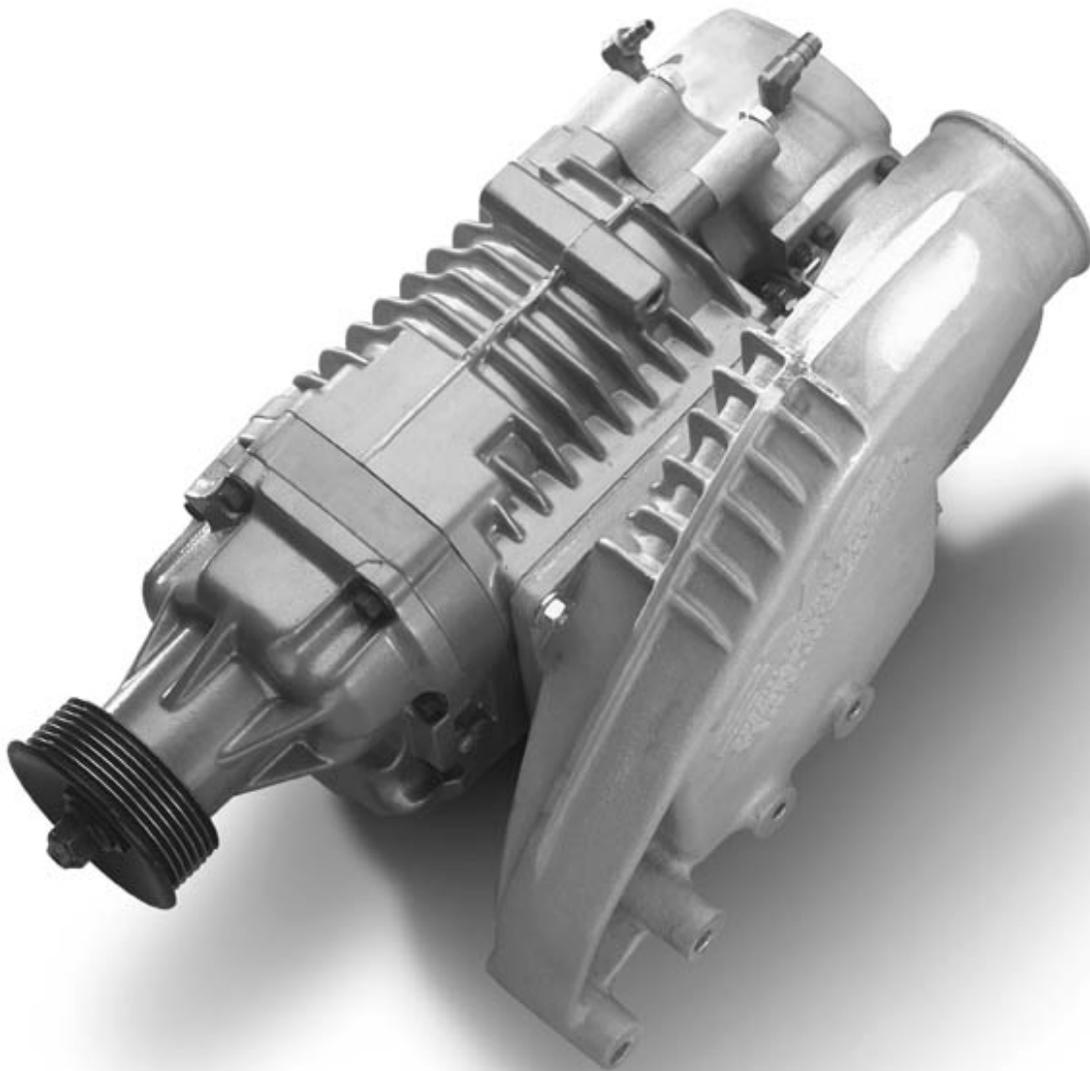




**Installation Instructions  
Supercharger Kit  
Land Cruiser, 1995 – 1997**



**Supercharger Kit Part Number: PTR29-60097**

July 15, 2008



# Installation Instructions

## Land Cruiser, 1995 – 1997

Congratulations,

You have just purchased a **TRD** Supercharger System for your Toyota Land Cruiser. After installing this kit, we know you will enjoy the benefits this product has to offer for many miles to come.

If you're planning to operate your supercharged Land Cruiser on the street, you must not make any modifications to the system as delivered nor to the installation methods/procedures outlined in this document in order to maintain any warranty or emission certification.

There are 8 sections in the installation process. The sequence of steps are the most efficient method of installing the kit, so follow each step to successfully install the kit in your vehicle. Please review and complete each section before moving on to the next section.

- Section 1      Installation Preparation: Kit Contents
- Section 2      Prepare Vehicle
- Section 3      Remove Parts
- Section 4      Install Drive Assemblies
- Section 5      Prepare Engine Compartment
- Section 6      Install Supercharger and Throttle Body
- Section 7      Install Vacuum/Fluid Hoses  
                    Modify Electrical Harness
- Section 8      Final Assembly



# Installation Instructions

## Supercharger Kit

### Land Cruiser, 1995 – 1997

#### Section 1: Installation Preparation

#### Kit Contents

Step	Qty	Item	Number.Fastener	Descript.	Size	Bag #
7	1	Fan	(4)	Existing flange nuts	-	-
8-9	1	Crank Pulley	(2)	Flange Head Bolt	M8-1.25 x 30 mm	58
	1	Crank Pulley Spacer	(1)	Hex bolt	M22-1.50 x 90 mm	
			(1)	Flat Washer	M22	
10	1	Idler Pulley/Belt Tensioner Assy	(2)	Flange Head Bolt (12 mm wrench flat)	M8-1.25 x 20 mm	51
11-12	1	Fan Spacer	(4)	Stud	M8-1.25 x 45 mm	57
			(4)	Nylock Elastic Stop Nut	M8-1.25	
15	1	Heater Pipe	(3)	Existing nuts/bolt	-	52
	1	Heater Pipe to engine Gasket (In Lit Kit)	(1)	Hose Clamp	1 1/4"	
16	1	Plenum Mount Stud	(1)	Stud	M8-1.25 x 75 mm	54
17	1	Supercharger Plenum Chamber	(2)	Flange Head bolt	M10-1.25 x 80 mm	54
			(1)	Flange Head bolt	M8-1.25 x 30 mm	
			(1)	Flange Nut (serrated) (12 mm wrench flat)	M8-1.25	
19	1	Supercharger	(4)	Flange Nut (serrated) (12 mm wrench flat)	M8-1.25	54
20	1	Throttle Body Adaptor	(2)	Flange Head bolt	M8-1.25 x 50 mm	56
			(1)	Hose	1.5" ID x 1.5"	
			(2)	hose Clamp	1.5" – 2"	
21	1	Coolant Hose, 5/16" x 24"	(3)	Medium Spring Clamp (1 spare)	.63"	56
			(1)	Hose Fitting, Male/Male	5/16"	
22	1	Throttle Body Gasket (In Lit Kit)	(4)	Existing bolts	-	Lit Kit
23	1	Coolant Hose, 5/16" x 28"	(2)	Adel Clamp	#10	52
			(2)	Flange Head Bolt	M6-1.0 x 12 mm	
			(2)	Nylock Elastic StopNut	M6-1.0	
			(2)	Flat Washer	M6	
			(2)	Medium Spring Clamp	.63"	
24	1	Plastic Wiring Loom, 3/8" x 32"	-	-	-	59
	1	Plastic Wiring Loom, 1/2" x 12"	-	-	-	
26	1	Brake Booster Pipe (rigid)	-	-	-	-
28	1	Vacuum Hose, 11/32" x 4"	(2)	Large Spring Clamps	.69"	53
29	1	3.0" 90° Intake Pipe	-	-	-	55
	1	Throttle Body Gasket (In Lit Kit)	(4)	Flange Bolt	M8-1.25 x 25 mm	
	1	Intake Runner	(4)	Hose Clamp	4"	
	2	Hose, 3" x 3"	-	-	-	
30	1	Breather Hose Assembly:	-	-	-	60
		- 90°Elbow	-	-	-	
		- Hose, 1/2" x 26"	-	-	-	
31	1	PVC Hose, 5/16" x 12"	(2)	Small Spring Clamps	.56"	60
32	1	1/8" BSP Brass Plug	-	-	-	60



# Installation Instructions Supercharger Kit Land Cruiser, 1995 – 1997

## Section 1: Installation Preparation Kit Contents, continued

Step	Qty	Item	Number.Fastener	Descript.	Size	Bag #
33	1	Vacuum Hose, 1/8" x 72"	-		-	60
	1	Vacuum hose, 7/32" x 54"	-		-	
35	1	Hose, 3" x 3"	(5)	Hose Clamp	4"	-
	1	Hose, 3" x 4.5"	(1)	Hose clamp	4.5"	
	2	3" x 90° Intake Pipe				
	1	Hose, Reducer, 3" x 3.5" x 3"				
38	1	Serpentine Belt		Dayco #20-3045	-	-
-	1	1/8" BSP Boost Gauge Adaptor	-		-	60
	2	.43" x .47" Hose Clip				
	2	.28" x .28" Hose Clip				
	2	Zip Ties, 3/16" x 14"				
<b>Misc.</b>		Form In Place Gasket P/N 00295-00103 or equivalent		<b>REQUIRED</b>		
		Teflon Paste		<b>REQUIRED</b>		
		Thread Locker, Loctite # 242 (blue)		<b>REQUIRED</b>		
<b>Basic Tools</b>		Standard Shop Tools				
		1/2" Masking tape for marking parts				
		Shop Towels or Rags				
		Black Electrical Tape				
<b>Safety Tools</b>		Safety Goggles				
<b>Special Tools</b>		Crank Pulley Holder 09213-58012 09330-00021				
		Toyota Land Cruiser Repair Manual 1-800-622-2033				



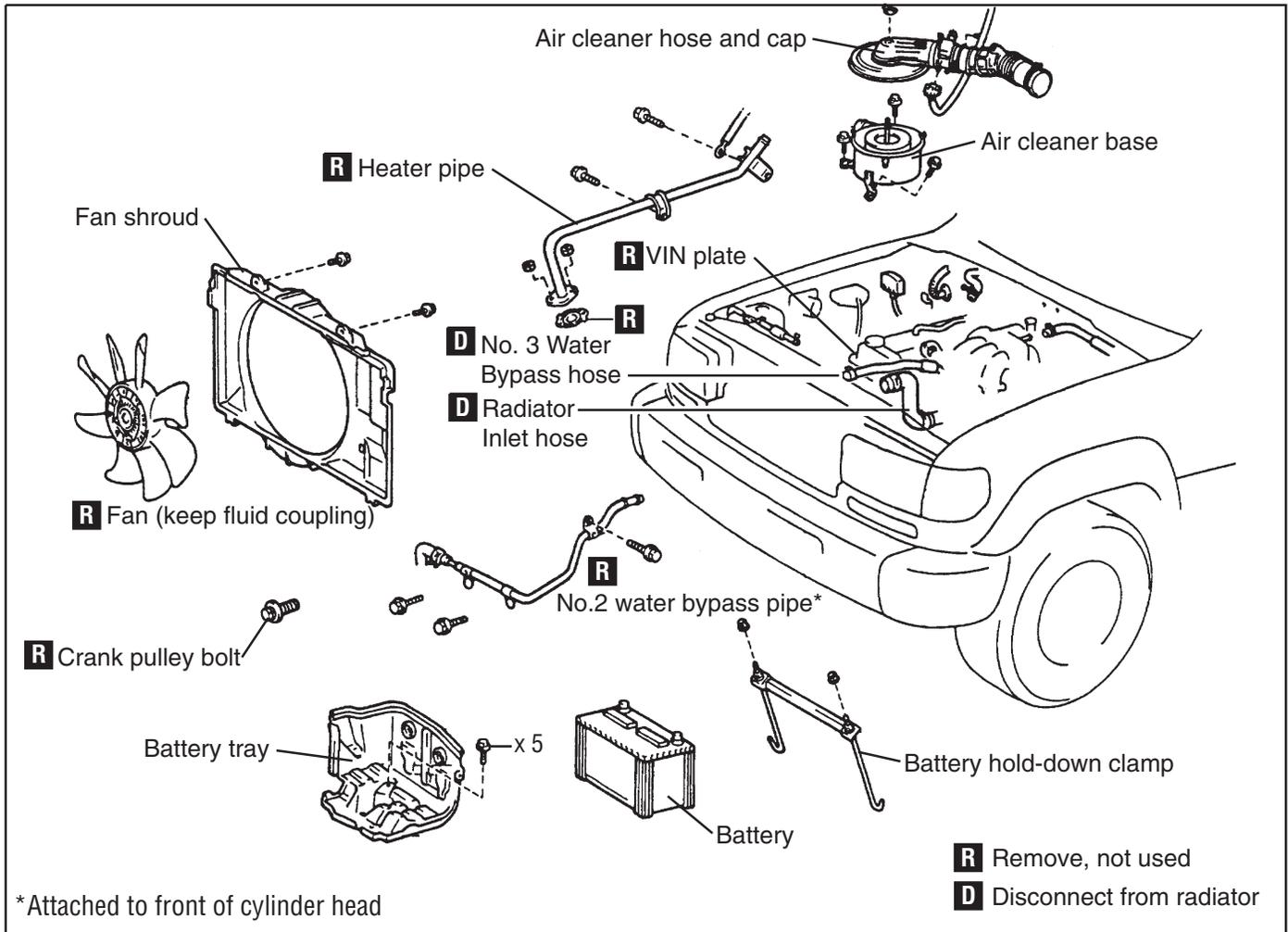
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## **Section 2: Prepare Vehicle**

- Before you begin, we recommend you thoroughly clean the engine and engine compartment. This allows for a neater and cleaner installation. In addition, a clean engine work area prevents grease from dislodging during the installation and falling into the engine.
- Make sure the engine is fully cooled before beginning.
- To help you later, we suggest you draw diagrams of your engine's cable routing before disconnecting anything. You can do the same for the vacuum lines. However, some vacuum lines will be rerouted. To ensure proper hose connections, refer to the illustration in the back of this manual.
- You will reuse some of the factory nuts and bolts while installing this supercharger kit. Therefore, as you remove them, keep them together with their components or label them for location. This assures a faster, easier installation.

## **Section 3: Remove Parts**

1. Disconnect battery.
2. Remove engine under-cover.
3. Drain engine coolant from radiator.
4. Loosen the two alternator belts (but do not remove them).
5. Remove the crank pulley bolt but do not remove the pulley. Refer to the repair manual for the proper removal procedure.
6. Remove and or disconnect the parts in the following illustration:



### Section 4: Install Drive Assemblies

- Remove the fluid coupling from the O.E. fan and reinstall onto the TRD-supplied fan using the (4) existing M6 flange nuts. Tighten to O.E. specifications. Torque: 8.5 Nm (75 in lbf)

8. Install the supercharger pulley onto the existing crank pulley with (2) M8-1.25 x 30 mm hex bolts and M8 flat washers.

**Note:**

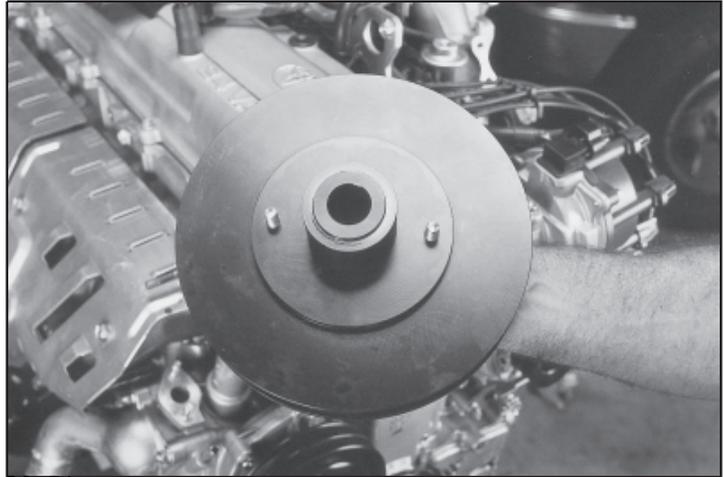
Apply Loctite #242 (blue) to the bolt threads.  
Tighten the bolts to 15 ft•lbs.

9. Install the new M22-1.50 x 90 mm supercharger crank bolt and the M22 washer.

**Note:**

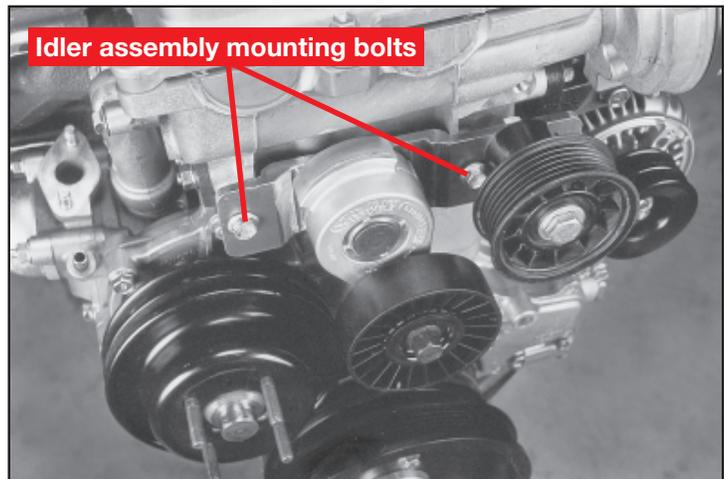
Apply Loctite #242 onto the bolt threads.

Tighten the pulley bolt to manufacturer's specifications. Torque 412 Nm (304 ft lbf)



10. Install the idler pulley/belt tensioner assembly using (2) TRD-supplied M8-1.25 x 25 mm flange bolts. Tighten these bolts to O.E. specifications.

Torque 21 Nm (15 ft lbf)

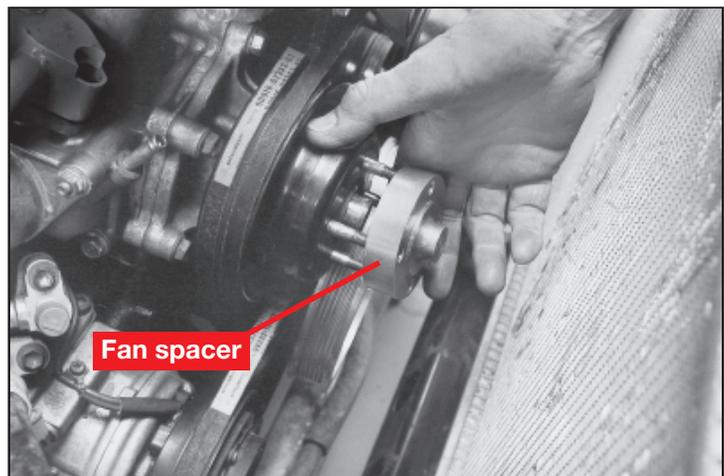


11. Remove the (4) existing studs from the cooling fan mounting flange, then install (4) supplied longer studs (M8-1.25 x 45 mm) and the fan spacer.

**Note:**

Apply Loctite #242 onto the water pump end of each stud.

12. Reinstall the fan shroud and fan assembly, then install the fan using (4) TRD-supplied M8-1.25 nylock nuts. Tighten the nuts to O.E. specifications. Torque 5 Nm (44 in lbf)  
Reinstall the radiator inlet hose and #3 bypass hose onto the radiator.

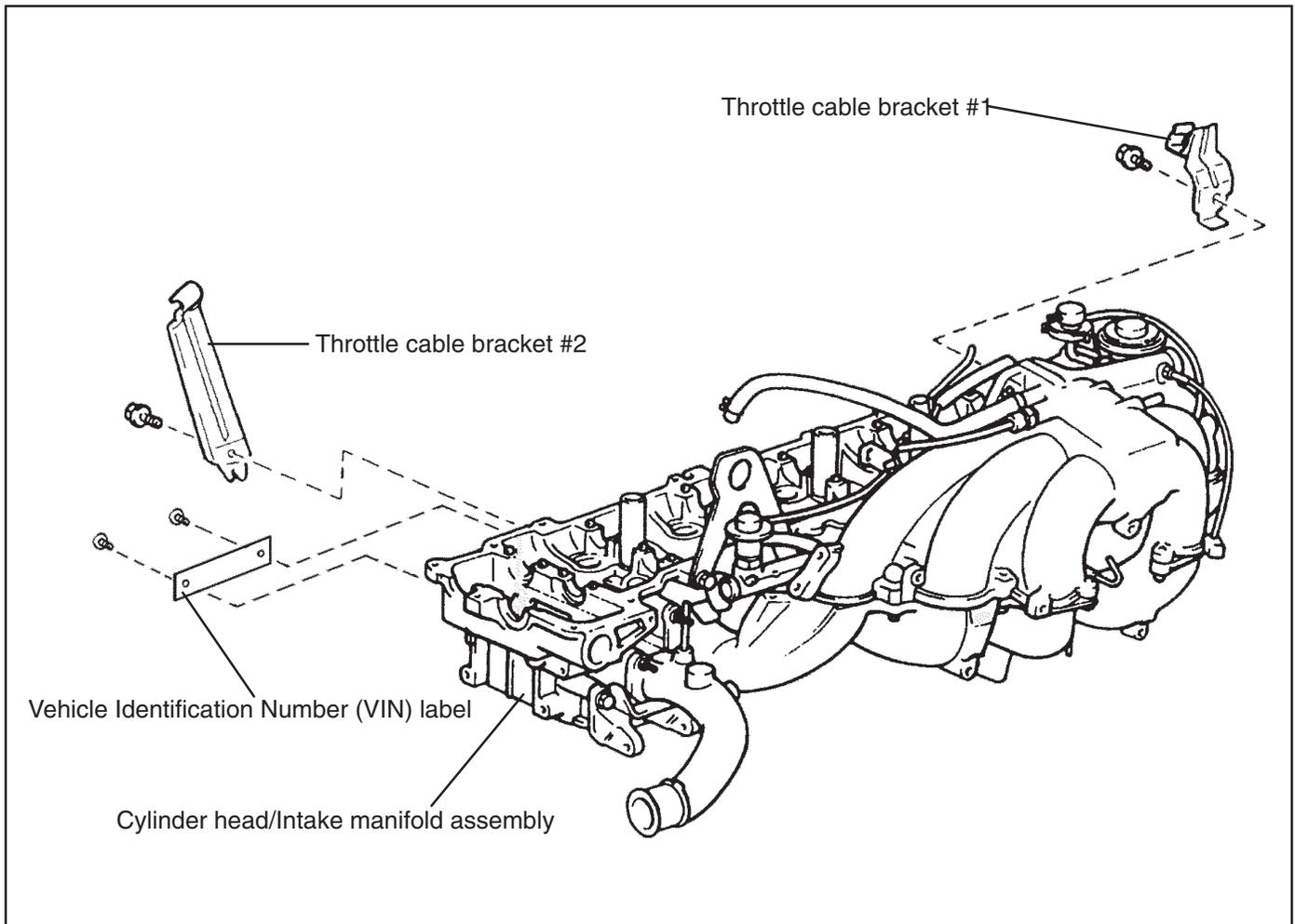


### Section 5: Prepare Engine Compartment

13. Remove the two throttle cable brackets and the Vehicle Identification Number (VIN) label attached to the cylinder head (if installed).

**Note:**

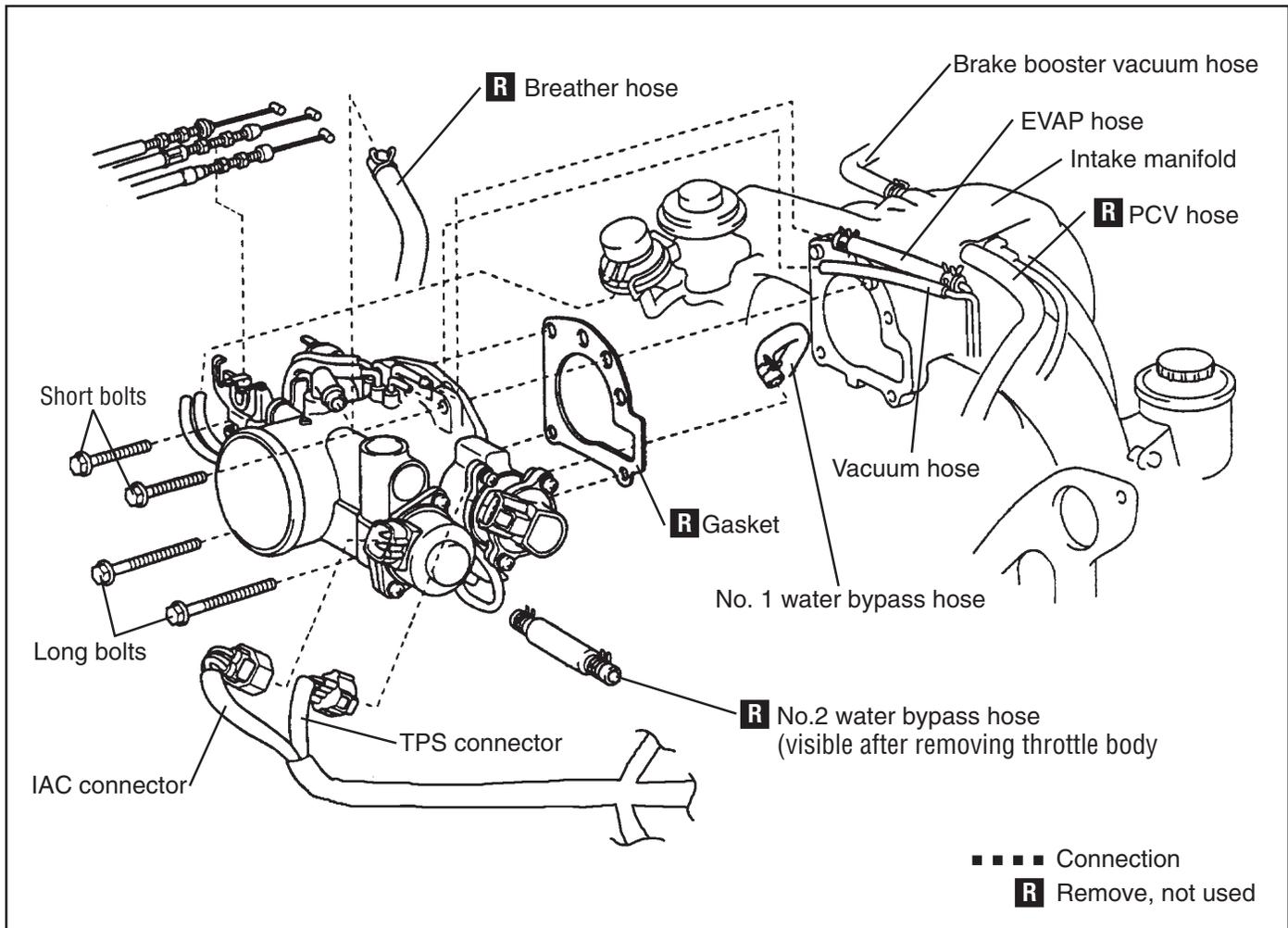
To remove the VIN plate, notch the two roundhead bolts, then use a slotted screwdriver to remove the hold-down bolts.



14. Remove the throttle body as follows:
  - a. Disconnect existing vacuum and coolant lines and the Idle Air Control (IAC) and Throttle Position Sensor (TPS) harness connectors from the throttle body.
  - b. Remove the throttle body from the intake manifold and set aside in the engine compartment. Remove the old throttle body gasket.

**Note:**

Do not disconnect or disturb throttle or cruise control cable settings.



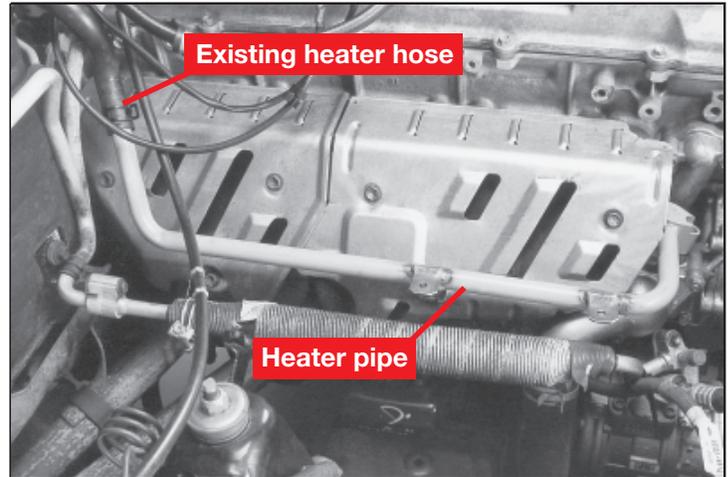
15. Install the new heater pipe and gasket using the (2) existing hex nuts and (1) bolt.

**Note:**

Rotate and align the existing heater hose, then install onto the heater pipe.

If the heater hose is equipped with a cotter pin-type clamp, remove the clamp and replace it with the TRD-supplied 1 1/4" hose clamp.

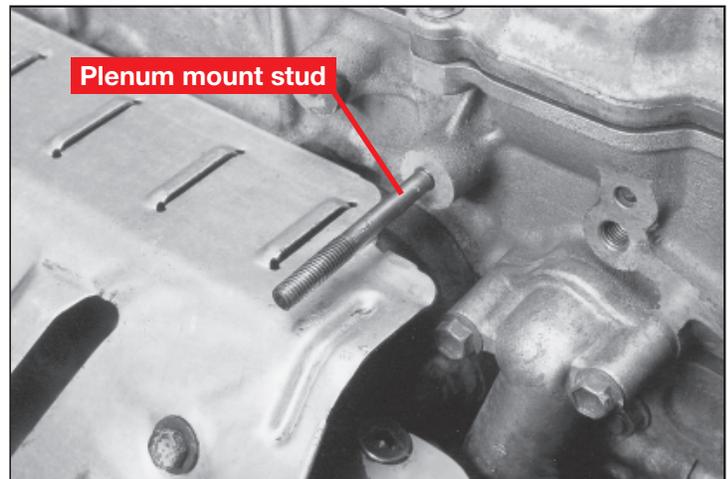
If necessary, bend the metal tabs on the heater pipe to clear the A/C line.



16. Install the stud (M8-1.25 x 80 mm) into the cylinder head as shown.

**Note:**

Apply Loctite #242 to the cylinder head end of the stud.



### Section 6: Install Supercharger and Throttle Body

17. Install the supercharger plenum assembly.

#### I.D. No. Fasteners

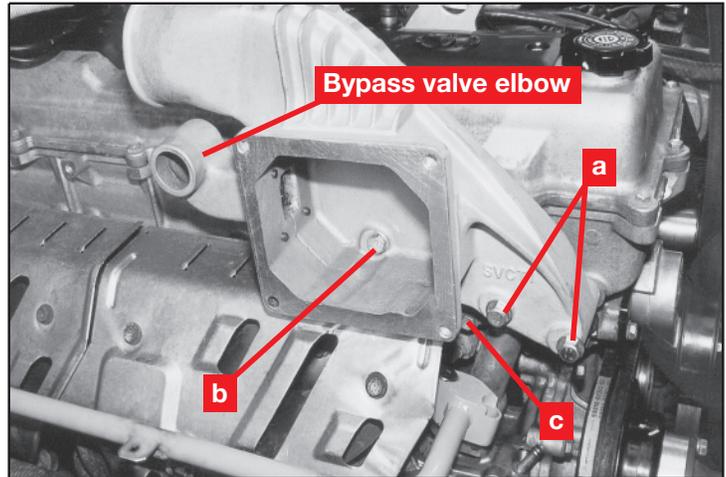
- a = (2) M10-1.25 x 80 mm hex bolts & washers
- b = (1) M8-1.25 x 30 mm hex bolt & washer
- c = (1) M8 Flange nut (no washer)

#### Note:

Apply Loctite #518 to bolt and washer “b”. Make sure the bolt hole is properly sealed!

Tighten bolts “a” to 16 ft•lbs.

Tighten bolts “b” and “c” to 14 ft•lbs.



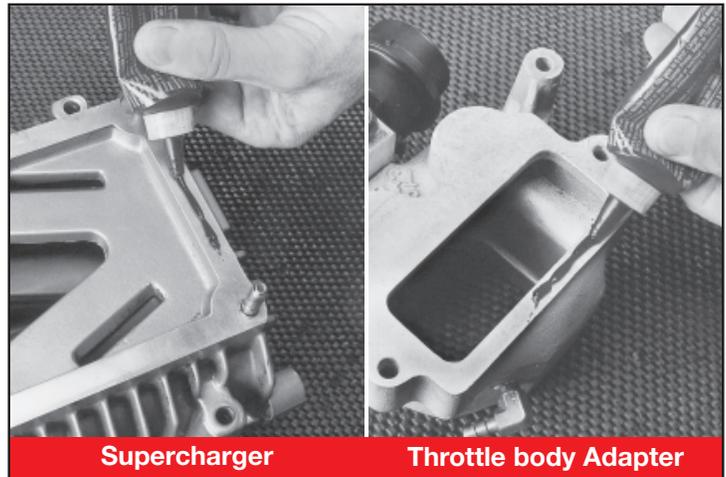
18. Apply gasket sealer to the supercharger-to-plenum mounting surface and to the mounting surface of the throttle body adapter as shown.

#### Note:

Use Loctite #518. or FIPG

19. Install the supercharger onto the plenum using (4) M8-1.25 flange nuts.

Tighten the nuts to 14-16 ft•lbs.



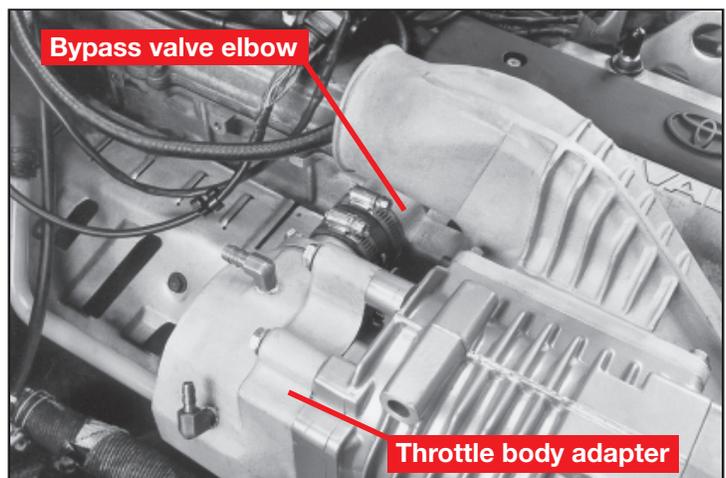
20. Preassemble the 1 1/2" x 2" hose onto the throttle body adapter using the supplied hose clamps.

Install the hose onto the bypass valve elbow and the throttle body adapter onto the supercharger. Use (4) M8-1.25 x 50 mm hex bolts and washers to install the throttle body adapter.

#### Note:

Tighten the bolts to 14-16 ft•lbs.

Install the hose clamps in the direction shown.



**Note:** a spare clamp has been provided for Step 21 in case the OE clamp does not fit.

21. Extend the existing coolant hose to the throttle body using a 5/16" x 24" hose and a 5/16" male/male barbed hose fitting and the supplied spring clamps. Route this hose under the intake manifolding.

**Note:**

Use the medium spring clamp on the barbed end of the hose.

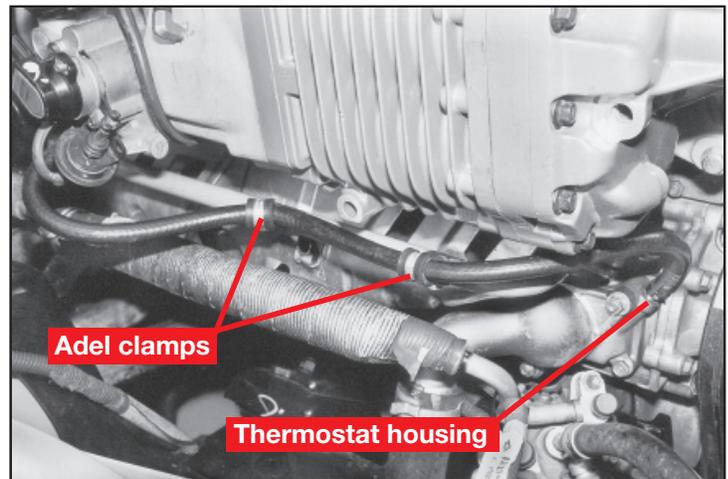
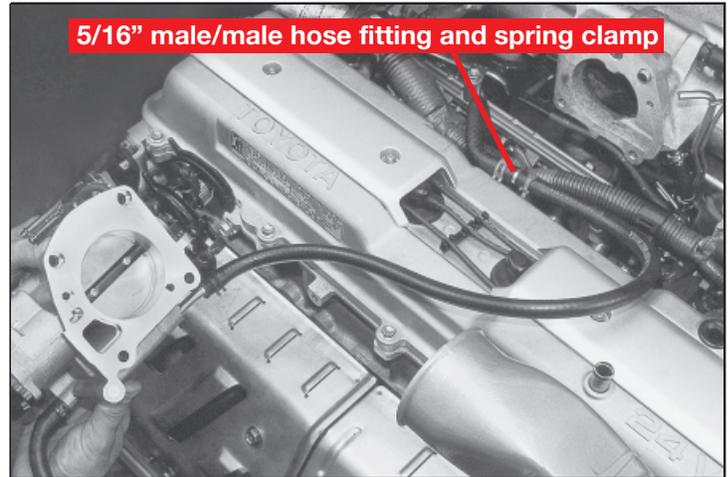
22. Install the throttle body onto the throttle body adapter using the supplied gasket. Use the existing O.E. (2) short and (2) long bolts.

Tighten the bolts to 14-16 ft•lbs.

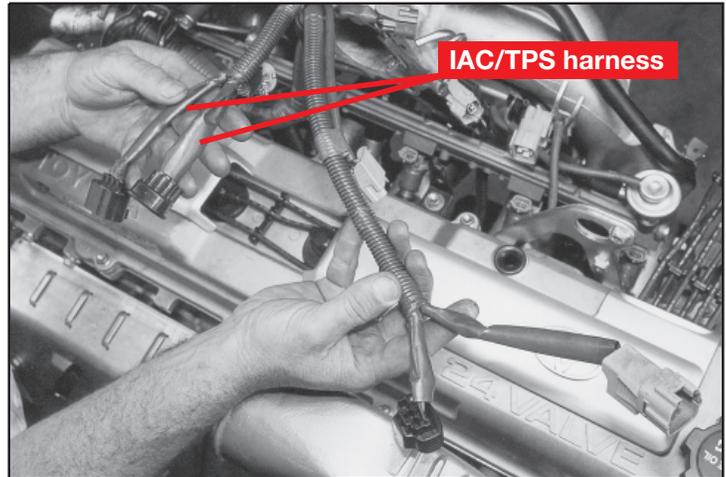
### Section 7: Install Vacuum/Fluid Hoses Modify Electrical Harness

23. Install a 5/16" x 28" coolant hose between the throttle body and the thermostat housing as shown using the supplied spring clamps.

Secure the new coolant bypass hose to the heater pipe brackets using (2) Adel clamps, (2) M6-1.25 x 16 mm hex bolts, (4) M6 flat washers and (2) M6 nylock nuts.



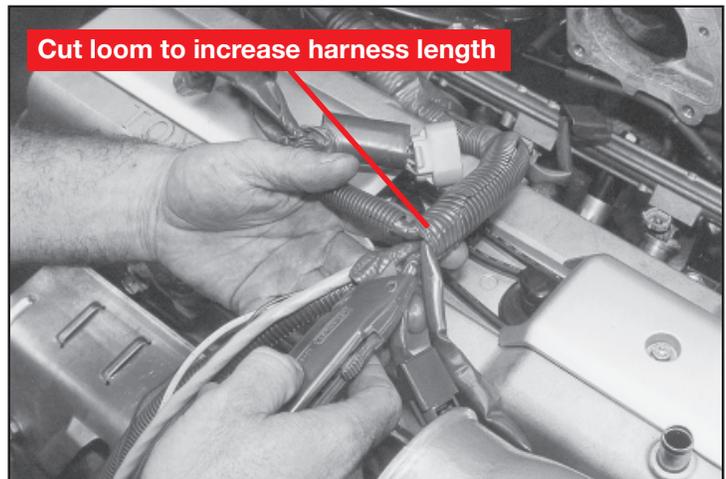
24. Relocate the existing TPS (Throttle Position Sensor) and IAC (Idle Air Control) harness connectors as follows:
- Disconnect the main wire harness from the engine connections as shown.



- Carefully cut open the main wire harness wire loom to provide enough harness slack so the TPS and IAC connectors can reach the relocated throttle body.

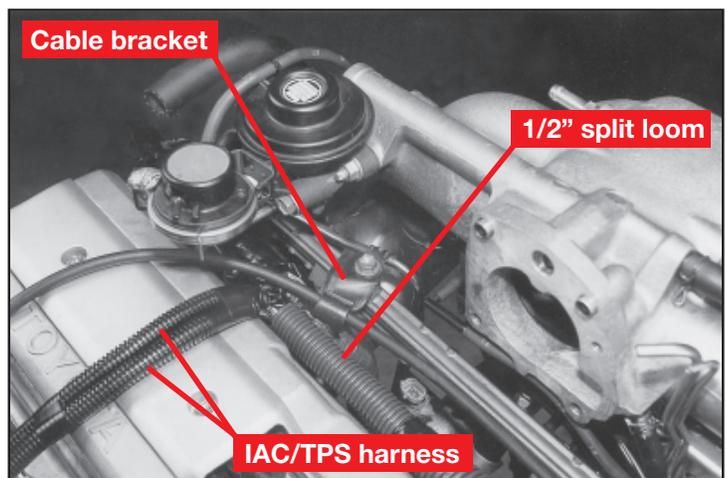
**CAUTION:**  
Do not cut any wires.

Note:  
You will have to cut the loom several inches to gain enough slack so the IAC and TPS connectors can reach the throttle body.



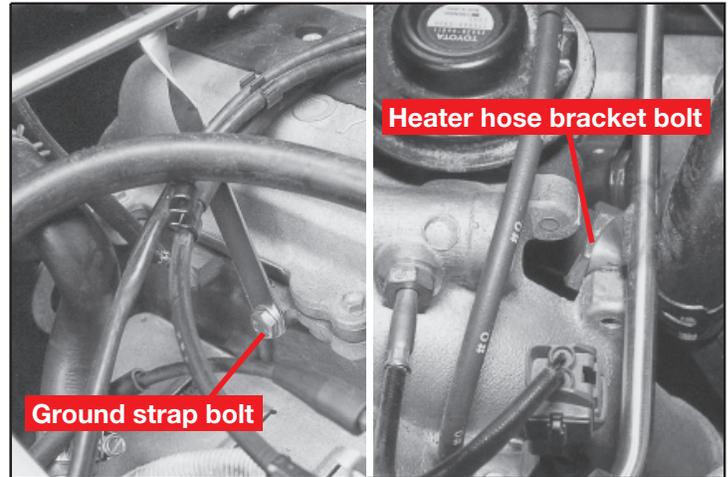
- Cover the exposed TPS and IAC wire harnesses with (2) TRD-supplied 3/8" x 16" split looms. Wrap the remaining wire harness with (1) 1/2" x 12" split loom using electrical tape as shown.

25. Remove the cable bracket from the charcoal canister, then install in the location shown to secure the cruise control cable.



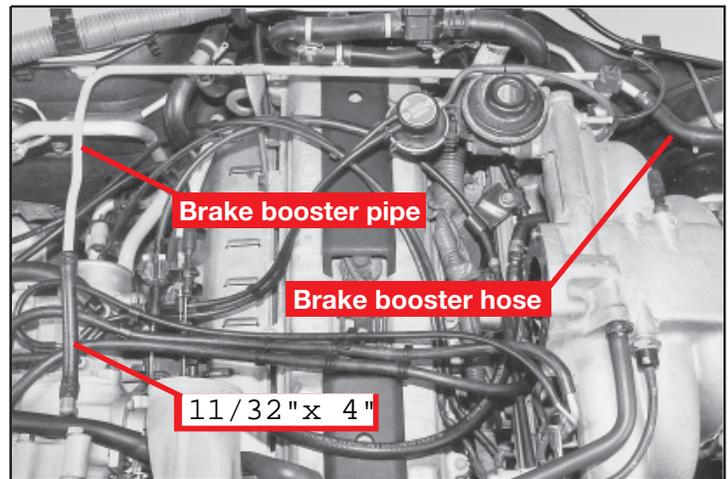
26. Install the new brake booster pipe as follows:

- a. Remove the bolt holding the ground strap to the cylinder head
- b. Remove the bolt holding the heater hose bracket on the intake manifold just below the EGR valve.
- c. Install the brake booster pipe using the bolts removed in the above steps.



27. Remove the brake booster hose from the intake manifold and connect it to the new brake booster pipe. Note the hose routing path.

28. Connect the other end of the brake booster pipe to the throttle body adapter with the  $1\frac{1}{32}$ " x 4" hose and supplied spring clamps.

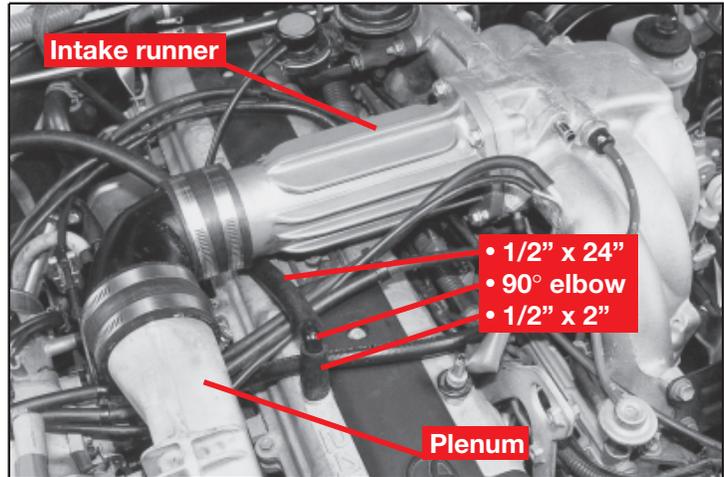


29. Using (4) wide band clamps, pre-assemble the 90° intake pipe with (2) 3" x 3" hoses onto the intake runner.

Install this assembly between the plenum and the intake manifold using (4) M8-1.25 x 25 mm flange bolts and a new intake manifold (throttle body) gasket.

Tighten the bolts to 14-16 ft•lbs.

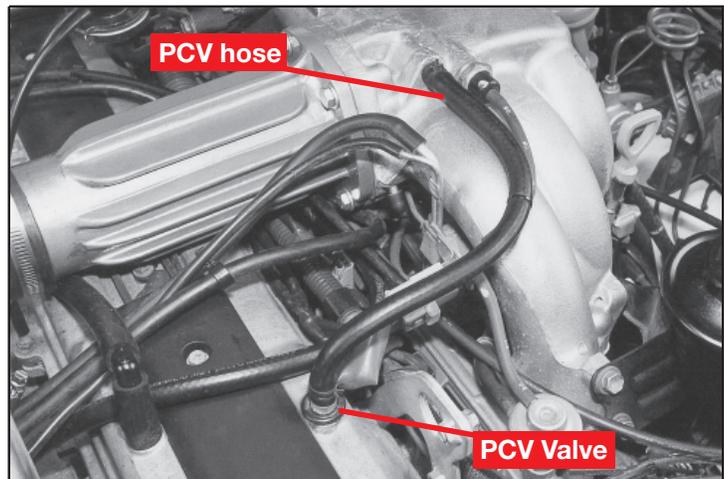
30. Preassemble the breather hose assembly (1/2" x 24" hose, 90° elbow and 1/2" x 2" hose) then install between the throttle body and the valve cover (see illustration, step 33).



31. Remove the existing PCV hose, then install the new PCV hose (5/16" x 12") between the PCV valve and the vacuum port on the intake manifold using the supplied spring clamps.

Note:

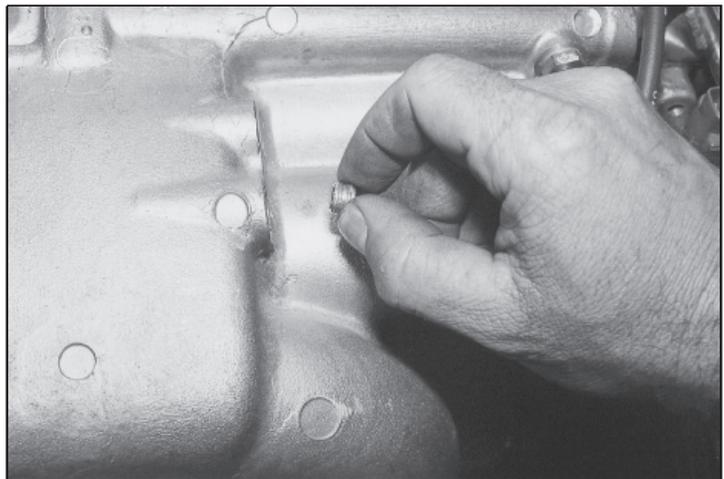
Make sure the PCV valve in the cam cover is clean. The valve is okay if it rattles when shaken.



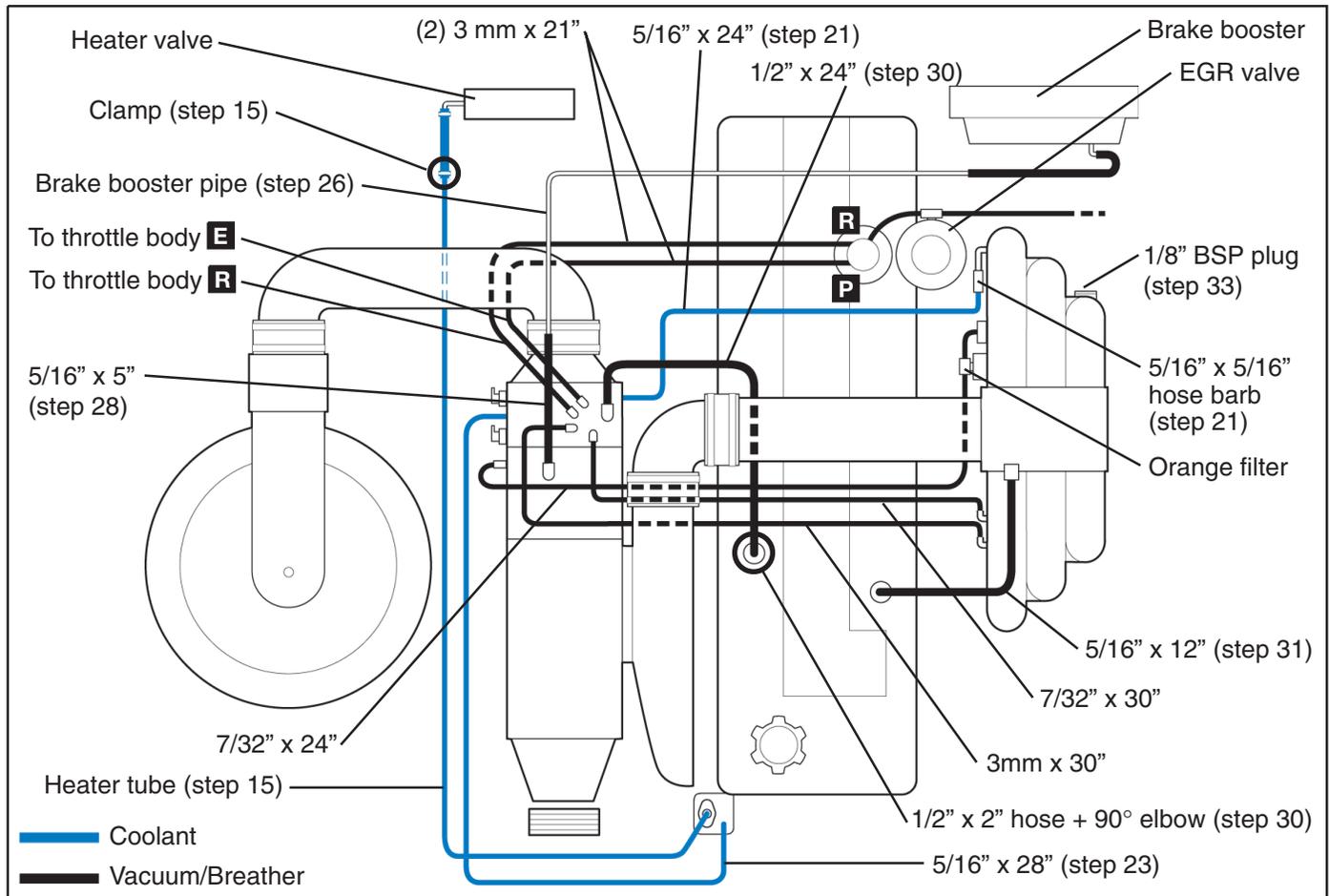
32. Remove the existing brake booster nipple from the intake manifold, then install the TRD-supplied 1/8" BSP plug.

Note:

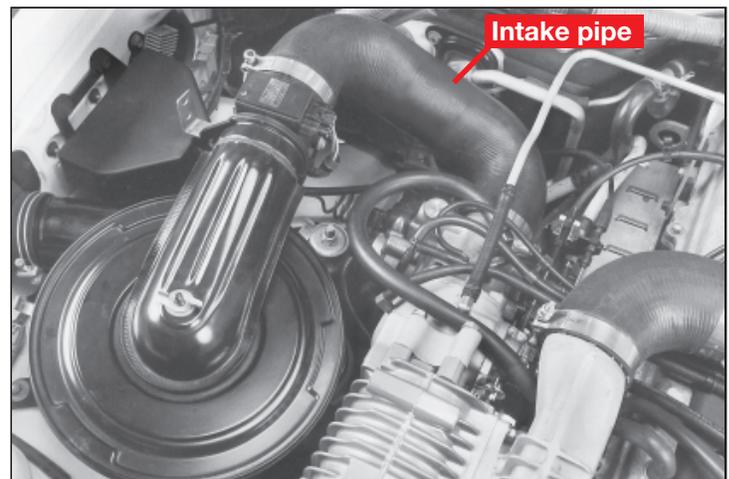
Apply Teflon onto the threads of the 1/8" BSP plug.



33. Install and confirm vacuum, coolant and breather hose connections as shown.

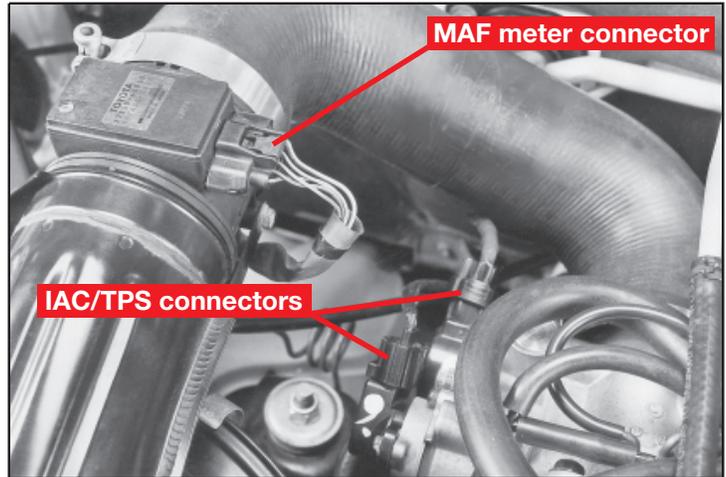


34. Reinstall the air cleaner assembly with the air intake pointed in the direction shown.
35. Using (4) wide band clamps, install the U-shaped intake pipe and (2) 3" x 2 1/4" hoses between the air cleaner and the throttle body.



36. Reinstall the MAF Meter connector onto the air cleaner.

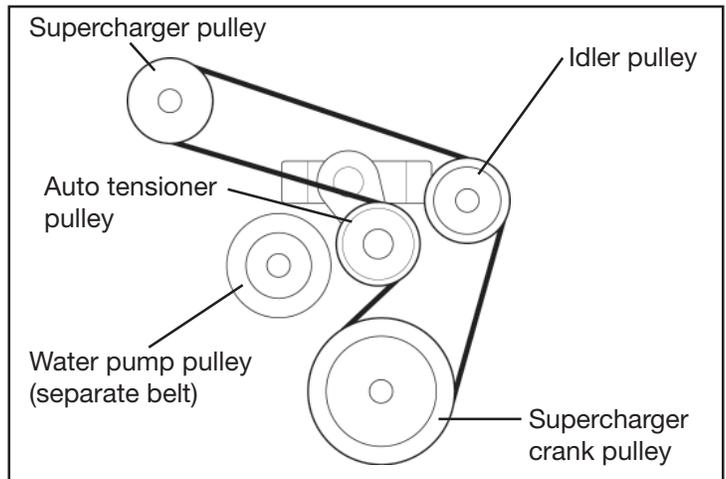
37. Install the relocated TPS and IAC harness connectors onto the throttle body.



38. Install the new supercharger drive belt. Route the serpentine belt as shown.

**Note:**

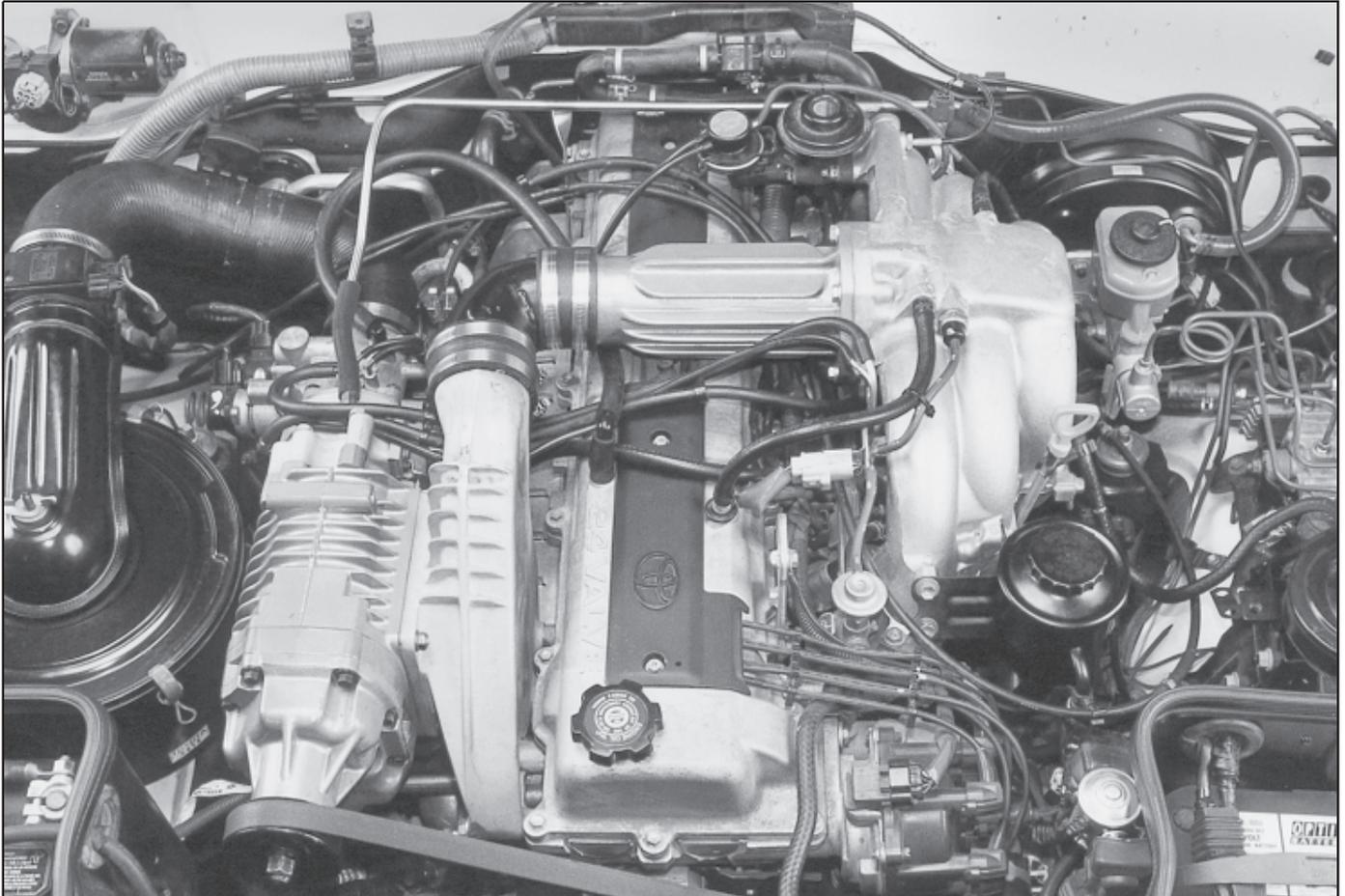
Proper drive belt tension is provided by the spring-loaded auto tensioner. Rotate the auto tensioner with a 15 mm wrench to create enough slack to install and/or remove the belt.



### Section 8: Final Assembly

39. Reinstall the following parts and verify vacuum and coolant hose connections and routing:

- Battery tray
- Battery and hold-down clamp



40. Refill the system with coolant.
41. Reconnect the battery cables.
42. Run the engine for about 15 minutes and check for leaks.
43. Apply the premium fuel stickers to the fuel gauge and fuel filler door.
44. Apply a TRD belt routing sticker and the Executive Order (EO) label to the underside of the hood. The EO alerts state smog inspectors the TRD supercharger is emissions-certified in all 50 states.



Symptom	Possible Causes	Corrective Action
Idles rough, “pings”	Lean condition – vacuum leak	<p>Check vacuum line connections for leaks and cracked ends.</p> <p>Review factory service manual for proper factory vacuum routing.</p> <p>Review instructions for proper vacuum line routing.</p> <p>Check installation of TRD throttle body gasket. If gasket is installed improperly, a vacuum leak will occur.</p> <p>Recheck torque on throttle body bolts.</p> <p>Leak at manifold gasket.</p>
Pings during acceleration	<p>Low octane fuel</p> <p>Computer has yet to adjust to supercharger</p> <p>Insufficient fuel delivery</p>	<p>Fill tank with premium fuel. BE SURE TO USE 92 OCTANE FUEL.</p> <p>Drive several hundred miles in different driving modes (For example: Not at steady-state highway cruising)</p> <p>Fuel filter old – replace. Follow factory diagnosis and replacement procedures.</p> <p>Fuel pressure low. Follow factory diagnosis and replacement procedures.</p> <p>Injector(s) clogged. Follow factory repair/replacement procedures.</p>
Low boost	<p>Belt slipping</p> <p>Air filter dirty</p> <p>Throttle not fully opened</p>	<p>Check belt tensioner</p> <p>Check condition of belt – oily, worn, high mileage.</p> <p>Check/replace air filter. A dirty filter restricts the air intake.</p> <p>Check the throttle cable and transmission cable. Be sure that full depression on the gas pedal achieves full throttle opening at the throttle body.</p>
Makes a moderately loud noise under full throttle – intake noise	Normal supercharger sound	No remedy. Superchargers are an air pump and the pumping action is impossible without some noise. Call TRD for further diagnosis.
Rattling at idle – goes away at just above idle	Normal supercharger sound	Slight rattle at idle is normal, but only if noise sharply decreases at 400-500 rpm above idle. Call TRD for further diagnosis.
Rattling above idle – gets louder with higher rpm or louder with more boost pressure	<p>Drive housing bearing wear or backlash</p> <p>Idler pulley bearing wear or excessive free play</p> <p>Belt too loose</p>	<p>Call TRD for further diagnosis.</p> <p>Removing the belt from the supercharger and run the engine for less than 30 seconds. If noise continues, source of problem is not the supercharger.</p> <p>Check belt tensioner</p>



Symptom	Possible Causes	Corrective Action
Supercharger belt jumps across pulley grooves	Misaligned pulley/idler Damaged pulleys Loose pulleys	Verify the supercharger pulley is properly tightened. Use the procedures and specifications in the factory repair manual. Be sure the pulleys all run true – no eccentricity. Verify the crankshaft pulley is properly tightened. Retighten to specifications; follow the procedures in the factory repair manual.
Supercharger belt leaves grey/black powder on drive housing and other areas	Normal break-in residue	No corrective action. Belt should be fully broken in after 2000 miles.
Supercharger appears to leak from drive housing	Front seal not fully broken in	No immediate corrective action. Seal should fully mate to the pulley after 2000 miles. If leak continues, contact TRD.





