



1995 - 2004
2RZFE (2.4 L) and 3RZFE (2.7 L)

Part Number:

7015205	2RZ 1995-1999 8 Port Low Boost
7015199	2RZ 2000-2004 4 Port Low Boost
7015195	3RZ 1995-1999 8 Port Low Boost
7015210	3RZ 2000-2004 4 Port Low Boost

Recommended:

Basic Tools:

- Basic Mechanics tools
- Metric Socket, Allen & Open-End Wrench Sets
- Masking Tape for Labeling Hardware and Parts
- Electrical Tape
- A Clean Work Bench
- A Parts Tray
- Rags or Shop Towels
- Teflon Tape
- Red Thread Locker

Safety Tools:

- Safety Goggles

Special Tools:

- Toyota Repair Manual

Accessories: (not included in the kit)

- Boost gauge recommended
- Spark plugs
- Fuel Filter
- AFR Gauge
- Header, High flow Cat, Cat back Exhaust System

Kit Contents

Item #	Quantity	Description
1	1	Supercharger Assembly
2	1	Idler Pulley Assembly
3	1	Drive Belt
4	1	Fitting Instructions
5	1	Support Bracket Assembly
6	1	Hose Kits

Optional Supercharger Pulleys

1016158 58 mm = 8-10 PSI

**NOTE: Boost numbers are approximate and will change with engine components installed.*

Do not allow blower unit to exceed 14,000 RPMs.



Installation Preparation

Before you begin, we recommend that you thoroughly clean the engine and engine compartment.

If you do not, debris could be introduced to engine internals.

Make sure the engine has cooled fully before beginning the installation.

To help later, draw a diagram of your engines vacuum hose routing before you disconnect anything.

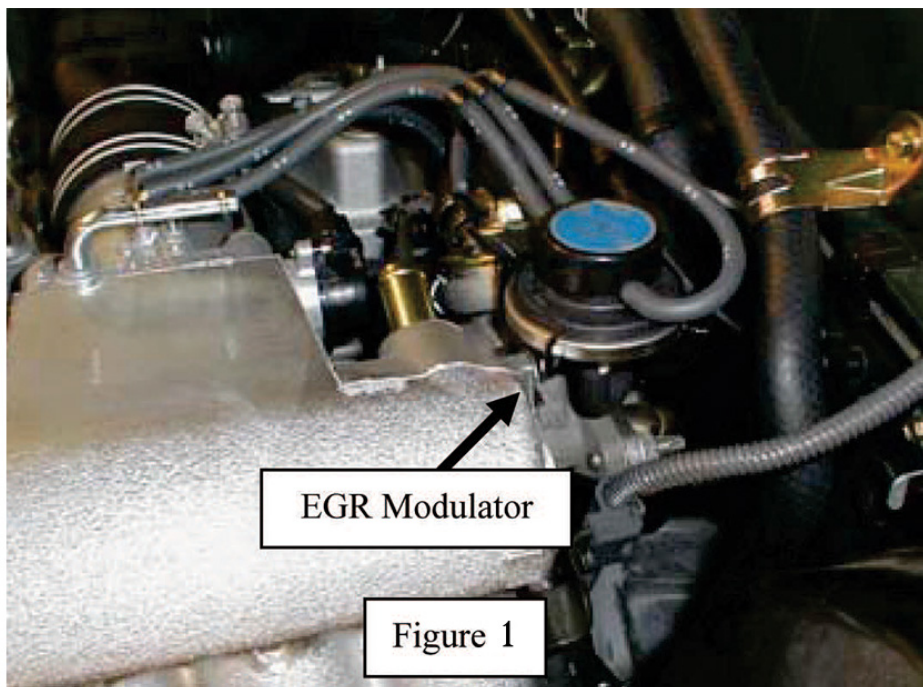
You will need to compare the supercharger ports to your factory intake at various points throughout this install. Study and closely follow the vacuum diagram pertaining to your vehicle found in the back of these instructions.

The LCE Supercharger has been designed to reuse most of the factory hardware.

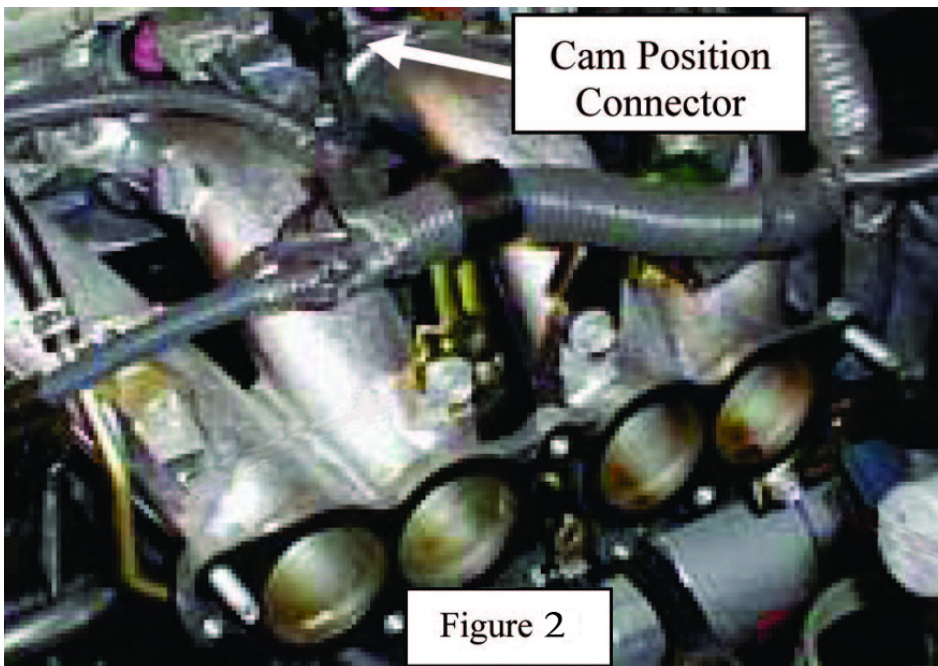
As you remove them, keep them with their original component or otherwise label their location.

-Installation Instructions-

- 1.) Disconnect the ground cable from the battery, then the positive cable and remove battery from vehicle.
- 2.) Remove Intake Tube, EVAP Hose and PCV Hose.
- 3.) Note Hose routing and remove EGR Modulator. (See Figure 1)

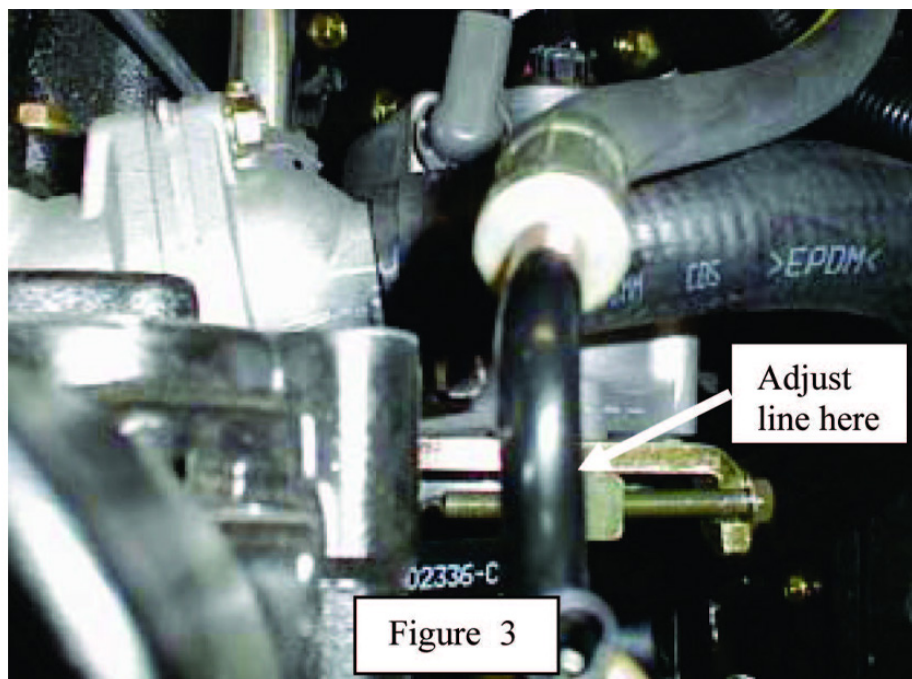


- 4.) Remove Power Steering Idle-Up Vacuum Hose from Throttle Body and Manifold noting each location. If your vehicle has an electrical connection instead of vacuum hoses, unplug and remove the harness bracket from the Intake Manifold.
- 5.) Disconnect electrical connections to the Throttle Body and remove Throttle Cable.
- 6.) Remove coolant lines from Throttle Body. Pinch and plug lines to minimize coolant leakage.
- 7.) Remove Throttle Body and Upper Intake Chamber, ensuring all connections are removed and noted.
- 8.) Disconnect Cam Position Sensor if equipped. (See Figure 2)



- 9.) Disconnect Crank Sensor plug and Knock Sensor Plug and pull upward through the lower intake manifold.
- 10.) Remove and plug EGR coolant line running through lower intake manifold if equipped.
- ** RELIEVE FUEL PRESSURE FROM SYSTEM BEFORE PROCEEDING****
- 11.) Disconnect Injector Connectors as well as Fuel Line from rear of Fuel Rail and Fuel Filter. Remove Fuel Hose from Fuel Pressure Regulator, the hard line its attached to and the following soft line.
- 12.) Remove lower intake manifold, original intake support bracket and steel line on the radiator shroud. (This would be an ideal time to change your fuel filter)

13.) On 2000 and earlier model years, this may not be needed, but needs to be checked. Ensure the power steering pressure feed hose clearance to the supercharger by installing the supercharger main assembly onto the cylinder head. When installing the supercharger, the supercharger drive pulley and snout slides under the power steering pump return hose. If necessary, adjust the power steering line next to the banjo fitting on the power steering pump. (See Figure 3). The steel line needs to be parallel with the engine centerline.

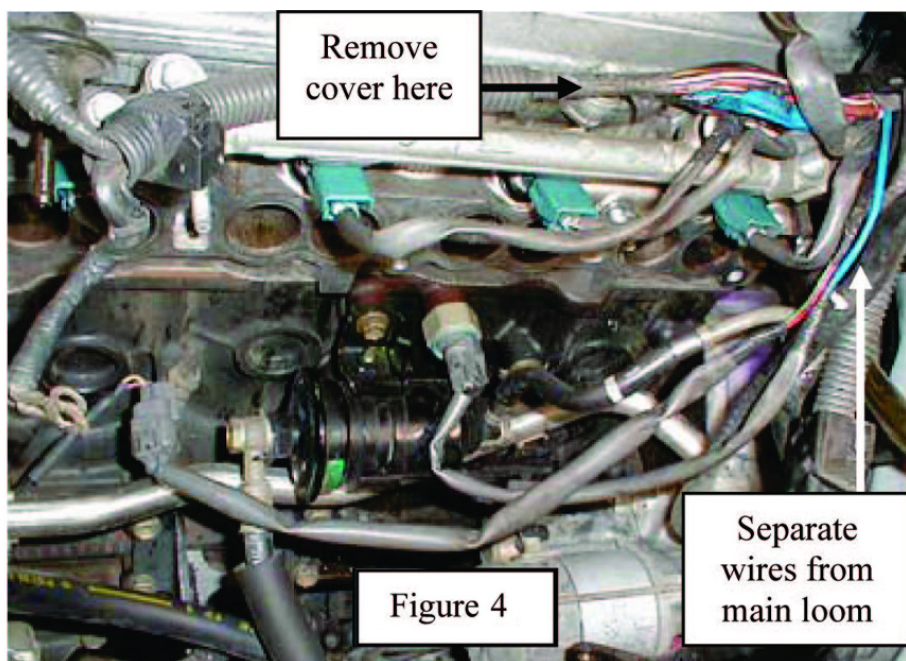


NOTE: Adjust carefully so the steel line will not kink. When adjusted correctly, the rubber hose that is connected to the steel line will have clearance to the supercharger housing and also to the lower radiator hose. Also, the line running over the snout of the charger may need to be gently adjusted upward until adequate clearance is achieved.

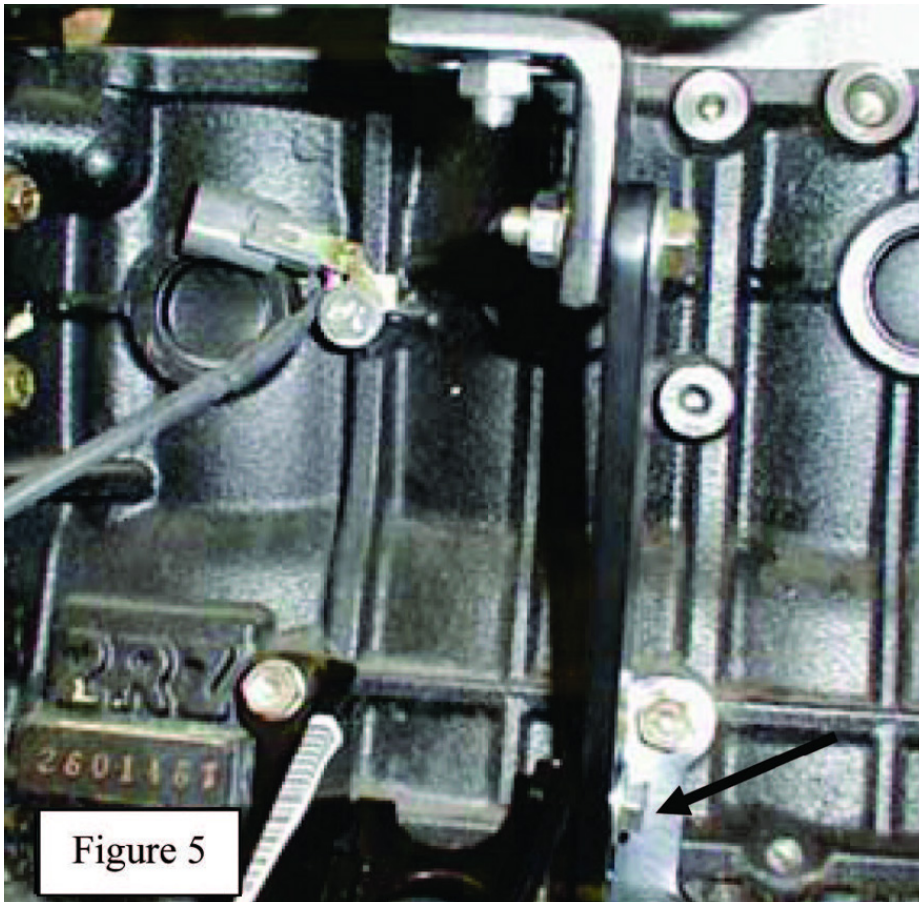
14.) Check Knock Sensor and Crank Sensor connector length to insure they will reach their components while not being pulled too tight. In many cases, the harness will reach, but it needs to be checked before proceeding, and modification may be required.

Route the Crank Sensor harness over the manifold and down over the front, checking that it reaches and there is sufficient slack. Route the Knock Sensor harness through the center hole in the manifold, checking that it reaches and there is sufficient slack. If either of the connections do not reach with sufficient slack, the charger will need to be removed and the following modifications will be required. If it plugs in with appropriate slack, remove supercharger and jump to Step 15.

Remove the nylon split flexible tubing around the area where the wires join the main engine wire loom. (See Figure 4). Separate the knock sensor and crankshaft sensor wires back about 6" to 8" from the original breakout point. Use electrical tape to wrap the wires that have been split out from the main wire loom. Re- install the nylon split tubing around the main wire loom. Use electrical tape to secure the flexible tubing. These will be routed under the Charger and can be plugged in before moving forward.

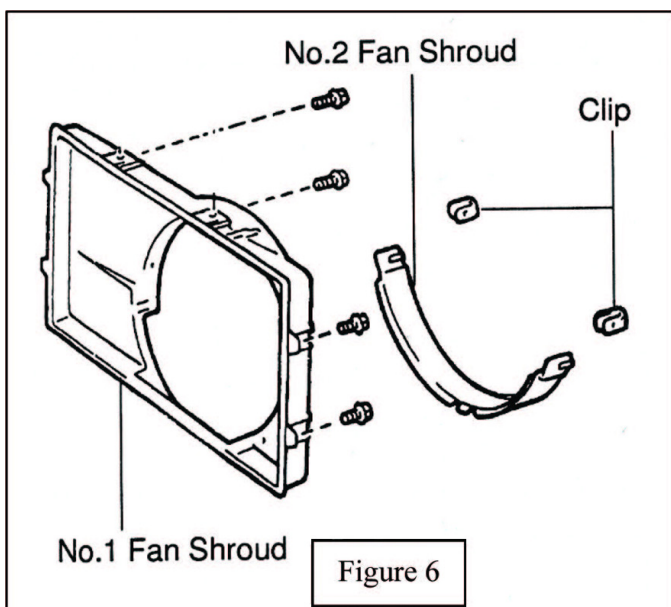


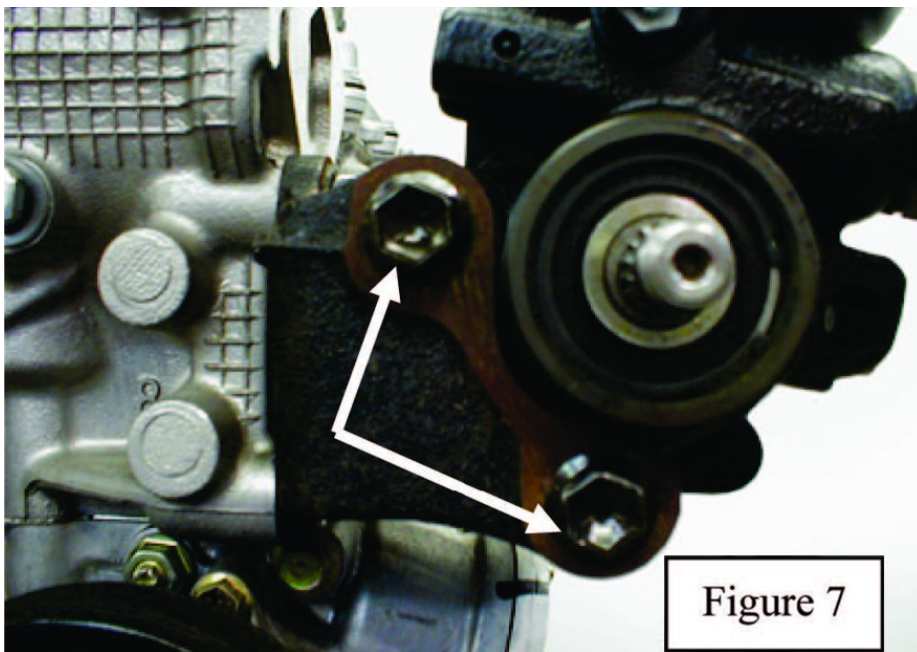
15.) Attach the new supplied 2-piece lower manifold bracket to the engine mount with one 8mm x 25mm long flange head hex bolt. (See arrow in Figure 5). Make sure the "L" portion of the bracket is towards the front of the vehicle. Figure 5 shows the chamber stay in the assembled position. Attach only the lower bolt in this step. Tighten bolt finger tight.



16.) Remove Radiator Fan Shroud by first removing the No.2 shroud, then No.1 (See Figure 6)
Also remove Power Steering belt.

17.) Remove the two bolts that secure the power steering pump to the pump bracket. (See Figure 7)
The power steering pulley does not have to be removed, access to the bolts is provided through the pulley holes. If access to bolts is not possible, proceed as follows:

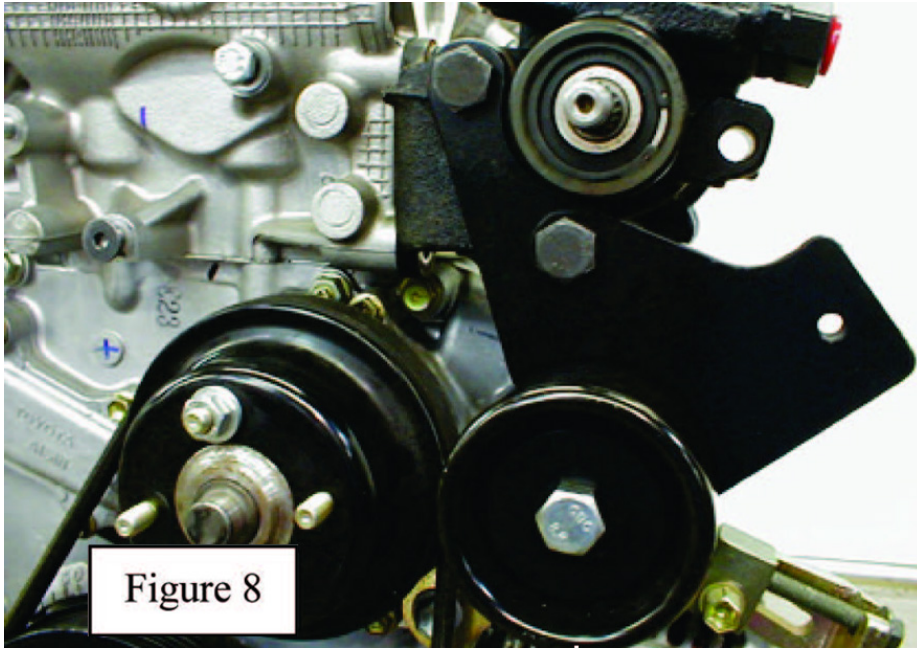




Insert a 6" 3/8 ratchet extension into one of the pulley holes as a brace. Rotate pulley by hand until the brace comes to rest on a hard surface and break the pulley nut loose. Remove the pulley ensuring the key for the key way is not lost.

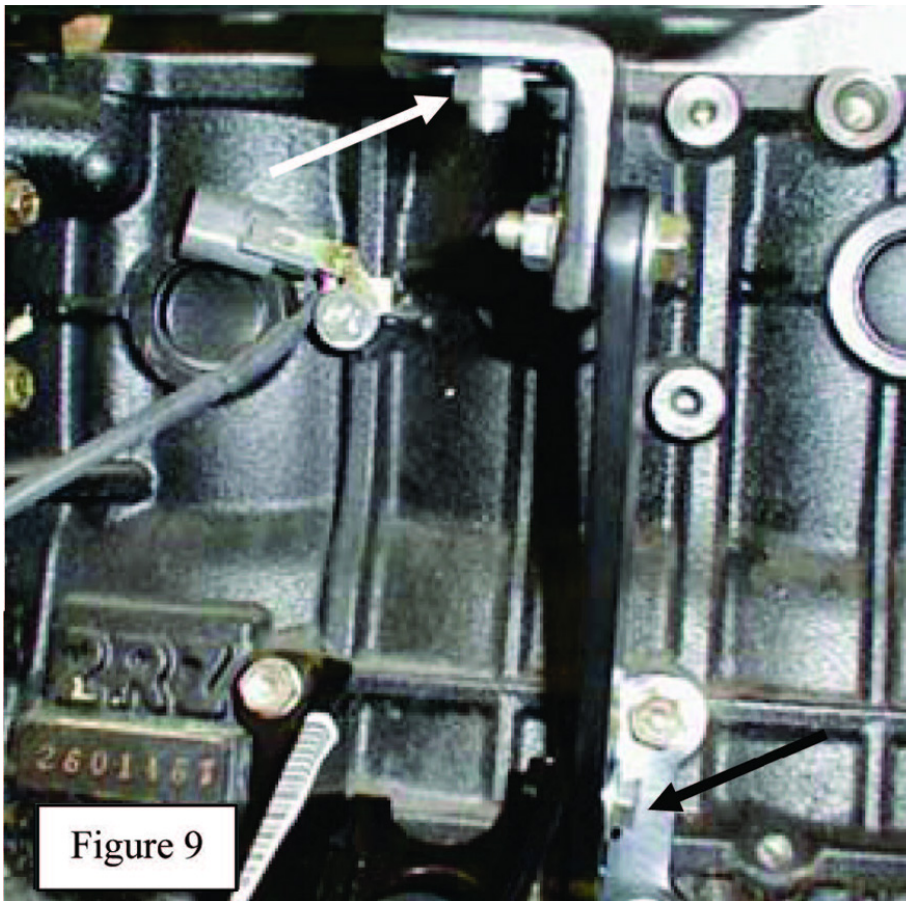


18.) Install the supplied idler pulley bracket to the front of the power steering pump. (See Figure 8). Use (2) 10mm x 1.25 x 100mm long bolts supplied. Both bolts replace the OE bolts. Torque bolts to 29 ft-lbs. **NOTE:** The idler pulley for the 3RZ should use the top hole. The 2RZ uses the lower hole.



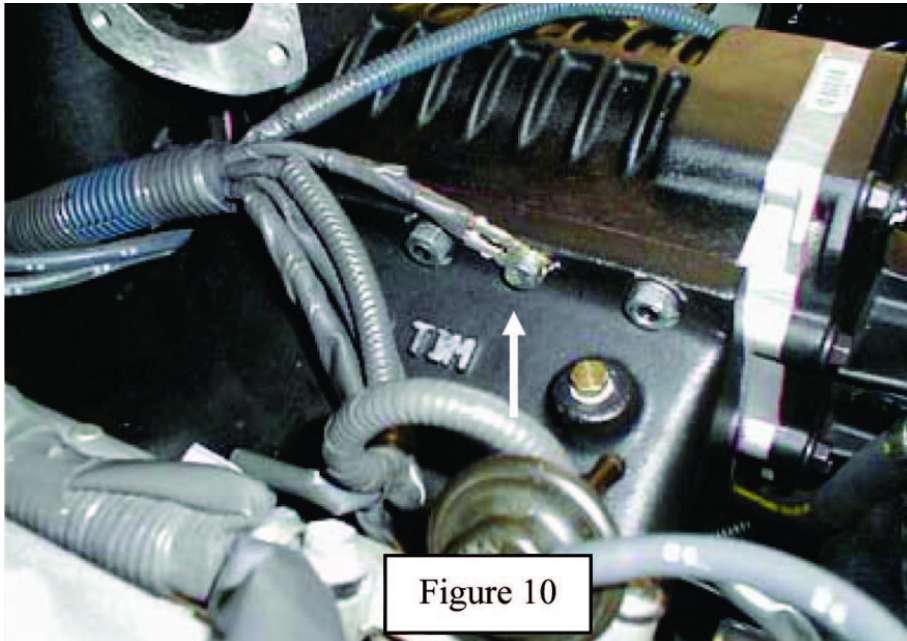
19.) Install Supercharger by sliding the drive pulley under the power steering pump return hose. Slide over attachment studs and snug all nuts and bolts to secure the charger to the cylinder head. Start in the center of the manifold and work outward towards the ends, torquing fasteners to 22 ft-lbs.

20.) Using the 8mm flange head nut supplied, secure the upper portion of the manifold support to the 8mm stud that is in the bottom-side of the intake manifold. The stud should protrude through the slot in the manifold support bracket. (See Figure 9). Tighten bracket to supercharger first, and then also tighten to the engine mount. Torque: 15 ft-lbs. Finally, torque the manifold bracket 8mm through bolt and nylock nut to 15 ft-lbs.

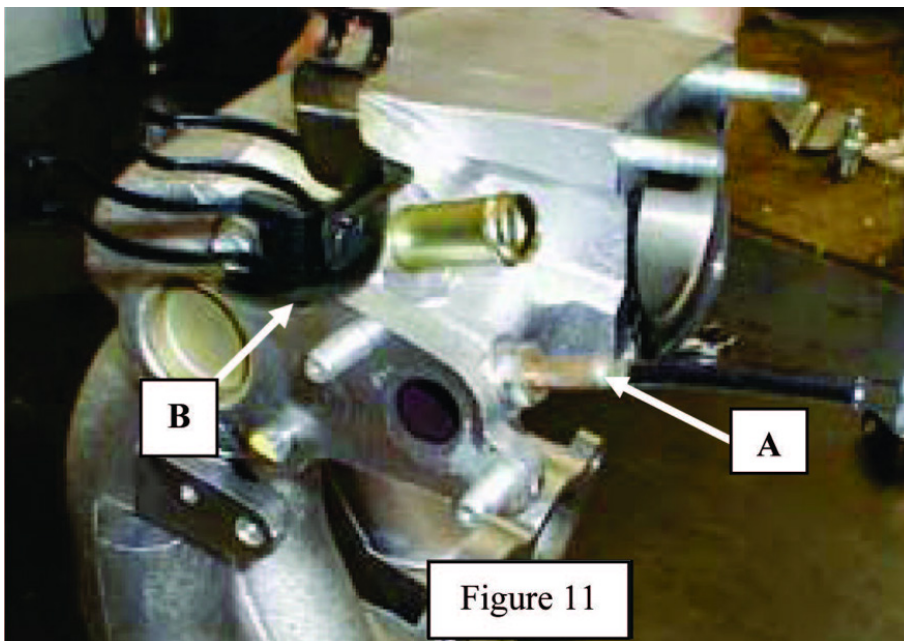


21.) Install Fuel Banjo line by sliding the connection to the fuel filter through charger manifold at rear most hole. Connect line to Fuel Filter without washers and hand tighten. Check that banjo connection at fuel rail reaches and banjo bolt can be threaded in with ease. An Adjustment may be needed here. If so, remove the line and carefully bend the banjo connection for fuel rail until the line fits and the bolt easily threads in. Install all crush washers and torque bolts to 22 ft lbs

22.) Reconnect all four fuel injector connectors, power steering connector and attach injector ground strap to charger. (See Figure 10) Using supplied fuel hose, attach to fuel pressure regulator and run down in front of charger manifold to hardline on fender.



23.) On vehicles with EGR, remove the EGR temperature sensor (Arrow A) and EGR modulator bracket (Arrow B) from the OE intake chamber. (See Figure 11).



24.) Compare your factory intake manifold fittings to the ones on the charger. Additional fittings are included to adapt to your version. Re-use the 16mm factory nylon washers to seal fittings to charger.

25.) If vehicle does not have an EGR System, skip to the next step. If vehicle has an EGR System, proceed as follows:

1.) Install the EGR temperature sensor (Arrow A) to the intake chamber. (See Figure 12)

2.) Use one of the supplied EGR gaskets and install the EGR valve to the backside of the intake chamber. (See Figure 13). Use the OE EGR valve nuts.

Leave the nuts loose at this time.

3.) Use the second supplied EGR gasket and connect the EGR feed tube to the EGR valve.

Again, use the OE nuts.

4.) Torque EGR valve nuts to 14 ft-lbs.

5.) Install EGR feed tube. Torque to 14 ft-lbs.

6.) Reconnect EGR coolant hose.

7.) Re-install the EGR modulator bracket to the backside of the intake manifold using the OE bolt. (See Figure 12) Otherwise, install the M10x1.25x12mm bolt.

Use Teflon tape or PTFE paste to seal bolt.

26.) If the vehicle has no EGR, then use one EGR gasket, block-off plate, and two 8 x 1.25mm flange nuts to seal the EGR passage located on the backside of the intake chamber. (See Figure 13). Torque nuts to 14 ft-lbs

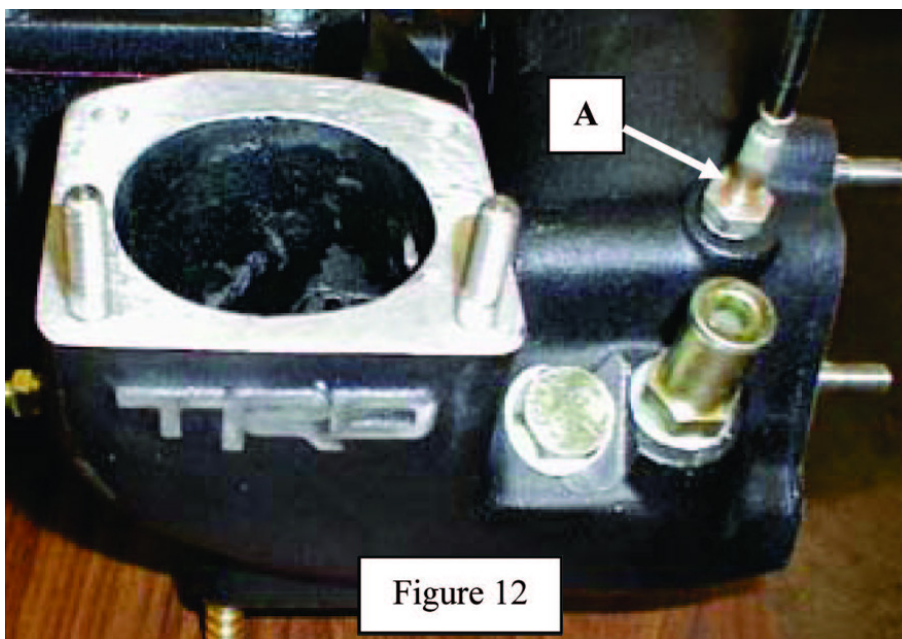


Figure 12

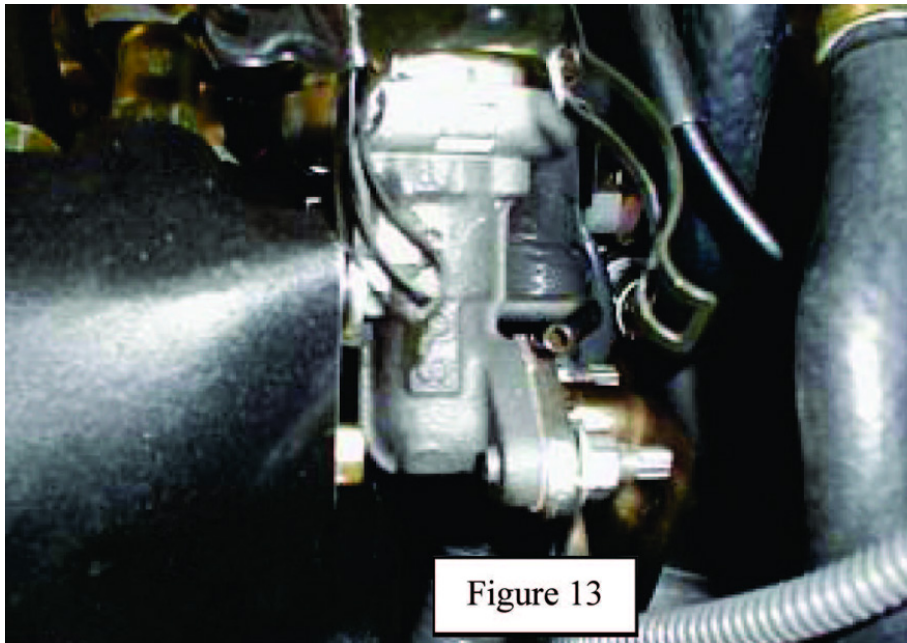


Figure 13

27.) Install new throttle body gasket over studs and position throttle body near mounting position.

Attach all hoses and the IAC connector: (everything but the TPS connector and throttle cable) Install throttle body over studs and use factory hardware to secure. Torque to 14 ft lbs. Install TPS connector and throttle cable.

28.) Connect brake booster vacuum hose to charger at location outlined in Item "A" (See Figure 14) Cut hose shorter if needed.

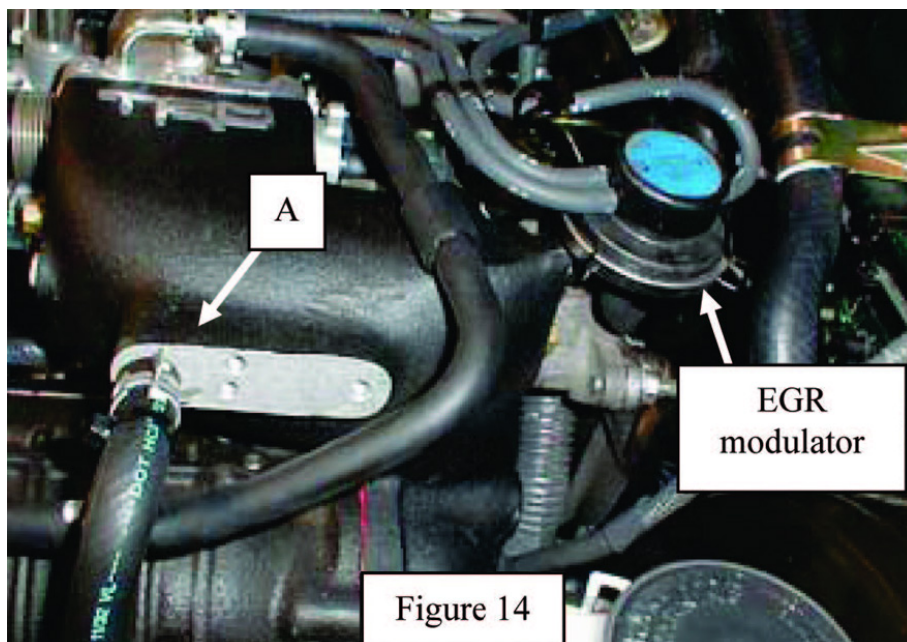


Figure 14

29.) Reconnect cam position sensor if equipped.

30.) Remove outer power steering pulley from main crank pulley. The four bolts securing this also secure the A/C pulley behind it. Only remove the power steering pulley.

Pre-align the A/C pulley and install the new power steering pulley over it. Secure the pulley using the four supplied M8 X 1.25 X 40MM bolts, using red thread locker and the four lock washers included.

31.) Install supercharger drive belt using the supplied drive belt routing label as a guide. Find a suitable area under the hood to mount the drive belt routing label. Clean area to remove any dirt or grease and affix label.

32.) Reinstall the radiator fan shroud and steel line if equipped.

33.) If vehicle does not have an EGR System, skip this step. If it does, proceed with the following:

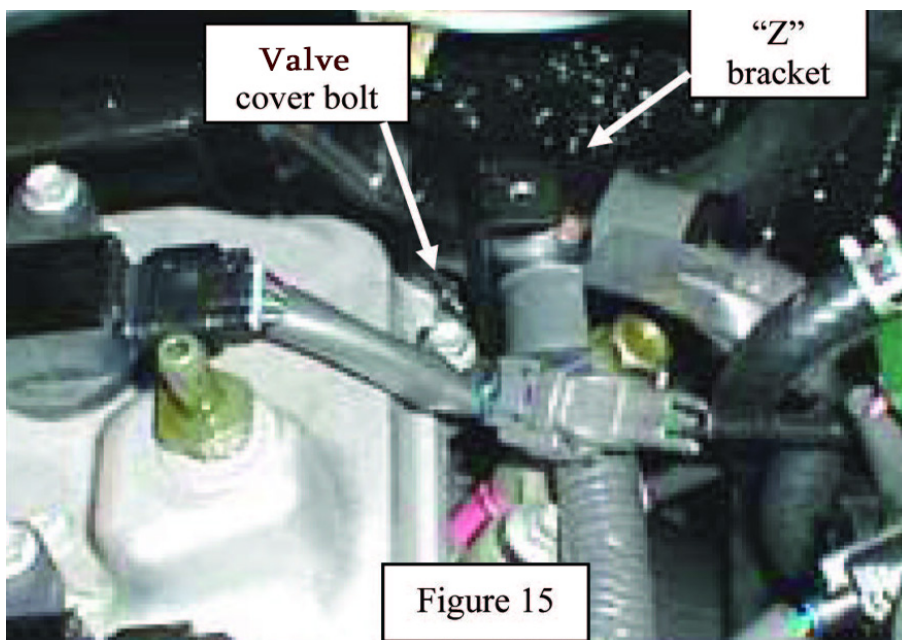
1) Remove the valve cover bolt and sealing washer from the rear hole on the driver side of the valve cover. (See Figure 15). Remove the sealing washer from the bolt.

Use the valve cover bolt to mount the supplied "Z" bracket onto the valve cover.

The bracket should sit on top of the sealing washer. Tighten valve cover bolt.

2.) Mount the EGR modulator VSV to the "Z" bracket. (See Figure 16). Use the OE 6mm bolt and washer. Torque bolt to 6 ft-lbs.

3.) Reconnect the VSV hoses and EGR modulator hoses per the vacuum diagram on the underside of the vehicle hood.



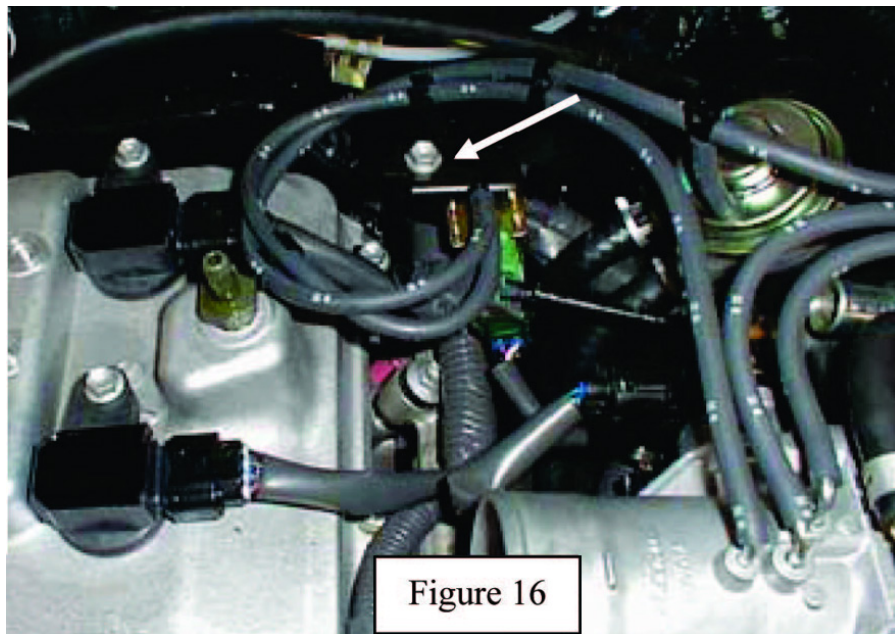


Figure 16

34.) Reconnect the PCV hose from the PCV valve to the PCV fitting on the intake manifold. (See Figure 17) Arrow "A". Reconnect the valve cover breather hose to the fitting on the throttle body. (See Figure 17) Arrow "B".

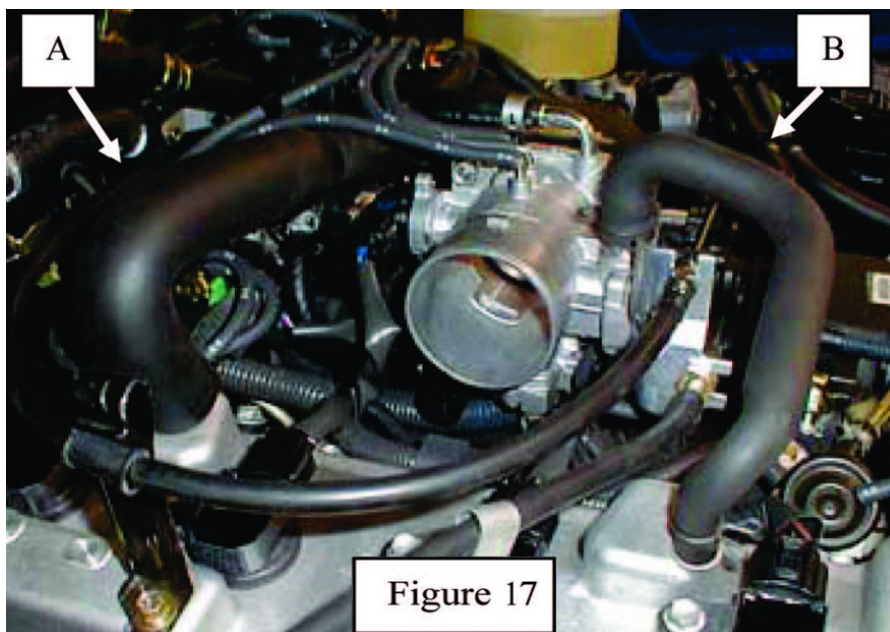
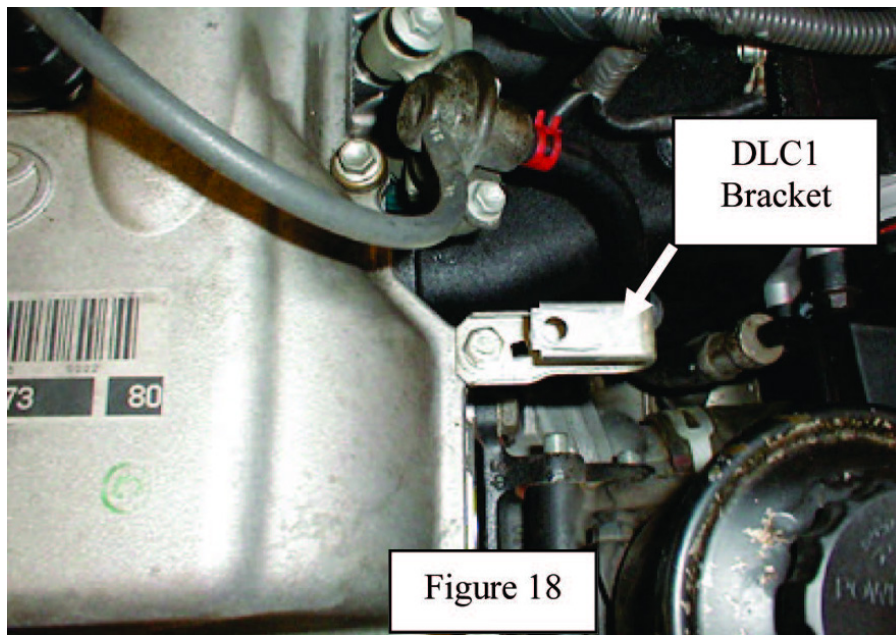


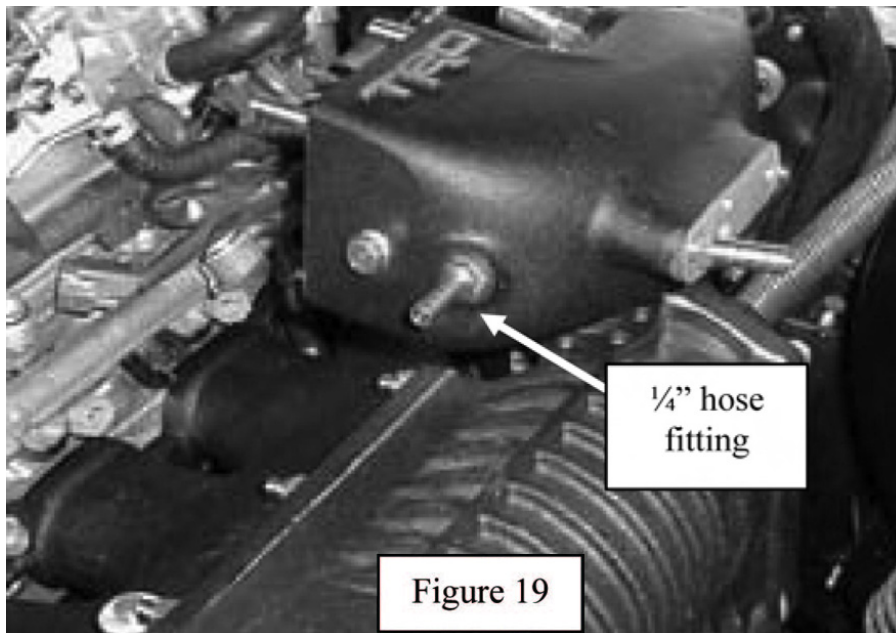
Figure 17

35.) Re-install intake air connector onto throttle body. Secure intake air connector to-connector bracket using two OE nuts. Torque nuts to 13 ft-lbs. Re-install air cleaner hose with resonator.

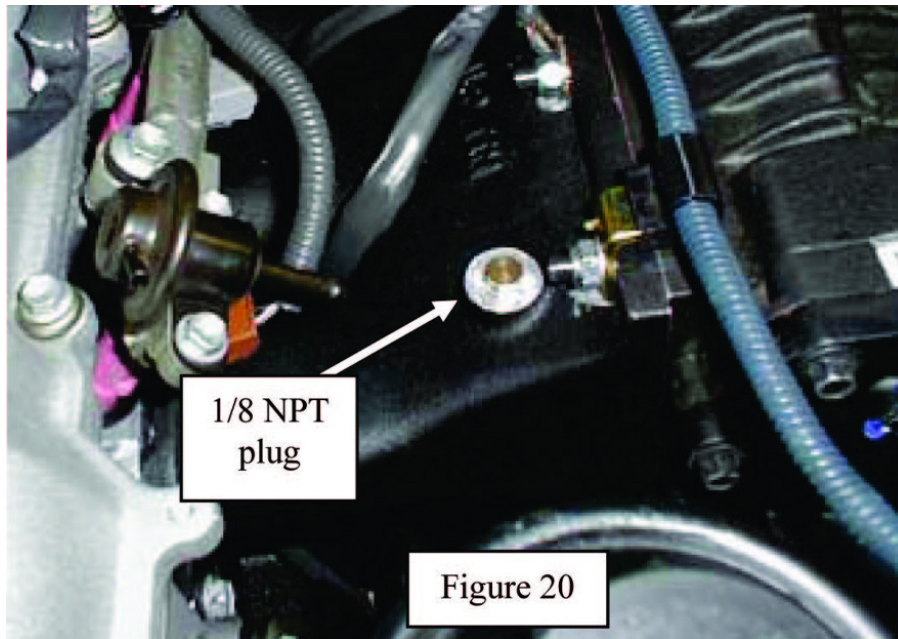
36.) Mount fuel pressure regulator vsv valve to unused boss on valve cover. (See Figure 18). Using supplied M6 x 1.25 x 25mm bolt, torque to 6 ft lbs. Install DLC bracket to bottom of bolt, install M6 Flat Washer and secure with included M6 nylock nut. Slide DLC onto bracket until it locks into place.



37.) Install 1/8" hose barb into charger elbow using Teflon tape or PTFE paste into location outlined in (Figure 19), then install the power steering line that attached to the intake manifold to this location. The other power steering hose can go back to it's location on the throttle body.

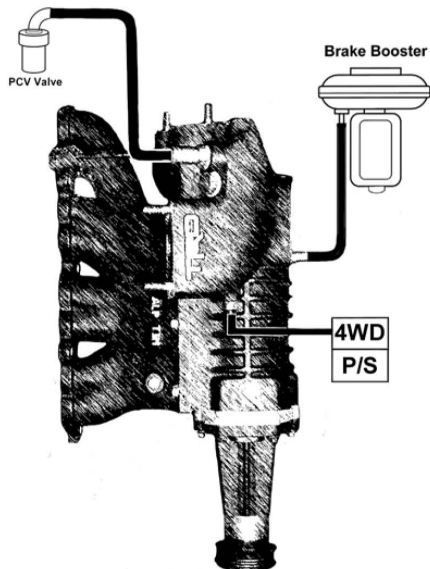


38.) Install original gas filter that the fuel pressure regulator vacuum hose attached to, in the location outlined in (Figure 20).

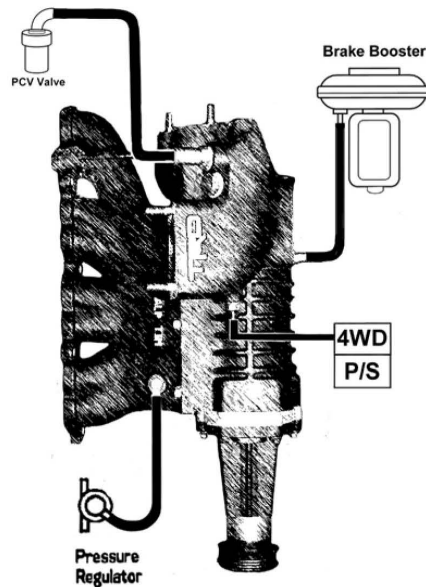


39.) Re-check all vacuum lines and connections.

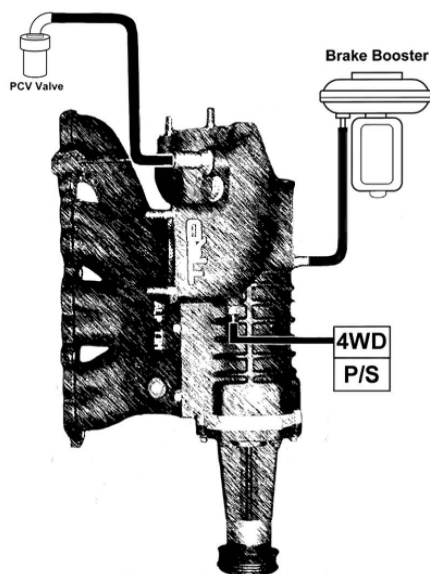
2.4 Vacuum Diagram
Production Dates:
01/95-08/98



2.4 Vacuum Diagram
Production Dates:
09/98 to Present



2.7 Vacuum Diagram
Production Dates:
01/95 to Present



Trouble Shooting

Symptom	Possible Causes	Corrective Action
Idles rough, "pings" (Trouble Code PO171 Lean Code)	Lean condition-vacuum leak	Check vacuum line connections for leaks and cracked ends Review factory service manual for proper factory vacuum routing Review instructions for proper vacuum line routing Recheck torque on throttle body bolts Recheck the torque on the intake manifold bolts
Pings during acceleration	Low octane fuel Computer has yet to adjust to supercharger Insufficient fuel delivery	Use only premium fuel Drive several hundred miles in different driving modes (not all steady-state highway cruising for example) Dirty fuel Filter-replace and follow the factory diagnosis and replacement procedures
Low boost	Belt slipping Air filter dirty Throttle not fully opened	Check condition of belt, oily, worn, high mileage Check/replace air filter Recheck and adjust the throttle and transmission cables. Be sure that full depression on the gas pedal achieves full throttle opening at the throttle body.
Makes a moderately loud noise under full	Normal supercharger sound	No remedy. Superchargers are an air pump and the pumping action is impossible without some noise.
Rattling at idle goes away at just above idle	Normal supercharger sound	Slight rattle at idle is normal, but only if the noise sharply decreases at 400- 500 rpm above idle
Rattling at idle gets louder with higher rpm	Drive housing bearing wear or backlash Idler pulley bearing wear or excessive freeplay	Diagnose by removing belt from supercharger and running engine for less than 30 seconds. If noise continues. source of problem is not within supercharger
Supercharger belt jumps across pulley groove	Misaligned tensioner pulley or idler pulley Damaged pulleys	Check the mounting and alignment of both the tensioner pulley and also the idler pulley
Supercharger belt leaves grey/black powder	Normal break-in residue	No corrective action necessary-belt should be fully broken in after 2000 miles
Supercharger appears to leak oil from drive	Front seal not fully broken in	No immediate corrective action is necessary seal should be fully mated to pulley after 2000 miles.