

MAGNUSON

SUPERCHARGERS

Installation Instructions for:

Radix Retro

Intercooled Supercharger System

07-13 GM 4.8L & 5.3L TRUCKS



Step-by-step instructions for installing the best in supercharger systems.

*** PREMIUM GASOLINE FUEL REQUIRED ***



ATTENTION!
Your **MAGNUSON SUPERCHARGER** kit
is sensitive to corrosion!
Use only the vehicle manufacturer
recommended coolant for your engine in
the intercooler system as well.

Magnuson Superchargers
1990 Knoll Drive, Bldg A, Ventura, CA. 93003
(805) 642-8833
magnusonsuperchargers.com

INSTALLATION MANUAL

Magnuson Superchargers Radix Retro Intercooled Supercharger System GM 4.8 & 5.3 Liter Engines

Please take a few moments to review this manual thoroughly before you begin work: Make a quick parts check to make certain your kit is complete (see shipper parts list in this package). If you discover shipping damage or shortage, please call our office immediately. Take a look at exactly what you are going to need in terms of tools, time, and experience. Review our limited warranty with care. When unpacking the supercharger kit DO NOT lift the supercharger assembly by the black plastic bypass actuator. This is pre-set from the factory and can be altered if used as a lifting point!

Caution: Relieve the fuel system pressure before servicing fuel system components in order to reduce the risk of fire and personal injury. After relieving the system pressure, a small amount of fuel may be released when servicing the fuel lines or connections. In order to reduce the risk of personal injury, cover the regulator and fuel line fittings with a shop towel before disconnecting. This will catch any fuel that may leak out. Place the towel in an approved container when the job is complete.

This supercharger system requires the use of only premium gasoline fuel, 91 octane or better. It is NOT compatible with E85, Ethanol, Flex fuels.

Magnuson Superchargers recommend that you run a minimum of one (1) tank of premium fuel through your vehicle prior to installation of the system to prevent any possible damage that may occur due to running the supercharged engine on lower octane fuel.

Magnuson Superchargers systems are designed for engines and vehicles in "GOOD" mechanical condition. Magnuson Superchargers recommend that a basic engine system "Health Check" be performed prior to the installation of this supercharger system. Be sure to check for any pending or actual OBDII codes and fix/repair any of the stock systems/components causing these codes. If there are codes prior to the installation they will be there after the installation.

Magnuson Superchargers also recommend the following services to be performed on your vehicle before starting and running the vehicle post supercharger system installation:

- Fuel Filter change
- Engine oil and filter change using brand name oil (organic or synthetic) and filter
NOTE: It is VERY IMPORTANT to use the factory specified oil viscosity. The original equipment manufacturer has selected this grade of oil to work with your other engine systems such as hydraulic chain tensioners and variable cam controls. Deviation from this specification may cause these systems to fail or not function properly. Please refer to your owner's manual for the recommended oil viscosity for your engine and application.
- On newer vehicles not requiring new spark plugs it is important to verify the spark plug air gap.

On older vehicles Magnuson Superchargers recommend these additional services to be performed:

- New spark plugs with the air gap set at the factory specifications OR new specifications if required by the installation manual.
- Coolant system pressure test and flush.

NOTE: YOU MUST USE THE GM SPECIFIED COOLANT MIXTURE

Non "Magnuson Approved" calibrations or "tuning" will Void ALL warranties and CARB certification.

Tools Required

- Safety glasses
- Metric wrench set
- 1/4" drill bit
- 1/4", 3/8", and 1/2" drive metric socket set (standard and deep)
- 8mm hex (Allen) wrench
- 3/8" and 1/2" drive foot pound and inch pound torque wrenches
- Belt tensioner wrench or 1/2" breaker bar
- 7/32" socket
- Drill and 5/16" drill bit
- Phillips and flat head head screwdrivers
- Fuel quick disconnect tools (included in kit)
- E5 inverted Torx socket
- Small or angled 3/8" drill motor
- Drain pan
- Compressed air

IMPORTANT

Please remember to follow all safety rules that apply when working, including:

- Wear eye protection at all times.
- Do not work on a hot engine.
- Be careful around fuel - use shop towels to catch any spills and dispose of towels properly.

Contact Information:

Magnuson Superchargers
1990 Knoll Drive, Bldg A
Ventura, CA 93003

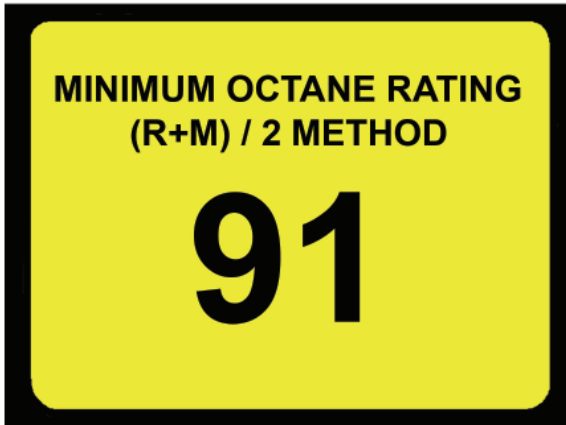
Sales/Technical Support Line (805) 642-8833
Website www.magnusonsuperchargers.com
Email sales@magnusonsuperchargers.com



1. **If your kit has a provided handheld tuner follow the instructions in the provided pamphlet to install your tune. Your handheld tuner may not match the one shown.**



2. Your Intercooler system is sensitive to corrosion. It's very important to use the OEM recommended coolant mixture in your supercharger system as well.



3. Your system requires the use of minimum 91 Octane gasoline fuel. This system **is not compatible with E85 fuel.**



4. Disconnect the negative (-) lead of the battery cable. Cap or cover the terminal to protect against accidental contact with the battery post.

5. To relieve fuel pressure in the tank, remove the fuel cap.



6. Remove the plastic engine cover by lifting up at the front and pulling the cover forward. This cover will not be re-used.



7. Using an 8mm nut driver or a flat blade screwdriver, loosen the two clamps, one at the throttle body and one at the MAF sensor.



8. Disconnect the loom clamp from the upper radiator hose using a small flat blade screwdriver.





9. Remove the PCV vent hose from the passenger-side valve cover. **NOTE: On 2009 and up model year vehicles, the connector has changed from a slip on rubber tube to a plastic clip on connector. To remove this connector, first disconnect the #2 injector connector (front- passenger side). Then unplug the PCV vent hose from its upper air tube connection. Rotate this tube assembly clockwise (as seen from the front of the vehicle) to expose the retaining clip. Use your finger or a small screwdriver to press this clip clockwise (again from the front), and pull the assembly free from the valve cover mounting tube.**



10. Everything should now be free from the engine, so the air intake assembly can be removed from vehicle, this part will not be re-used.



11. With a cool engine remove the radiator cap. **(Be careful not to remove the cap if the engine is still hot.)**



12. Place a drain pan under the front of the truck and disconnect the heater hose on the passenger-side on the water pump.



13. Unplug the electrical connector from the MAF sensor. **NOTE: On 2009 and up model year vehicles, this sensor is located on the top surface, not the front surface shown in this picture, and the connection points toward the rear of the vehicle.**



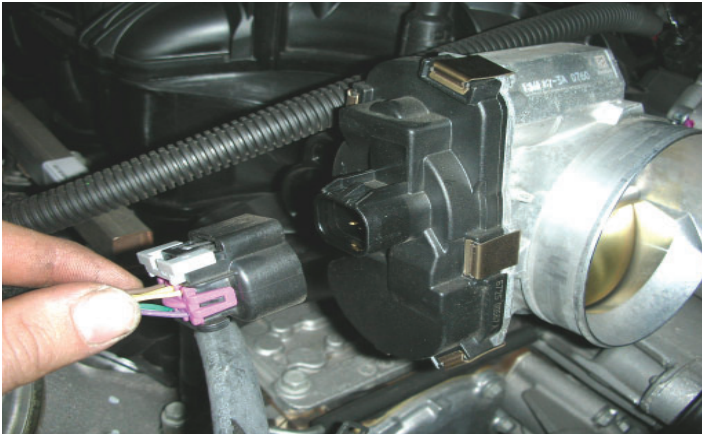
14. Firmly grasp the air intake box and pull up, removing it from the vehicle. The air box will be re-installed in a later step.



15. Using a 10mm socket wrench, remove the three bolts that secure engine cover support bracket to the intake manifold. This will not be re-used.



16. Remove the wiring harness bracket from the intake manifold by removing the nut with a 10mm socket wrench.



17. Disconnect all electrical and hose connection from the intake manifold. Start by unplugging the ETC connector from the throttle body.



18. Unplug the eight fuel injector plugs by pulling up on the gray tab and then pushing in on the release tab.



19. Disconnect the electrical plug from the MAP sensor located on the top of the intake manifold at the front. **NOTE: On 2009 and up model year vehicles, this connector looks a little different. Disconnect by pressing down on the release tab on the top of the connector and pull free from the MAP sensor.**



20. Now that all the electrical connections are free from the manifold, move the wiring harness out of the way by moving them over to the driver side of the engine compartment.



21. With the wiring harness out of the way, unplug the EVAP electrical connector from the solenoid.



22. Remove the EVAP line from the solenoid by pressing in the gray retainer clip and pulling the line off of the solenoid. Repeat procedure for removing the other end of this line. **Your vehicle may not have the test port (the green cap) shown in this picture.**



23. Remove the power brake hose and check valve from the booster. This hose will not be reused, but keep the check valve as you will be using it in a later step. **Note: If vehicle is equipped with hydra-boost then the vehicle will not have this hose.**



24. Next, remove the PCV hose from the top of the intake. Also, remove the other end of the hose from the rear of the valve cover. This will not be re-used. **NOTE: On 2009 and up model year vehicles, this connector has changed. To remove, first the clip connector on the valve cover needs to be released and disconnected. Then rotate the entire assembly clockwise 90° (looking down on the intake manifold) then pull up as the twist lock is released.**



25. Remove the stainless steel safety clip from the fuel line. Do not discard. This will be re-installed later on.



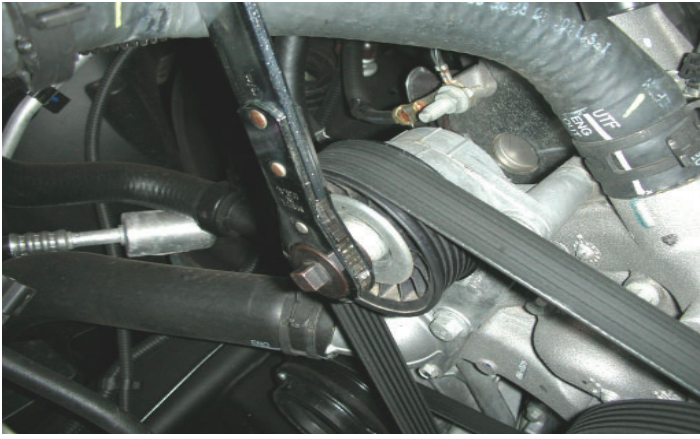
26. **CAUTION! Always wear safety glasses when working with fuel.** Continue on with the next three steps ensuring that the negative (-) battery cable is still disconnected. Using the fuel disconnect tool provided, remove the fuel line from the fuel rail. **CAUTION! Fuel system may be under pressure. Avoid open flames or any source of ignition.**



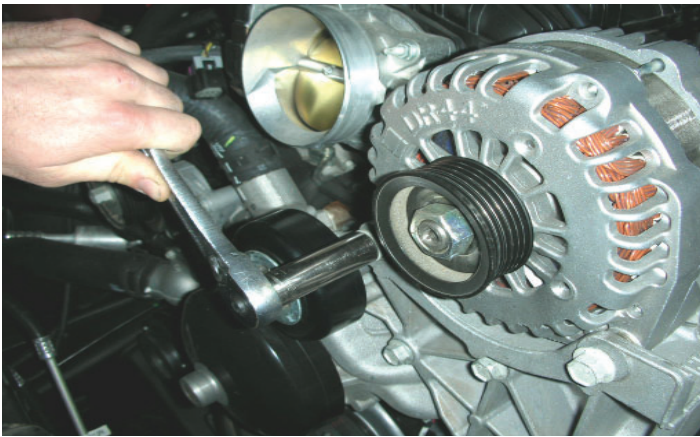
27. Before unbolting the intake manifold, remove the alternator. This should be done to ease the removal of the manifold. Start by disconnecting the electrical connector on the top of the alternator.



28. Using a 10mm socket wrench, remove the nut holding the positive (+) wire to the back of the alternator. Route the wire over towards the passenger-side fender, out of the way.



29. Remove the stock belt using a 15mm belt tensioner wrench on the tensioner pulley. The belt will be replaced with the longer belt provided in the kit.



30. Using a 15mm socket wrench, remove the two bolts securing the alternator to the bracket and remove the alternator from the vehicle. This will be re-installed later on.



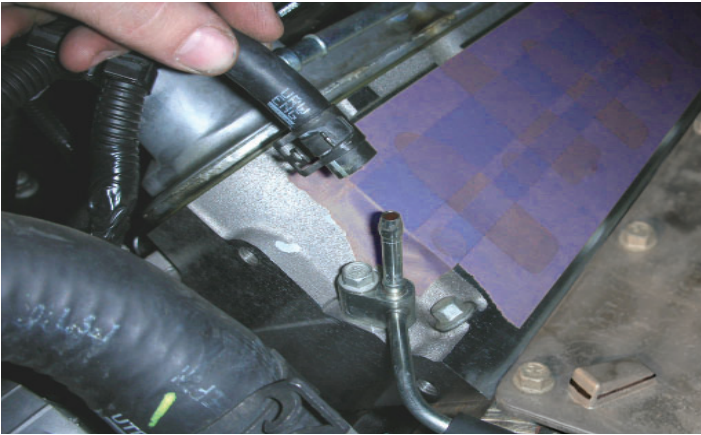
31. The intake manifold is now ready to be removed. Using an 8mm socket wrench, remove the ten bolts that secure the manifold to the engine.



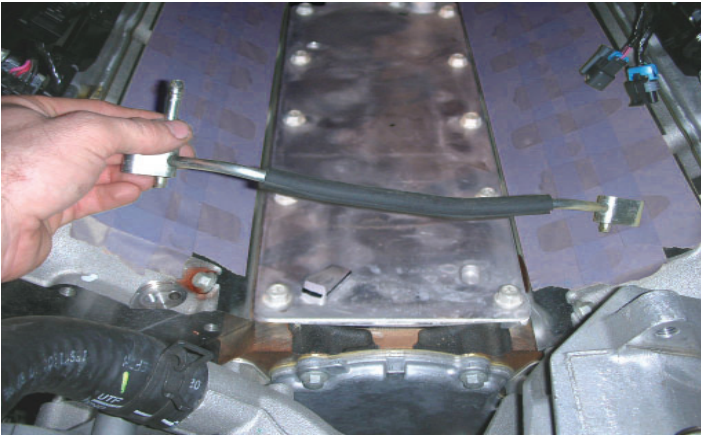
32. With all of the bolts removed, lift the intake manifold up and out of the vehicle and set aside. **CAUTION: Take care not to drop any bolts, dirt or any debris into the intake ports.**



33. Using a vacuum cleaner remove any dirt or debris from the intake port area. Then tape over the intake ports. **CAUTION! Be careful not to get any dirt down the intake ports.**



34. Remove the coolant hose from the vent pipe. **Note: Some fluid may leak from the hose or vent pipe so have a shop rag handy and dispose of properly.**



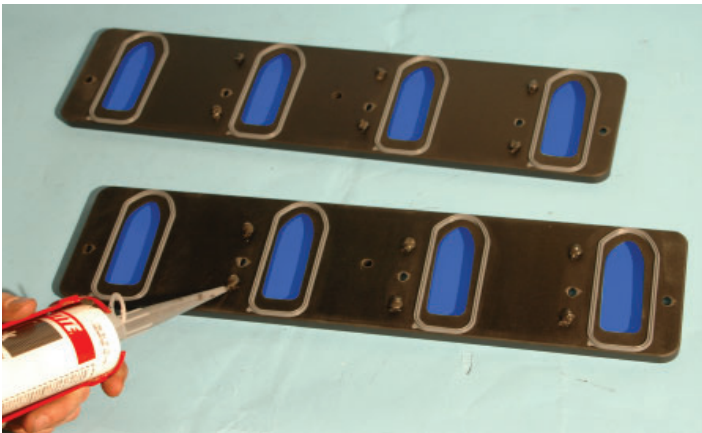
35. Remove the two bolts that secure the coolant vent pipe to the cylinder heads and remove the vent pipe from the engine, put aside for later re-installation. It's a good idea to put a piece of tape over all openings to avoid debris contamination.



36. There are eight rectangular grommet-gasket inserts that go on the two stand-off plates.



37. Press each grommet-gasket into the receiving groove on the stand-off plate. There is only one way they will fit. Just match the tab on the grommet to the corresponding point on the stand-off plate groove.



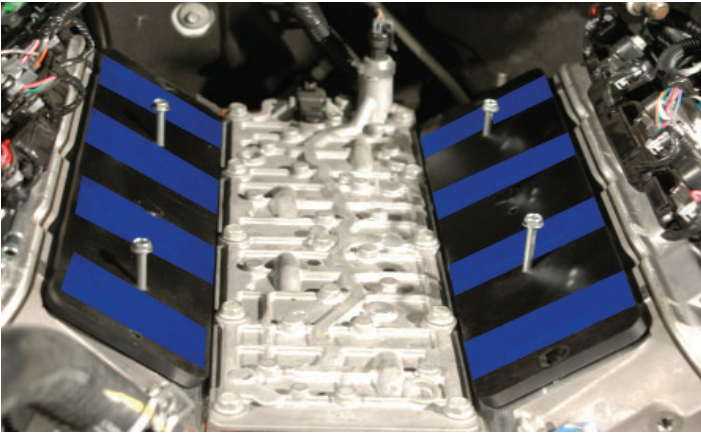
38. Put tape over the upper mating surface ports. Flip back over to the grommet-gasket side of the stand-off plates. Place a few dabs of black RTV adhesive on each of the assembled stand-off plates, splitting the bolt holes as shown.



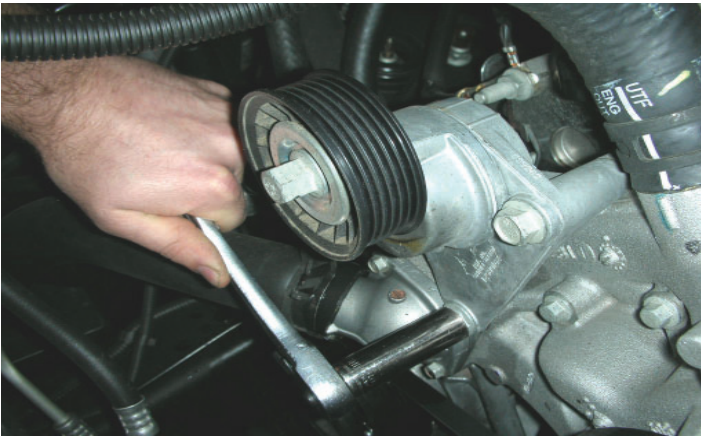
39. Remove the tape from the intake ports that was installed earlier. Clean off the receiving end of the heads using a suitable non petroleum based solvent (such as alcohol, lacquer thinner) to remove any residue. **CAUTION! Be careful not to allow any debris to fall into the open ports.**



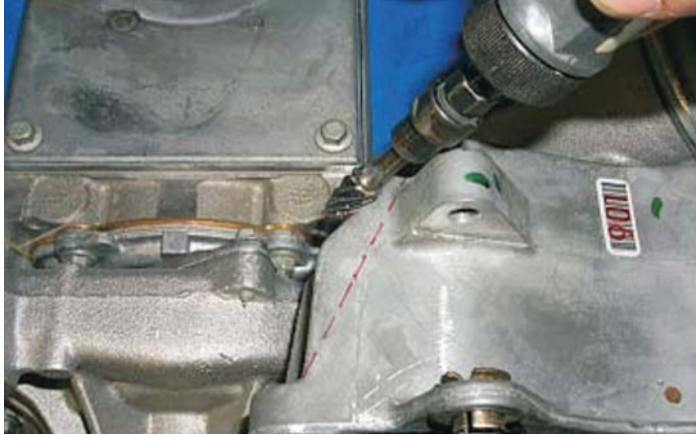
40. Use four of the provided manifold bolts in the existing holes to guide the stand-off plates into position with the grommet-gaskets facing down onto the heads. These bolts will NOT be tightened; they are for alignment purposes only.



41. The two stand-off assemblies should look like this. Allow the adhesive to set completely before proceeding.



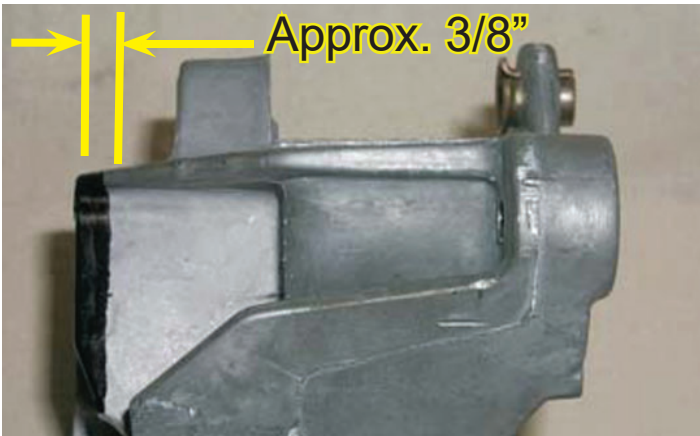
42. With a 15mm socket wrench, remove the three bolts that hold the tensioner to the water pump and remove the tensioner. **Notes: The tensioner won't be re-used, but one long stock bolt, and the short stock bolt will be re-used. *Some 08-09 tensioners only have the two long bolts. We will still use one of those and will supply a new bolt to take the place of the short stock bolt that wasn't installed originally.**



43. It will be necessary to make clearance on the alternator mount casting for the new manifold to fit properly. The new manifold should not touch the alternator mount. These modifications can be easily done with the mount in place.



44. For clarity this mount is shown removed from the engine. Using a marking pen and a straight edge, mark a line as shown on the top surface of the of the alternator mount. Start the line at the drivers (left) rear corner of the idler mount and then to the right rear corner of the alternator mount. Continue the line at an angle for a distance of about 1-1/4" to the back edge of the casting behind the alternator mount. Using a suitable grinder and eye protection, remove the material up to the line.



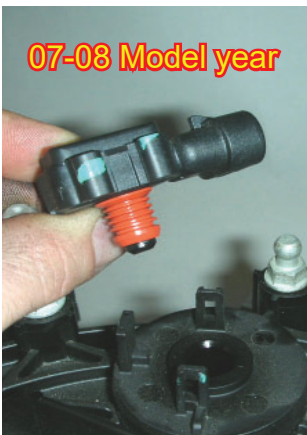
45. On the back surface of the alternator mount, remove the shaded area as shown.



46. Here is what your finished alternator mount should look like.



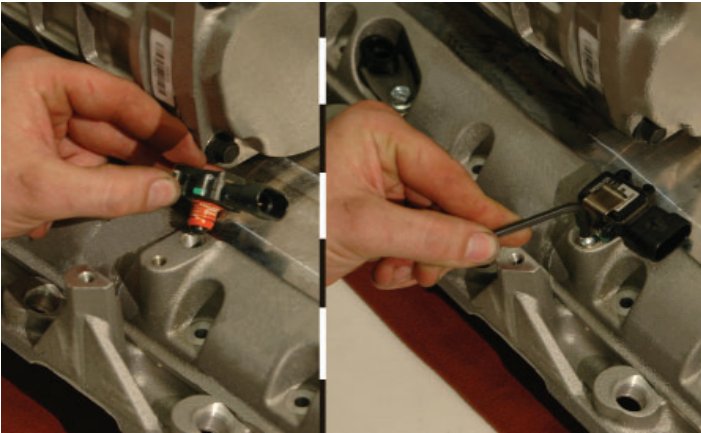
47. To make installation of the supercharger manifold easier, remove the alternator/power steering bracket from the engine block. Using a 15mm socket wrench, remove the four bolts on the front side and the bolt on the lower driver-side.



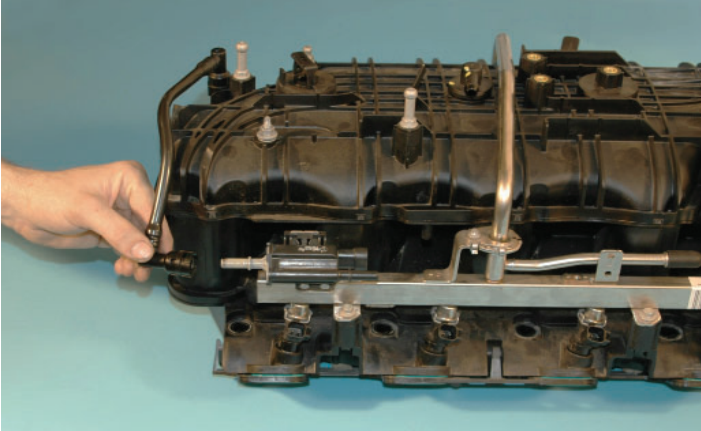
48. Remove the stock MAP sensor by removing the retaining clip with a screwdriver and then gently pulling up the sensor. Be careful not to damage the O-ring seal. **NOTE: On 2009 model year this connector may have changed. To remove, insert a small screwdriver into the slot opposite the slide-tab lock. Lever the locking tab outward to release the lock, then slide the lock to remove.**



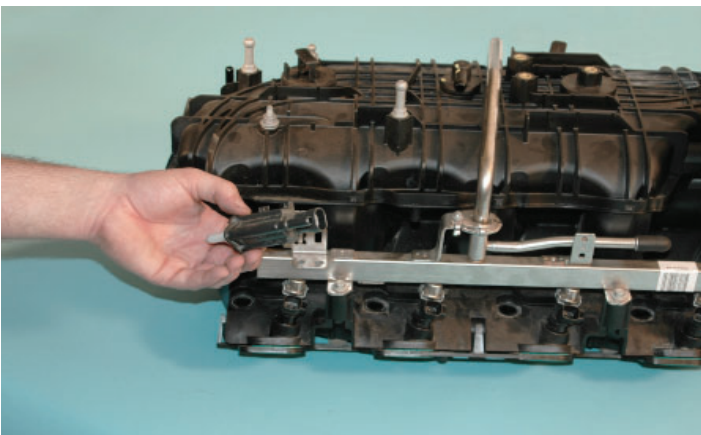
54. For 2009+ MAP sensor skip to the next step. If you have the 99-08 style MAP sensor you will need to install the provided bushing. **YOU MUST install the bushing with sealant to prevent a vacuum leak.** We recommend black silicone RTV or green Loctite 680. Be sure to wipe off any excess sealant inside the bushing. Allow sealant to cure before starting engine.



55. Spread some of the supplied Lubriplate lubricant on the MAP sensor seal (see inset photo), and press the MAP sensor into the provided hole in the supercharger manifold as shown. Using a 4mm Allen wrench, install the MAP sensor retaining clip with the provided 6mm button head screw as shown.

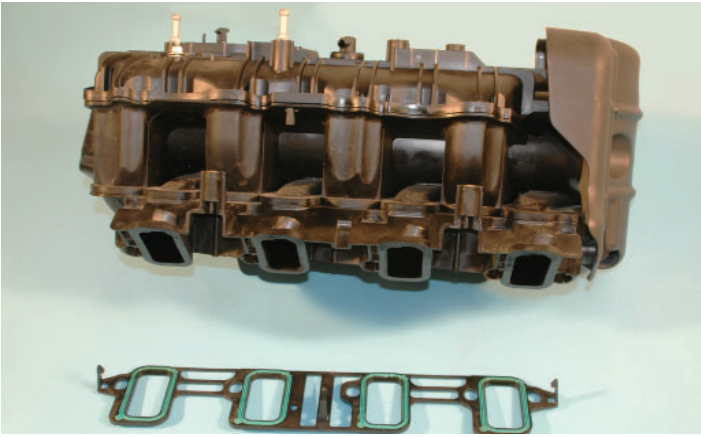


49. Disconnect the short EVAP pipe from the EVAP Solenoid on the stock intake manifold.

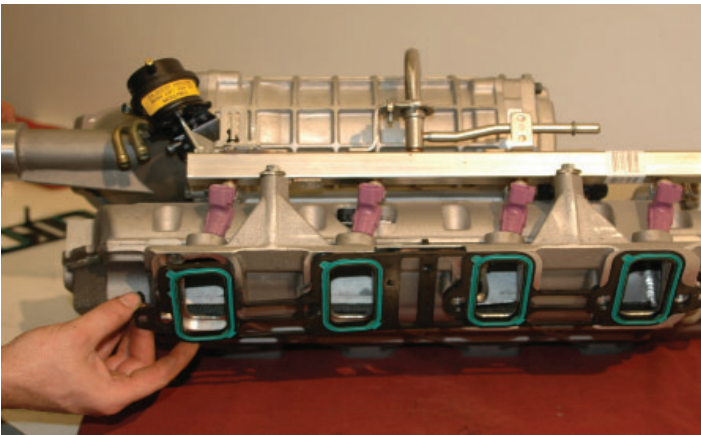


50. Remove the stock EVAP solenoid from the stock manifold by lifting up to free the unit from the mounting bracket.

51. Remove the stock intake manifold gaskets from the OEM intake manifold.



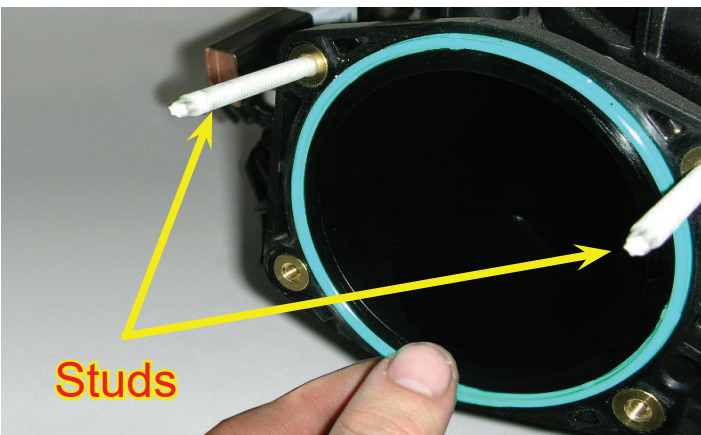
52. Now install the stock gaskets onto the new supercharger manifold.

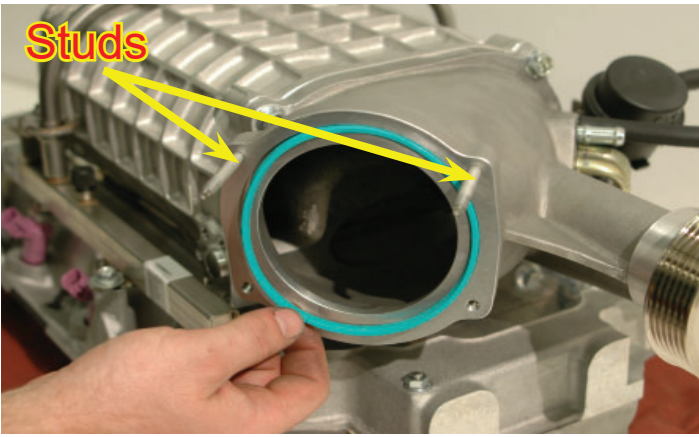


53. Using a 10mm socket wrench, remove the stock throttle body from the OEM intake manifold. Next, using a #5 internal Torx, remove the two mounting studs from the stock manifold.

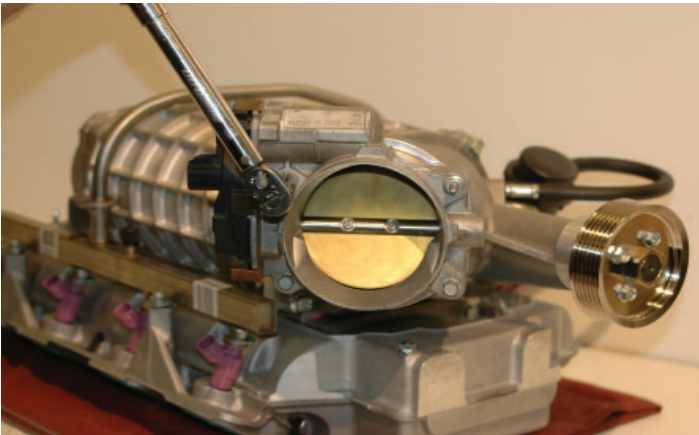


54. Remove the stock throttle body O-ring and studs from the OEM stock manifold. Clean off any oil before installing the O-ring onto the supercharger inlet.





55. Install the two studs from the previous step into the supercharger intake tube using a #5 Torx socket. Then press the throttle body O-ring into the inlet tube groove as shown.



56. Install the throttle body using the stock hardware and torque to 106 in-lbs with a 10mm socket wrench. Verify your torque wrench settings.



57. Upon complete curing of the adhesive, remove the temporary guide bolts and then the tape from the stand-off plates. Spray silicone or some mild soap and water solution on mating surface of the stand-off plate to lubricate. This makes the intake manifold slide around easily to help line up the holes. With the help of an assistant, carefully set the supercharger assembly into position,



58. Insert the ten intake manifold bolts into position through the stand-off plates. Finger tighten at this time ensuring complete alignment.



59. Using a rotating pattern tighten all ten intake manifold bolts. Torque all ten bolts gradually and evenly to 106 in-lbs. **Note: Make sure your wrench is set to torque to in-lbs, not ft-lbs.**



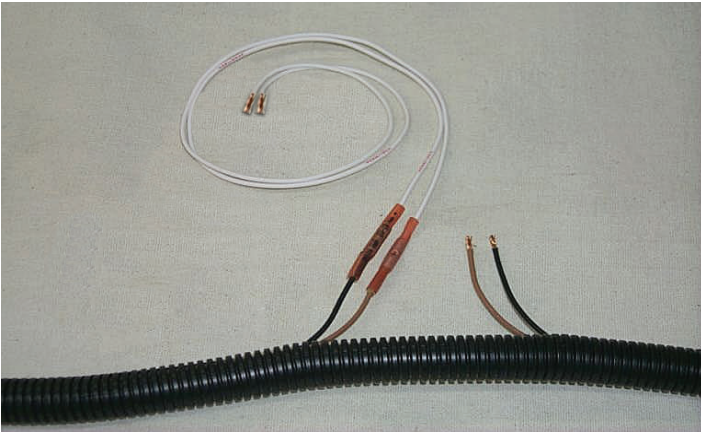
60. Install the supplied vent pipe using the stock hardware, torque to 106 in-lbs. **Note: Verify your torque wrench settings.**



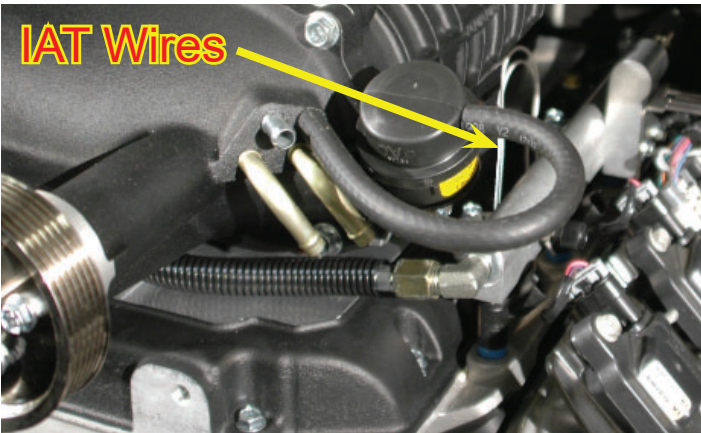
61. Install the supplied steam vent hose and tighten using the stock spring clamp.



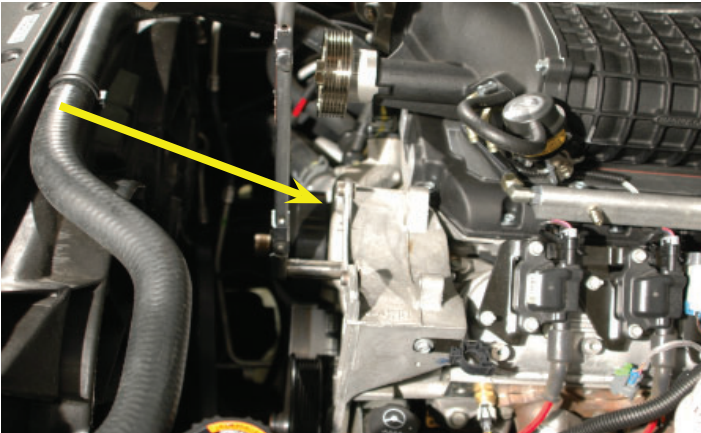
62. Locate the MAF electrical plug, pull back the flex loom about 12", and cut the tan wire and the tan w/black stripe wire about 2" from the MAF connector.



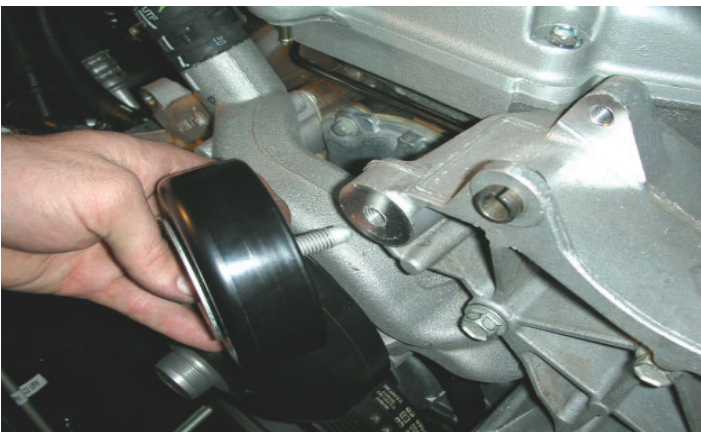
63. Cut the supplied white wire into two equal lengths and strip about $\frac{1}{4}$ " off all ends. Strip about $\frac{1}{4}$ " of insulation from the ends of the tan and the tan/black wires to the computer and the IAT white wires. Using the crimp/shrink connectors supplied, connect one white wire to the tan wire and the other white wire to the tan wire with black stripe that runs to the vehicles computer. The severed ends of the wires that run to the MAF will no longer be used.



64. Locate the two IAT white wires on the driver side of the intercooler lid. Cover the extended wires from the previous step with the supplied split loom and route under the supercharger nose below the bypass valve to meet the wires from the lid. Use the supplied connectors to join one extended wire to each of the IAT wires from the supercharger lid. Using a heat gun or blow dryer set on HIGH; shrink the insulation on all connectors so that it contracts around the wires completely. **You must shrink the insulation, as crimping the connectors alone is not enough to secure them.**



65. Re-installed the alternator/power steering bracket with all the factory hardware and torque to 40ft-lbs with a 15mm socket wrench. Verify your torque wrench settings.

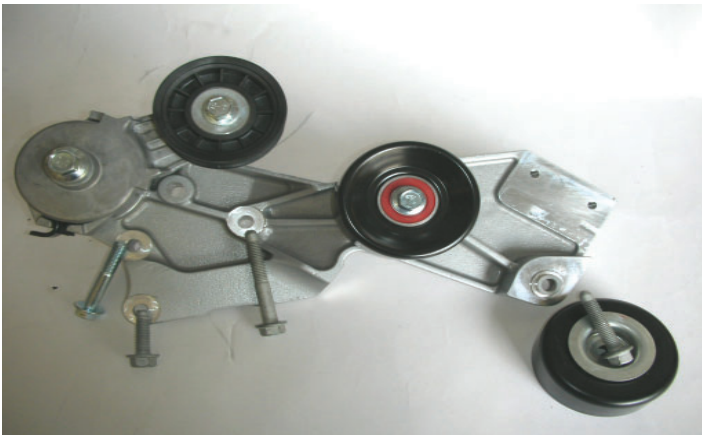


66. Using a 15mm socket wrench, remove the factory idler pulley.

67. Using a soft hammer, knock the factory bolt loose from the idler pulley. The bolt retainer and stand-off (pictured here on the right side of the pulley), will not be re-used. **Note: The bolt, dust cover and idler will mount to new tensioner bracket.**



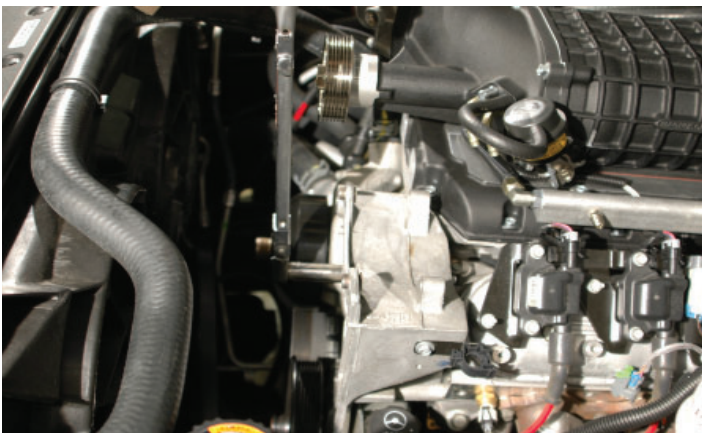
68. Here is the tensioner assembly showing where the specific bolts and where the factory idler goes.

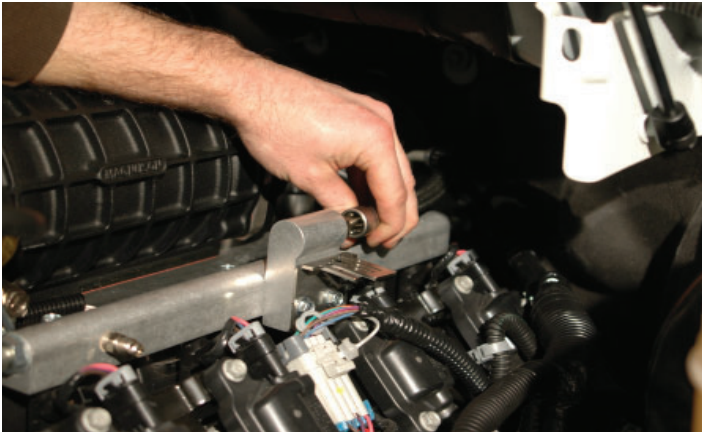


69. Install the tensioner assembly into the vehicle as shown.

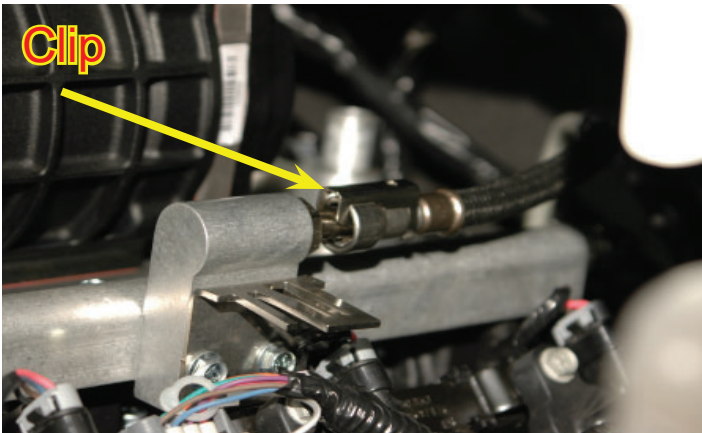


70. Torque all the bolts to 40ft-lbs with a 15mm socket wrench. Verify your torque wrench settings.





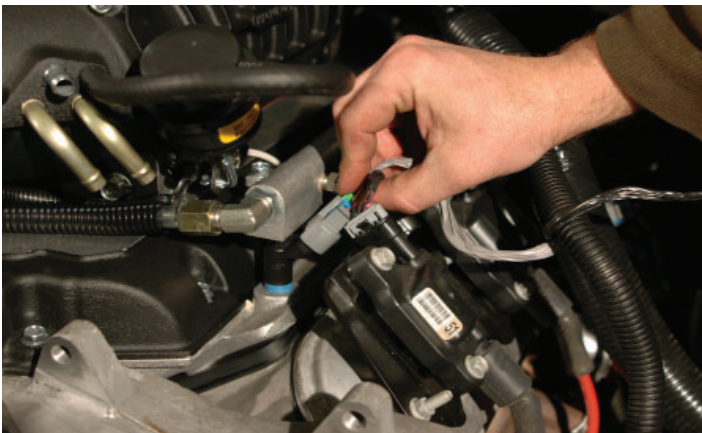
71. Push the fuel line connector on to the fuel manifold. Ensure that the fuel line is pushed all the way on. **Pull on the connector to check that it is secure, you should not be able to remove the connector unless you use the removal tool.**



72. Replace the stainless steel safety clip that was removed in a previous step. **NOTE: For 2007-2010 vehicles, you will use the EVAP bracket shown here, attached to the fuel manifold. Bend the single short tab down slightly to create a tight fit with the EVAP solenoid. 2011 + vehicles use a flat EVAP bracket mounted further up on the fuel rail. Inspect factory fuel line for kinks or tight bends in braided section. If required push gently on fuel line near firewall to eliminate kinks/slight bends.**



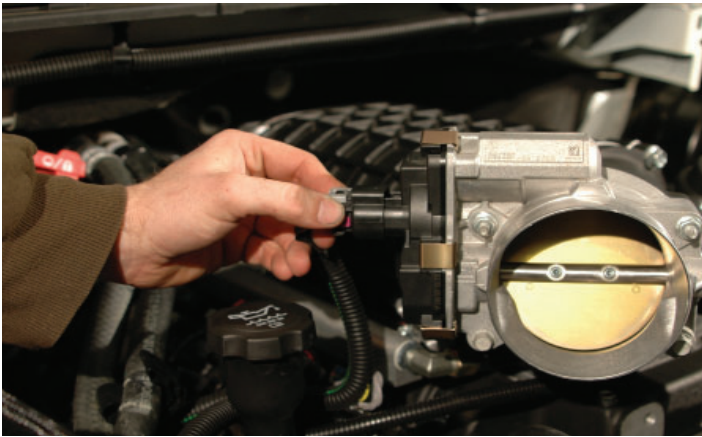
73. Remove the wiring harness from the original bracket.



74. Take the eight fuel injector plugs and connect them to the eight fuel injectors. Note: Make sure that the connectors are seated on the injector and locked in place. Pull the harness connector to ensure a good contact.



75. Remove the plastic loom clip from the wire-looms located next to the oil filler neck with a flat blade screwdriver.



76. Plug the electrical connector for the ETC back into the throttle body.



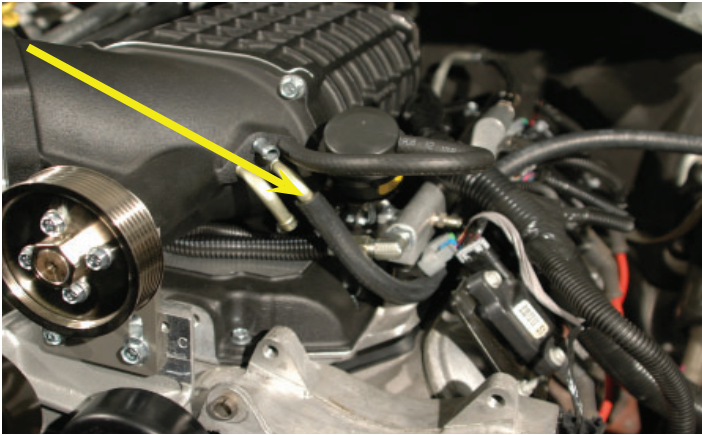
77. The MAP sensor can also be plugged back in. Sensor location is now at the rear of the manifold and no wire extensions are necessary.



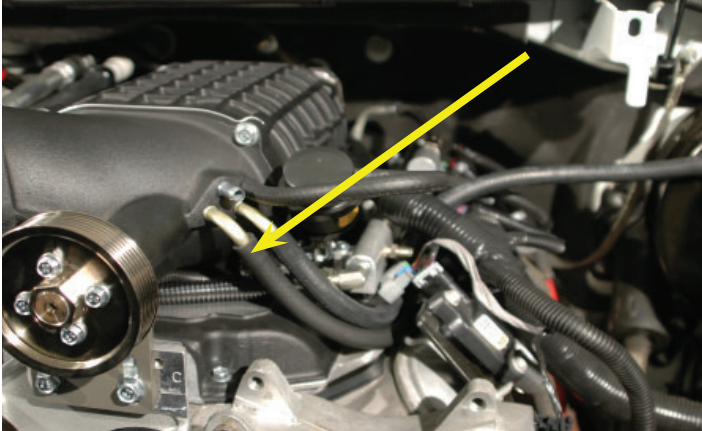
78. Install the supercharger nose support bracket with the two bolts provided. Torque bolts to 15-17ft-lbs with a 12mm socket wrench. Verify your torque wrench settings.



79. Cut a section of the provided 11/32" brake hose to 26" in length. Install the stock check valve on one end, and plug the check valve into the brake booster.



80. Route the other end under the coil bracket to the supercharger nose, and plug into the supercharger barb as shown.



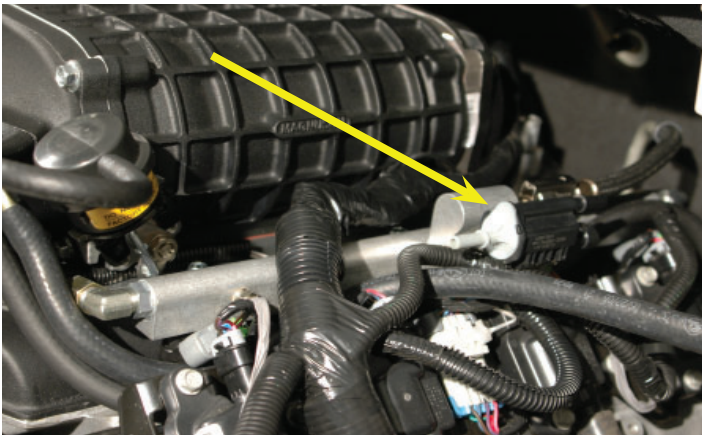
81. Cut a section of the provided 3/8" hose to 25" in length. Plug one end into the PCV barb at the back of the driver-side valve cover. Route the other end under the coil bracket and plug into the hose barb on the supercharger as shown.



82. Take the rear EVAP hose from the stock manifold and carefully cut out the fittings at the ends of the hose.



83. Cut a section of the 3/8" hose to 11" in length. Install the factory fittings removed in the previous step onto the ends.



84. Install the OEM EVAP Solenoid on the mounting bracket on the driver side fuel rail manifold. **NOTE: The electrical connection of the Solenoid should be pointing toward the fire-wall.**

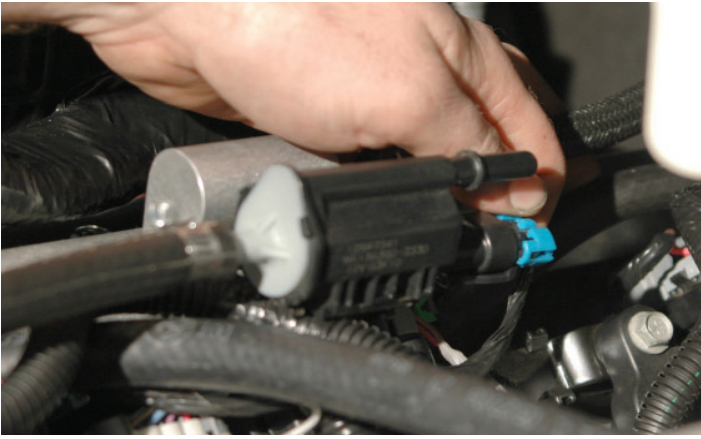


85. Route the battery positive (+) cable below the supercharger nose, behind the brake and PCV hose for later connection to the alternator.



86. Cut a piece of the provided 3/8" hose to 16-1/2". Attach and clamp one end to the front barb on the EVAP solenoid.

87. Plug in the electrical connection to the EVAP Solenoid.



88. Plug in the end of the hose assembled in step #82 to the remaining (rear) barb on the EVAP Solenoid. Plug the other end onto the barb at the driver side rear of the engine from whence it was removed.

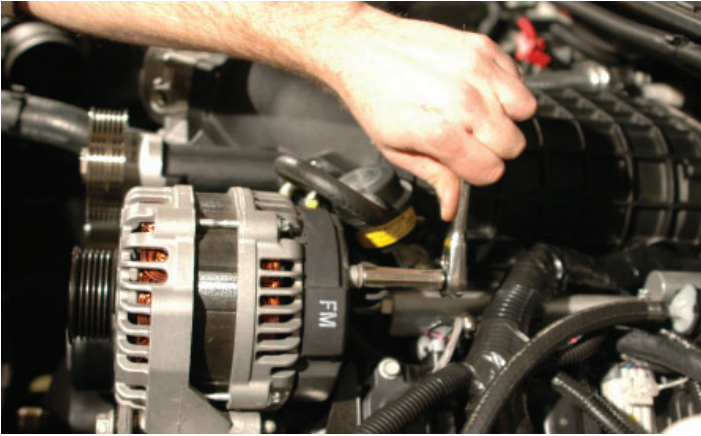


89. Next, re-install the alternator using the factory hardware.

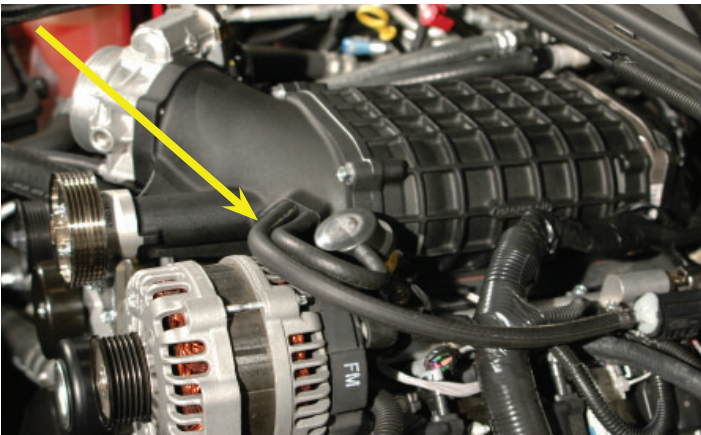


90. Using a 15mm socket wrench torque the two bolts to 40ft-lbs. Verify that your torque wrench is set to ft-lbs.

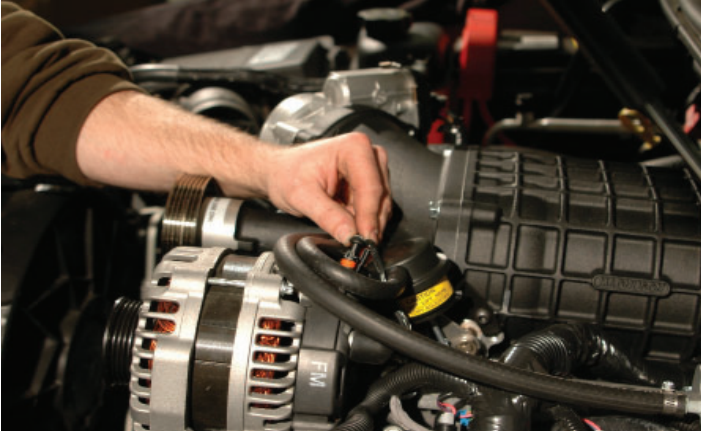




91. Ensuring that the battery is still disconnected, connect the battery positive (+) cable you routed in a previous step to the back of the alternator and secure the nut with a 10mm socket wrench.



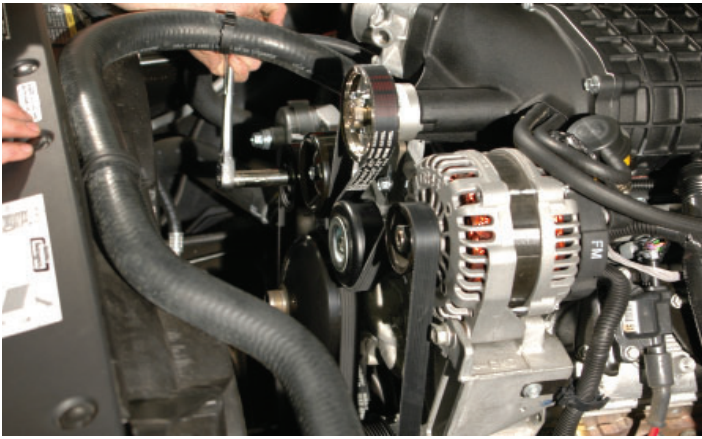
92. Route the front hose from the EVAP Solenoid to parallel the Bypass Valve hose and connect to the remaining barb on the supercharger nose.



93. Plug in the Electric-Voltage sensor wire into the Alternator connector as shown.



94. Use a 15mm socket wrench to lever the tensioner all the way down, then insert the pin provided into existing hole on the tensioner bracket to hold the tensioner in the compressed position.



95. Using the belt routing diagram as a guide install the new belt provided. Slide the idler pulley down and torque to 40ft-lbs using a 15mm socket wrench. Verify your torque wrench settings. Finally remove the pin and release the tensioner. **Make sure belt contacts all pulleys correctly.**



96. Using a T-25 torx socket, remove the four screws that attach the air box lid to the lower half of the air box.



97. Remove the stock air filter from the air box.



98. Take the new K&N air filter supplied in the kit, and install it into the air box.

99. Re-install the air box lid and then install the air box assembly back into the vehicle.



100. Here is the air tube and its components.



101. Assemble the bellows and coupler to the air tube. Note: The position of the clamp screws. The screws must be facing up so that you can install the assembly on the vehicle.

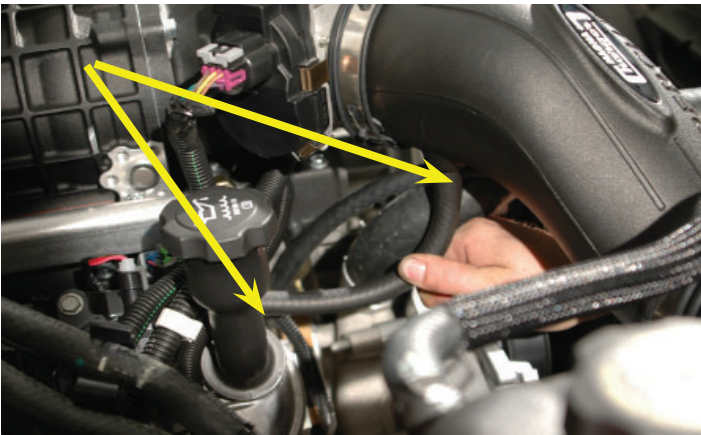


102. Using some of the O-ring grease supplied, apply a light coating of grease on the inside of the coupler.





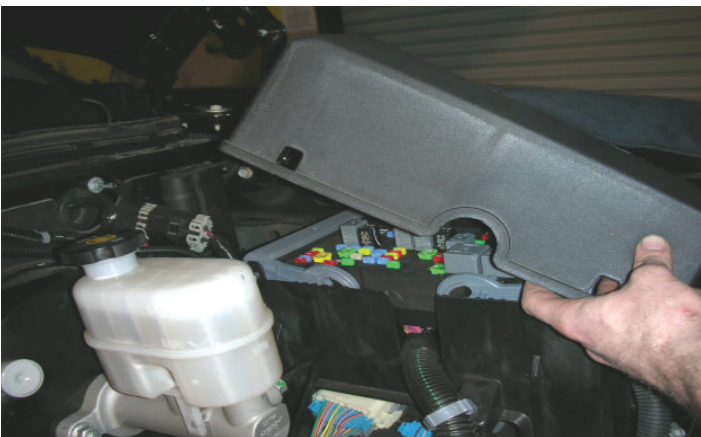
103. Push the bellows end of the air tube assembly on to the air box first, and then install the remaining end with the coupler on to the throttle body. Tighten all clamp screws securely.



104. Attach the remaining 3/8" hose (left over from a previous step-about 9") from the right (passenger-side) valve cover to the barb on the bottom of the air tube.



105. Remove the driver side fender to firewall brace with a 13mm socket wrench, to gain access to the fuse relay panel.



106. Pull back on the two tabs holding the fuse cover to the fuse box and lift the cover out of the vehicle.



107. Remove the 10amp mini-fuse in the fuse box that is labeled HVAC-IGN. **NOTE: Fuse location may vary so verify by fuse name!**



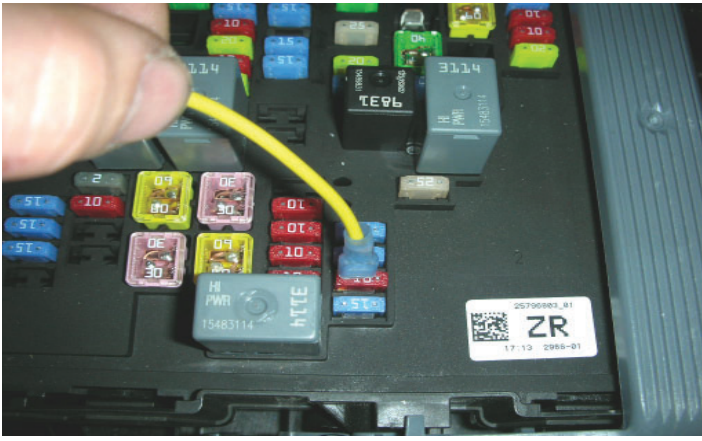
108. Install the supplied fuse t-tap onto the fuse and re-install the fuse back into the fuse box.



109. The intercooler relay harness is going to mount on the driver side inner fender just below where the fender support bracket is mounted. Use the self-tapping screw supplied to drill a hole, then use the screw to mount relay to fender.



110. With the relay mounted, take the yellow trigger wire from the relay, strip about 1/4" of the insulation from the end and crimp it onto the supplied spade connector.



111. Take the yellow wire from the intercooler relay and connect the spade terminal end and install the wire onto the fuse tap installed earlier. (HVAC IGN)



112. Next, take the fused red wire and cut off the 6mm eyelid connector and replace it with the supplied 8mm eyelet connector and install the wire onto the M8 stud in the fuse center.



113. Using a 12mm socket wrench, and the nut provided, secure the fused red wire to the M8 stud.



114. With a 10mm socket wrench, remove the nut securing the ground cable to the firewall.



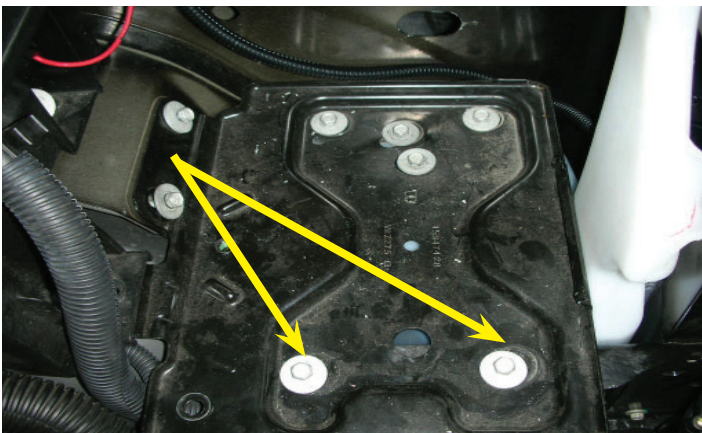
115. Crimp the supplied 6mm eyelet connector onto the ground (black wire) wire from the intercooler relay, install it onto the ground stud and re-install the factory nut.



116. Now, re-install the fuse cover onto the fuse center. **(Be careful not to pinch any wires.)**



117. Re-install the fender to the firewall brace.



118. To install the intercooler reservoir tank bracket you must remove these two bolts, using a 10mm socket wrench.



119. Lift up on the secondary battery tray and slide the intercooler reservoir tank bracket under the tray, lining up the holes on the bracket with the holes on the tray.



120. Using a 10mm socket wrench, re-install all bolts that were removed.



121. Mount the intercooler reservoir tank to the bracket using the three M6 X 12mm bolts. Tighten the bolts using a 10mm socket wrench.



122. Using a flat blade screwdriver, remove the eight plastic pushpins from the radiator support cover.



123. Remove the radiator support cover from the vehicle. Set aside to be re-installed later on.



124. Remove the grille from the vehicle. There are four bolts to remove using a 10mm socket wrench. The grille is held in place with snap-in fasteners, carefully release the retainers and then unsnap the upper bumper insert from the grille releasing the grille from the vehicle. **Note: With the grille out, the intercooler pump and LTR mounting can now be done.**



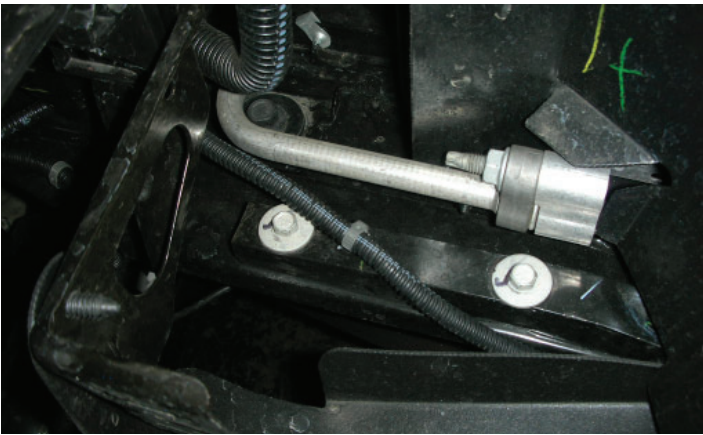
125. Using a 10mm socket wrench, remove the bolts shown, this is behind the drivers' side headlight, it is bolted to the radiator support.



126. Locate the Adel clamp, and put it on the intercooler pump, then using the 6mm x 55mm bolt and the spacer supplied install the intercooler pump to the radiator support.



127. Using a 10mm socket wrench, remove the two bolts that hold the power steering cooler in place. The 2nd bolt (not pictured) is attached to the "A" frame bracket. Move the cooler aside for now.



128. Using a 10mm socket wrench, remove the two bolts on the passenger-side of the "A" frame bracket that secures it to the lower radiator support. Repeat on the driver side of the "A" frame.



129. Remove the two upper bolts that secure the "A" frame bracket to the upper radiator support with a 10mm socket wrench.



130. Move the "A" frame bracket forward to allow clearance for the LTR (heat exchanger) to be installed.



131. Here are the LTR mounting components.



132. Cut the supplied 3/32" rubber strip into two 22 1/2" long pieces. Apply the rubber strip to the end tanks on the LTR.



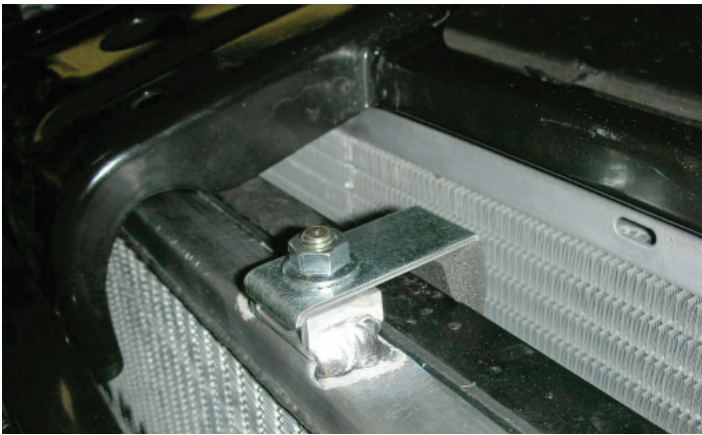
133. Carefully slide the LTR in between the "A" frame bracket and the air condition condenser. The LTR will go under the top of the "A" frame-mounting bracket.



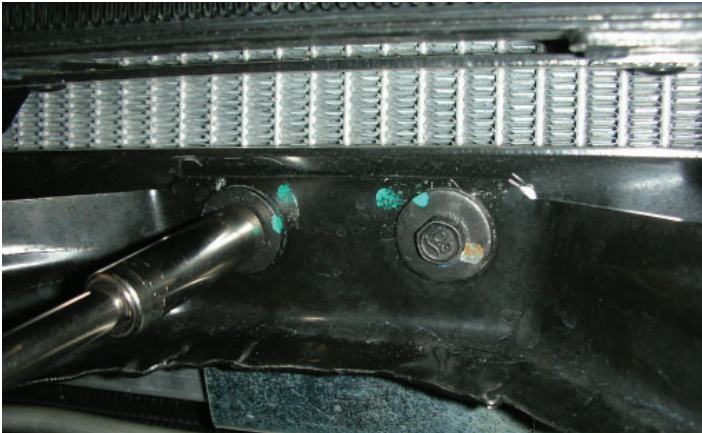
134. Locate the two upper LTR brackets and apply the supplied 1/2" foam to the brackets.



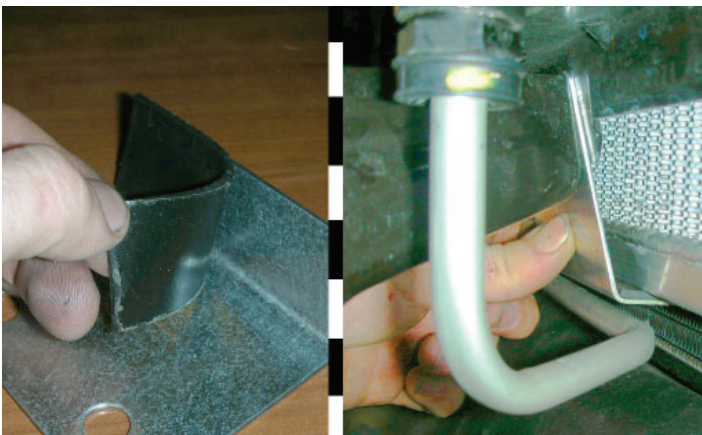
135. Slide the two M8 "T" bolts into the "T" channel on the LTR.



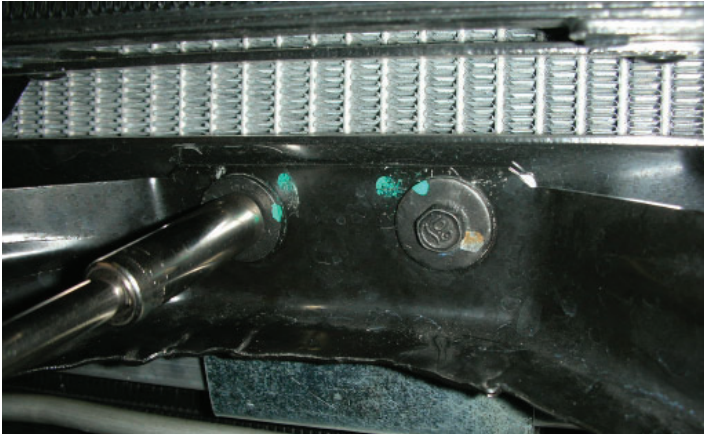
136. Install the two upper LTR brackets. Be sure the foam side is against the air conditioner condenser and secure it with the two M8 nuts provided.



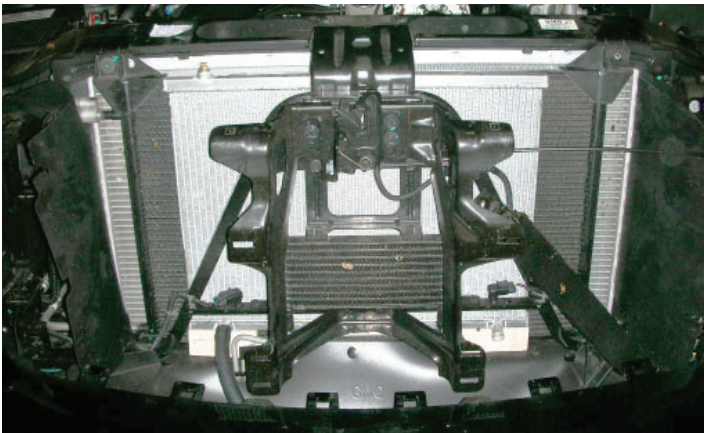
137. Using a 10mm socket wrench remove the two bolts located at the bottom of the "A" frame bracket.



138. Cut and attach a strip of the adhesive backed rubber provided to the "LTR" bracket as shown. Slide the lower "LTR" bracket into place behind the "A" frame bracket.



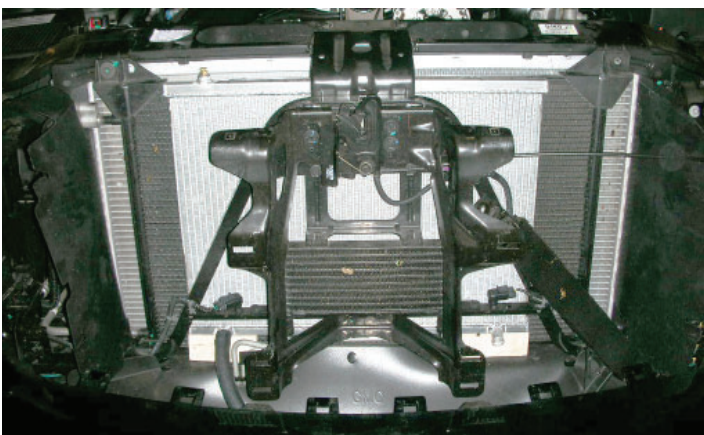
139. Re-install the factory hardware and tighten the two bolts.



140. Using all the factory hardware, re-install the "A" frame to the support bracket.



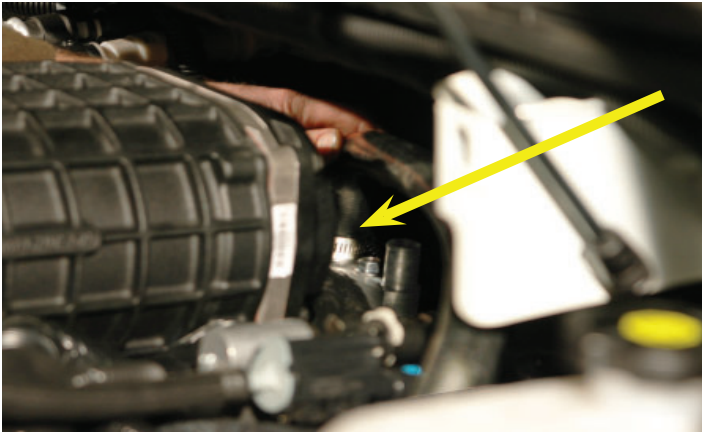
141. Before installing the power steering reservoir to "A" frame the lower bolt needs to be shortened so it doesn't interfere with the LTR. This can be done with a hacksaw or a suitable grinding tool.



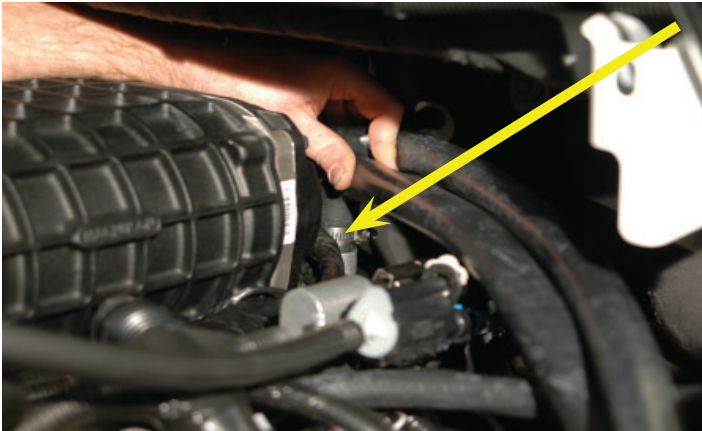
142. Here is the LTR mounted in the vehicle.
Note: The hose barbs are on the bottom of the LTR.



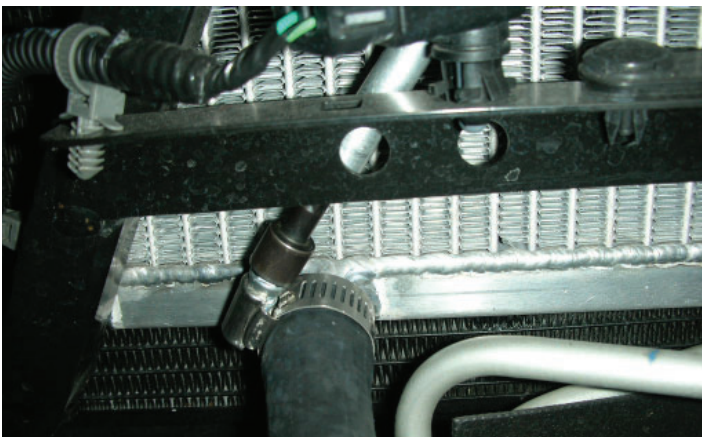
143. Route the electrical plug for the intercooler pump between the PCM and the fender well, through the radiator support and connect the plug to the pump.



144. There are two $\frac{3}{4}$ " hose barbs at the rear of the supercharger. Using a 4" x 36" x $\frac{3}{4}$ " 90° molded hose, cut 1" off the short end. Starting at the intercooler barb closest to the passenger side of the vehicle, attach the short end of the 90° to the barb with a #10 clamp. Run the hose forward toward the intercooler reservoir. **Note: Clamps may vary between squeeze style and screw style.**



145. Using the supplied 4" x 60" x $\frac{3}{4}$ " 90° molded hose, attach a $\frac{3}{4}$ " hose coupling to the long end of the hose. Connect the short end to the remaining supercharger barb (it should be the one closest to the driver side of the vehicle) and secure it with a #10 clamp.



146. Connect one end of the provided $\frac{3}{4}$ " hose to the hose coupling just installed. Route the hose through the radiator support and under the intercooler pump, trim to fit and connect it to the passenger side barb on the LTR. Secure all connections with the #10 clamps provided.



147. Route the hose connected in step #144 to the intercooler reservoir tank. Trim the hose to fit, connect it to the intercooler reservoir tank upper $\frac{3}{4}$ " hose barb, and tighten with the #10 clamp provided.



148. Put a piece of the remaining $\frac{3}{4}$ " hose onto the other $\frac{3}{4}$ " barb (lower) on the intercooler reservoir and secure with a #10 clamp provided.



149. This hose will route directly to the inlet barb on the intercooler pump. Trim to fit, and secure the hose with the supplied #10 clamp.
Note: Clamps may vary between squeeze style and screw style.



150. Using the last of the remaining $\frac{3}{4}$ " hose, attach one end to the outlet barb on to the intercooler pump.



151. Finally route the hose to the remaining barb on the driver-side of the LTR, secure with provided #10 clamp and tighten.



152. Place the belt/vacuum routing diagram onto the radiator support cover.



153. Re-install the grille on the vehicle using the stock hardware.



154. Reinstall the radiator support cover on the vehicle using the stock hardware.

155. Re-connect the battery with a 10mm socket wrench.



Make sure that you have followed step #1 in this manual to load the proper supercharger calibration to your vehicle's ECM.

156. Refill radiator and intercooler system with vehicle manufacturer recommended coolant mixture. Let run for 5-10 minutes. Bleed system at "T" and at reservoir. Check system periodically for fluid level.



157. Start the vehicle for 5 seconds and shut off, once again check for fuel leaks and fan-supercharger belt alignment. Check radiator and intercooler reservoir.



158. Test drive vehicle for the first few miles under normal driving conditions. **Do not perform any wide open throttle runs.** Listen for any noises, vibrations, engine misfire or anything that does not seem normal. The supercharger does have a slight whining noise under boost conditions, which is normal. Check & bleed intercooler reservoir as needed.





159. After the initial test drive gradually work the vehicle to wide open throttle runs, listen for any engine detonation (pinging). If engine detonation is present let up on the throttle immediately. Most detonation causes are low octane gasoline still in the tank. Install the provided "Use Premium Fuel Only" sticker to the inside of the fuel filler door.

After you finish your installation and road test your vehicle, please fill out the warranty registration. This can be found on our website.

If you have questions about your vehicles performance, please check with your installation facility.

Please enjoy your "Magna Charged"
performance responsibly!

NOTE: this vehicle IS NOT compatible with E85 fuel. You can use only premium gasoline fuel 91 Octane or better, Ethanol is NOT compatible with the engine after supercharger install.

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