

INSTALLATION INSTRUCTIONS

SUBJECT: 6.7L CUMMINS HIGH FLOW INTAKE PLENUM

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FITMENT: 2007.5–2024 Dodge Ram Pickup and Cab and Chassis Models equipped with 6.7L Cummins

KIT P/N: FPE-CUMM-IP-0724 (Model Years 2007.5-2024)

EST INSTALL TIME: 2 hours

TOOLS REQUIRED: 8MM socket or wrench, 10MM socket or wrench, 17MM socket or wrench, 19MM line wrench, 7MM socket, clip puller, gasket scraper, 6MM Hex bit or Allen key, 5MM Hex bit or Allen key.

KIT CONTENTS:

Item	Description	Qty
1	High flow intake plate	1
2	Intake plate gasket	1
3	Intake horn gasket	1
4	Throttle valve gaskets	2
5	Intake air temp sensor extension harness	1
6	1/8 NPT plug	1
7	Map sensor plug / adapter	1
8	Temp sensor plug	1



WARNINGS:

- Use of this product may void or nullify the vehicle's factory warranty.
- User assumes sole responsibility for the safe & proper use of the vehicle at all times.
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PROCEDURE:

STEP 1: To ensure safety, park the vehicle on a flat and level surface. Disconnect the battery terminals.

STEP 2: Using an 8MM socket, remove the four 8MM bolts retaining the plastic shroud on the top of the engine (*Figure 1*).

STEP 3: Remove EGR Crossover Tube and EGR Valve Control Connector

For Pick Up Models: Using the same 8MM socket or wrench, loosen and remove the clamp holding the EGR crossover tube onto the EGR cooler, then remove the center clamp that holds the tube in place. Disconnect the EGR temp sensor by releasing the red tab, and while pressing the grey push tab down, pull the connector toward the front of the vehicle. Verify all necessary components are disconnected from the crossover tube then remove from the engine bay (*Figure 2*).

To remove the EGR valve control connector, disconnect the electronic connector by pressing down the push tab down and pulling it back towards the front of the vehicle (*Circled in Figure 2*).

For Cab and Chassis Models: Using the same 8MM socket or wrench, remove the two 8MM bolts retaining each side of the EGR crossover tube and set them to the side. Next, remove the center clamp that holds the crossover tube in place. Disconnect the EGR temperature sensor. The connector for this vehicle has been relocated underneath the oil dipstick. This variation will only appear **on Model Years 2019-2024 in both the Pick-up and Cab and Chassis models**. The connector will be removed in the same fashion as the previous models (*Circled in Figure 3*). Once the connector is released, remove the EGR crossover tube from the engine bay.

To remove the EGR Valve Connector, disconnect the red electrical connector by pulling the yellow locking tab out toward the front of the vehicle then, while pushing the red tab down, pull the connector away from the EGR valve (*Figure 3*).



Figure 1: Engine cover with four 8MM bolts.



Figure 2: Engine cover removed. EGR valve connector is circled. The EGR temp sensor is pictured off to the left of it.

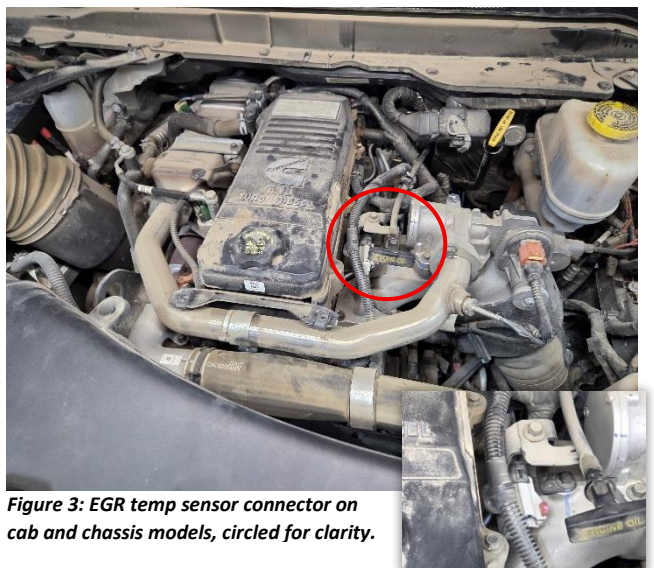


Figure 3: EGR temp sensor connector on cab and chassis models, circled for clarity.

STEP 4: Remove the bolt retaining the engine oil dipstick using an 10MM socket or wrench (*Figure 4*), then turn the dipstick tube toward the driver's side of the vehicle and allow the tube to lay out of the way.



Figure 4: 10MM bolt retaining oil dipstick tube.

STEP 5: Using an 11MM socket, loosen the hose clamp on the CAC boot, then pull the boot downward to remove from the throttle valve. Disconnect the throttle valve connector by pressing the push tab down, then pushing back toward the rear of the vehicle. Leave the throttle valve attached to the intake horn (*Figure 5*).



Figure 5: Throttle valve with CAC boot attached.

STEP 6: Using a clip puller, remove harness retainers from the stock intake horn and intake plenum (*Figure 6*). The quantity and type of retainer across model years will vary (*Figure 7A and 7B*). Verify all necessary retainers have been detached to ensure ease of intake horn removal.



Figure 6: Clip retaining harness on top of the intake plenum.



Figure 7A: One of two types of retainers used on harness attached to intake horn. This type is more commonly used in Model Years 2007.5-2012.



Figure 7B: One of two types of retainers used on harness attached to intake horn. This type is more commonly used in Model Years 2013-2024.

STEP 7: Disconnect the MAP Sensor. The location of the MAP sensor will vary depending on the model and year of the vehicle. The sensor will be located either on the back of the intake plenum/plate or on the back side of the intake horn.

If the sensor is located at the back of the intake plate, disconnect it by pressing the push tab and pushing down from the sensor toward the bottom of the vehicle (*Figure 8A*).

If the sensor is located on the intake horn, it can be disconnected in the same fashion as the sensor located on the intake plate. Press the push tab down, then pull the connector toward the bottom of the vehicle (*Figure 8B*).



Figure 8A: Map sensor Location on intake plenum.



Figure 8B: Map sensor location on intake horn.

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STEP 8: Using a 10MM socket or wrench, remove the six 10MM bolts that hold the intake elbow onto the engine block. **Verify all necessary components are disconnected** (Figure 9), then remove the EGR Valve, Intake horn, and Throttle valve from the engine bay (For ease of service, all three of these items are meant to be removed all together as one unit).

STEP 9: To prevent debris from entering engine, cover the charge air circuit boot with a shop towel.

STEP 10: Disconnect the two PCV lines from the side of the valve cover by pulling each line off the plastic ports and toward the driver's side of the vehicle. Let each PCV line lay out of the way and remove the CCV connector (circled in Figure 9).

STEP 11: Disconnect the grid heater power supply from the grid heater. **Wrap the end of the connector in electrical tape or cover it to prevent any contact or potential damage during disassembly.** Utilizing a 10MM socket, remove the 10MM nut that retains the grid heater harness located directly behind the fuel return. The factory grid heater harness will no longer be necessary after this step. **Discard the harness.** (Figure 10).

STEP 12: Disconnect both injector harness connectors from the driver's side of the valve cover by pressing the gray push tab then pulling upward and away from the engine. Disconnect the EGR temperature sensor. The location of this sensor will depend on the model and year of the vehicle. Most **Pick-Up** models will have the EGR Temp sensor on the stock intake plenum, and in most **Cab and Chassis** models the sensor will be located on the stock intake horn.

STEP 13: Remove the high-pressure fuel feed line using a 19MM socket (Circled in Figure 10).



Figure 9: EGR valve, intake horn, and throttle valve removed. PCV and CCV connections circled for clarity.

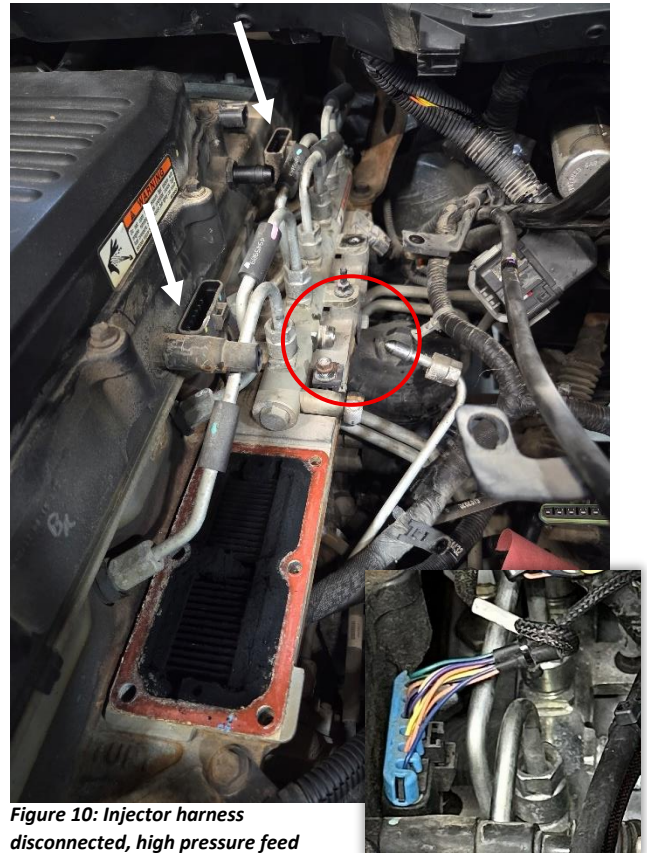


Figure 10: Injector harness disconnected, high pressure feed line circled.

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STEP 14: Remove all six injection lines starting with injection line #1 using a 19MM line wrench.

STEP 15: Using a 17MM socket or wrench, remove the 17MM banjo bolt retaining the fuel return line (*Figure 11*). For Model Years 2019 and newer, the banjo bolt will be located on the back of the fuel rail.

STEP 16: Disconnect the rail pressure sensor connector that is located on the back of the fuel rail near the firewall.

STEP 17: Remove the four 10MM bolts from the fuel rail with a 10MM socket or wrench, then remove the rail itself. There will be four remaining 10MM bolts that hold the intake plenum in place (*Figure 12*).

STEP 18: Remove the four remaining 10MM bolts on the stock intake plenum. Lift the stock intake plenum up and off the vehicle, then **discard** the OE Gasket. This step will require the removal of all gasket material and thorough cleaning of both mating surfaces for proper function. Remove the OE intake air temperature sensor from the plate and set aside.

STEP 19: Using brake clean, clean the mating surface between the cylinder head and the new intake plenum, then install the new intake plenum gasket.



Figure 11: Injection lines removed, fuel return line circled.

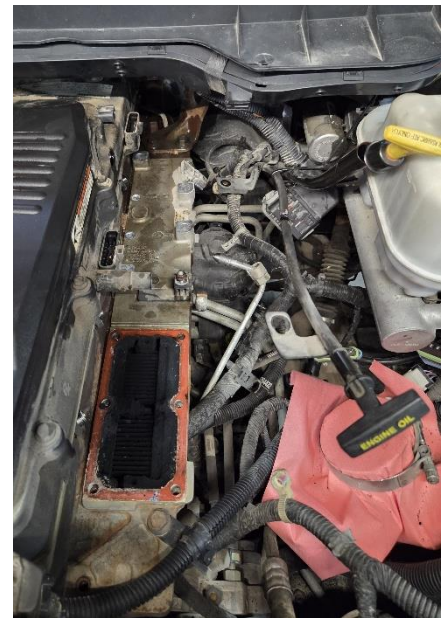


Figure 12: Fuel rail fully removed.

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STEP 20: Install the new intake plenum plate (*Figure 13*). Thread in the four 10MM retaining screws until finger tight. Torque the bolts to 18 FTLBS with a 10MM socket.

STEP 21: Reinstall the OE intake air temperature sensor into the appropriate port on the intake plenum (*Circled in Figure 13*). **For Cab and Chassis models**, this port will be plugged off with the provided 6MM Hex plug. Install the plug with a 6MM Hex bit or Allen key, and torque to 12 FTLBS.

STEP 22: For Pick Up models, install the Map sensor into the port on the back of the intake plenum. Secure the sensor by threading the included 7MM screw into place, then tighten with a 7MM socket (*Circled in Figure 13*). Reconnect the sensor at this time. **For Cab and Chassis models**, this port will be plugged off since the Map sensor is located on the intake horn. Install the Map sensor adapter into the port and secure by threading the included 7MM screw into place, then tighten with a 7MM socket. Next, thread the included 1/8 NPT plug into the Map sensor adapter, then with a 5MM Hex bit or Allen key, torque the plug to 80 INLBS.

STEP 23: Prior to Installation, clean out the Fuel Rail, Fuel Feed line, and all six Injection Lines with brake clean.

STEP 24: After the fuel rail is clean and free of debris, re-install it and the four 10MM mounting bolts. Using a 10MM socket, torque the mounting bolts to 18 FTLBS.

STEP 25: After the fuel feed line has been cleaned with brake clean and it has been verified **that the mating end is clean and free of contaminants**, install the fuel feed line then tighten with a 19MM or wrench.

STEP 26: Once all six injection lines are clean, install each injection line starting with #6, then tighten each with a 19MM wrench.

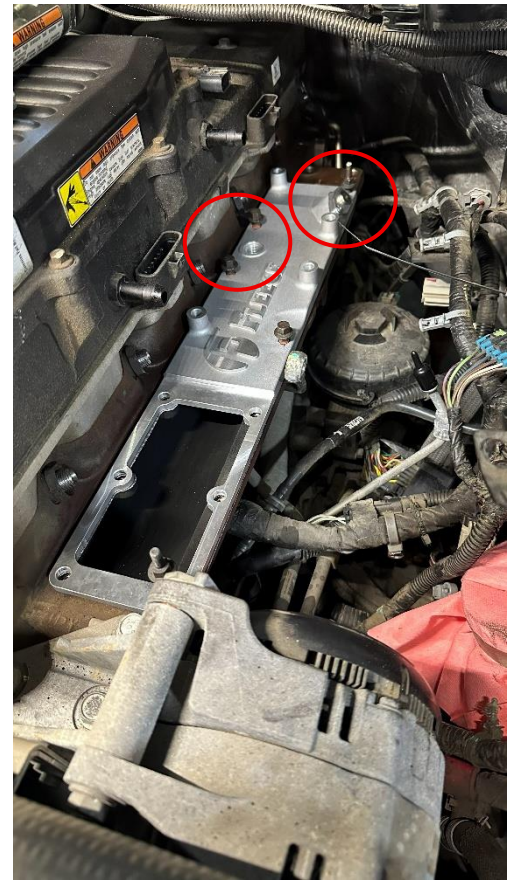


Figure 13: New intake plenum installed.

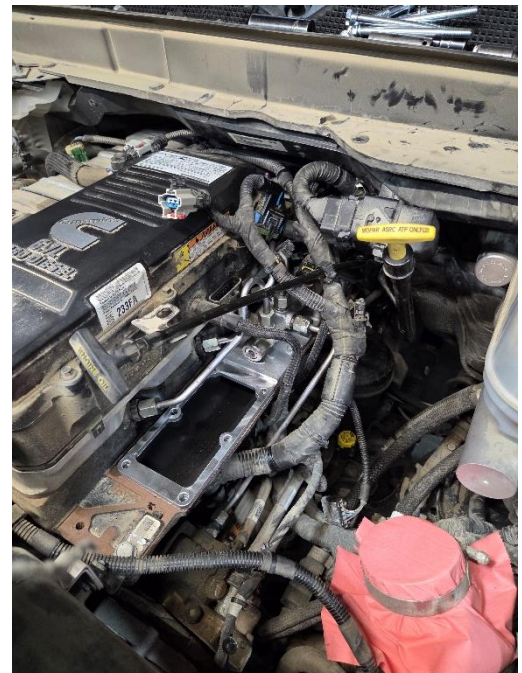


Figure 14: New intake plenum with fuel rail fully assembled.

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STEP 27: Connect the factory fuel return line by threading the banjo fitting into place on driver side of the fuel rail, then tighten with a 17mm wrench.

STEP 28: Reconnect the rail pressure sensor on the back of the rail.

STEP 29: Reconnect the air intake temperature sensor. **For Model Years 2013 to 2024**, install the included harness extension at this time.

STEP 30: Plug in the fuel injector harness, then reconnect the PCV lines as well as the CCV connector on the valve cover (*Figure 15*).

STEP 31: Using brake clean, clean the mating surface between the new intake plenum and the factory intake horn. Install the new intake horn gasket and reinstall the OE intake horn with the throttle valve and EGR valve still attached. The throttle valve gasket can be replaced prior to this step if desired. Thread each of the six 10 MM bolts into place, then torque each bolt to 18 FTLBS with a 10MM socket.

STEP 32: Reinstall all necessary wiring retainers and verify all harnesses are routed in original factory position.

STEP 33: Reconnect CAC boot to the throttle valve, tighten the clamp with an 11MM socket, then plug in the throttle valve electrical connector.

STEP 34: Reinstall the EGR crossover tube. This process will be the inverse of what is outlined in **STEP 3**. Verify that all **mating surfaces are clean**, and that the EGR valve connector and the EGR crossover tube temp sensor connector are both plugged back in.

STEP 35: Properly reseal the engine oil dipstick tube, then with an 10MM socket or wrench, reinstall the 10mm bolt that retains the tube.

STEP 36: Reconnect the MAP sensor, depending on the model and year of the vehicle this may be located on the back of the intake or back of the intake horn.

STEP 37: Bring truck up to operating temperature and with proper tools, check for leaks.

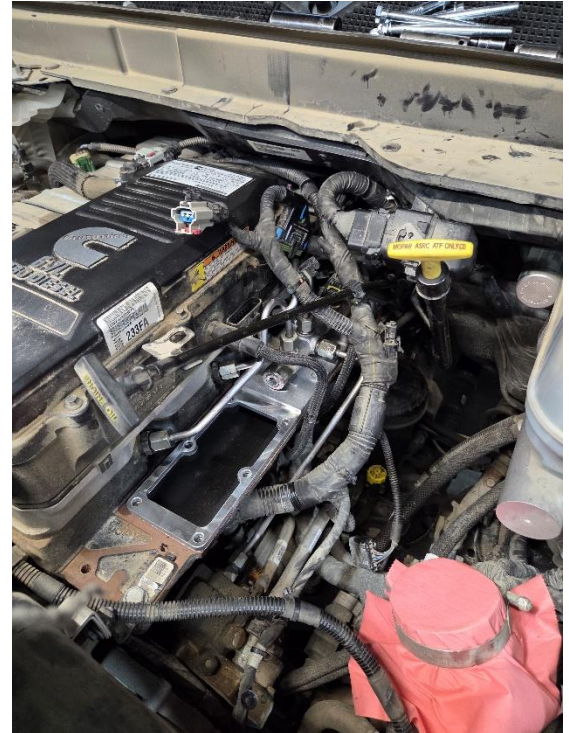


Figure 15: New intake plenum with fuel rail fully installed. Injector harness, CCV, and PCV lines reconnected.



Figure 16: New intake plenum and all necessary components reinstalled.