Installation Manual v1.0:
CP3 High Pressure Fuel Injection Pump
Dodge- 5.9L Cummins

Please read all instructions before installation.

Thank you for purchasing the CP3 High Pressure Fuel Injection Pump. This manual is to assist you with your installation. If you are installing this system for a customer, please pass this manual on to your customer for future reference.

Removing your old pump

Note: Do your best to keep all components as clean as possible.

1. Disconnect the negative battery cables from all batteries.
2. Remove the intake manifold (above injection pump) and its hose.
3. Remove the 5 ECM (Engine Control Module) mounting bolts (located on the lower left side of the engine block towards the front). Do NOT disconnect the wiring connectors from the ECM.
4. Remove the fan shroud.
5. Remove the fan.
6. Remove the serpentine belt
7. Thoroughly clean the back of the injection pump and attachment points for its 3 fuel lines. Clean the other ends of these same 3 lines at their attachment points.
8. Disconnect the FCA (Fuel Control Actuator) electrical connector, which is at the rear of the injection pump.
9. Remove the fuel line that runs from injection pump to the overflow valve.
10. Remove the fuel line that runs from injection pump to the fuel rail.
11. Remove the fuel line that runs from injection pump to the fuel filter housing.
12. Remove fuel pump drive gear access cover plate with a ½” drive ratchet. This plate is attached to the timing gear cover.
13. Remove the fuel pump drive gear mounting nut and washer.
14. Attach a L4407A, C3428B, or equivalent gear puller to pump drive gear with 2 bolts, and separate the gear from the pump (a keyway is not used on this injection pump). Leave the drive gear hanging loose inside of the timing gear cover.
15. Remove the three (3) injection pump mounting nuts, and remove pump from engine.

Installing new fuel injection pump

Note: Do your best to keep all components as clean as possible.

1. Check the mounting and O-ring surfaces on the pump and mounting flange for nicks, cracks, or other damage.
2. Clean the injection pump mounting flange (at gear housing). Clean the front of the injection pump.
3. Install a new O-ring into the groove at the pump-mounting surface.
4. Carefully apply clean engine oil to injection pump O-ring. The tapers on the injection pump shaft and injection pump gear must be clean, dry and free of any dirt or oil film. Clean pump gear and pump shaft at machined tapers with an evaporative type cleaner such as brake cleaner. This will ensure proper gear-to-shaft tightening.

5. Position injection pump to mounting flange on gear cover while aligning injection pump shaft through back of injection pump gear.

6. After the pump is flat to mounting flange, install the three (3) pump mounting nuts and hand tighten them. Do not attempt a final tightening at this time. Do not attempt to tighten (pull) to gear cover using mounting nuts. Damage to pump or gear cover may occur. The pump must be positioned flat to its mounting flange before attempting to tighten the 3 mounting nuts.

7. Route the two (2) high pressure lines.

8. To prevent damage to your new fuel system, follow these steps:
   a. Install injection pump shaft washer and nut to pump shaft. Tighten nut finger tight.
   b. Lightly tighten the injection pump shaft nut.
   c. Tighten the three (3) injection pump mounting nuts to 6 lb-ft (71 lb-in).
   d. Do a final tightening of pump shaft nut to 77 lb-ft.

9. Reinstall drive gear access cover plate using a ½” drive ratchet. This plate is attached to timing gear cover.

10. Reinstall the ECM onto the left side of engine.

11. Reinstall the fuel line that runs from the injection pump to the overflow valve. Tighten to 17 lb-ft.

12. Reinstall the fuel line that runs from the injection pump to the fuel rail. Tighten to 17 lb-ft.

13. Make a 3/8” hose barb Tee from the included hose barbs, hose clamps, and Tee. Teflon thread tape is recommended for all connections. Locate the fuel line that runs from the injection pump to the fuel filter housing and splice it with the Tee, ensure the location of the splice is adequate to reach the FASS pump with the kit’s 3/8” hose. Route the new fuel line towards the FASS pump.

14. Reinstall the fuel line that runs from the injection pump to the fuel filter housing. Tighten to 17 lb-ft.

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

16. Reinstall intake manifold. Tighten clamps.

17. Reinstall accessory drive belt.

18. Reinstall the fan.

19. Mount FASS pump and the mounting plate to the top of the throttle bracket using two (2) 10x1.25x90 mm bolts.

20. Using the barbed push lock connectors and hose clamps, run fuel line from one leg of the 3/8” Tee to the port on the FASS pump labeled with a letter “T”.

21. Assemble the 90° elbow, ½” stubs, check valve, and fuel manifold as shown in picture. IMPORTANT: Mount the check valve so that the direction of flow arrow points towards the CP3 pump.

22. Run the braided lines from the CP3 pump to the fuel manifold.

23. Wiring: Also see the included wiring diagram.
   a. Connect the wire that corresponds to pin #86 on the wiring harness to a 12V (KEY-ON) power source.
b. Connect the wire that corresponds to pin #30 on the wiring harness to a 12V (FULL-TIME) power source. Note: We recommend that you connect to the jump-start post.
c. Connect the wire that corresponds to pin #87 on the wiring harness to the red wire at the FASS pump.
d. Run the wire that corresponds to pin #85 on the wiring harness through the firewall to the throttle pedal.
e. Install the throttle switch onto the pedal. Adjust the switch so that a “click” can be heard when the pedal is pressed to the floor. This turns the system on when the throttle is “wide-open.”
f. Attach the wire that corresponds to pin #85 on the wiring harness (which was run through the firewall) to one side of the throttle switch and connect a well-grounded wire to the other side of the switch.
   i. **OPTIONAL:** You may place a switch on the wire that runs from the throttle switch to ground to allow manual operation of the auxiliary system.
g. Connect the green wire from the FASS pump to a good engine ground.

24. Reconnect the negative battery cable to all batteries.
25. Now test the system by putting the ignition into the ON position, but do not start the vehicle. Press the throttle pedal to the floor; you should hear the pump operate. If you do not hear the pump, double-check your wiring and connections with the supplied diagram.
26. Start vehicle and check for leaks.

We strive to make our instructions as clear and complete as possible. To achieve this, our instructions are under constant construction. We encourage you to visit our Technical Support Website (http://www.atsdiesel.com/ATSWebsite/Technical.asp) to check for the most up-to-date manuals and diagrams as well as other information.

**Have Any Questions?**

Thank you for purchasing the CP3 High Pressure Fuel Injection Pump. Please check our website at http://www.atsdiesel.com for technical support and other performance products such as the TripleLok™ torque converter, ATS High Performance Valve Body and ATS High Performance Transmission along with our full line of power enhancers. Please call or e-mail our Technical Service Department, 8:00am to 6:00pm Mountain Standard Time, Monday through Friday.

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CP3 Pump Installation
Wiring Diagram

- **FASS Pump**
  - Red Wire
  - Green Wire

- **12 Volt Source (KEY-ON)**
  - 87
  - 87a
  - 86
  - 85
  - 30

- **12 Volt Source (FULL-TIME)**
  - (Recommend attaching to jump-start post)

- **Manifold Pressure Switch**
- **Wide Open Throttle Switch**
  - At throttle pedal in cab

- **OPTIONAL**
  - Switch for manual control over On/Off operation

- **GROUND**
Fuel Line Install Diagram - DODGE