

MAGNUSON

SUPERCHARGERS

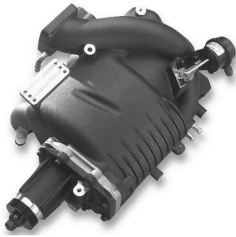
Installation Instructions for: TOYOTA 3.4L SUPERCHARGER SYSTEM

1996 - 2002 4Runner

1997 - 1998 T100

1997 - 2004 Tacoma

2000 - 2003 Tundra



*** PREMIUM FUEL REQUIRED ***

89-89-34-003 Rev B

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Section 1: Toyota 3.4-liter Supercharger Kit 01-62-34-003-BL Parts List

QTY	Description	Connection or Installation Location
1	Main Supercharger Assembly	Bolts directly to Factory Manifold
1	Supercharger Belt	Replaces Factory Alternator Belt
1	Assembly, Tensioner Plate and Pulley	Installed on front of engine
1	Dynamic Tensioner Plate	Installed on front of engine
1	Bolt, 10 X 1.25 X 73mm Flat Head	Belt Tensioner
1	Bolt, 10 X 1.25 X 130mm Flat Head	Belt Tensioner
1	Washer, 10mm Flat	Belt Tensioner
1	Wiring Loom Relocation Bracket	Installed on front of engine
1	Dipstick Relocation Bracket	Installed on front of engine
1	6 X 1.0 X 12mm Bolt, Flange Head	Dipstick Relocation Bracket
1	3.4L Installation Manual	
1	Gasket, 3.4 S/C	Between Factory Throttle Body and Supercharger
1	Warranty Card	Fill out and return to Magnuson
1	Template for cutting Front Cover	Use to modify Factory Timing Belt Cover
1	Belt Routing Sticker	Under Hood
2	Premium Fuel; Sticker	Place 1 on or near fuel gauge and 1 inside of fuel filler door
1	1/8" Vacuum Plug	2001 and newer Tacoma only w/Drive by wire throttle body
1	3/8" Vacuum Plug	Intake Silencer Plug
1	Vacuum Hose – ½" X 34" long	Connects Air Tube to Cam cover
1	Vacuum Hose – 1/8" X 14" long	Connects Vacuum Throttle opener to Intake Manifold
1	Wide Band Spring Clamp, Red	Secures Breather Hose at the 12mm Valve Cover Barb
4	Zip Tie, 3/16" X 7"	Retains Evaporative Canister Hose to Throttle Cable
1	Vacuum Adaptor Tee, Vacuum Adaptor Tee- 4WD only	See Hose Routing Schematic Figure B
1	Valve, IAC Check	Installed near IAC Valve
1	Spacer, Manifold Support Bracket	Installed between manifold & factory support bracket, driver side
1	Bolt, 8 X 1.25 X 35mm Flange Head	Secure factory support bracket thru spacer to S/C Manifold
1	Bolt, 8 X 1.25 X 170mm Flange Head	Installed thru top of S/C to Factory Manifold
1	Bracket, Accelerator & Transmission Cable	Used on all models except 4WD M/T Tacoma
1	Bracket, Accelerator Cable	Used on 4WD M/T Tacoma only
1	Bracket, Throttle Cable	2001 & newer 4Runner only w/Drive by Wire Throttle Body
2	Bolt, 6 X 1.0 X 12mm Flange Head	Used to attach Throttle Cable Brackets to S/C Manifold

Section 2: Removal Procedure

Preparation for Removal of Stock Intake Manifold

- Before you begin make sure the fuel in your tank has been completely switched over to premium 91 octane. This is necessary to avoid any pinging once the supercharger has been installed.
- Magnuson recommends that you thoroughly clean the engine and engine compartment. If you don't, grease buildup on parts could become dislodged during the procedure and fall into the engine.
- Make sure the engine has cooled fully before you begin.
- To help you later, we suggest you draw diagrams of your engine's cable routing before you disconnect anything. You can do the same for the vacuum hoses; however, some of the vacuum connections on your stock manifold may not be the same as those on the supercharger. To ensure the proper hose connections, refer to the diagrams in the back of this manual.
- The Magnuson supercharger kit has been designed to reuse most of the stock nuts and bolts. Therefore, as you remove them, keep them with their components or label them for location. This will assure a faster, easier installation.

A. Removal of Stock Intake Manifold (figure 1)

1. Disconnect the battery ground cable.
2. With tape or a permanent marker, mark the forward edge of the power steering and the air conditioning compressor drive belts (figure 2). This will ensure that the belts will be returned to their original positions and that they will rotate in the same direction. If you reverse the direction of rotation, it may cause the belts to fray.

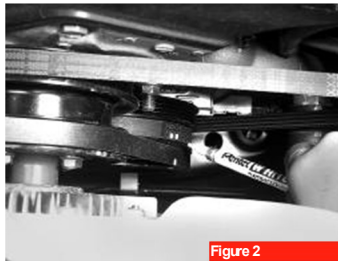




Figure 3

3. If equipped, remove the gravel guard from beneath the radiator (figure 3). This will give you access to the A/C belt adjuster.

TIP: The gravel guard consists of two pieces, but it is much easier to install if you remove it as a one-piece assembly.

4. Loosen the pinch nut in the center of the A/C compressor belt pulley and loosen the adjuster bolt enough to loosen the belt (see arrow, figure 4).

5. Using an angled flat ratchet, loosen the pinch nut and adjuster bolt for the power steering pump.

6. Remove the two belts.

7. Loosen the alternator pivot bolt (top), pinch nut and adjusting bolt and remove the alternator belt. During the installation procedure, it will be replaced with a belt supplied with the supercharger.

8. Loosen the air intake tube clamps at the throttle body and disconnect the Mass Air Flow Sensor plug.

CAUTION: The air sensor (see pointer, figure 5) is fragile. Be careful when working around it.

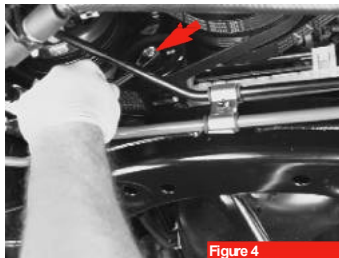


Figure 4



Figure 5

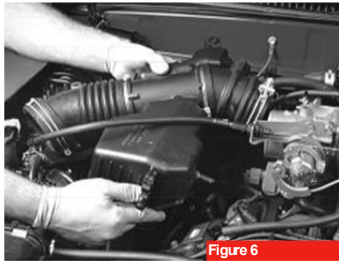


Figure 6

9. Remove any connections from the air intake tube and remove the tube (figure 6).
10. Some trucks are equipped with one or two Vacuum Switched Valve (VSV) assemblies. To locate yours, consult the appropriate diagrams at the end of this manual. If the valve is mounted on the rear of the engine, it should be relocated to the firewall with the supplied bracket.
11. Note the tension and adjustment of the throttle cable and the transmission throttle-pressure (kick down) cable (if equipped with an automatic transmission). You will need to re-create these adjustments during the assembly procedure. To help you remember, look for the small metal bead (the stake stopper, automatic transmission only) on the kick down cable (see arrow, figure 7). If the cable is properly adjusted, the bead should be flush with the end of the cable's rubber sheath (see arrow, figure 8).

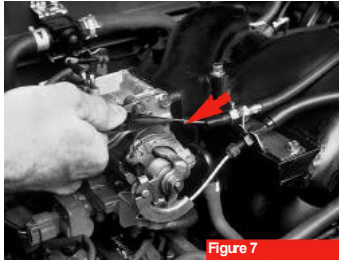


Figure 7

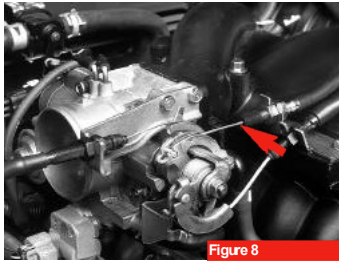


Figure 8

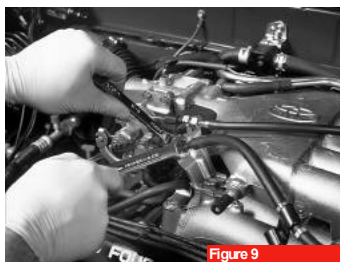


Figure 9

TIP: If your vehicle is equipped with cruise control, do not remove the cruise cable from the throttle body. If you do, you will have to readjust it later.

12. Loosen but don't remove the cable nuts (figure 9). Slide the cables from their brackets and remove the cable ends from the throttle-body levers.
13. Unplug the throttle-position sensor connector (A) and the IAC (Idle Air Control) valve connector (B) (see arrows, figure 10).

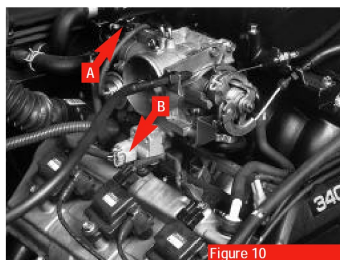


Figure 10

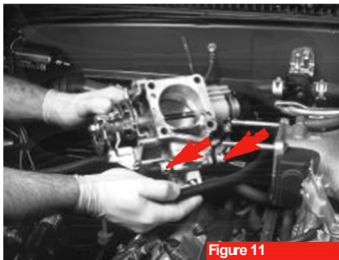


Figure 11

14. Remove vacuum lines from the throttle body but don't remove the two coolant hoses (figure 11).

TIP: The coolant hoses have flanges (see arrows figure 12). The vacuum hoses do not.

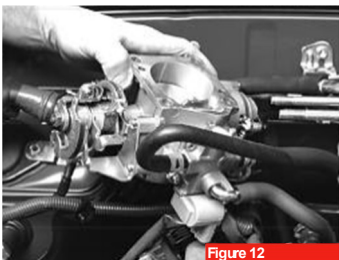


Figure 12

15. Remove the throttle body with attached coolant hoses and cruise control cable (if equipped) and set to the passenger's side (figure 12).

16. At the driver's side of the engine, remove the diagnostic plug from its mounting bracket (upper arrow, figure 13) and set it aside. Remove the bolt and bracket that holds the diagnostic connector to the stock manifold and save for reassembly. Remove the ground wire and move it to one side (lower arrow, figure 13).

17. Remove the vacuum hoses for the power brake, PCV and EVAP from their tubes on the upper manifold.

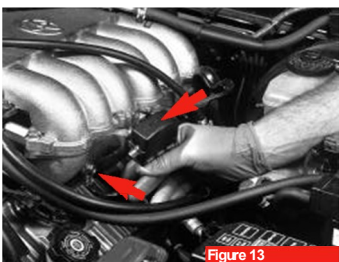


Figure 13

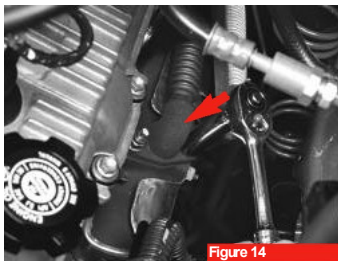


Figure 14



Figure 15



Figure 16

18. A pre-2000 Tacoma or T-100 may be equipped with an EGR valve. To be sure, look for this tube (see arrow, figure 14) on the driver's-side exhaust manifold. Remove the valve according to the procedure in Section 4. Note that the valve will be re-installed later in the installation procedure.

19. Remove the bolt holding the manifold to the intake chamber stay (see arrow, figure 30). Save the bolt.

20. Remove the nuts and bolts from the upper half of the intake manifold and set it aside (figure 15).

21. Remove the 2 bolts and disconnect the fuel-return line bracket (but don't disconnect the fuel hose) from the driver's side of the lower manifold and remove the bolt from the wire-loom bracket.

22. Remove the bolts and nuts from the lower manifold.

TIP: The nuts and bolts from the manifold will be reused during installation. To avoid losing them, put them in a container with a magnet.

23. Remove the lower manifold (figure 16) and save the factory nuts, washers and two short bolts, as they will be reused.

24. Inspect the gasket. If it is in good shape, reuse it; if not, replace it with a new one (Toyota part # 17176-62040).

Note: The gasket between the surge tank and the manifold (figure 13) is interchangeable with the supercharger intake manifold gasket (see section B-2).

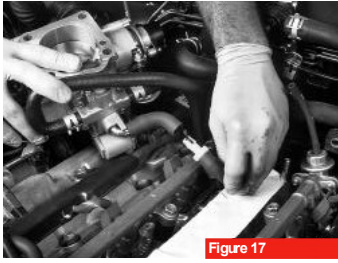


Figure 17

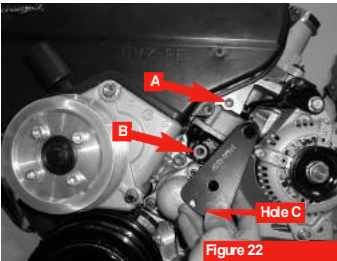
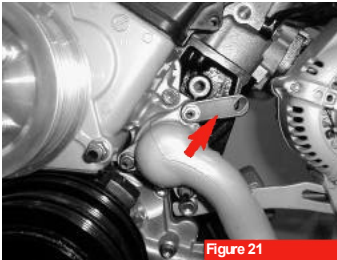
25. Tape over or cover the engine manifold ports to keep out debris (figure 17).
26. Using the template supplied and a scribe or marker, mark the top of the timing belt cover around the template (figure 18).
27. Move any wires out of the way and with a coping saw blade or flexible saw, cut along the scribe mark (figure 19) and discard the cut-out piece. This cut away will provide the clearance for the drive housing of the supercharger.



Figure 18



Figure 19



28. Attach the plastic wire looms to the cut edge of the front cover (figure 20). The ignition wires will go beneath the supercharger drive housing.

Section 3: Installation Procedure

A. Installation of Magnuson Dynamic Belt Tensioner Assembly

1. Remove dipstick and dipstick tube.
2. Unclip the wire loom from the factory bracket and install the supplied wire loom relocation bracket (see arrow, figure 21). Use the existing nut on the water pump housing's upper stud. Torque to factory specifications and clip the wire loom to the back of the supplied bracket.
3. Install the belt tensioner plate using the supplied flat head bolt (10x 1.25x73mm) in Location A (figure 22), do not fully tighten yet.

NOTE: If the vehicle has been in a fire, the holes (Arrows A & B in figure 22) may need to be cleaned out (i.e. tap).

4. Using the supplied bolt (10x 1.25x 130) (figure 22), align the lower belt tensioner mounting bolt hole to Location B.

NOTE: Magnuson recommends the use of a dry break locking fluid (such as Loctite 262) on the 10x1.25x130mm & 10x1.25x73mm bolts in locations A & B.

5. Torque the bolt in Location A to 25ft./lbs.

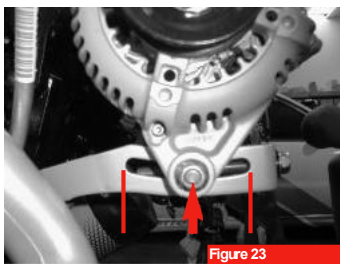


Figure 23

6. Remove the bolt in Location B. Set the alternator to mid-point adjustment on the adjustable bracket (see figure 23). Torque the pivot bolt (top) and pinch nut (arrow) to factory specification.
7. Place the dynamic tensioner on to the mounting plate with the belt behind the pulley (figure 24).

NOTE: Align the slot on the backside of the tensioner with the small hole in the belt tensioner plate (figure 22).

8. Install the hex head bolt (removed in Step 5) through the tensioner into the mounting plate and torque to 40ft./lbs.



Figure 24

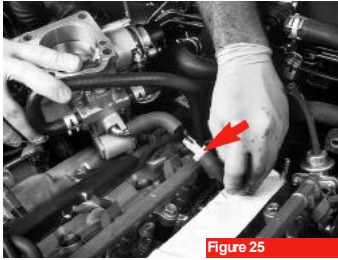


Figure 25

B. Installation of Supercharger and Manifold Assembly

1. (Skip this step for 2001 and newer 4Runner) Cut the hose leading to the IAC valve connector at the location shown, and insert the kit's one-way valve into the straight part of the hose. The black end of the valve (see arrow on figure 25 and diagrams at the end of this manual) is closest to the throttle body.

IMPORTANT: The IAC hose and the coolant hoses are similar in size. Do not interchange the coolant hoses with the IAC hose. The IAC hose is not a coolant hose.



Figure 26

2. Remove the tape from the intake manifold and reinstall the stock gasket.
3. **Lower the supercharger and manifold into place** making sure there are no hoses or wires in the way. The ignition wires should be routed beneath the supercharger's drive housing (see arrow, figure 26).
4. When the assembly sits flat on the engine, put the stock manifold brace (driver's side) bolt and supplied spacer in first (see arrow, figure 27) and then install the stock nut so the studs at each end of the manifold and hand tighten. Use M8x35mm Bolt
5. Install the supplied long manifold bolt (8x 1.25x 170mm) through the supercharger to the stock manifold followed by the two stock bolts. Alternating from one side to the other, torque the bolts and two nuts to the specs provided in the Toyota Repair Manual.

NOTE: In step #1 above, the valve in your kit may not have a black end. You can determine the flow direction by gently blowing air through it. The valve needs to be installed so that the flow goes into the engine.

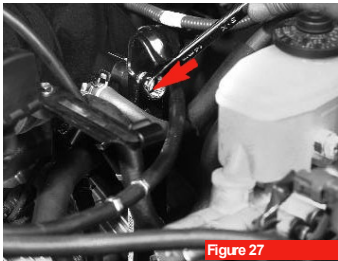


Figure 27

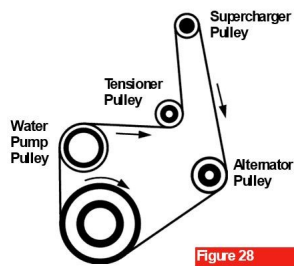


Figure 28

6. Place the drive belt over the water pump pulley, the crankshaft pulley and the alternator pulley (figure 28). **Make sure the belt is on the correct sides of and properly seated in the grooves of each pulley.**
7. **To assist in belt installation, using a 24" long handle ratchet (figure 29), pull down in direction of arrow to provide slack on belt.**
8. Install the power steering and A/C belts according to the marks you made before removal (see section 2, figure 2, page 2).
9. Install the supplied dipstick relocation bracket (see arrow, figure 30) utilizing the factory bolt. Reinstall the factory dipstick and attach it to new bracket using the supplied bolt (6mmx 1.0x 12mm).

Torque both bolts to 10ft./lbs.

NOTE: **Be sure to maintain proper dipstick tube seal at oil pan. Check rubber grommet seal for dipstick tube for engagement.**

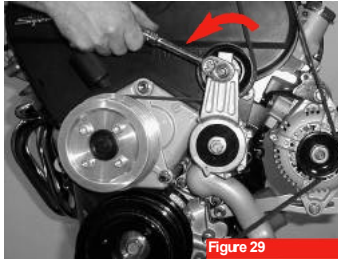


Figure 29

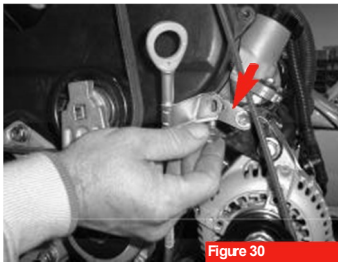


Figure 30

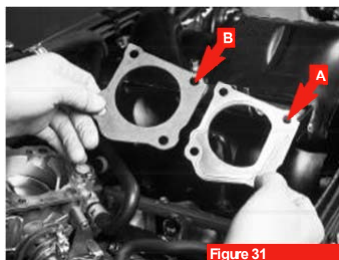


Figure 31



Figure 32

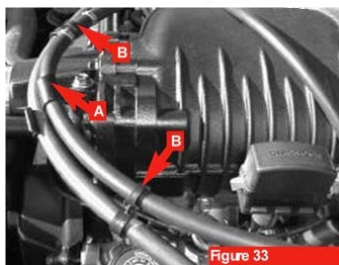


Figure 33

C. Throttle Body and Air Tube Installation

1. If your vehicle is equipped with an EGR system, re-install it now according to Section 4.
2. Using the gasket, OE Fasteners, install the throttle body on to the supercharger's manifold.

IMPORTANT: Do not use the OE gasket (A, figure 31) on the throttle body. Use the gasket (B, figure 31) on the throttle body. The gasket (B, figure 31) is the gasket supplied with the kit. Do not use the OE gasket (A, figure 31) as it will not seal properly. If the gasket (B, figure 31) is not installed properly, the engine will create a vacuum leak.

2. Torque each bolt to the specs provided in the Toyota Repair Manual. Do not overtighten.
3. Install the throttle position sensor plug, the coil plug (if removed), and the IAC valve connector.
4. Attach the PCV hose to the PCV valve on the passenger's side of the engine.
5. Install the air inlet tube to the throttle body and Mass Air Flow Sensor and reconnect its hoses and tubes. Be careful not to damage the sensor (figure 32).
6. Install the proper cable bracket to the top of the manifold. Three throttle cable brackets are supplied with this kit. The bracket with only one U-shaped cable mount should only be used on Tacoma 4WD manual-transmission vehicles. The bracket with two U-shaped cable mounts should be used on all other models except 2001 and newer 4Runners. For 2001 and newer 4Runners, use cable bracket number 00602-17620-080.
7. Remove the transmission cable clamp from the manifold support. Clamp is no longer needed.
8. Remove the throttle cable/evaporative canister hose bracket and bolt from the stock manifold. Install the bracket on to the supercharger as shown (see arrow A, figure 33). Insert the throttle cable and evaporative canister hose, and install the Zip Ties on the throttle cable and evaporative canister hoses as shown (see arrows B, figure 33).

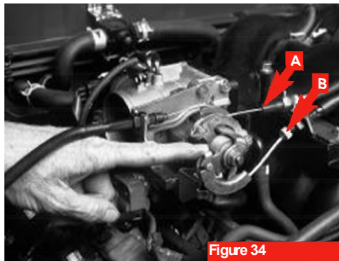


Figure 34

NOTE: Do not remove the throttle body from the engine. If the throttle body is removed, it must be reinstalled. Do not use the throttle body if it is damaged or if it has been modified. Do not use the throttle body if it has been modified. Do not use the throttle body if it has been modified.

9. Place the throttle and automatic transmission kick down cable ends in their original throttle body levers. Refer to Step 11 in Section 2 on Page 5 and Figure 8.
10. Install the transmission kick down cable (see arrow A, figure 34) and throttle cable (see arrow B, figure 34) in the bracket.
11. Proper throttle cable tension can be accomplished by viewing Figures 35 & 36. With alight but firm pressure you will be able to hear a distinctive "click" when pressing down (see figure 35). Release finger pressure and you should hear another "click" as bracket meets bracket (figure 36).

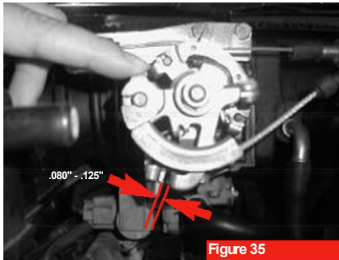


Figure 35

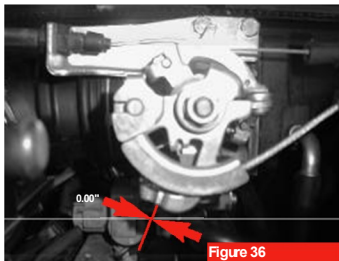


Figure 36

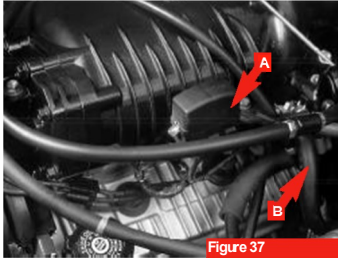


Figure 37

12. Install the diagnostic plug bracket and the ground connector to the driver's side of the supercharger. Install the diagnostic plug (see arrow A, figure 37).
13. Install the fuel return line bracket to the driver's side of the manifold (see arrow B, figure 37).
14. Using your diagrams, and those in the back of this manual, double check the routing of vacuum hoses, cables and brackets and correct any problems (figure 38).

NOTE: 2001 3.4L Power Runner With Drive By Wire throttle system refer to Section 3D.1.1

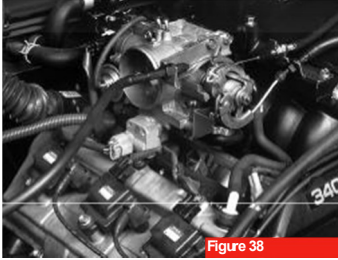


Figure 38

15. Install the gravel guard.
16. Attach the ground cable to the battery.
17. Run the engine for about 15 minutes and check for leaks.
18. Apply the premium-fuel stickers to the fuel gauge and fuel filler door.
19. Apply the Magnuson belt routing sticker to the underside of the hood.
20. Drive test the vehicle. If all is okay, the installation is completed.
21. Drive test the vehicle. Listen for any unusual noises, vibrations, or engine misfires. The supercharger does have a slight whining noise under boost conditions, which is normal. Listen for engine detonation (pinging). If any detonation is heard let up on the throttle immediately. Most detonation is caused by low octane gasoline still in the tank. Premium fuel is required.

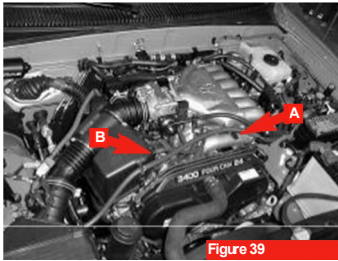


Figure 39

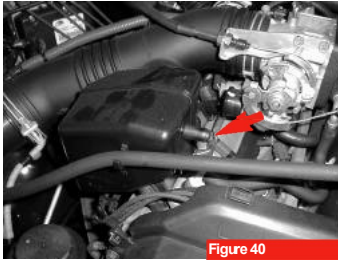


Figure 40

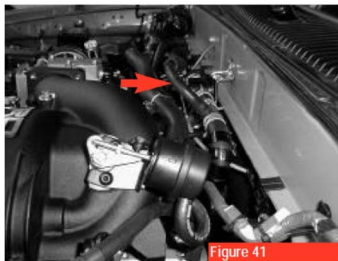
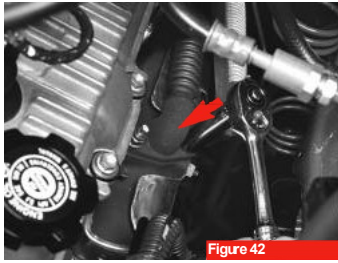


Figure 41

D. Throttle Body and Air Tube Installation for 2001 and newer 4Runner only with Drive by Wire throttle system

1. Remove rubber plug (see arrow A, figure 39) and hose (see arrow B, figure 39). Retain the plug for reuse, but the hose is not used on the supercharger install.
2. Place the rubber plug on the open air box nipple (see arrow, figure 40).
3. The rubber plug for the brake booster moves to same location nipple on supercharger housing.
4. The rubber plug from the metal vacuum tube at top rear of manifold will move to the barb on the throttle body mounting surface.
5. Rotate the stock heater hose assembly (see arrow, figure 41) located on the firewall and rotate approximately 30 degrees upward. This will provide proper clearance away from re-routed valve cover breather hose.



Section 4: EGR Removal and Installation

If your Tacoma or T-100 is equipped with an Exhaust Gas Recirculation (EGR) valve (see arrow, figure 42), you will need to remove the valve from the stock intake manifold and reattach it to the Magnuson supercharger manifold. Here's how:

A. Removal

1. Loosen the EGR pipe from the driver's side exhaust manifold. This will ease the removal and installation procedures (figure 42).
2. Loosen or remove the clamp holding the pipe to the back of the engine.
3. Remove the two nuts holding the EGR pipe to the EGR valve and separate the two.
4. Remove the two nuts holding the valve and its gasket to the studs on the intake manifold.
5. Remove the EGR valve and gasket from the intake manifold and set to one side. If necessary, remove the EGR hose and vacuum hose but don't disconnect the two water bypass hoses. They're the ones with the spring clamps.

B. Installation

1. Remove the EGR block-off plate from the two studs on the supercharger manifold and using these studs and washers, install the EGR gasket and valve to the manifold and hand tighten (see arrow A, figure 43).
2. With the supercharger bolted to the engine, attach the EGR valve to the EGR pipe and hand tighten with the original nuts (see arrow B, figure 43).
3. Tighten the nuts holding the EGR pipe to the exhaust manifold (figure 42) and torque them to the specs provided in the Toyota Repair Manual.
4. Torque the EGR-pipe-to-EGR-valve nuts and the EGR-valve-to-manifold nuts to the specs provided in the Toyota Repair Manual.
5. Install the pipe clamp to the stud on the back of the engine and tighten the nut.

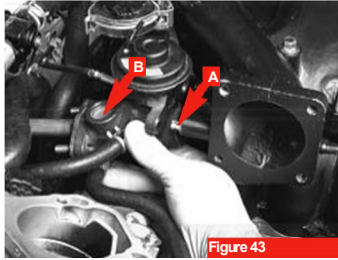
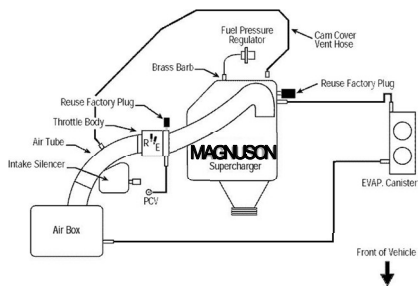


Figure A

Year	2001 and newer
Model	4Runner 2WD

Notes:

**Figure B**

Year	2001 and newer
Model	4Runner 4WD

Notes:

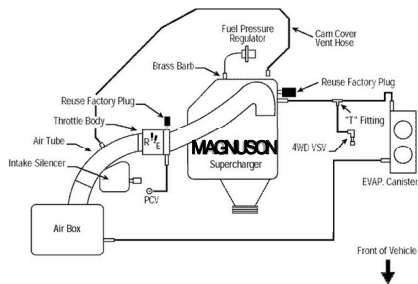


Figure C

Year	2001 and newer
Model	Tacoma 2WD

Notes:

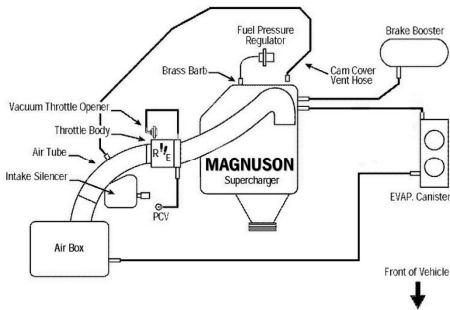


Figure D

Year	1997-2001
Model	Tacoma 4WD
Year	1996-2000
Model	4Runner 4WD

Notes:

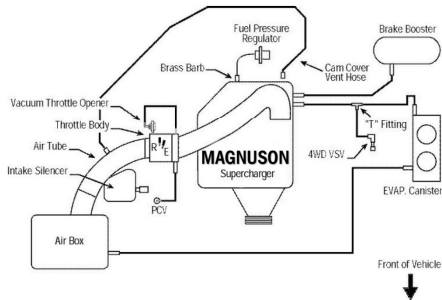


Figure F

Year	2001
Model	Tundra V6

Notes:

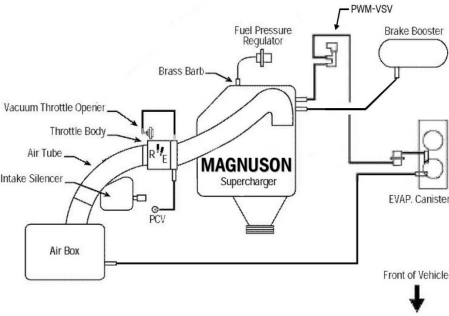


Figure E

Year	1997-1999
Model	Tacoma 2WD, EGR

Notes:

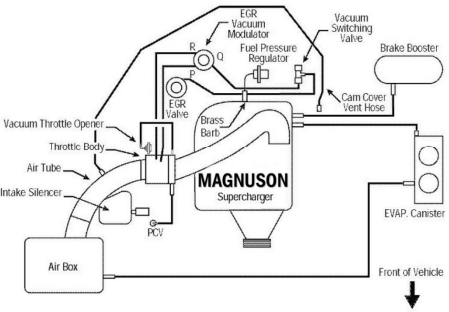


Figure G
Year: 1997-1998
Model: T-100 2WD & 4WD

Notes:
P/S Valve Circuit not on all models. Installation requires an additional 5/16" "T"-Fitting that is not included in the kit.

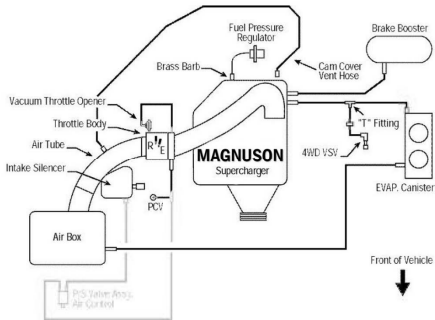


Figure H
One-Way Valve
Installation Diagram

Notes:

