



XS Intake Manifold Instructions

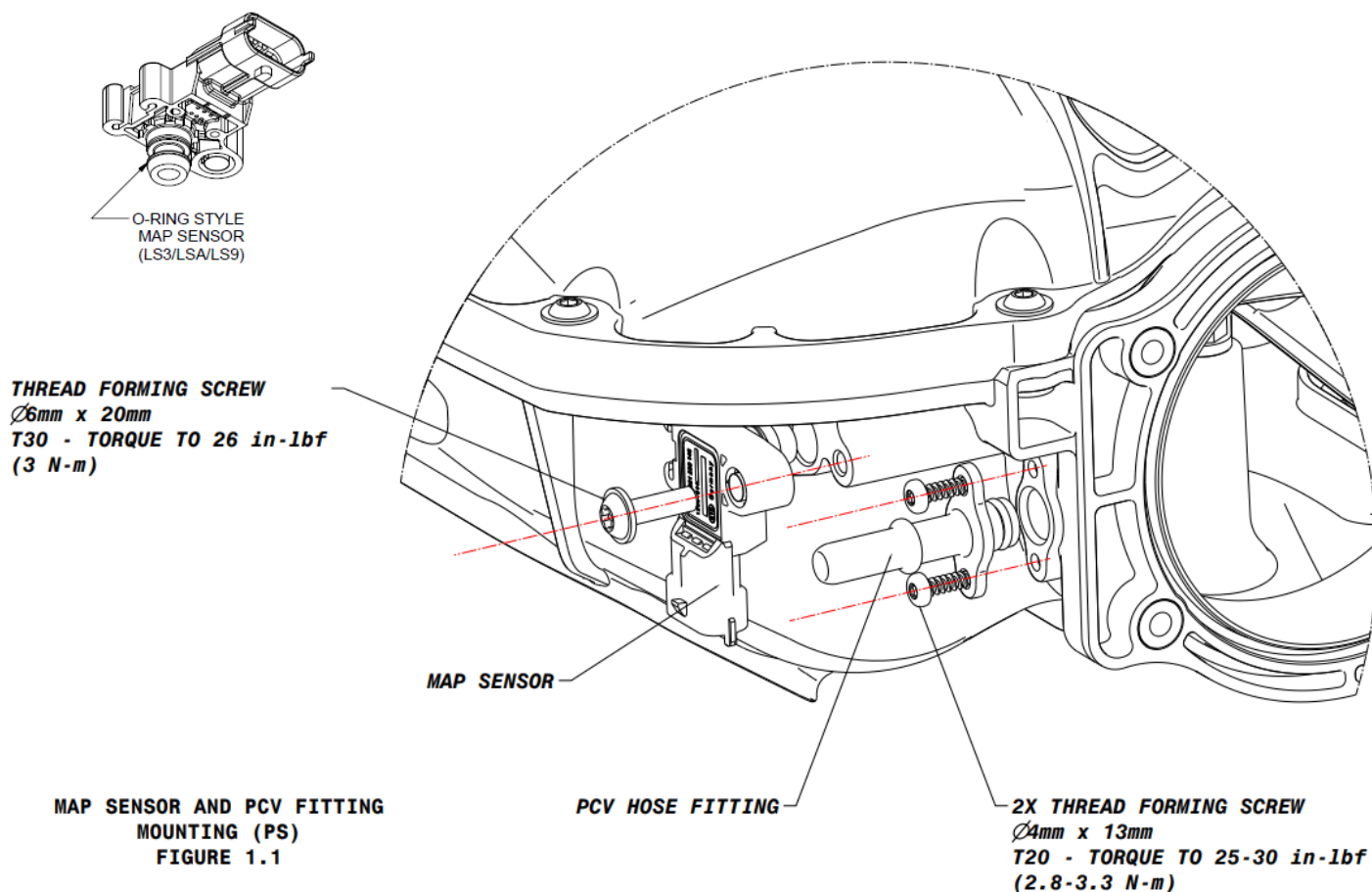
XS Intake Manifold Assembly with Carbon Trim, LS3, for 90-101mm TB	70655.01
XS Intake Manifold Assembly with Carbon Trim, LS3, for 103mm TB	70715.01
XS Intake Manifold Assembly with Carbon Trim, LS3, for 112mm TB	70660.01

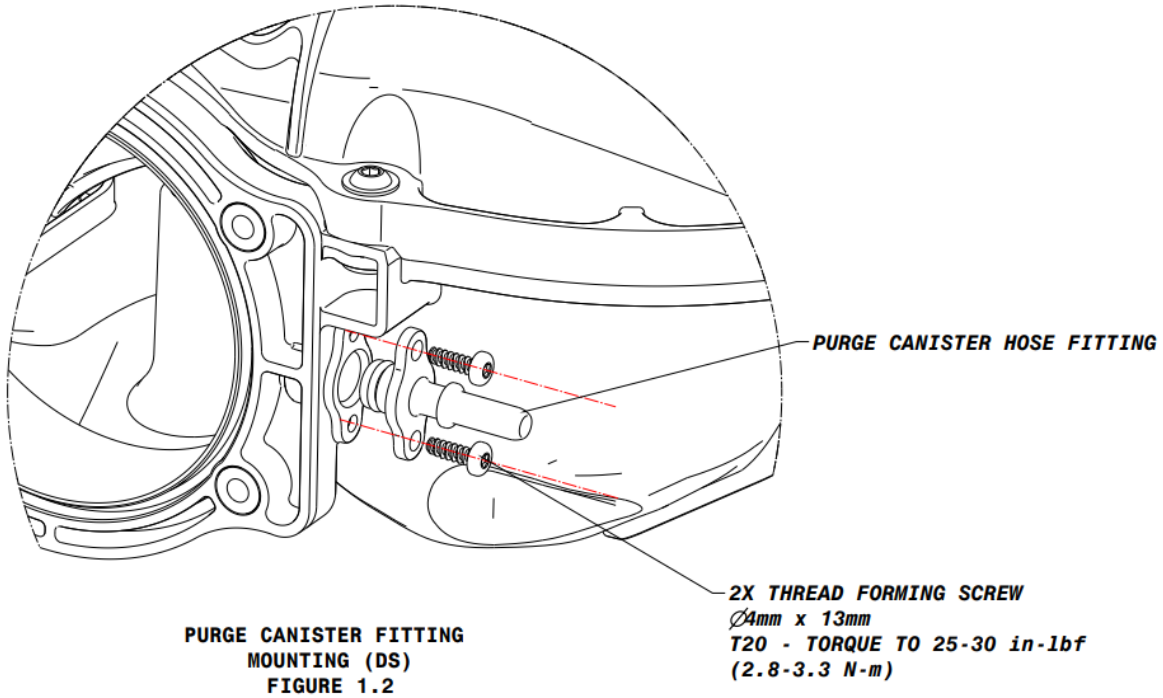


Manifold Preparations:

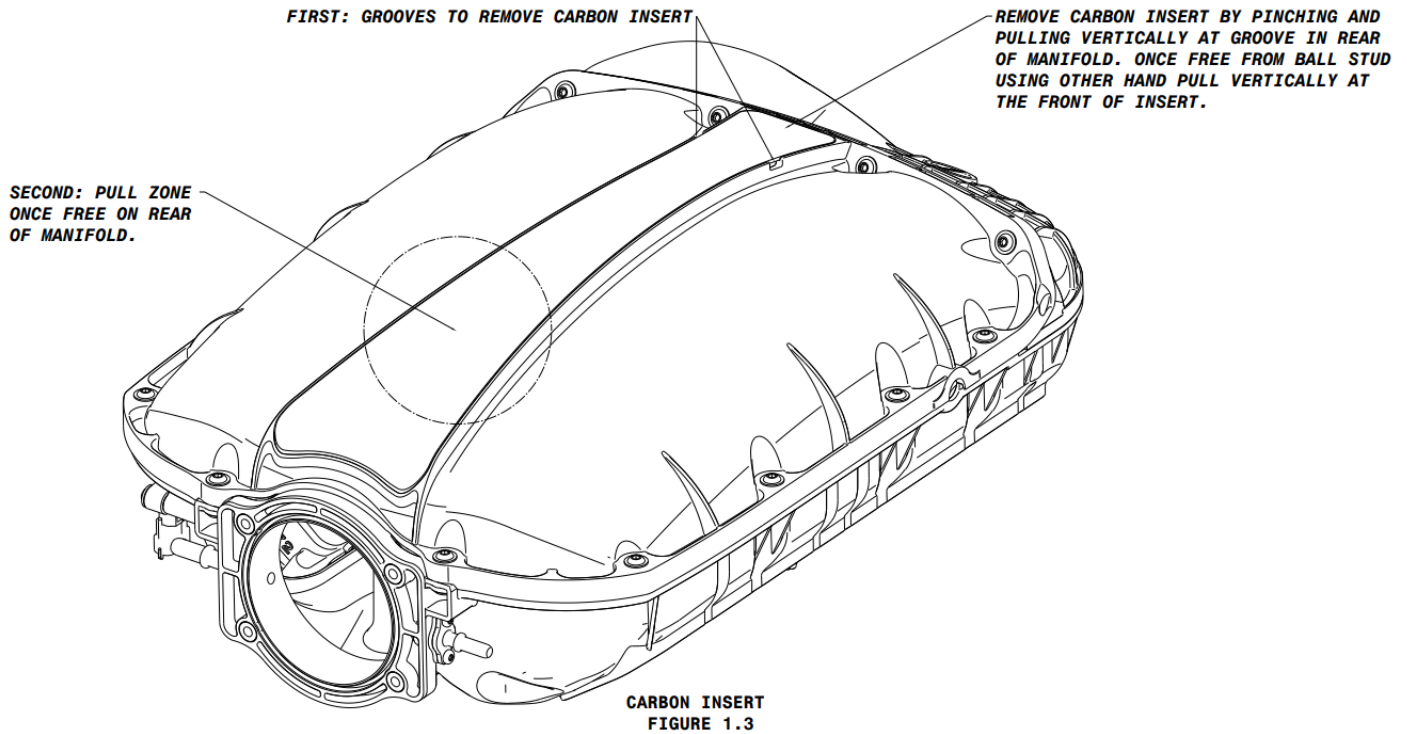
Disconnect power from the battery before installation.

1. Remove XS intake manifold, hardware kit, and fuel hose from the packaging.
2. In the hardware kit the PCV fitting (larger diameter barb), and purge fitting (smaller diameter barb) can be found with the mounting fasteners. See Figure 1.1, and 1.2 for location and install instructions.
3. Lubricate fitting O-Rings before installation.
4. In the hardware kit can be found the self-tap screw for the map. Please see figure 1.1 for installation instructions for map sensor.

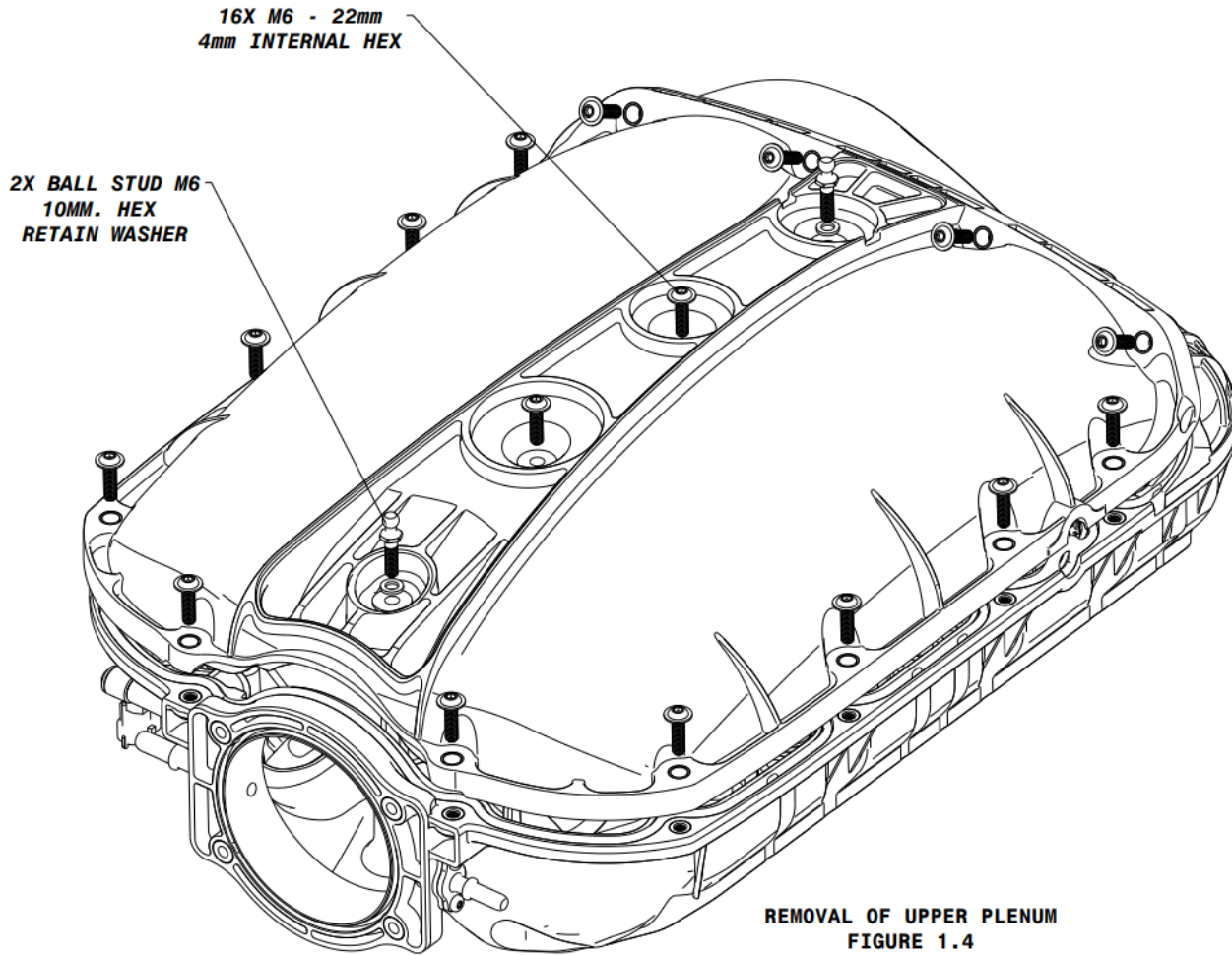




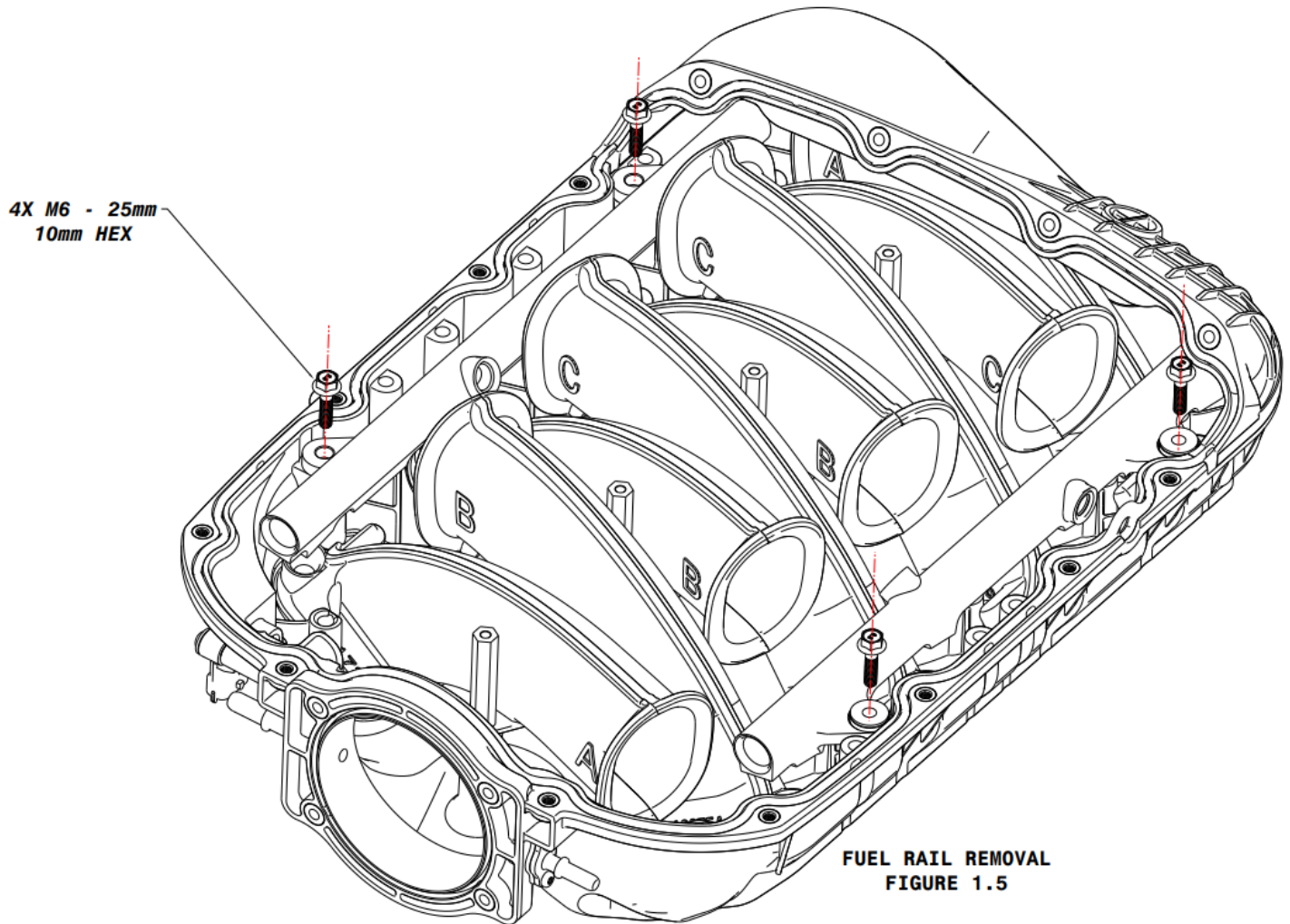
5. Remove the carbon insert. See figure 1.3



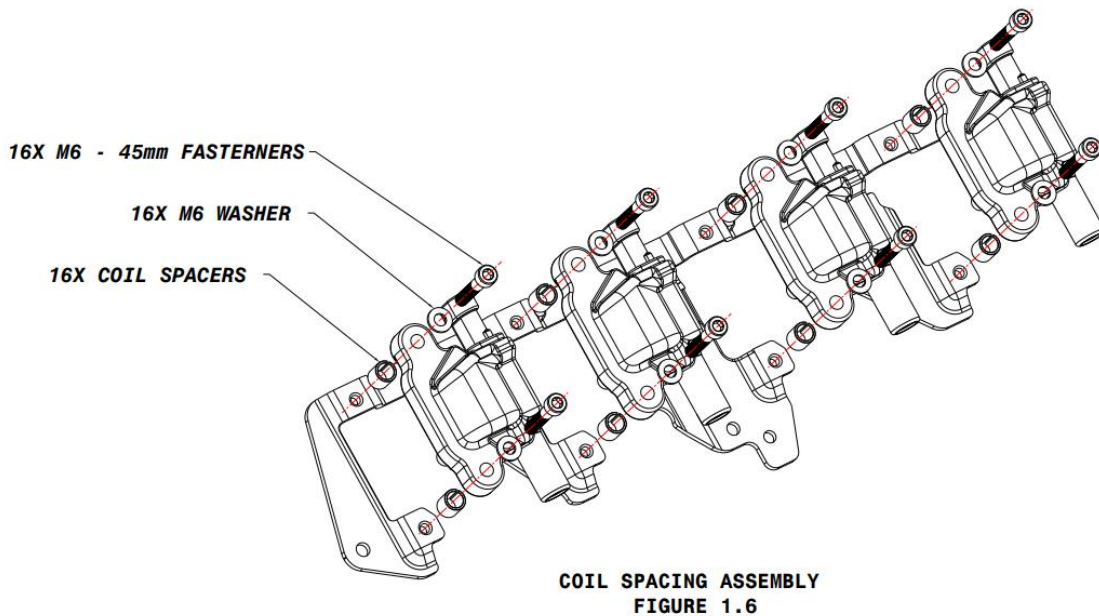
6. Disassemble the upper plenum.



7. Remove the fuel rails and 4 fasteners from the intake manifold.



- 8. Remove coil brackets from engine and apply spacers to space up the coils. Spacers, washers, and fasteners can be found in the hardware kit.
- 9. Plastic housings for coil wiring must be removed on both sides for manifold to mount to heads (see images below for reference).



Manifold Installation:

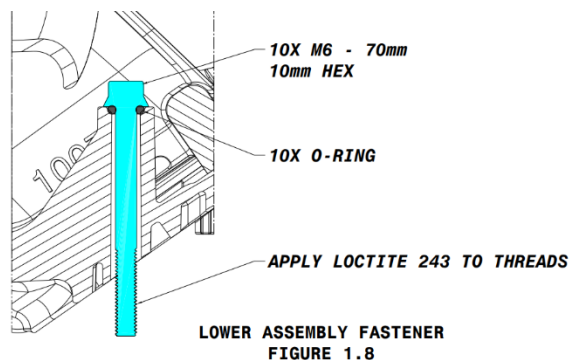
10. With coil bracket assemblies removed from the heads, place the XS intake manifold lower assembly on to the engine.
11. Install the brake boost line vacuum source hose to the rear port (13.5mm diameter) on the manifold. This is easiest if done before mounting to the cylinder heads. Also, a small vacuum port (6.8mm diameter) for the other accessories is in the back. If not used, cap.
12. Locate cylinder head fasteners and thread locker in the hardware kit. See Figure 1.7 and 1.8 for installation instructions.

Required tools to fasten lower assembly to heads:

- 1/4" Torque Wrench Driver
- 6", 1/4" Drive Extension
- 1/4" Universal Joint Adapter
- 10 mm Socket



Each cylinder head fastener includes an O-Ring to seal under the bolt head



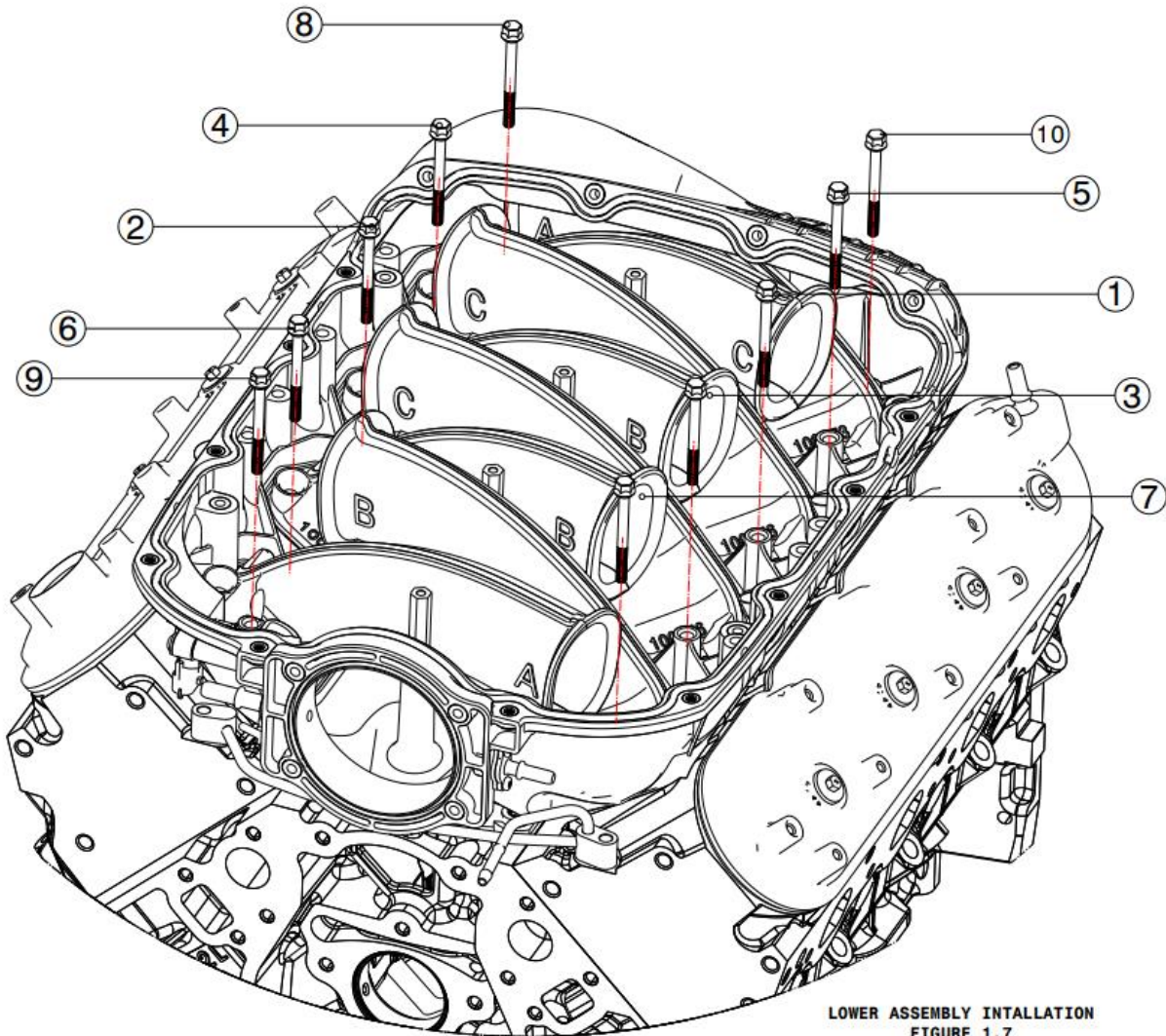
Locate the thread locker supplied in the hardware kit. Apply the thread locker to each of the 10 cylinder head fasteners.



STEP 1: WITH THE MANIFOLD CORRECTLY CENTERED ON THE ENGINE, HAND TIGHTEN UNTIL BOLTS ARE SEATED (START WITH THE BACK TWO FASTENERS)

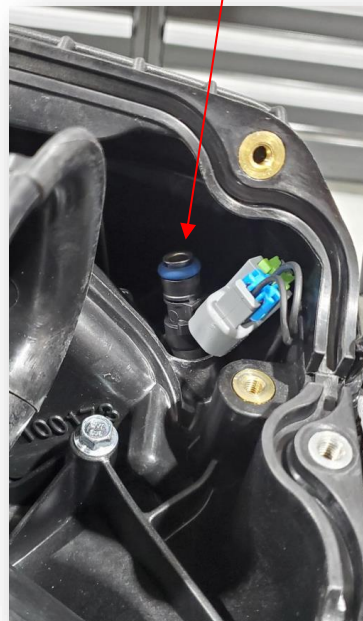
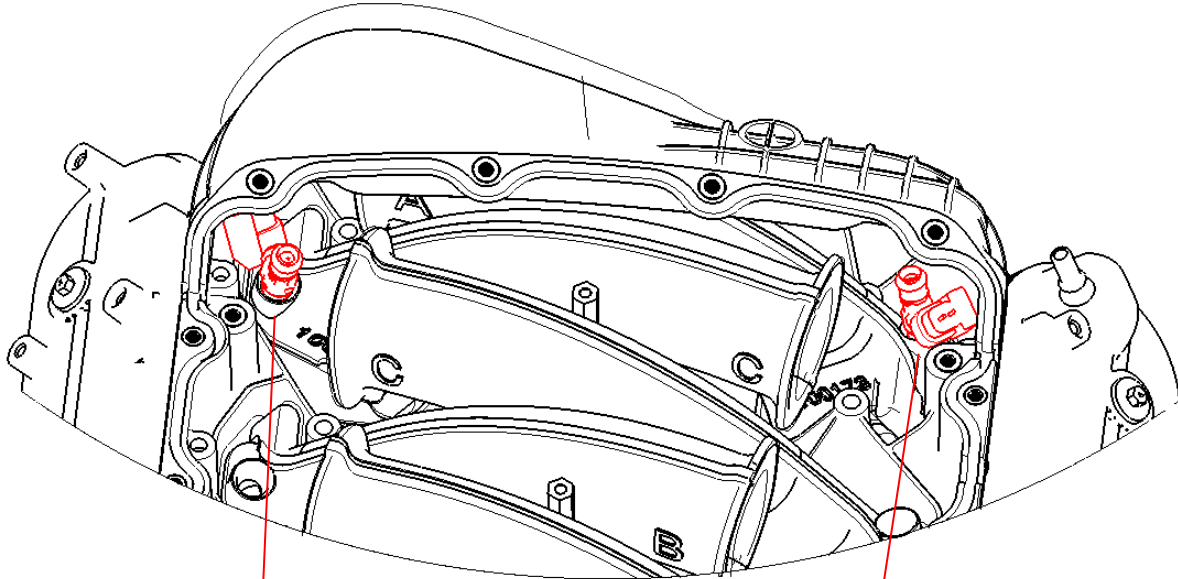
STEP 2: TORQUE TO 48 in-lbf (5.5 N-m) #1 TO #10 IN THE NUMERICAL ORDER

STEP 3: REPEAT - TORQUE TO 48 in-lbf (5.5 N-m) #1 TO #10 IN THE NUMERICAL ORDER



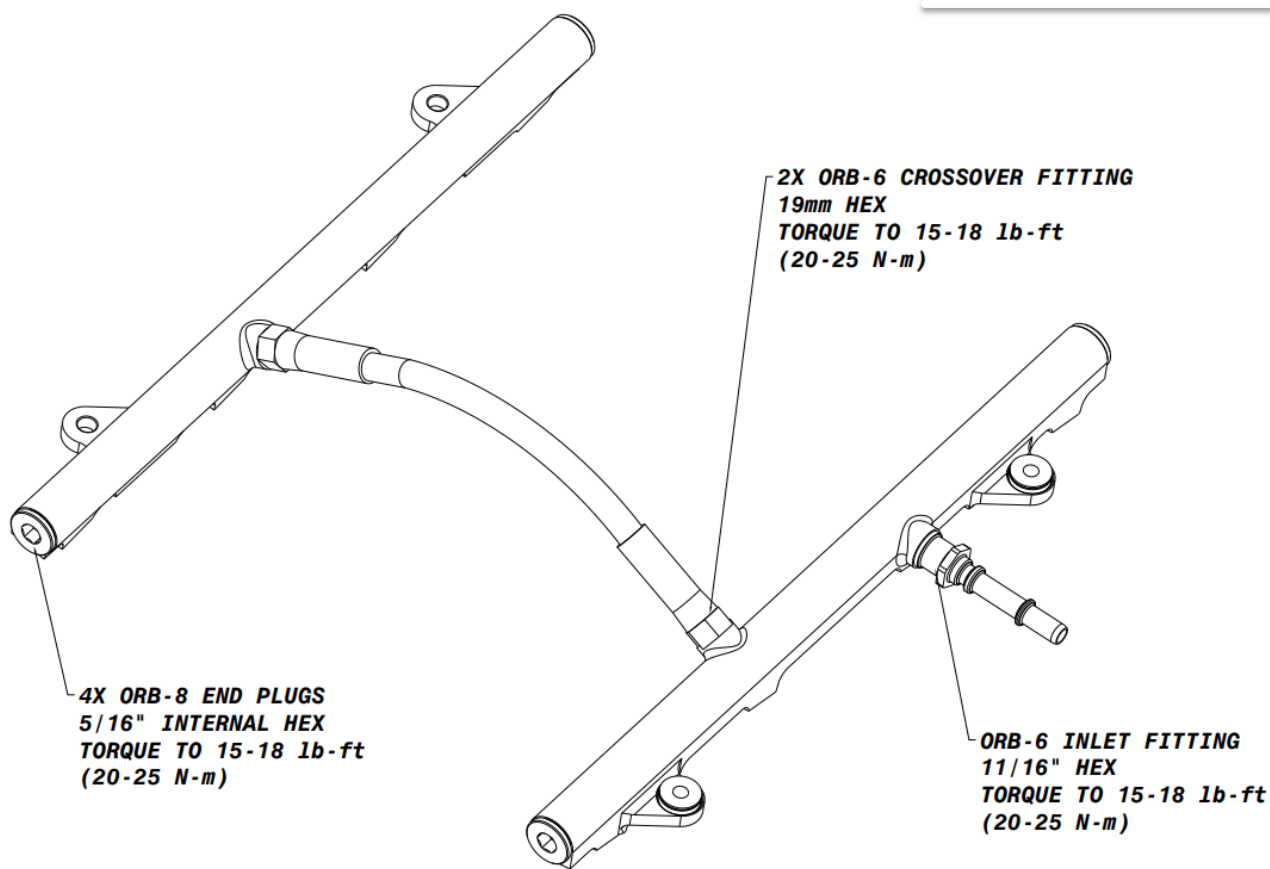
Fuel Rail and Injector Installation:

13. Install the back two injectors into the intake manifold lower assembly and connect injector connectors. *Note the orientation of the injector (see pictures below). EV6 injectors to be used.*



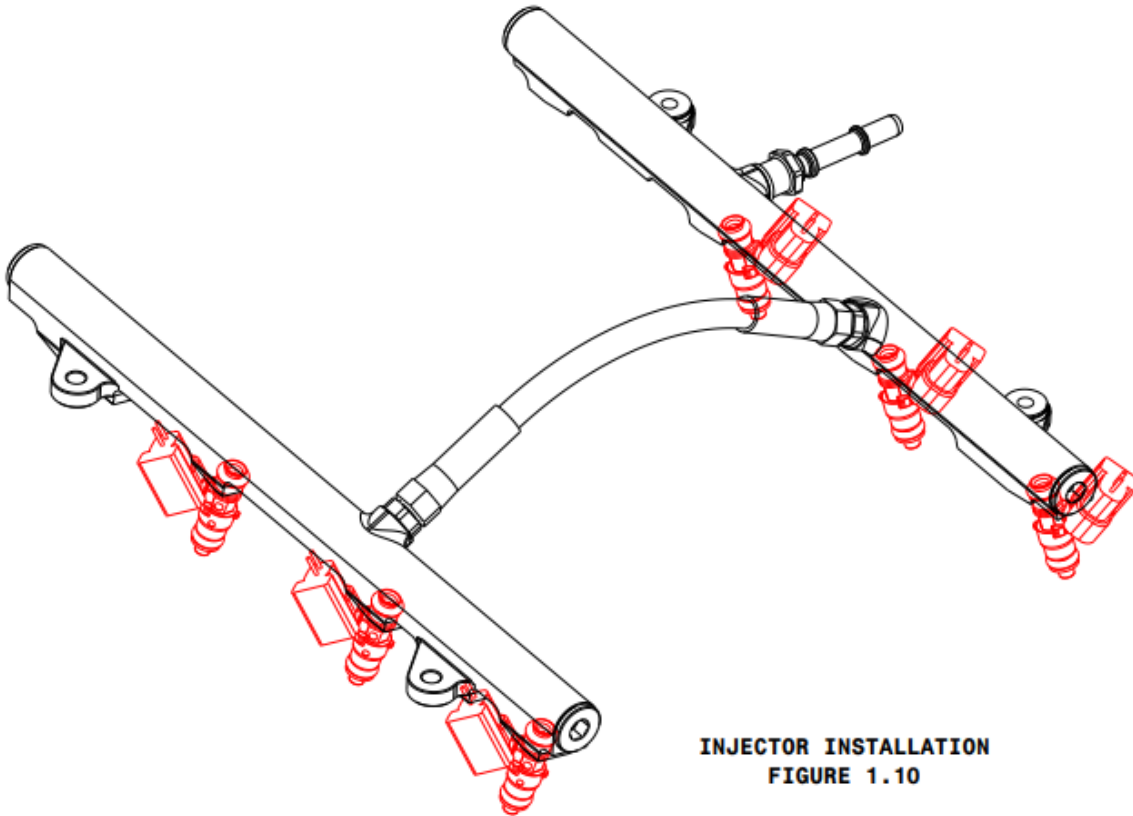
14. Locate the 4 fuel rail end plugs, the fuel crossover hose, and the fuel inlet fitting provided in the hardware kit. Assemble the fuel system as shown in figure 1.9.

- Install the 4 ORB plugs into the ends of the fuel rails.
- Torque the fuel crossover hose to each fuel rail.
- Install the ORB fuel inlet fitting to the driver's side fuel rail.



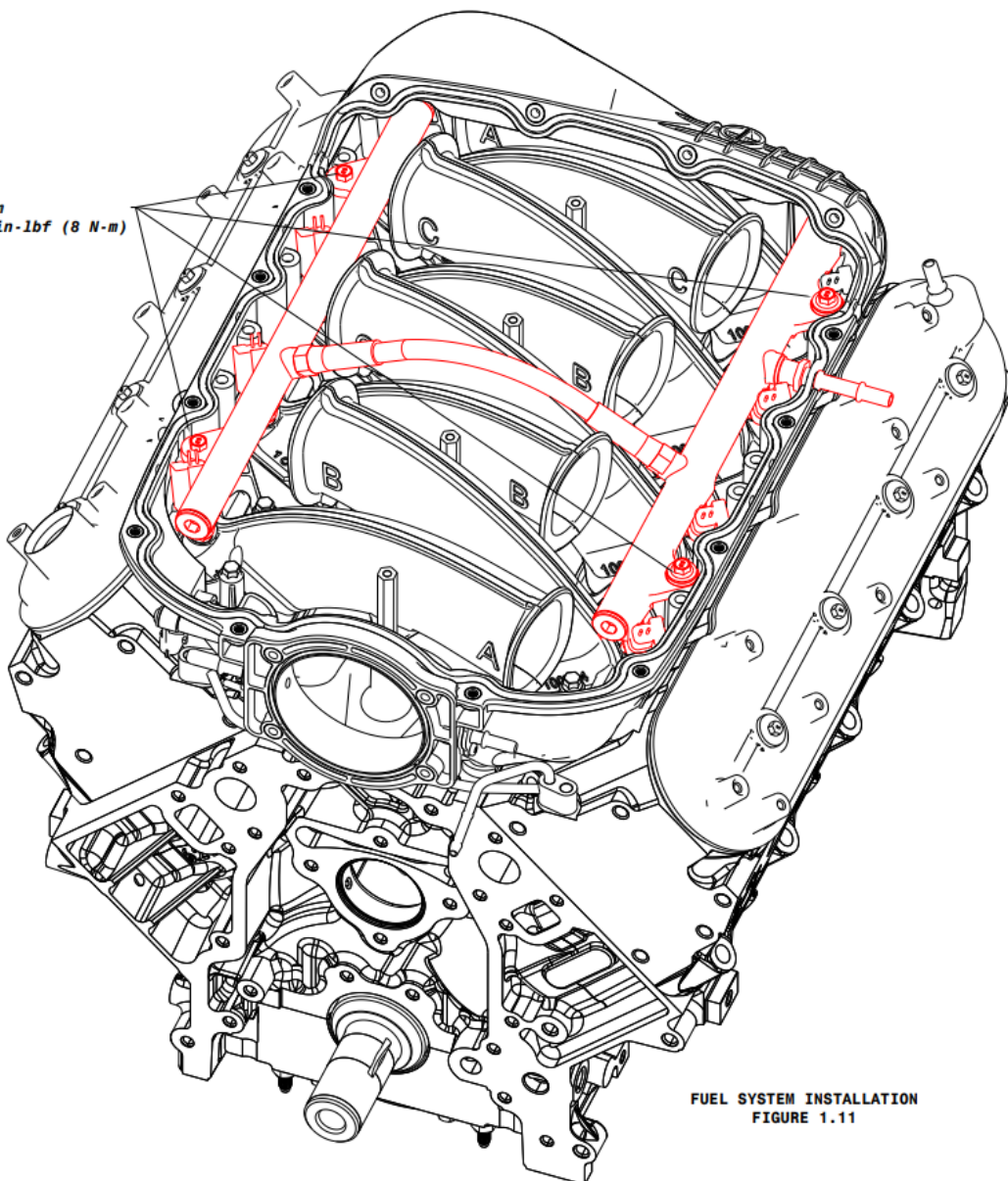
**FUEL SYSTEM ASSEMBLY
FIGURE 1.9**

16. Next, mount the remaining injectors into the fuel rails. Lubricate the injector O-Rings prior to installation. *(Note the orientation of the fuel injectors)*

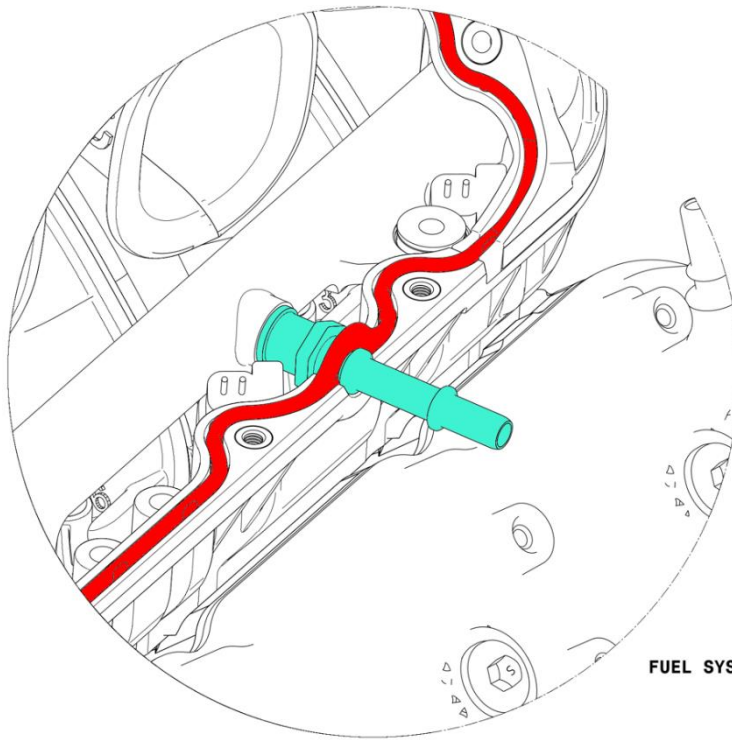


17. Lay the fuel system in the manifold as shown in Fig 1.11.
18. Partially remove the perimeter gasket and slide the gasket loop over the inlet fitting as shown in Fig 1.12.
19. Press the fuel rails onto the rear 2 fuel injectors and fully seat them in the manifold.
20. Connect the remaining jumper connectors to the fuel injectors. *Injector wires may be gently pulled through the injector wiring sealing grommet in order get achieve the desired amount of wire inside the intake manifold.*
21. Re-install the 4 fuel rail fasteners and torque to 72 in-lbf (8 N-m). *Avoid pinching wires under the fuel rail mounting flanges!*

4X M6 - 25mm
10mm HEX - TORQUE TO 72 in-lbf (8 N-m)



FUEL SYSTEM INSTALLATION
FIGURE 1.11



**FUEL SYSTEM INSTALLATION - INLET FITTING
FIGURE 1.12**

22. Connect the fuel line to the fuel inlet fitting and reconnect the battery.

Before continuing, turn the key to the ACC position (halfway) to power the fuel pump. Do not try to start the engine. Check all fuel connections for leaks.

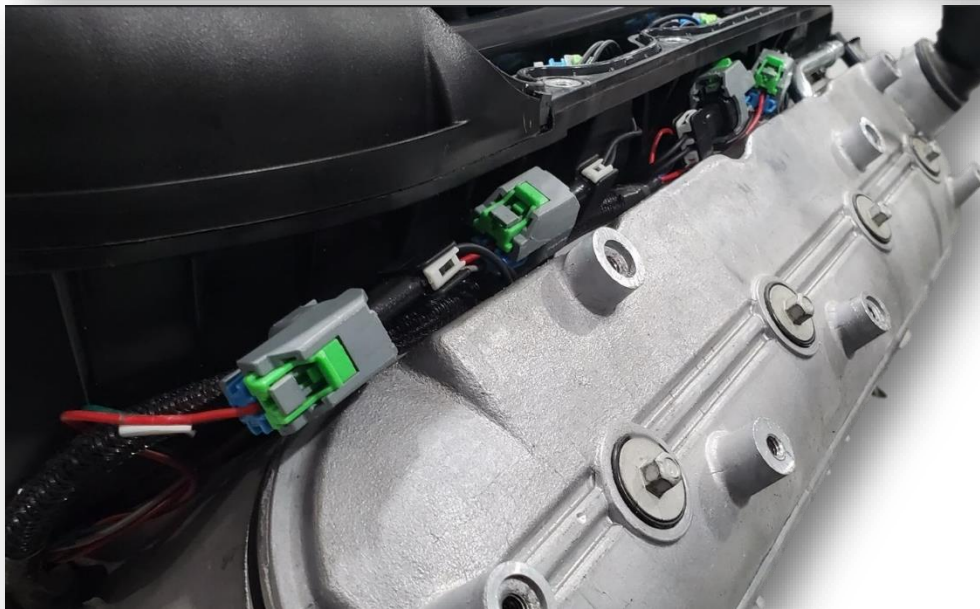
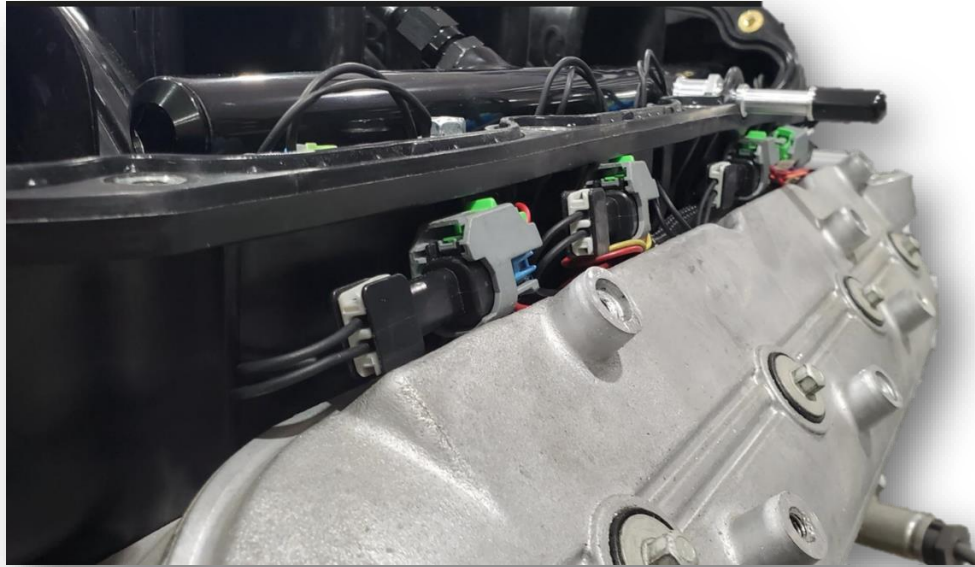
23. To adjust the wire length through the pass-through grommet, hold the grommet in place with a screw driver and pull the wires to the necessary length.



24. With the fuel system installed, connect injector jumper harnesses to your vehicle's wiring harness.

Warning – incorrect injector wiring connections will cause misfire.

Ensure that wires on the inside of the manifold do not overhang the perimeter gasket.

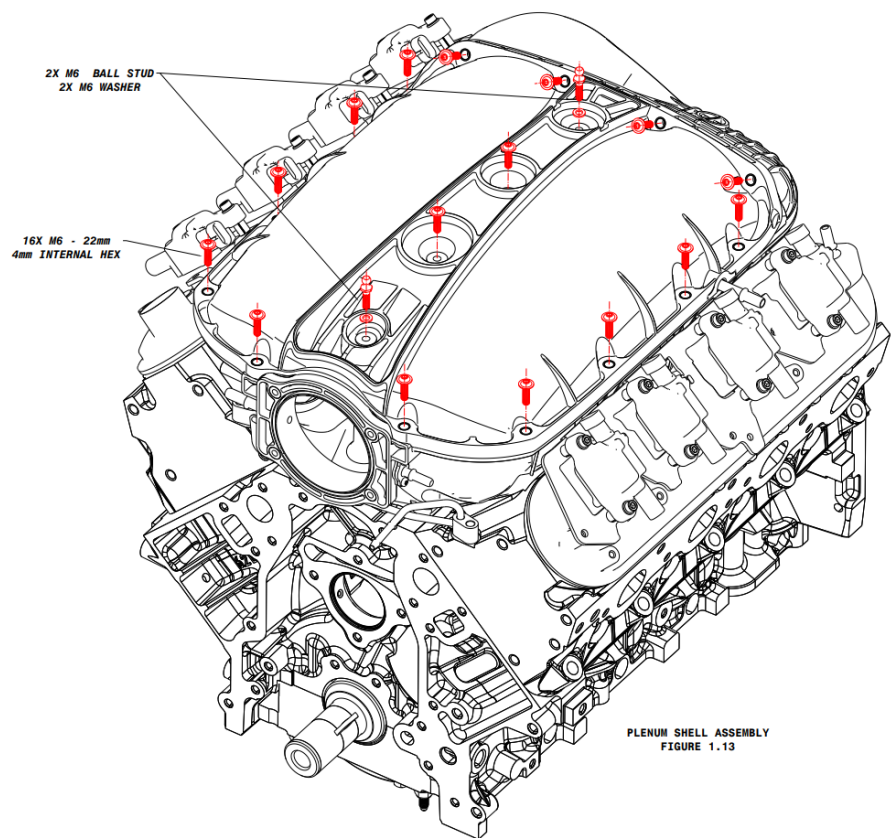
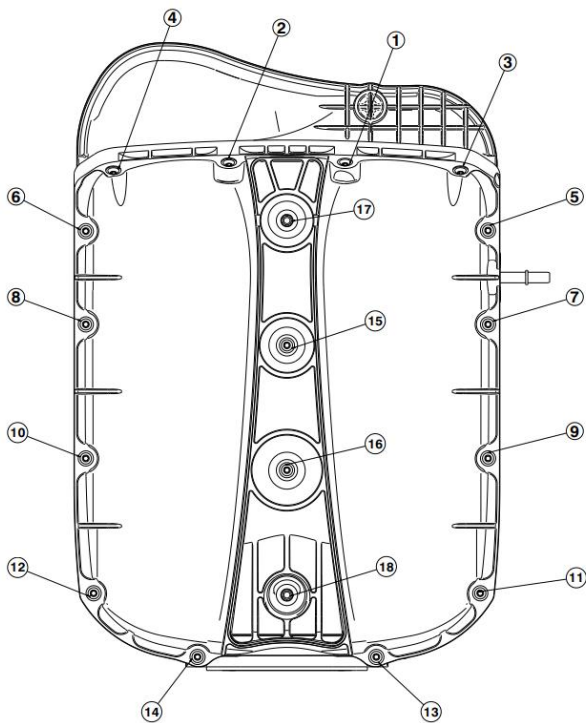


25. Install the coil bracket assemblies to the valve covers using existing hardware, and then install all the appropriate connection to the coil packs.

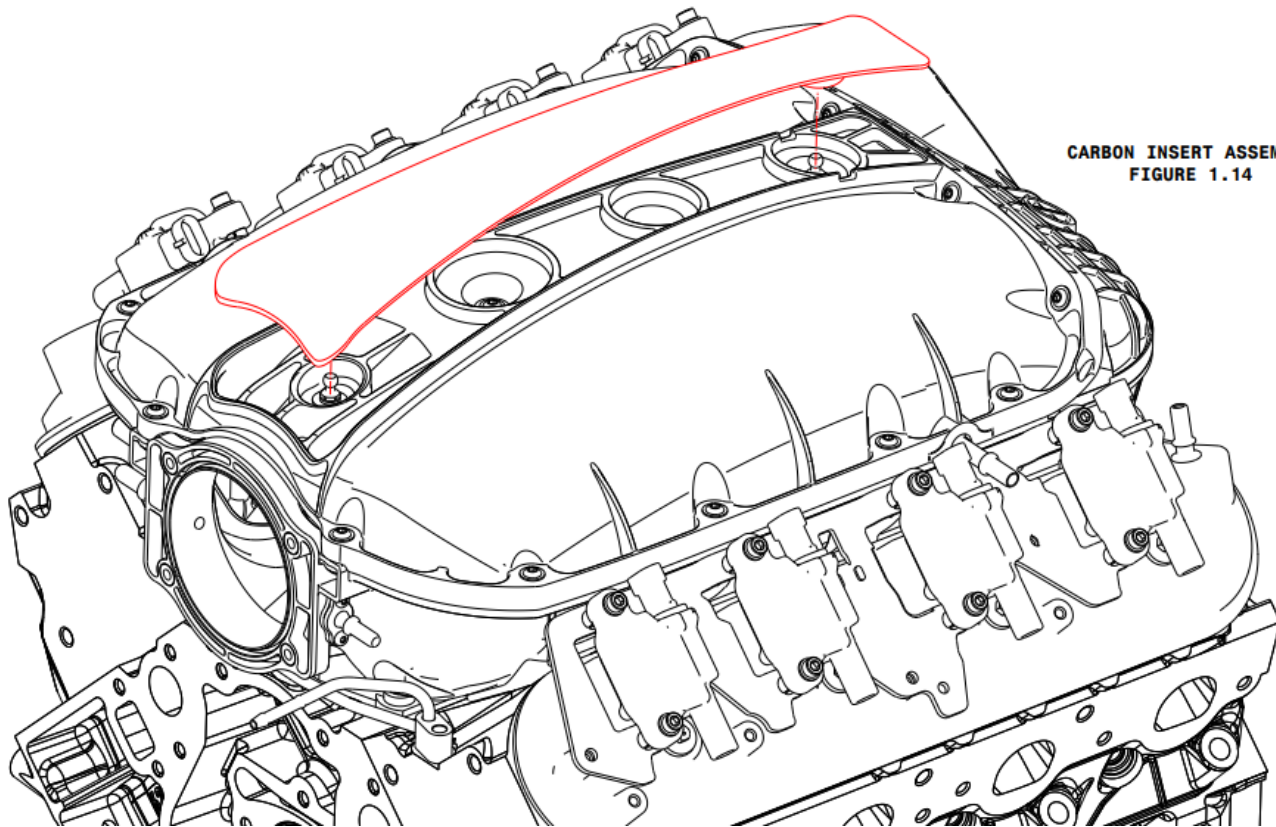
26. Before mounting the upper plenum, be sure that none of the injector wiring is overhanging the mounting flange to avoid pinching!

Reassemble the upper plenum following the torque sequence in Fig.1.13.

- STEP 1: HAND START ALL FASTENERS 1-18 IN NUMERICAL ORDER
- STEP 2: TORQUE TO 24 in-lbf (2.7 N-m) 1-18 IN THE NUMERICAL ORDER
- STEP 3: TORQUE TO 48 in-lbf (5.4 N-m) 1-18 IN THE NUMERICAL ORDER



27. Install the carbon center trim by aligning its position and pressing the grommets down onto the ball studs.



**CARBON INSERT ASSEMBLY
FIGURE 1.14**

28. Attach the throttle body. The throttle body should be torqued in two stages, first to 24 in-lbf then 84 in-lbf (9.5 Nm) using a cross pattern.

For the 90mm – 101mm GM throttle bodies, fasteners and washers are provided for mounting. They can be found in the hardware kit.

29. After the throttle body is torqued, the air induction system can be attached.