

2003 - 2007 DODGE CUMMINS

Mega-Rail Installation Kit

Installation Instructions
Mega-Rail Installation Kit P/N 030767-RIK

PLEASE READ ALL INSTRUCTIONS BEFORE BEGINNING INSTALLATION

WARNING!!!

Improper installation of the Common Rail System parts can cause fuel system damage!!!

CAUTION: Cleanliness cannot be overemphasized when handling or replacing diesel fuel system components. This especially includes the fuel rail, 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.

Safety Guidelines!

WARNING! Always secure the vehicle from rolling.

WARNING! Always disconnect vehicle batteries before working on electrical components.

WARNING! Always wear safety glasses when operating power tools such as drills and

grinders or using punches and chisels.

WARNING! Always properly secure fuel lines and wiring to prevent chaffing.

WARNING! Always have a fire extinguisher available when working with fuel systems.

WORK SAFELY!

Mega-Rail Installation Kit Contents

Return System

QC Fitting



Please check your parts inventory against the above list before beginning installation.

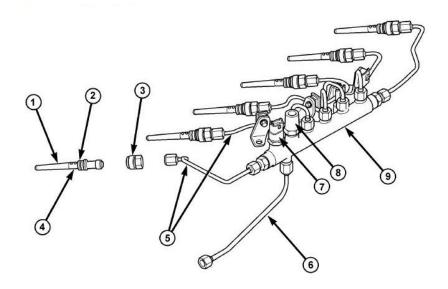
CP-3 Return Line

Dipstick Bracket

Dipstick Nut

Stock System Removal

- 1) Disconnect negative battery cables at **both** batteries. Isolate ends of both cables.
- 2) Disconnect electrical connector at rail pressure sensor and MAP sensor.



- 3) Remove the stock rail pressure sensor from the fuel rail. (Ref 7)
- 4) Disconnect necessary wiring harness retention clips from intake manifold.
- 5) Lift 2 rubber covers to gain access to positive (+), intake heater cable nuts. Remove 2 nuts and remove 2 cables from studs.
- 6) Remove the stock intake manifold and driver's side intercooler pipe.
- 7) Remove the injector line retainer bolts and the six high pressure injector lines from the fuel rail. (Ref 5)

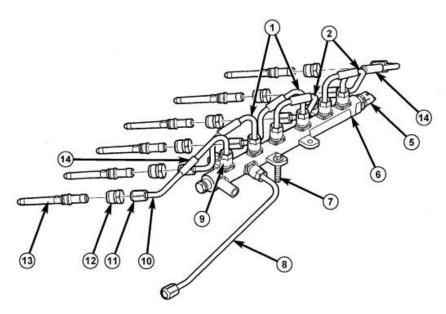
CAUTION: WHEN LOOSENING OR TIGHTENING HIGH-PRESSURE LINES AT THE HEAD, USE A BACK-UP WRENCH ON FITTING. DO NOT ALLOW FITTING TO ROTATE. FAILURE TO DO SO WILL RESULT IN DAMAGE TO BOTH THE FUEL LINE AND CONNECTOR TUBE FITTING.

- 8) Remove the banjo bolt from the top of the high pressure limiting valve. (Ref 8)
- 9) Remove the return flow banjo bolt from the injection pump.
- 10) Remove the return flow banjo bolt from the front of the fuel filter housing or filter delete block and remove the return line assembly.

- 11) Remove the fuel rail feed line from the injection pump to the fuel rail. (Ref 6)
- 12) Remove the 3 fuel rail mounting bolts and remove the fuel rail.
- 13) If you are replacing the connector tubes, remove the connector tube retaining nuts and connector tubes at this time. (Ref 1 thru 4) If not, proceed to step 13.
- 14) Remove the intake plenum mounting bolts and remove the plenum cover.
- 15) Carefully clean the intake plenum mounting surface.

Mega-Rail Installation Kit Steps

- 15) Using the new gasket install the Air-Boss 67 intake plenum.
- 16) Install the bolts that do NOT hold down the fuel rail and tighten to 18 ft-lbs.



17) If you are replacing the stock connector tubes with new 6.7L tubes install them at this time using the stock retaining nuts. Torque the connector tube retaining nuts to **37 ft-lbs**.

Note: If you have a vise you may find it easier to install the stock 5.9L rail pressure sensor in the 6.7L fuel rail before installing the rail in the following steps. (Ref 5)

- 18) Position fuel rail on top of the Air-Boss 67 using the four supplied rail spacers. Install the four mounting bolts and tighten bolts to **18 ft. lbs**.
- 19) Install the stock 5.9L rail pressure sensor in the new fuel rail (Ref 5) and torque to **52 ft-lbs**.

- 20) Beginning with injector line #6 (Item 14), install the line hand tight.
- 21) Tighten fuel line at cylinder head to 22 ft-lbs.
- 22) Tighten fuel line at fuel rail to **27 ft-lbs**.
- 23) Repeat for injector lines #5, #4, #3, #2 and #1. (Ref 1, 2, and 10)
- 24) Install the new feed line from the injection pump to fuel rail and tighten. (Ref 8)
- 25) Using the stock banjo bolt with sealing washers and the new quick connect to banjo adapter with sealing washers install the rail to fuel filter return line and tighten.
- 26) Using a stock banjo bolt and sealing washers, install the new CP-3 to fuel filter return line. Push the line onto the quick connect fitting at the front of the fuel filter until it clicks into place. See picture on the right.



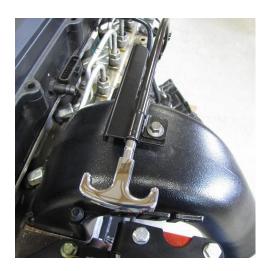
27) The stock rail pressure electrical connector must be modified as shown below to work with the supplied extension harness. If a rail pressure box is installed this modification may not be needed. Check your connector type before making this modification.

Using a sharp razor blade, remove the two lower keys from the rail pressure connector on the factory harness. If you are using a rail pressure box this modification may not be needed as some pressure boxes have a connector that will work with the new harness without modification. Check for fitment with the new extension harness before modifying the factory connector.



28) Using the supplied rail pressure extension harness, reconnect the rail pressure sensor at this time. Make sure connectors are fully inserted and engage the blue lock on the new rail pressure sensor connector.

- 29) Using the supplied boot and clamps, loosely install the new 3.50" I/C pipe in place at the intercooler.
- 30) Remove the factory MAP sensor from the stock intake plenum and install in the back of the Mega-Flo S-3. A small amount of oil on the o-ring will make installation much easier. Install using a slight rocking motion. Only one mounting screw and tab will be used. For a cleaner installation the unused tab may be removed.
- 31) Using the supplied Loctite on the threads, install the 5 each 1/8" pipe plugs in the back of the Mega-Flo S-3 intake manifold. Do not over tighten. When using Loctite 242 the plugs only need to be snug.
- 32) Install the supplied gasket to the bottom of the Mega-Flo S-3 adhesive side up. This will hold the gasket to the manifold during installation.
- 33) Install the 3 short intake manifold mounting bolts.
- 34) Install the 2 long mounting bolts with the dipstick bracket under the rear bolt as shown.





- 35) Tighten all 5 intake manifold mounting bolts evenly to **20 ft-lbs**.
- 36) Reattach the dipstick tube to the bracket using the factory bolt and supplied nut.
- 37) Attach the intercooler piping and tighten clamps at the intercooler and intake manifold.
- 38) Locate the stock grid heater wire/wires. Trace these back to the relays located on the passenger side battery tray. Disconnect only these cables at the relay. If preferred, these cables may be removed from the engine bay. The smaller trigger wires on the relays must be left connected for code free operation.

Finishing Up

- 39) Secure all wiring.
- 40) Prime the system by bumping the starter but do not allow the vehicle to start. Wait 20 seconds or until the pump shuts off. Repeat this step two to three times to purge all air from the fuel system.
- 41) Start the engine.
- 42) Check all connections for leaks and make sure all wires and hoses are clear of moving parts.
- 43) Test drive the vehicle.

Thank you for your purchase of the GDP Mega-Rail Kit. If you have any questions please do not hesitate to contact Glacier Diesel Power, Inc. at 509-993-4923.

Richard Martin Glacier Diesel Power, Inc

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