preliminary (light) tightening of injection pump shaft nut.
 - c. Tighten 3 injection pump mounting nuts to 24 N'm (18 ft. lbs.).
 - d. Do a final tightening of pump shaft nut to 105 N'm (77 ft.lbs.).
9. Install drive gear access cover using a 3/8" drive ratchet. Access cover is threaded to timing gear cover. Tighten to 8 N'm (6 ft/lbs.) torque.
10. Install fuel line (injection pump-to-fuel rail).
 - a. Tighten fitting at fuel pump to 37 N'm (27 ft. lbs.) torque. Use a back-up wrench.
 - b. Tighten fitting at fuel rail to 37 N'm (27 ft. lbs.) torque.
11. Install fuel return line (injection pump-to-fuel filter). Tighten banjo bolts to 24 N'm (18 ft. lbs.) torque.
12. Install fuel line (injection pump-to-fuel filter housing). Tighten to 24 N'm (18 ft. lbs.) torque.
13. Connect Fuel Control Actuator (FCA) electrical connector to rear of injection pump.
14. Install intake manifold air intake tube (above injection pump). Tighten clamps.
15. Install accessory drive belt.
16. Install new fuel filter (recommended).
17. Connect both negative battery cables to both batteries.
18. Check system for fuel or engine oil leaks.