

TOYOTA RACING DEVELOPMENT

**INSTALLATION INSTRUCTIONS
SUPERCHARGER KIT - 00602-17620-001**

Executive Order No. D-425-2

**for
4RUNNER, TACOMA AND T100
EQUIPPED WITH THE
3.4 LITER V6
(5VZFE)**

Introduction

You have purchased the finest, most complete aftermarket supercharger kit available for the Toyota 3.4 liter V6 engine. Your new supercharger kit has been carefully designed, tested and built to provide the maximum in reliable performance and ease of installation. In creating these instructions, we have attempted to provide the simplest, most trouble free installation procedure possible. TRD has assembled nearly all the sub-components possible prior to shipment.

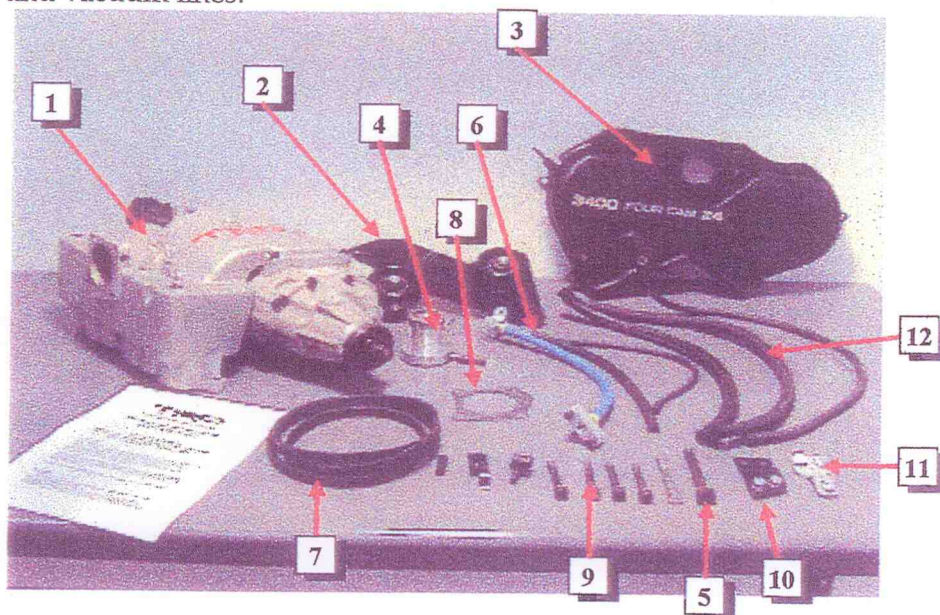
These instructions are intended to provide a good overall guide to help ensure a successful installation. Due to the minor variations between model years and vehicle type, we stress that care must be taken to mark and label vacuum lines, electrical connections and fuel hookups **during disassembly** so as to make reassembly easier. The TRD supercharger kit is designed to be a true "bolt-on" product, without need for fabrication or other modifications to the vehicle.

Check to be sure you have all the parts:

Vacuum Fittings and Tees. The TRD Supercharger has been developed and tested to fit the 3.4 Liter V6. Since the introduction of the 5VZFE engine in 1995, Toyota has continually updated the peripheral equipment on the engine to maximize performance and minimize emissions. Though the 5VZFE has remained fundamentally unchanged since its release, there have been minor variations in the location and routing of vacuum lines, sensor wires and other equipment. In an effort to accommodate the variations from vehicle to vehicle, TRD has included an assortment of vacuum tees and fittings.

The supercharger kit includes the following parts:

1. Supercharger & Manifold Assembly
2. Idler Pulley Assembly
3. Modified Front Cover
4. Fuel Management Unit
5. Bolts for Attaching Idler Assembly
6. Fuel Management Unit Adapter Hose Assembly
7. Supercharger Belt
8. Replacement Throttle Body Gasket
9. Throttle Body bolts (4).
10. Transmission Cable Relocation Bracket
11. Diagnostic Plug Mount
12. Hoses and vacuum lines.



Parts not pictured:

1. Throttle cable bracket.
2. Package of Tee and Elbow fittings to assist in re-routing vacuum hoses.
3. Assembly lubricant vial.
4. Installation Instructional Videotape.
5. Gasket material for replacement cover.
6. "Premium Fuel Only" labels.
7. Warranty Literature.
8. TRD "Supercharged" Emblems (3)

Additional Products

TRD EGR Adapter Kit - 00602-25600-001. A few Toyota V6 vehicles are factory-equipped with an Exhaust Gas Re-circulation (EGR) valve. If your vehicle is so equipped, you will need to purchase the TRD EGR Adapter Kit. To determine if your engine is equipped with an EGR valve, inspect the left (driver's) side exhaust manifold for the factory adapter, as shown in **Step 10**. If your manifold has the small fitting mounted on it as shown, your vehicle is equipped with EGR. The EGR kit has its own

set of installation instructions. Be sure that you have this kit before proceeding any further.

TRD Boost Gauge - 00602-83100-001. The TRD Supercharger delivers boost right off idle, through the engines entire rpm range. The TRD Boost gauge shows that your supercharger is delivering all the performance possible. The unique, pillar mounted boost gauge has an easy-to-read lighted dial-face, is simple to install and provides the driver with an immediate and accurate indication of the performance being delivered by the TRD Supercharger.

TRD Transmission Oil Cooler Kit - 00602-16491-001. The added power that the TRD Supercharger provides means that an increased load is placed on the automatic transmission. During a sustained load condition, such as experienced while towing, extra heat can build up in the automatic transmission. For the added margin of safety necessary when towing, TRD offers a high efficiency Transmission Oil Cooler Kit. The kit comes with all the necessary brackets and adapters to bolt directly on to any Tacoma, T100 or 4Runner.

Preparation

- **Both view the supplied VHS Installation Instructional videotape and read these instructions** before beginning installation. The 15 minute instructional videotape will help you visualize the major steps of installation. Watch the videotape while following along with the written numbered steps in the instructions. Make sure you understand all steps clearly, before beginning.
- Before beginning disassembly, TRD recommends that the engine and engine compartment be thoroughly cleaned. TRD considers good shop practice to include cleanliness as a precaution against problems which can occur. Grease buildup on engine parts may become dislodged during the removal/installation procedure and fall into the engine. Also, make sure the engine has fully cooled before you begin. If the installation procedure seems to difficult, we suggest you take your vehicle to the local Toyota Dealer.
- The installation of the TRD supercharger requires removal and replacement of the fuel lines. Do not work near open flames (such as cigarettes, etc.) while working on your vehicle. **Safety First!**

Recommended Tools

Before beginning, TRD recommends that you have the following items:

- Toyota Genuine Service Manual. These manuals are unsurpassed in the quality and detail of their illustrations and procedures. Genuine Toyota Service Manuals may be purchased for your specific vehicle either through your local Toyota dealer or directly from Toyota by calling **1-800-622-2033**.
- Basic metric socket, Allen and open-end wrench set.
- Pencil and paper for making schematic diagrams of vacuum hose routings.
- Drain pan and large funnel for engine coolant.
- **Clean** work bench.
- Masking tape and magic marker, for labeling vacuum lines and their connections.
- Parts Tray.

- Wide Masking Tape for covering intake manifold while working on engine.
- Rags or shop towels. Cleanliness is important.
- Safety Goggles.
- Tensionometer - measures the tension, or "tightness" of the supercharger drive belt. This may be found at your Toyota dealership service department.

Disassembly

Throttle body and Manifold Removal

1. Begin by removing the negative battery cable from the battery.
2. Remove the gravel guard (if equipped) beneath the radiator. This will allow access to the air-conditioning belt adjuster and power steering brackets.
3. **Make sure the engine is cold.** Place a drain pan beneath the radiator and remove the radiator drain plug and drain the engine coolant. Remove the radiator cap to facilitate draining. Once the radiator has been fully emptied, replace the plug, tightening it securely. Set drain pan aside to avoid spilling or dropping parts or debris into the pan while working on the engine.
4. Take a moment to make a sketch of the vacuum hose and cable routing of your specific vehicle's engine. Number the connections to facilitate re-assembly. The exact arrangement and routing will vary by year and model.

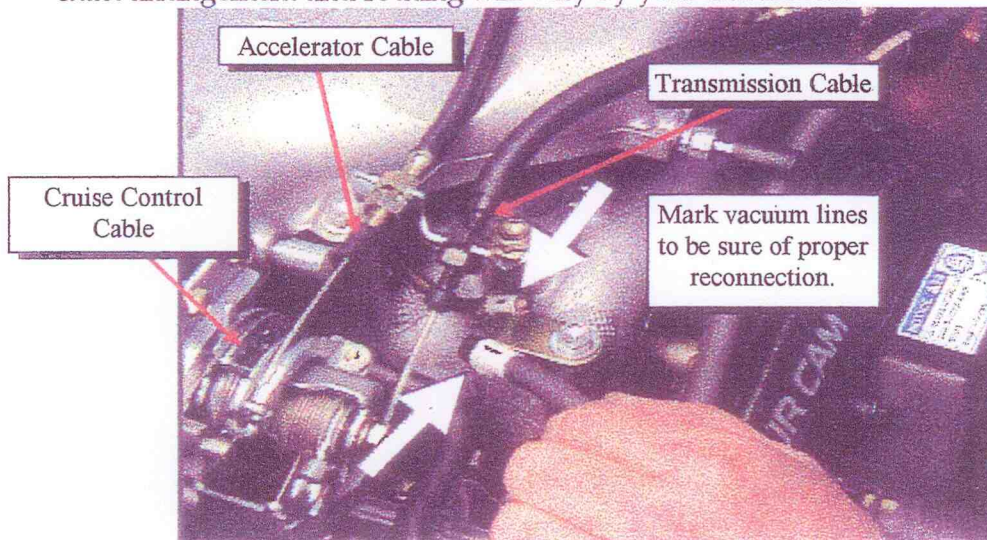


FIGURE 1

Label the vacuum lines and attachment points as you disconnect the lines to facilitate reattachment. Consult your factory repair manual for exact routing and locations. **Figure 2** shows an exploded view of the engine components that will be removed.

NOTE: PLEASE REFER TO THE GENERIC VACUUM HOSE ROUTING SCHEMATIC ON THE FOLLOWING PAGE DURING ASSEMBLY

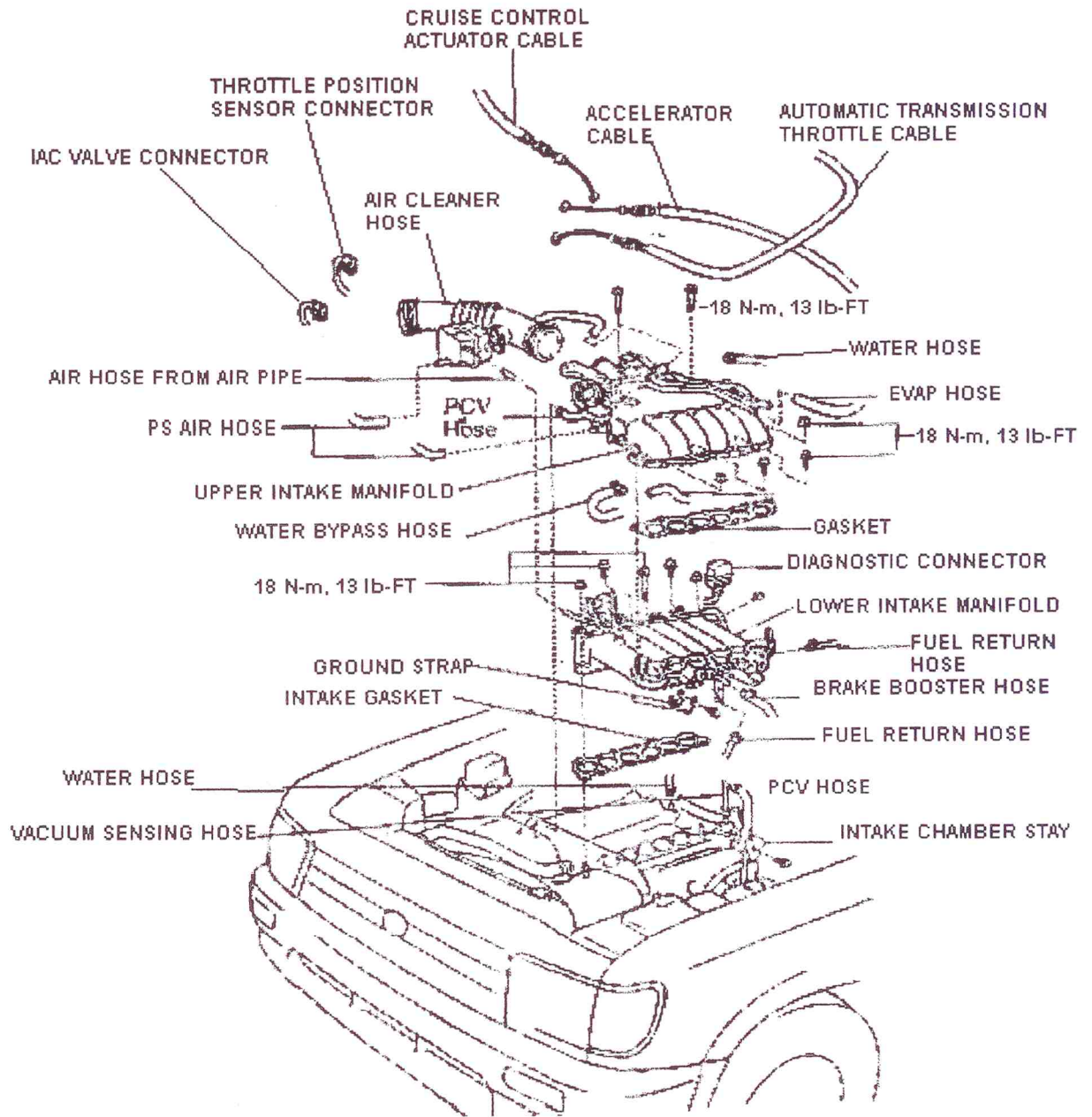


FIGURE 2

- Loosen the clamps on the air intake tube at the Mass Air Flow Sensor (MAF) and throttle body. They need not be fully removed. Be particularly careful when working near the Mass Air Flow Sensor, which is mounted at the air filter box. Be sure to mark the vacuum connections to facilitate re-assembly. Make sure that all tubes and lines have been disconnected from the air intake tube. Remove the air intake tube and set it aside.

Some vehicles are equipped with either one or two Vacuum Switched Valve (VSV) assemblies, as shown in **Figure 3 and 4**. There are at least three different styles of valves. VSV units which are mounted on the rear of the engine should be relocated to the firewall, using the supplied bracket, or the supplied front

cover (this procedure is not shown in the videotape). Label and remove the vacuum lines attached to the VSV, label them and set them aside.

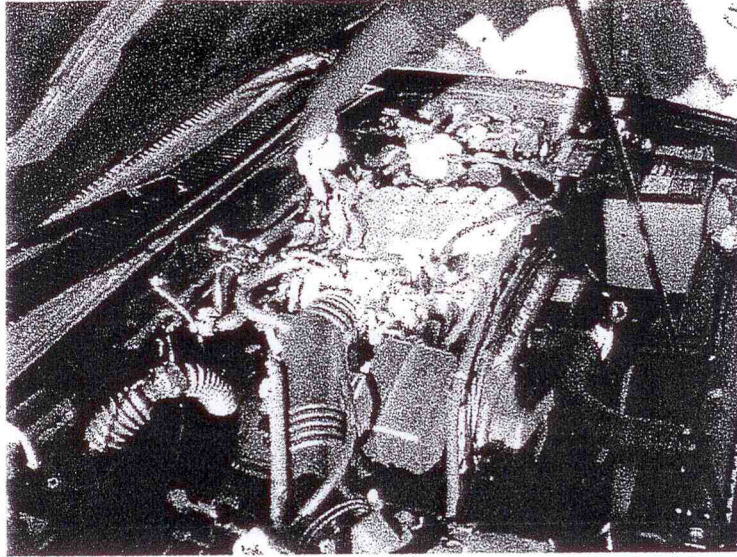


FIGURE 3

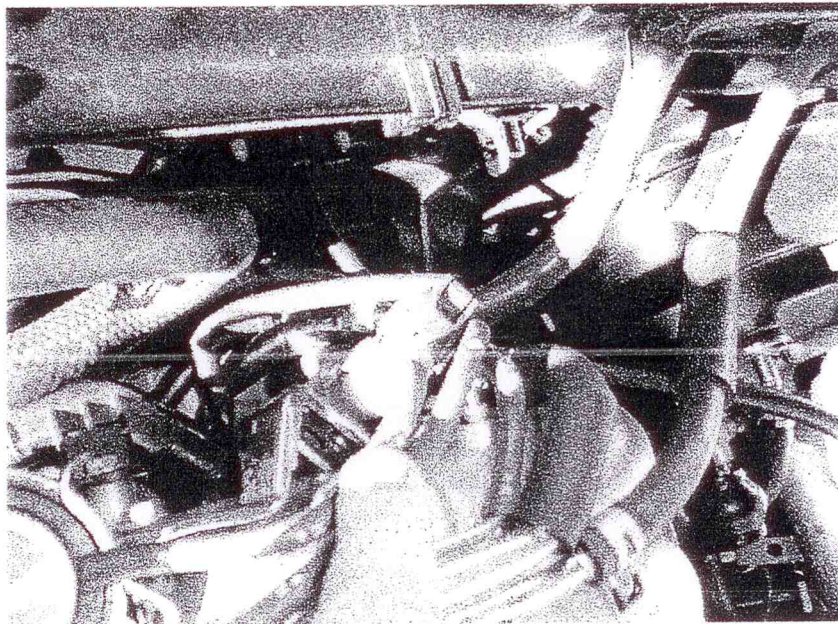


FIGURE 4

If your vehicle has a VSV located near the right front side of the engine, the VSV should be relocated to the new supercharger cover. A small hole may need to be drilled in the supplied cover.

6. Note the tension and adjustment of: the throttle cable, the transmission throttle pressure cable (if equipped with an automatic transmission) and the cruise control cable (if equipped). Loosen the nuts holding the sheath on these cables. Do not remove the nuts entirely. Slip the cable sheaths out of the factory mounting brackets, then slide the cable ends out of the throttle body levers. See **Figure 1**.

7. Remove the throttle position sensor connector. See Figure 5. You may need to remove the adjacent coil plug to avoid interference during disassembly. Remove the IAC valve connector.

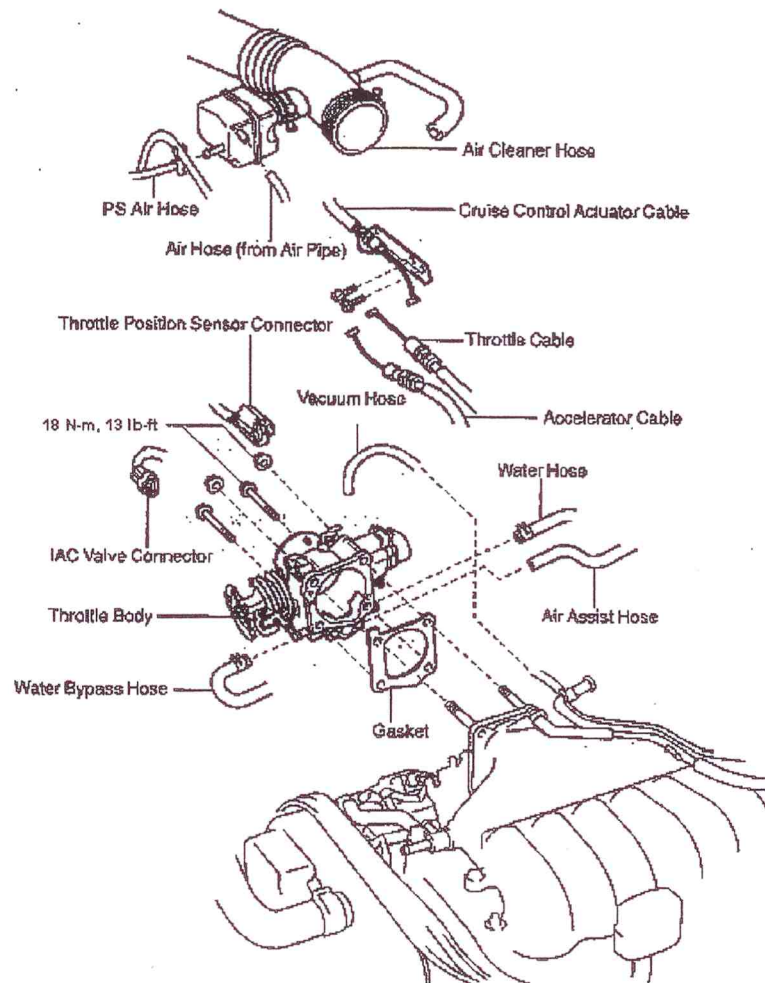


Figure 5

8. Label and remove the vacuum lines from the throttle body. This will be important upon installation. See Figure 5 and 5a. Remove the nuts and bolts holding the throttle body to the factory intake manifold. Set the throttle body aside in the engine compartment. The coolant hoses which connect to the bottom of the throttle body need not be disconnected.

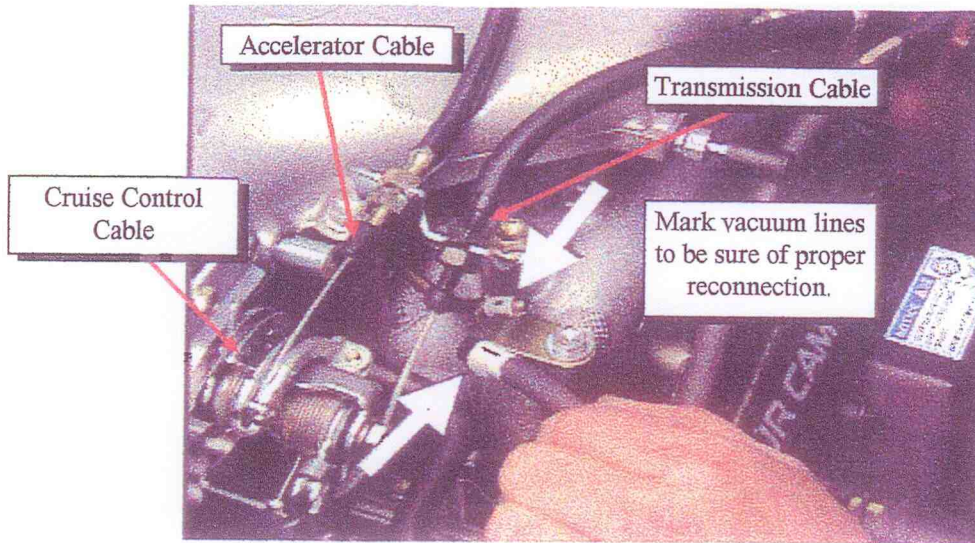


FIGURE 5a.

9. Remove the diagnostic plug from the mounting bracket on the left side of the engine. Set it aside. The plug does not need to be disconnected from the wiring harness. Remove the bolt and bracket which holds the diagnostic connector to the stock manifold and save for reassembly. Remove the bolt holding the ground wire and move the ground wire aside. See Figure 6.

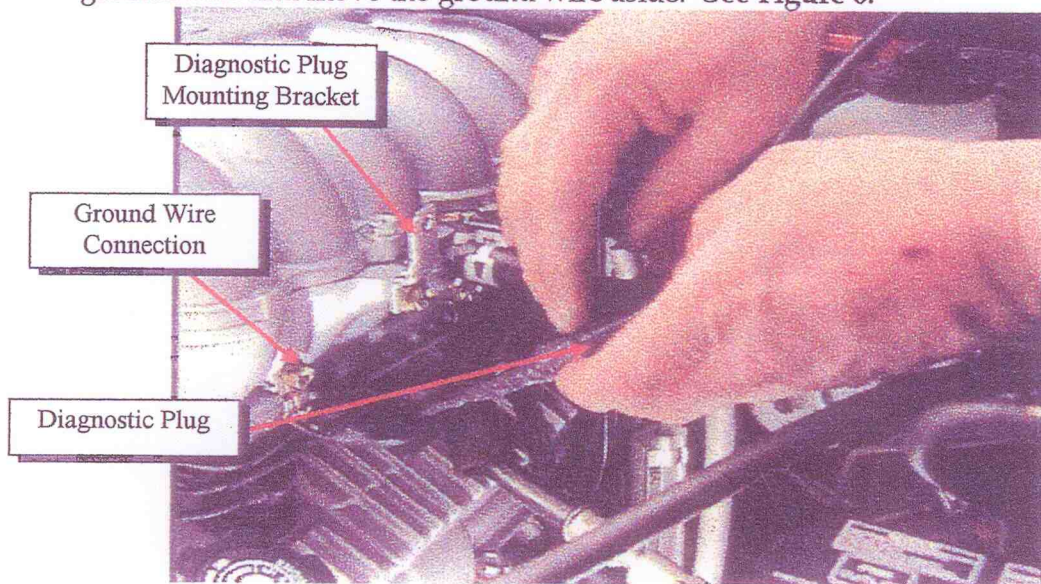


Figure 6.

10. Slide the rubber vacuum lines for the power brake, PCV and EVAP hoses from the metal tubes which are attached to the upper manifold. Mark the lines. Leave the tube retaining bracket on the upper manifold.

If your vehicle is equipped with an Exhaust Gas Re-circulation (EGR) valve, you will need to purchase the **TRD EGR System Adapter Kit, PN 00602-25600-001**. To determine if your vehicle has an EGR system, look at the left side exhaust manifold to see if there is a fitting, similar to the one shown in **Figure 7**. If so, then your vehicle has EGR. The kit comes complete with all the necessary

components to maintain the EGR function on your engine. Installation instructions are included in the kit.

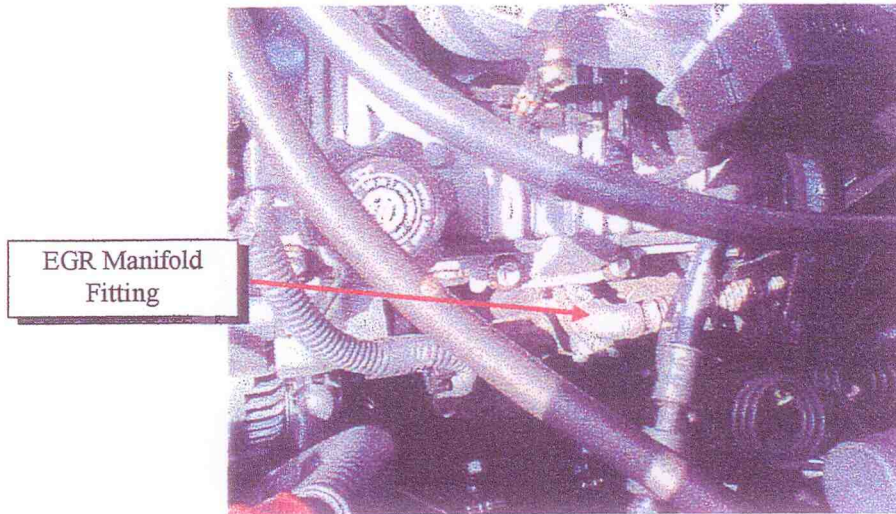


FIGURE 7

11. Remove the bolt holding the manifold to the intake chamber stay, as shown in Figure 2 and 21. Save the bolt for re-assembly.
12. Remove the bolts attaching the upper manifold to the lower manifold. Make sure that all the hardware is removed. Remove the upper manifold and set aside. Remove the fuel return line mounting bracket on the lower left-hand side of the intake manifold. Remove the bolt from the wire loom support bracket which is attached to the rear of the manifold.
13. Remove the lower intake manifold assembly. The nuts which are farthest to the front and rear of the engine will be reused during installation. You may want to use a magnet or "claw" to pick up the nuts at the front and rear of the manifold. Inspect stock manifold gasket. This gasket will be reused. If, however, for any reason, the gasket between the lower manifold and engine manifold is not reusable, the replacement gasket is available at your Toyota dealer under part number 17176-62040. Use a piece of wide masking tape to cover the intake manifold ports to prevent debris from getting into the engine.

Fuel Pressure Regulator Assembly

- ~~14.~~ Locate the fuel return line and the fuel pressure regulator assembly. See Figure 8. Place a rag beneath the fuel return line and pressure regulator to absorb any fuel that may drip during disassembly. There may be some residual fuel in the line, which will leak when they are disconnected.

DO NOT FOLLOW SECTION ON REMOVING AND INSTALLING THE FMU. IT IS NO LONGER PART OF THE TRD KIT AND WAS DELETED YEARS AGO.

SIMPLY CONNECT THE VACUUM LINE FROM THE FUEL PRESSURE REGULATOR TO THE BOOST PORT ON THE SUPERCHARGER.

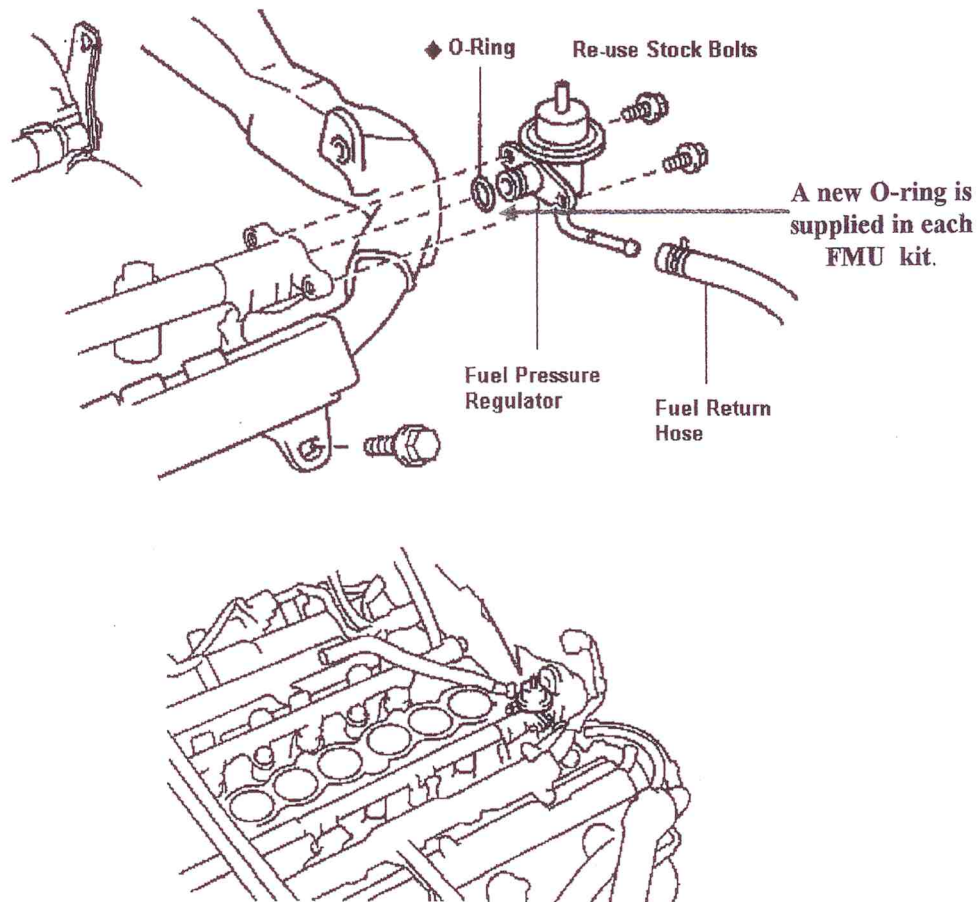


Figure 8.

18. Remove the clamp from the fuel return line. Remove the bolts holding the pressure regulator to the fuel rail. Very slowly and carefully remove the pressure regulator from the end of the fuel rail by slowly turning it alternately clockwise and counter-clockwise as you gradually pull the regulator out of the fuel rail bore. There may be some residual fuel pressure. **DO NOT PRY ON THE REGULATOR.** Damage to the fuel rail flange or regulator may occur. As shown in **Figure 8**, there is an O-ring seal on the pressure regulator which must not be damaged. Once removed, take the regulator to your **clean** workbench. Avoid getting dirt or grit in the regulator or the Fuel Management Unit (FMU).

19. At the workbench, wipe the stock fuel pressure regulator clean. Install the supplied V-band clamp over the FMU. Install the stock fuel pressure regulator on to the FMU by inserting the extended pin straight into the vacuum port on the stock fuel pressure regulator until it bottoms out. Do not force the pin in any way. **DO NOT** drop the FMU or otherwise bend the pin which extends from the FMU. Correct alignment of the pin is absolutely critical for proper operation. See **Figure 9**.

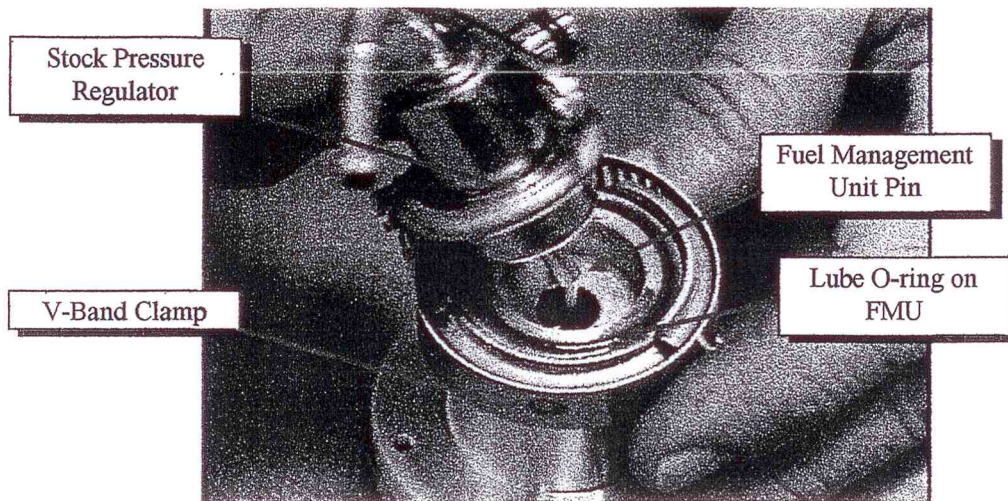


FIGURE 9

Install the V-band clamp over the FMU and stock fuel pressure regulator as shown in **Figure 10**. Make sure the fuel pressure regulator and Fuel Management Unit are aligned as shown.

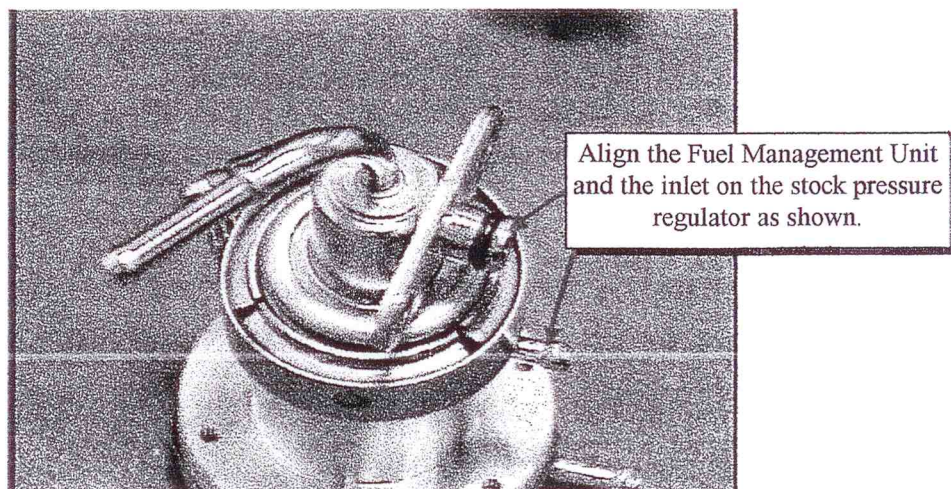


FIGURE 10

Wait until the regulator/FMU assembly is installed on the firewall before fully tightening the V-band clamp. This will allow you to easily turn the unit to index the vacuum/pressure lines correctly.

~~17.~~

Place a little of the supplied assembly lubricant on the O-ring on the stock fuel pressure regulator. Install the supplied adapter hose assembly on to the stock fuel pressure regulator. See **Figure 11**. When pushing the adapter hose fitting on to the regulator, be careful to use the same turning motion as during removal to avoid damaging the O-ring. If the O-ring is or becomes damaged in any way, it must be replaced.

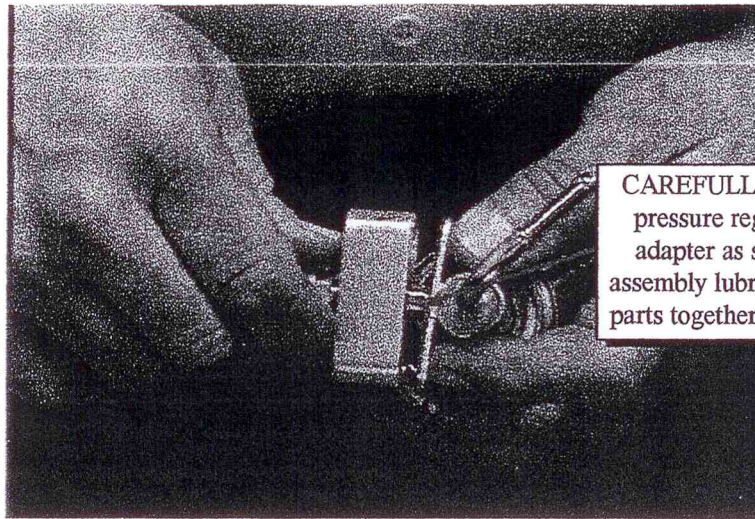


FIGURE 11

18. Install the supplied bolts into the adapter. Tighten the bolts, making sure the fuel pressure regulator sits flat on the adapter. No gap is permissible. Do not over-tighten.
19. Lightly coat the O-ring on the "male" end of the adapter hose assembly with the same supplied assembly lubricant.
20. Insert the male end of the adapter hose assembly into the bore of the fuel rail, as shown in **Figure 12**, using the same gentle turning motion as before while pushing the fitting on. Do not damage the O-ring. If the O-ring is or becomes damaged in any way, it must be replaced. Again, never hurry or force the parts together. Install the original bolts through the adapter fitting into the fuel rail end. Make sure the adapter sits flat on the fuel rail mounting surface. No gap is permissible.

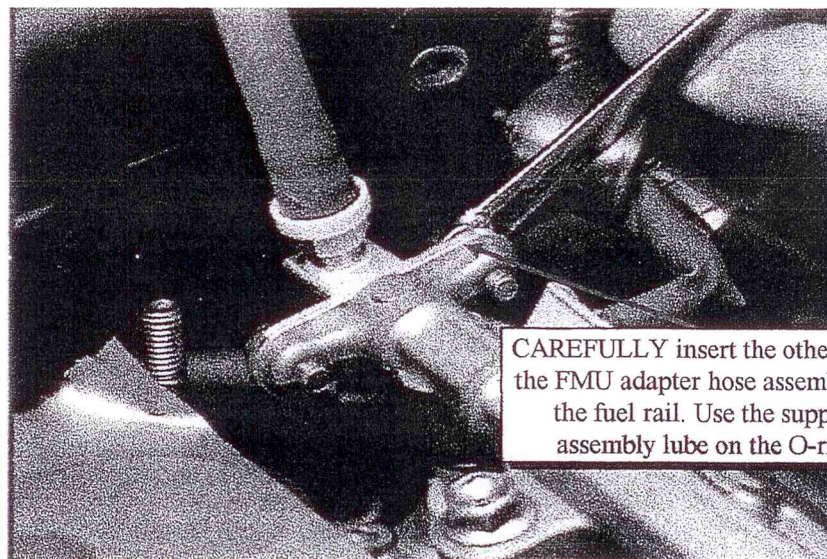


FIGURE 12

21.

Using the supplied fasteners, install the FMU assembly on the firewall as shown in **Figure 13**. There is a hole on the firewall which can be used for mounting the FMU. Orient the FMU so that the vacuum fittings on the FMU point towards the engine. Once aligned, tighten the band clamp on the FMU assembly, if it has not already been done. **BE SURE** to fully secure the clamp before starting vehicle.

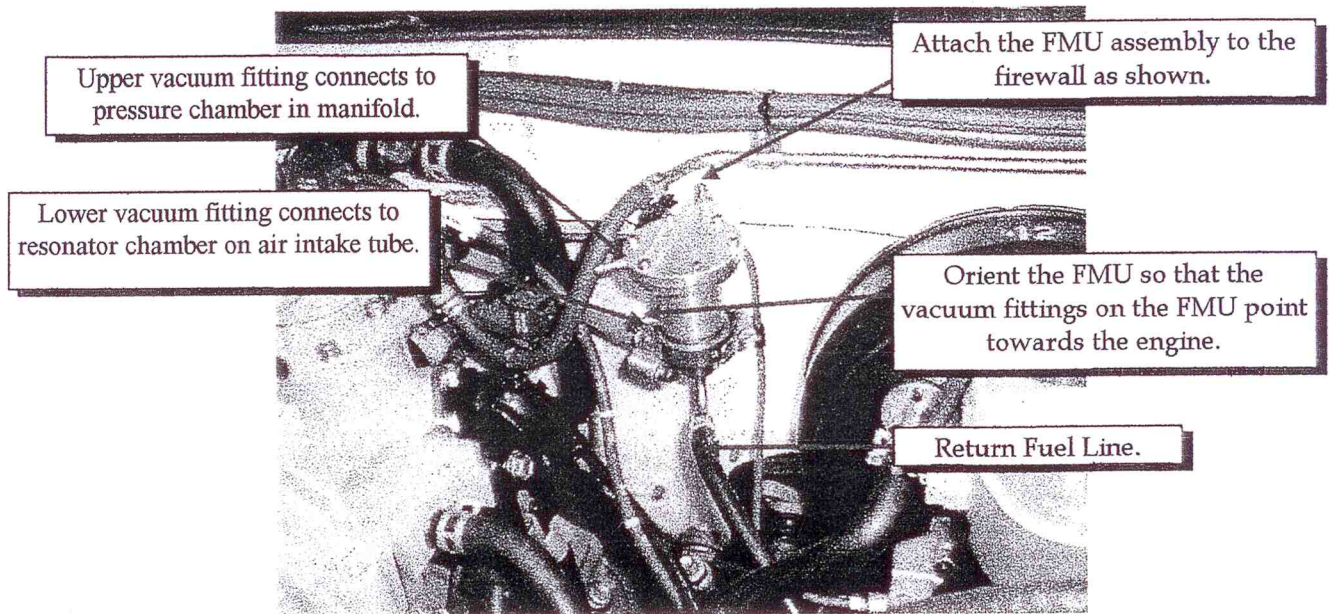


FIGURE 13

22.

Route the supplied hose from the stock fuel pressure regulator to the metal return line. **Be sure the clamps are in place and tightened properly.** See **Figure 14**.

23.

If your vehicle is equipped with an **automatic transmission**, unclip the transmission cable from the stock retaining bracket. Remove the upper bolt from the stock retaining bracket, and tilt it forward about 15 degrees. Install the supplied relocation bracket using the supplied bolts, as shown in **Figure 15**. Attach the cable bracket to the relocation bracket as shown. Snap the cable back into the bracket.

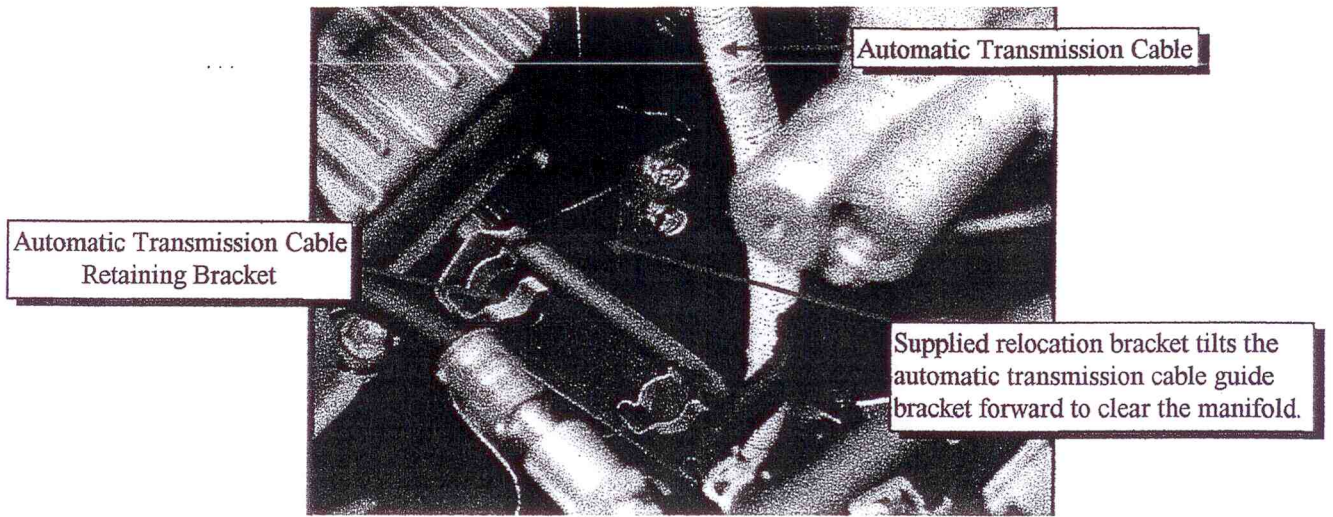


FIGURE 14

Front Cover

- ~~24.~~ Remove the upper radiator hose from the engine block. Removing the hose from the radiator is optional.
- ~~25.~~ Remove the stock black plastic front cover from the engine. Retain the fasteners.
- ~~26.~~ TRD supplies a strip of gasket material to be put in place of the factory gasket. Insert the gasket material in the groove shown in Figure 15. This provides a dirt shield for the cam timing belt and pulleys.

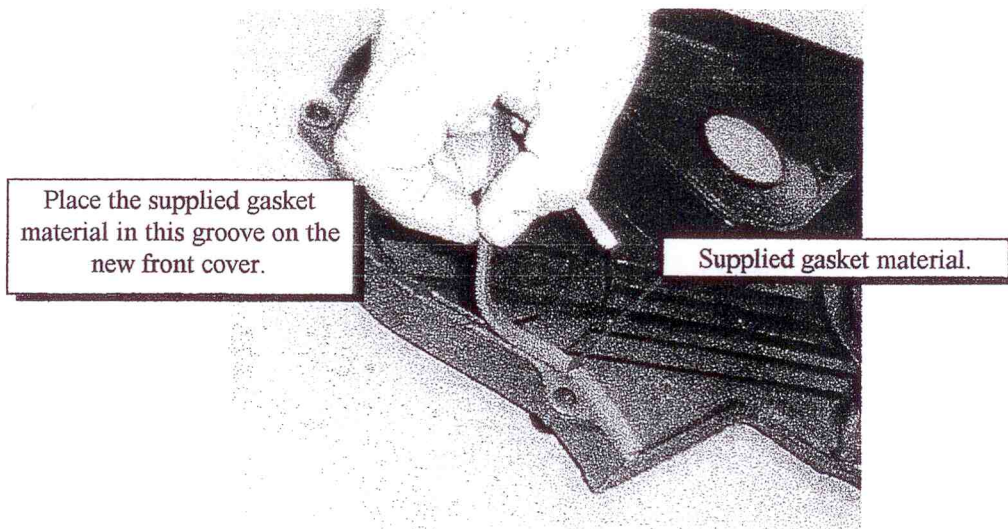


FIGURE 15

- ~~27.~~ Install the supplied cover in the same manner as the original cover.

A NEW COVER WAS DELIVERED FROM THE KIT YEARS AGO, YOU WILL HAVE TO CUT AWAY PART OF THE COVER TO CLEAR THE SUPERCHARGER NOSE DRIVE. DETAILS CAN BE FOUND IN THE GEN II SUPERCHARGER INSTALL MANUAL

~~28.~~

Reinstall the upper radiator hose. Replace coolant. Note: If your vehicle has exceeded the recommended change interval for radiator fluid, take this opportunity to install genuine Toyota coolant.

Drive System

29. The forward belts, the ones that drive the power steering pump and air conditioning compressor, may be re-used. They should be reinstalled to rotate in the same direction as they were originally. Mark the forward edge of the air conditioning compressor belt and power steering belt so that they can be identified and installed in the same manner upon reassembly. Note the installed tension on the belts. You will need to approximate this tension adjustment during reassembly.
30. Loosen the pivot and adjuster for the power steering pump. You may wish to remove the air filter box so as to gain easier access to the power steering adjuster. Loosen the retaining bolt in the center of the air conditioning compressor belt tensioner. Back off the adjuster bolt until the belt is loose enough to remove.

Loosen the alternator pivot and adjusting bolt as shown in **Figure 16**. Remove the alternator belt. This belt will be replaced by the supplied TRD belt.

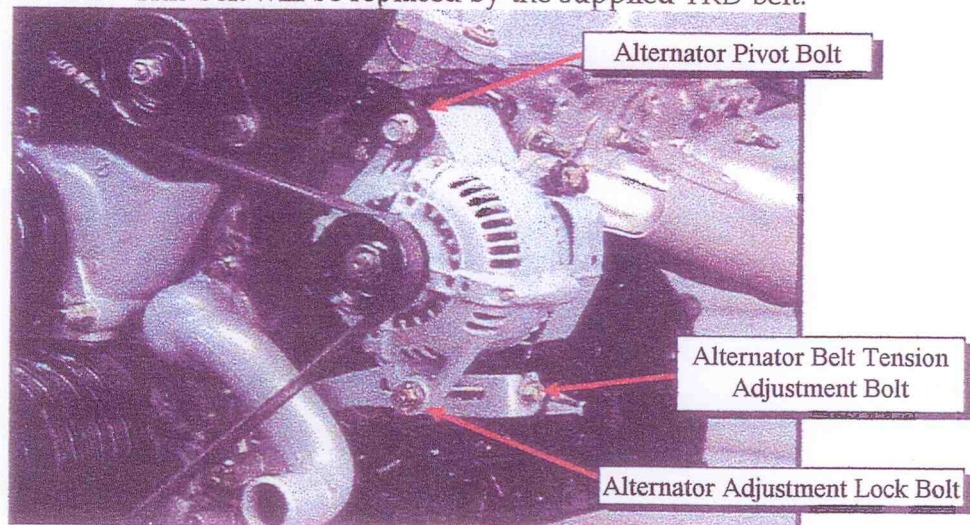


Figure 16

~~31.~~

Remove the 10mm x 1.25 x 90mm long bolt from **Location A**, as shown in **Figure 17**.

YOUR KIT SHIPPED WITH THE NEWER SPRING LOADED SUPERCHARGER BELT TENSIONER. DETAILS ON ITS INSTALLATION CAN BE FOUND IN THE GEN II SUPERCHARGER INSTALL MANUAL

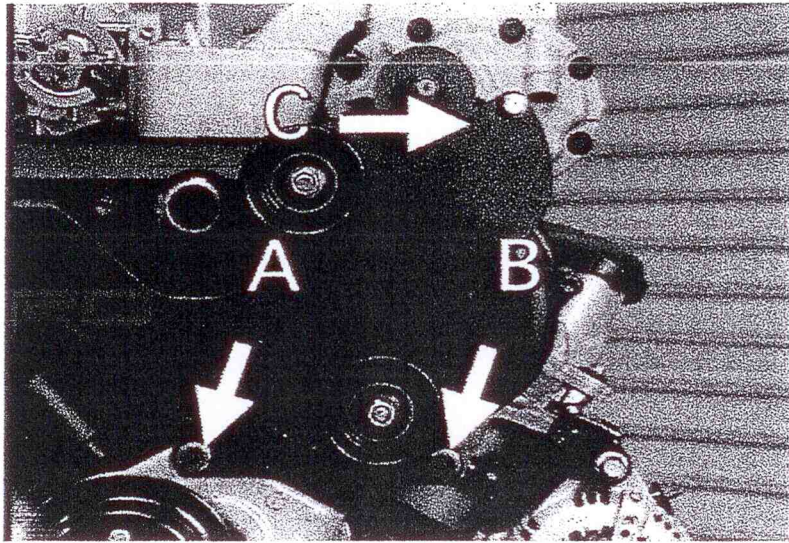


FIGURE 17

32. Set the idler assembly in place on the front of the engine, as shown in Figure 17. Align the bolt holes as shown.
33. Install the supplied 10mm x 1.25 x 100mm bolt in Location A and the supplied 10mm x 1.25 x 80mm bolt and 10mm washer in Location B. Hand tighten each bolt for now. See Figure 17.

Supercharger & Manifold Installation

34. Remove the tape on the intake manifold. Reinstall the stock factory gasket (See Figure 18), verifying it is in place before lowering supercharger/manifold assembly. Make sure the ignition wires are routed out from under the drive housing of the supercharger. See Figure 20. Install the TRD supercharger and manifold assembly on the stock manifold. Be careful that the assembly, once lowered, sits flat on the manifold. Be sure no hoses or wires are interfering, particularly the evaporative canister and ignition wires at the front of the supercharger. Install the stock nuts on the studs at each end of the manifold. Hand tighten to keep the assembly in place.

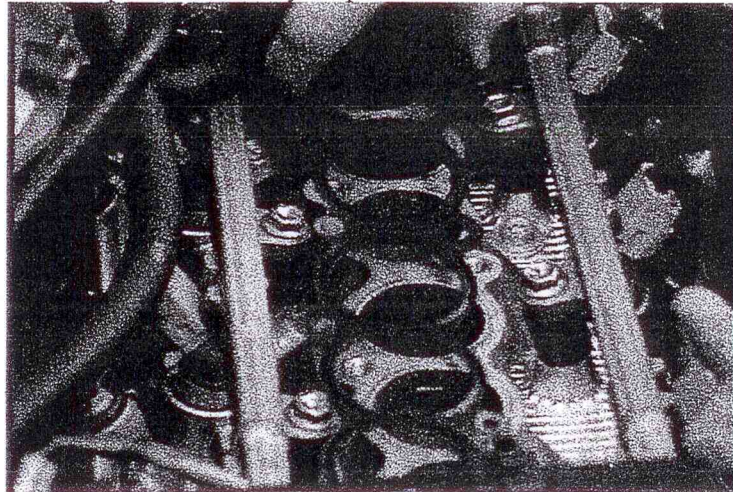
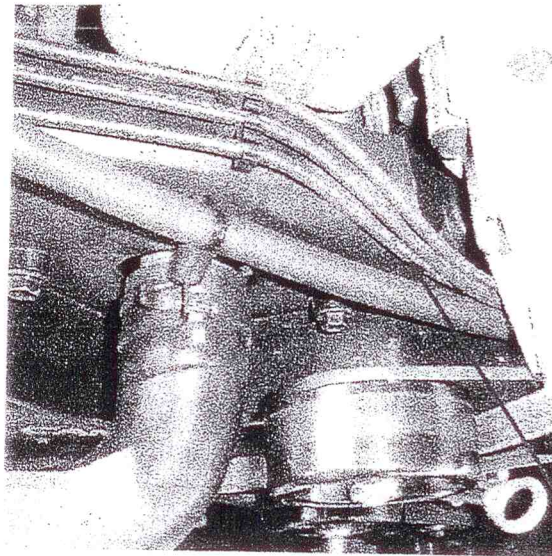


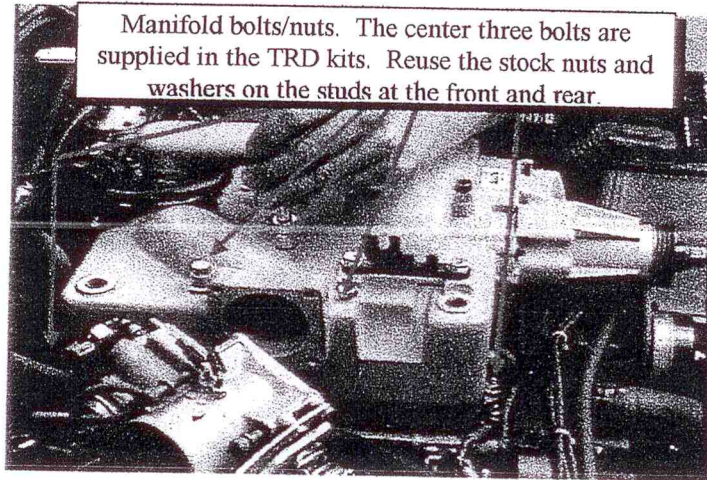
FIGURE 18



Make sure wires are routed beneath the supercharger drive housing, rather than pinched between the housing and plastic cover.

FIGURE 19

35. Install the three long manifold bolts supplied with the kit, through the supercharger manifold to the stock intake manifold. Torque all five manifold fasteners to 18 N-m (13 lb.-ft.) alternating from one side to the other. See **Figure 20**.



Manifold bolts/nuts. The center three bolts are supplied in the TRD kits. Reuse the stock nuts and washers on the studs at the front and rear.

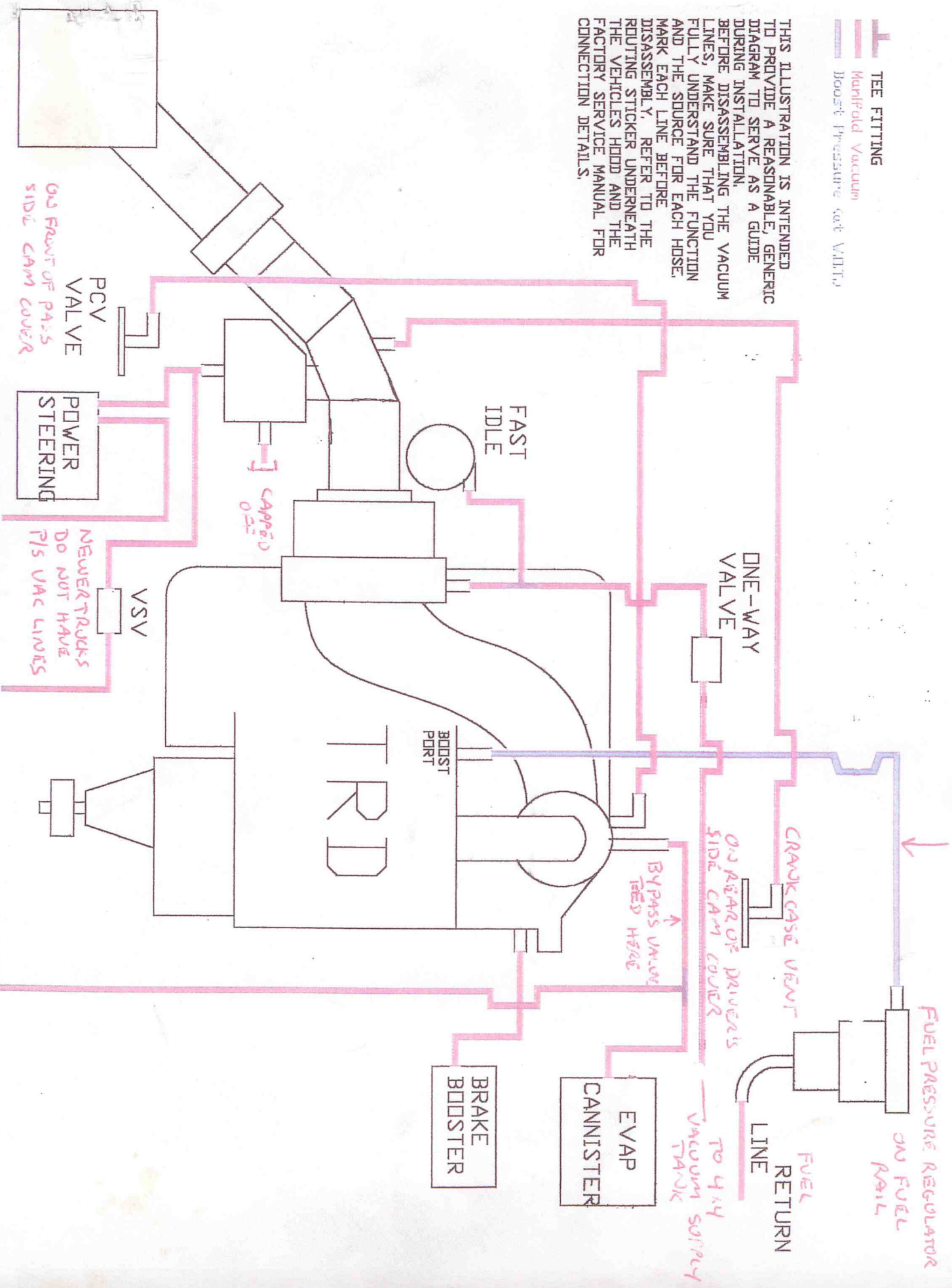
FIGURE 20

36. Attach the manifold brace on the drivers side of the engine to the supercharger brace, reusing the original fastener. See **Figure 2** and **21**.

BOOST GAUGE AND FIC ARE T-ED
HERE

- TEE FITTING
- Manifold Vacuum
- Boost Pressure (at VLT)

THIS ILLUSTRATION IS INTENDED TO PROVIDE A REASONABLE, GENERIC DIAGRAM TO SERVE AS A GUIDE DURING INSTALLATION. BEFORE DISASSEMBLING THE VACUUM LINES, MAKE SURE THAT YOU FULLY UNDERSTAND THE FUNCTION AND THE SOURCE FOR EACH HOSE. MARK EACH LINE BEFORE DISASSEMBLY. REFER TO THE ROUTING STICKER UNDERNEATH THE VEHICLE'S HOOD AND THE FACTORY SERVICE MANUAL FOR CONNECTION DETAILS.



PCV VALVE
GAS FRONT OF PASS
SIDE CAM COVER

POWER STEERING

VSV
NEWER TRUCKS
DO NOT HAVE
P/S VAC LINES

BRAKE BOOSTER

EVAP CANNISTER

FAST IDLE

TRD

BOOST PORT

ONE-WAY VALVE

CRACKCASE VENT
ON REAR OF DRIVER'S
SIDE CAM COVER

BYPASS VALVE
RED HOSE

FUEL RETURN LINE

FUEL PRESSURE REGULATOR
ON FUEL RAIL

TO 4x4
VACUUM SUPPLY