

# **SINISTER** **DIESEL**



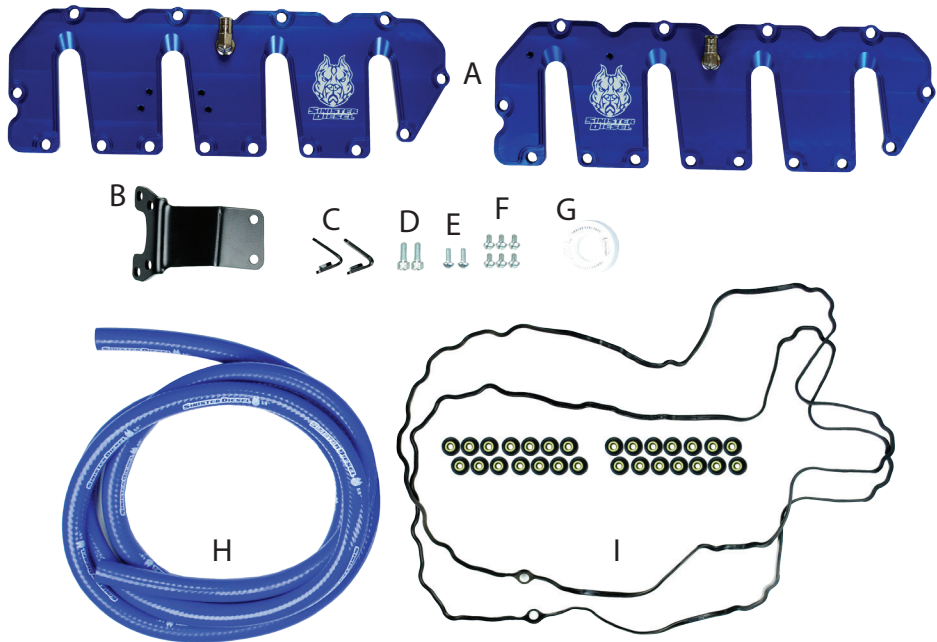
**2004.5-2010**  
**GM LLY LBZ LMM DURAMAX**  
**VALVE COVERS**



## DISCLAIMER

- 1) By installing this product onto your vehicle, you assume all risk and liability associated with its use.
- 2) It is your responsibility to make sure your vehicle complies with all federal, state, and local emissions laws. Federal and many state and local laws prohibit the removal, modification or rendering inoperative of any part of the design affecting emissions or safety on motor vehicles used on a public street or highway. Violation may result in a fine of up to \$32,500 per vehicle (or possibly higher depending on changes in the law). All civil penalties and fines for removing your vehicle's emissions equipment are the sole responsibility of the end user.
- 3) Due to its high performance nature, this product may void vehicle manufacturer's warranty.
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# 2004.5-2010 Duramax Valve Covers



## **PACKING LIST:**

| <b><u>Part#</u></b> | <b><u>QTY.</u></b> | <b><u>Description</u></b> |
|---------------------|--------------------|---------------------------|
| A                   | 2                  | Valve Covers              |
| B                   | 1                  | Fuel Filter Bracket       |
| C                   | 2                  | Coolant Tube Mounts       |
| D                   | 2                  | Allen Bolts               |
| E                   | 2                  | Allen Bolts               |
| F                   | 6                  | Allen Bolts               |
| G                   | 1                  | Thread Seal Tape          |
| H                   | 1                  | Silicone Hose             |
| I                   | 1                  | Valve Cover Seal Kit      |

## **Items Needed**

- Replacement Injector Seals
- Top Hard Coolant Line O-ring
- Masking Tape

## **Recommended Tools**

- Sockets: 7, 8, 10, 11, 12, 13mm
- Combination Wrenches: 10, 12, 13
- Crow's Foot Socket: 17mm and 19mm
- Allen: 5mm
- Torx: T-30
- Adjustable Pliers and Needle Nose Pliers
- Quick Connect Fuel Line Tools
- Small Flat Head Screw Driver
- Metal pick
- Scouring Pad or Fine Steel Wool

***Read all instructions prior to install.***

***Note:*** Prior to installation, please compare the parts that you have received with the bill of materials provided on this page to assure that you have all the parts necessary for the installation.



**CAUTION!!!** Never work on a hot vehicle. Serious injury in the form of burns can result if the vehicle has been in use. Allow vehicle to cool prior to installation. Always wear eye protection when working on or under any vehicle.

**Note:** Installation of the Sinister Diesel Valve Covers requires disassembly of fuel and coolant lines, be sure to properly contain any spilt fluids. This product is for custom applications and does not include any provisions for mounting of the factory wiring. We recommend using a thread locking solution on all appropriate fasteners.

**Step 1:** Using 10 mm socket, disconnect both batteries.

**Step 2:** Using 7, 10mm and universal adapter, remove both fender liners from front wheel wells.

**Step 3:** Open the radiator cap.

**Step 4:** Using small flat head screw driver or pick, release the metal retainer wire from the bottom passenger's side of the radiator connection. Pull the hose back to drain coolant. (Image 1)

**Step 5:** Disconnect MAF sensor. Then using 10mm and flat head screw driver, remove intake filter box and plumbing. Image shows part removed from vehicle. (Image 2)

**Step 6:** Using T-30 torx bit and flat head screw driver, remove the intake resonator box. (Image 3)



Image 1



Image 2



Image 3



**Step 7:** Using adjustable pliers, disconnect the upper radiator hose. (Image 4)

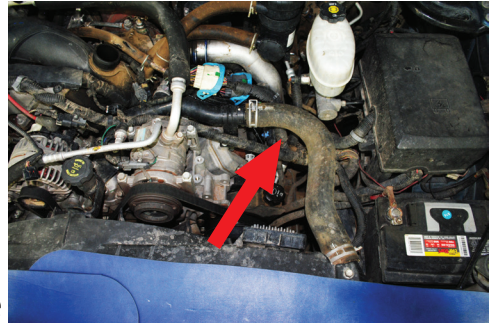


Image 4

**Step 8:** Disconnect the two large wiring harness connectors and move the loose ends aside. (Image 5)

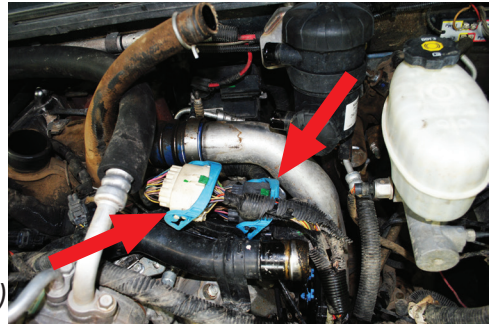


Image 5

**Step 9:** Using 11mm deep socket, remove the charge pipe on the driver's side. (Images 6 & 7)

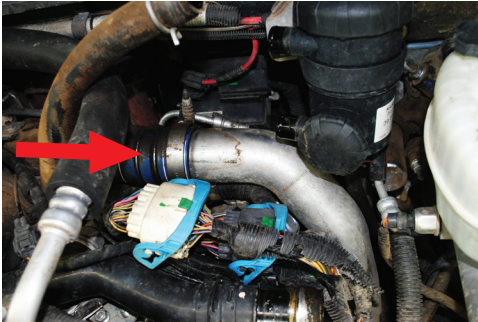


Image 6

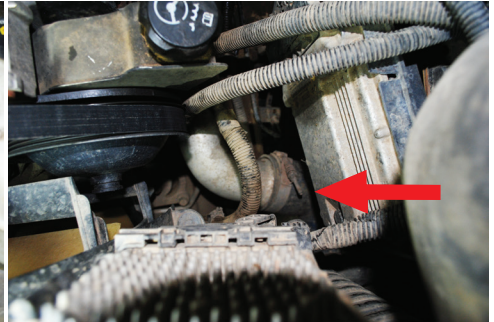


Image 7

**Step 10:** Using 10mm socket and flat head screw driver, remove PCV plumbing from motor. (Image 8)



Image 8

**Step 11:** Using quick connect removal tools, disconnect both supply and return fuel lines up near the fire wall on the driver's side. (Image 9)

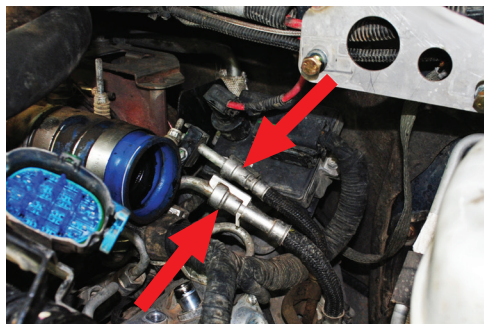


Image 9

**Step 12:** Using 12 and 13mm sockets, remove the fuel line support bracket on the driver's side of the motor. (Image 10)

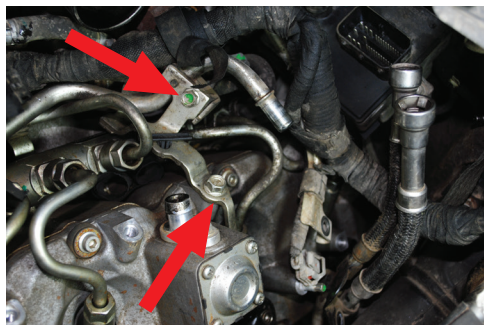


Image 10

**Step 13:** Using adjustable pliers, 12 and 13mm combination wrenches, disconnect the fuel lines and wires on the passenger side and remove filter assembly from vehicle. Be sure to properly contain spilt fuel. (Image 11 & 12)

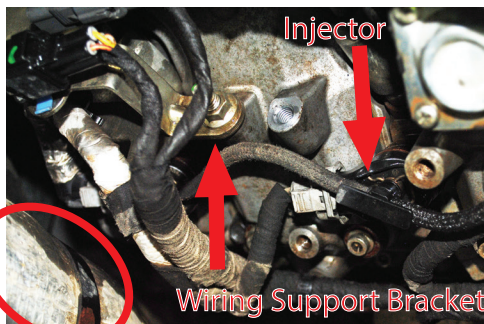


Image 11



Image 12

**Step 14:** Disconnect electrical connectors to the injectors and disassemble any wiring harness mounting points around both of the valve covers. Image is of the passenger side cover. (Image 13)



A/C Drier Cannister

Image 13



**Step 15:** Disconnect the lower heater hose on the front passenger's side of the motor.  
(Image 14)

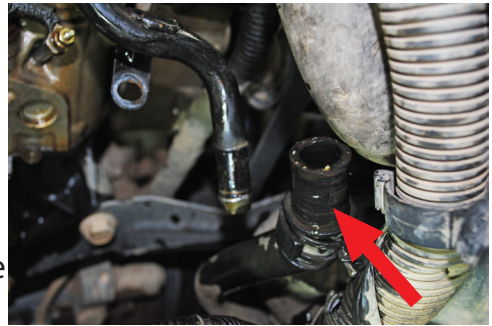


Image 14

**Step 16:** Using a small flat head or metal pick, disengage the wire retainer securing the passenger side charge pipe to the throttle body valve. Disconnect the charge pipe by pulling down on it. (Image 15)



Image 15

**Step 17:** Using 10 and 12 mm combination wrenches, remove the throttle body valve. There are 7 bolts securing it in place.  
(Image 15)

**Step 18:** Using adjustable pliers, move the hose clamp back on the small coolant hose. Disconnect it from the upper coolant tube. Remove the three bolts securing the hard coolant tube and remove it from the vehicle. (Image 16)

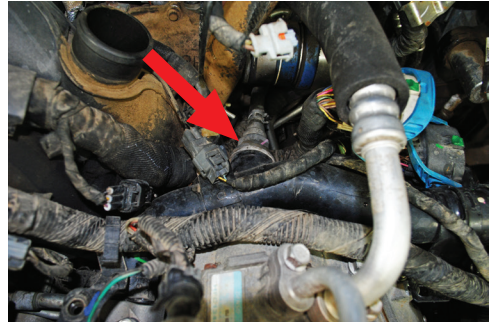


Image 16

**Step 19:** Using 10 and 12mm sockets, disconnect and remove glow plug module and support bracket. Squeeze the tabs to remove the plug with the single wire. The wiring harness connection has a clip that pulls out toward the driver side to unlock it. (image 17)



Image 17

**Step 20:** Using needle nose pliers remove the retaining clips from the injector return lines. Disconnect the fuel return line from the injectors. Be sure to properly contain any spilt fuel. (Image 18)

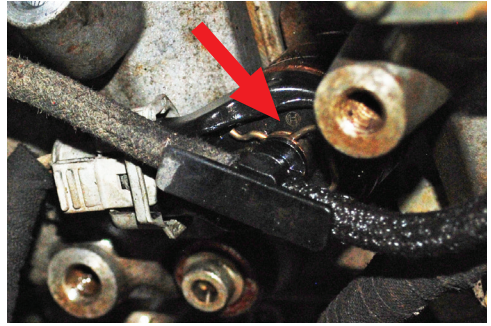


Image 18

**Note:** If not already done, use 10mm socket remove injector wiring harness from the valve covers.

**Step 21:** Using 8mm socket disconnect the wires from the glow plugs. These are located right above the exhaust manifolds. (Image 19)

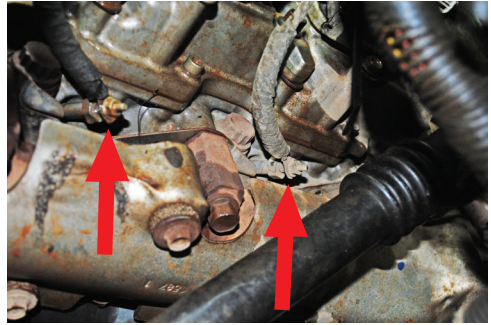


Image 19

**Step 22:** Using 17 and 19mm crow's foot wrench, remove the hard fuel lines connecting the fuel rail to the injectors. Be sure to keep track of where each line goes as they are all different. Numbering them with a marker may be helpful. (Image 20)

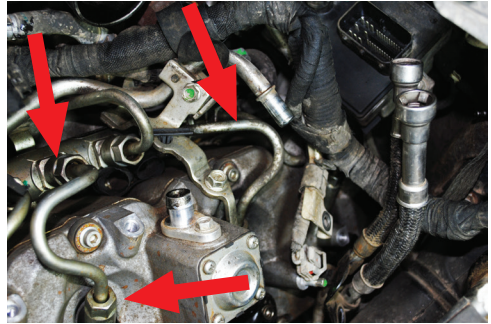


Image 20

**Step 23:** Using 12mm socket, remove the two injectors toward the front on the passenger's side. Be sure to keep track of where each one was for reinstallation. (Image 21)

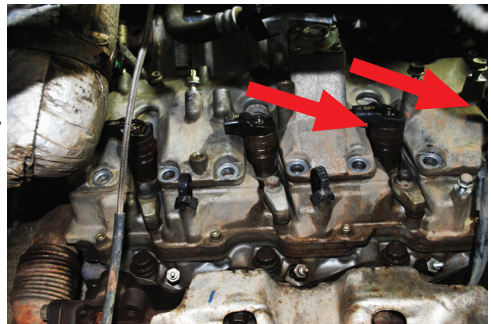


Image 21



**Step 24:** Using a 12mm socket, remove one injector toward the rear on the driver's side. Be sure to keep track of where each one was for reinstallation.

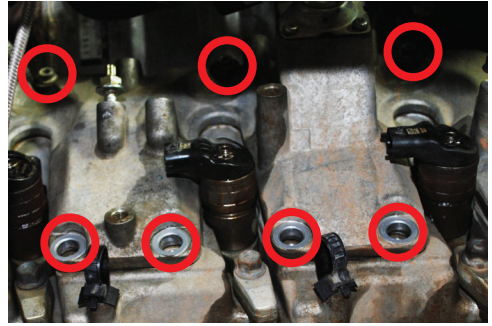


Image 22

**Step 25:** Using 5mm Allen, remove twenty eight bolts securing the valve cover in place. Also remove the valve cover. You may need to carefully loosen it with a small pry bar. (Image 22)

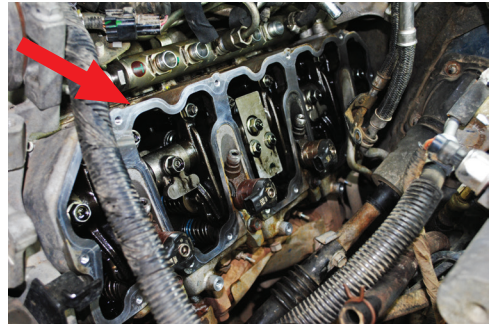


Image 23

**Step 26:** Install the supplied gaskets and grommets onto the new valve cover.

**Step 27:** Make sure the sealing surface on the motor is very clean. (Image 23)

**Note:** Use masking tape on the new valve cover to prevent scratches or damage.

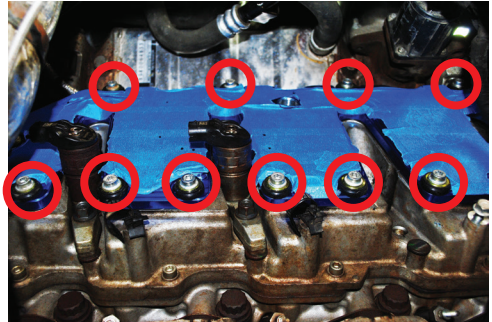


Image 24

**Step 28:** Set the new valve cover in place. Using a 5mm allen, evenly tighten the hardware with new seals to factory torque specs starting from the center working outwards. (Image 24)

**Step 29:** Clean the injectors and install new crush washers and o-rings. (Image 25)



Image 25



**Step 30:** Using the 12mm socket, reinstall the fuel injectors. Torque them to factory specifications.  
(Image 26)

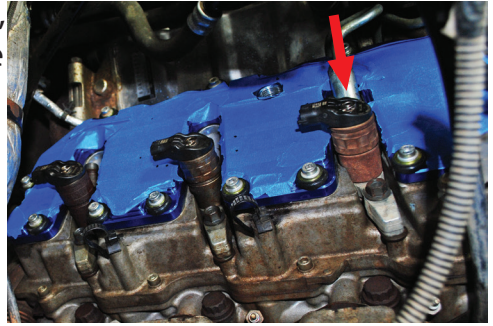


Image 26

**Step 31:** Using 17 and 19mm crow's foot wrench, reinstall the hard lines to the injectors and fuel rails. (Image 27)

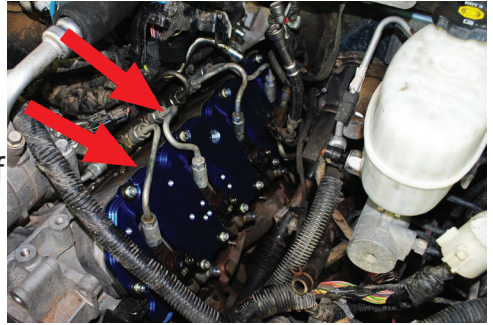


Image 27

**Step 32:** Apply the supplied thread seal tape to the threads of the 90° barbed fitting.

**Step 33:** Using 15mm wrench, install the barbed fittings on to each of the valve covers.  
(Image 28)

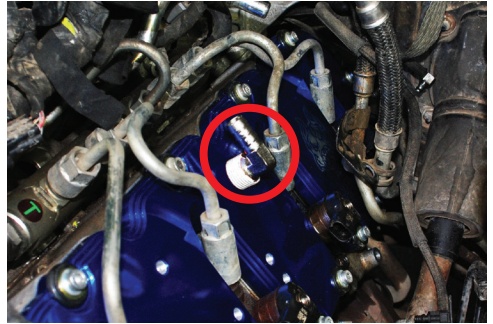


Image 28

**Step 34:** Using 10mm socket reinstall the bolts to secure the wiring harness under the valve cover for the fuel injectors.  
(Image 29)

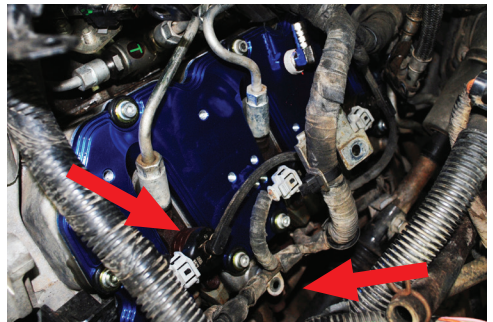
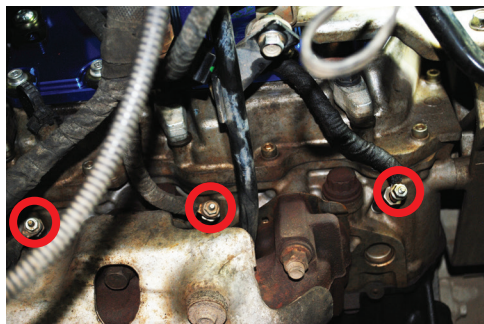


Image 29

**Step 35:** Reconnect the fuel injector wires and Reinstall the return lines and secure them with the retaining clips.  
(Image 29)

**Step 36:** Reconnect the glow plug wires to the glow plugs. *(Image 30)*



*Image 30*

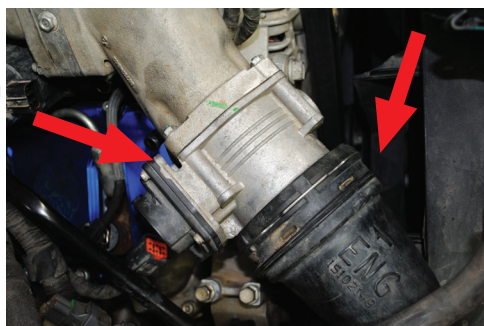
**Step 37:** On driver's side by the firewall, reinstall the glow plug module bracket and glow plug module. *(Image 31)*



*Image 31*

**Step 38:** On the passenger's side reinstall the throttle valve and reconnect the wires and charge pipe connection. *(Image 32)*

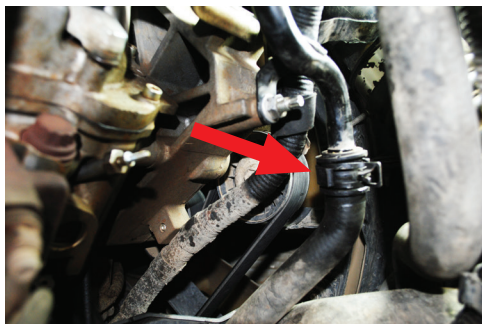
**Step 39:** Using a 12mm socket, reinstall the bracket for the wiring harness and the dipstick. *(Image 33)*



*Image 32*

**Step 40:** Using a 13mm socket, reconnect the lower coolant hose and secure the bracket with the nut. *(Image 33)*

**Step 41:** Using a 5mm allen, install the supplied fuel filter bracket with 4 allen bolts. *(Image 34)*



*Image 33*



*Image 34*



**Step 42:** Reinstall the fuel filter and reconnect the fuel lines and sensors. The other ends of the fuel lines connect to the hard lines located right under the intake heater. (Image 35 & 36)

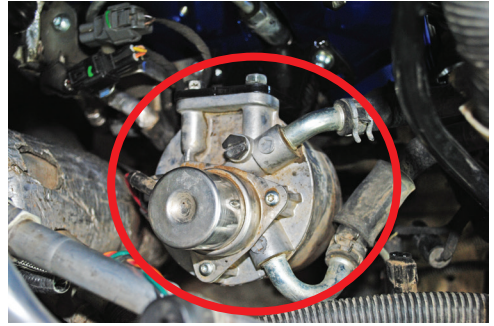


Image 35

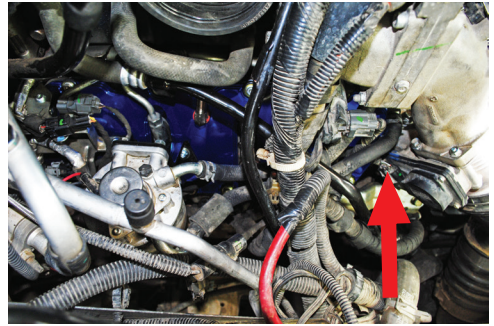


Image 36

**Step 43:** Using a 5mm allen and 12mm wrench, install the coolant mount brackets on the driver side valve cover. (Image 37)

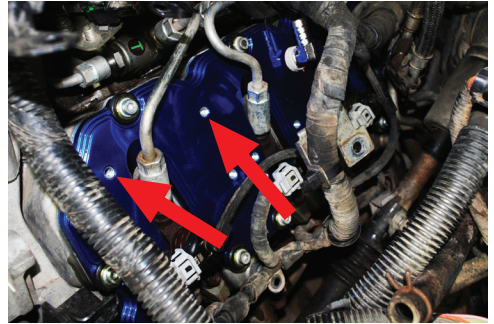


Image 37

**Step 44:** Reinstall the hard coolant line to the top of the motor. We recommend replacing the O-ring seal to prevent leaks. Also reconnect the small coolant line and secure the clamp at this time. (Image 38)

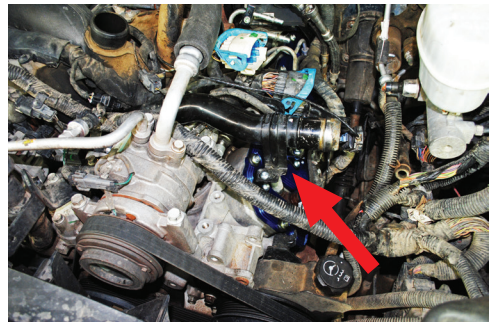


Image 38

**Step 45:** Reconnect the driver side wiring harness and secure them out of the way. It will be to your preference where the wiring gets secured. Make sure that the harness doesn't come into contact with any hot or moving parts. (Image 39)

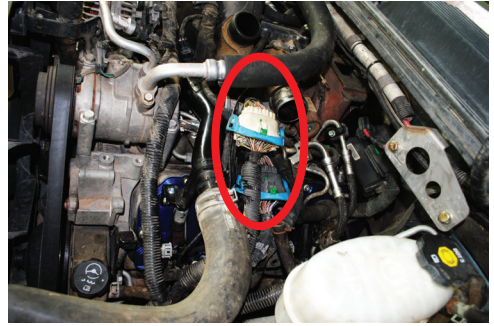


Image 39

**Step 46:** Reconnect the upper radiator hose to the hard line. (Image 40)



Image 40

**Step 47:** Reconnect the quick connect supply and return fuel lines located in front of the glow plug module. Secure them with the retainer clips. (Image 41)

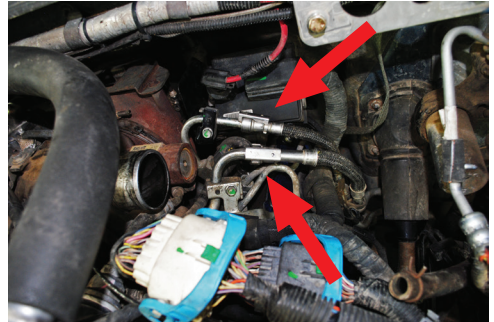


Image 41

**Step 48:** Using the supplied silicone hose plum the crankcase vent to your preference. Connect the hose to the barbed fittings on each valve cover and secure them with the supplied hose clamps. (Image 42)

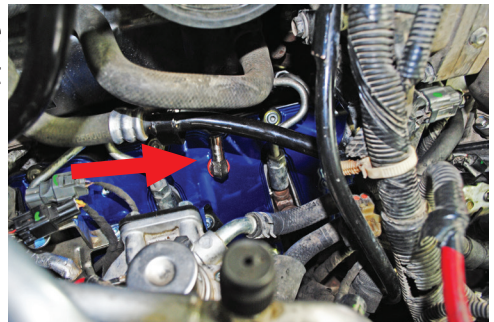


Image 42



**Step 49:** Using 11mm deep socket, reinstall the driver side or hot side intercooler pipe. (Image 43)



Image 43

**Step 50:** Using T-30 torx bit, reinstall the intake resonator box on top of the intake plumbing. (Image 44)



Image 44

**Step 51:** Reinstall the air intake box and plumbing. Also reconnect the MAF sensor plug. (Image 45)

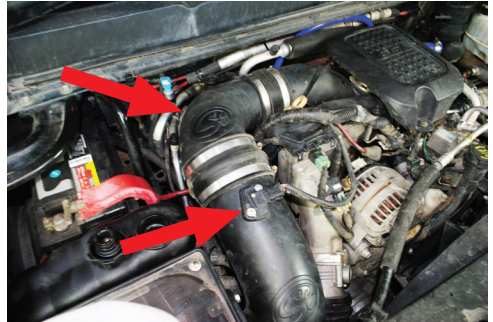


Image 45

**Step 52:** Reconnect the lower radiator hose and secure it with the retainer wire. (Image 46)



Image 46

**Step 53:** Refill the coolant to factory specifications. Run the engine and check for any leaks.

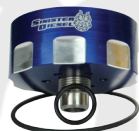
**Step 54:** Reinstall your fender liners. Installation is now complete.



# SINISTER DIESEL



Fuel Rail Race Valve



Cat Fuel Filter Adapter



Sinister EGR Cooler



Head Gaskets



**SINISTER PRODUCTS  
AND APPAREL**



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