MAGNUSON
SUPERCHARGERS

Installation Instructions for:

INTERCOOLED SUPERCHARGER SYSTEM
2011+ Dodge Challenger 6.4 Liter HEMI

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

*** PREMIUM 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.

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89-89-61-064 Rev F

INSTALLATION MANUAL

Magnuson SuperCharger Kit
Dodge 6.4L HEMI Engine
2011+ Challenger

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.

Use only premium gasoline fuel, 91 octane or better.

Magnuson Products 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 Products Supercharger systems are designed for engines and vehicles in “GOOD” mechanical condition. Magnuson Products 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 Products 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 Products 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.

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

After you finish your installation and road test your vehicle, please fill out and mail in the limited warranty card, so we can add you to our files (this is important for your protection).

Drive belt = Gates# K061000

Tools Required:

- Metric wrench set
- ¼" - 3/8" and ½" drive metric socket set (Standard & Deep)
- 3/8"and ½" drive Foot pound and inch pound torque wrenches
- Phillips and flat head screwdrivers
- Fuel line quick disconnect tools (included in kit)
- Small or angled 3/8" drill motor
- Drain pan
- Hose cutters
- Hose clamp pliers
- Safety glasses
- Metric Allen socket set 3/8" drive
- Shop vacuum cleaner
- Blue Loctite
- Right Angle drill for pinning crank pulley.

Helpful Tool: Air or electric impact wrench.

Contact Information:
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NOTE: This instruction manual follows the process we used to complete this installation on our test vehicle. This does not imply there aren't alternate approaches. If you find a procedure or process that improves the installation, please let us know! We strive to create the most comprehensive and complete instruction manuals available.

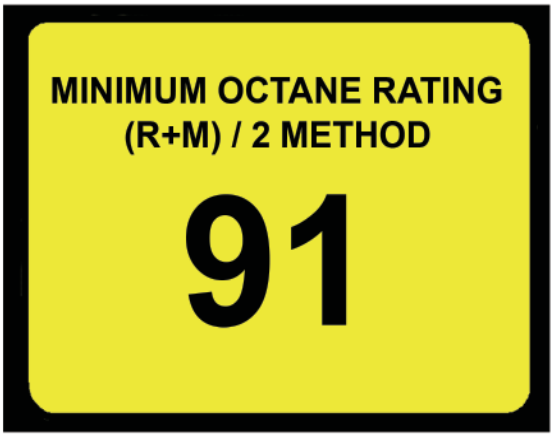
Section 1: Tuning Your Vehicle Computer and Initial Steps

Any reference to left or right side of vehicle is given from driver's seat perspective.

1. The first step is to use the provided DiabloSport Trinity hand held tuner to setup the calibration for your new supercharger system. Follow the instructions in the supplied DiabloSport tuner manual. Locate your EO sticker and follow the instructions for placing the sticker on the supercharger.

NOTE: For now, the customer will have to read the stock file from the vehicle using the tool, and must email the file to calibration. Here the file will be modified and emailed back to the customer for install in the car.

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 a minimum 91 Octane gasoline fuel. This system is not compatible with E85 fuel.

4. In the trunk of the vehicle, below the lift up panel is the vehicle battery. Disconnect the battery negative (-) cable at the terminal using a 10mm wrench and set it aside where it will not accidentally make connection with the battery post.

5. Slowly remove the gas cap to release fuel system pressure.

Section 2: Coolant Drainage and Front Fascia Removal

6. The splash shields below and behind the nose fascia will need to be removed. There are two main components, with ten plastic push pin rivets, four 10mm bolts, and seven 7mm bolts holding these components to each other and the framework. Start by removing all the push pin rivets by prying out on the center spreader and then pull the rivets free. Now remove the two 10mm bolts joining the two main components together.

7. Remove the seven 7mm bolts from the front of the splash shield where it joins the spoiler.

8. Pull the front splash shield from the vehicle and set aside for later installation.

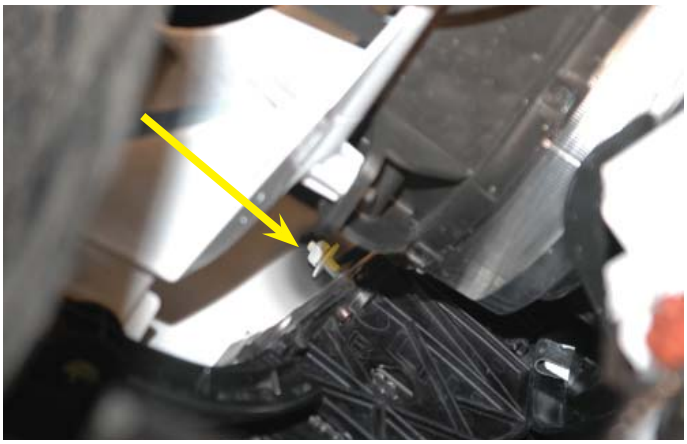
9. The rear splash shield is now dangling. Remove the two rear 10mm bolts holding the rear splash shield to the under carriage and pull the rear splash shield out of the vehicle and set aside as well for later re-installation.

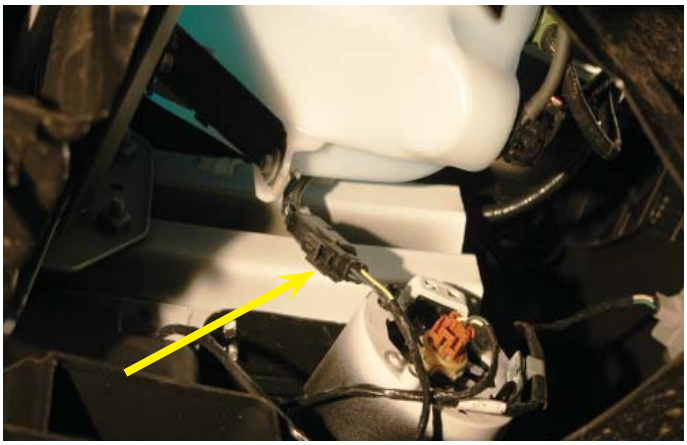
10. Open the drain valve on the bottom right side of the radiator. Collect the drained fluid in a clean pan and set aside for later re-use.

11. Remove the radiator fill cap to relieve back pressure and facilitate drainage.

12. Pull up on the two halves of the radiator cover to unsnap them from their mounting holes and set aside for later re-installation.

13. To protect your vehicle fascia/grille and facilitate install, we're going to remove the fascia and bumper assembly from the vehicle. There are four studs and nuts and two bolts attaching the nose fascia to the fender assembly that need to be removed first. From below the vehicle, right where the fender flange makes a bend upward, adjacent to the outside edge of the head-light assembly, there is a stud nut attach-ing the two pieces together. Use a 10mm wrench to loosen the nut on both the right and left side (shown here). Once loosened, it can be removed by hand. Set the nut / washer aside for later re-installation.

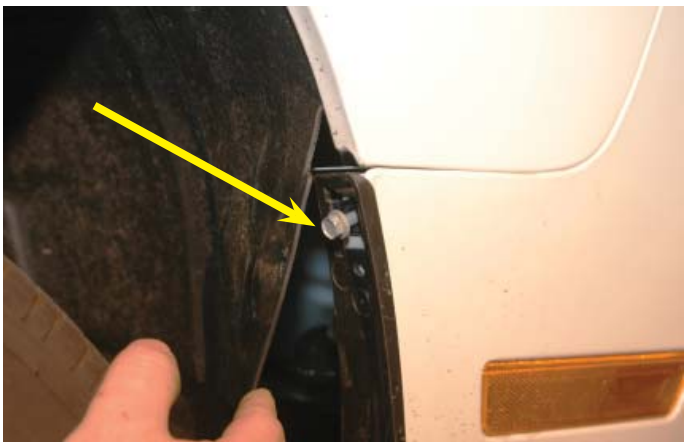




14. While you are below the vehicle, on the right side there is a main harness con-nector that spreads down to connect to the fog lights, corner markers, etc. Disconnect the plug tying the harness to the harness of the fascia/grille.

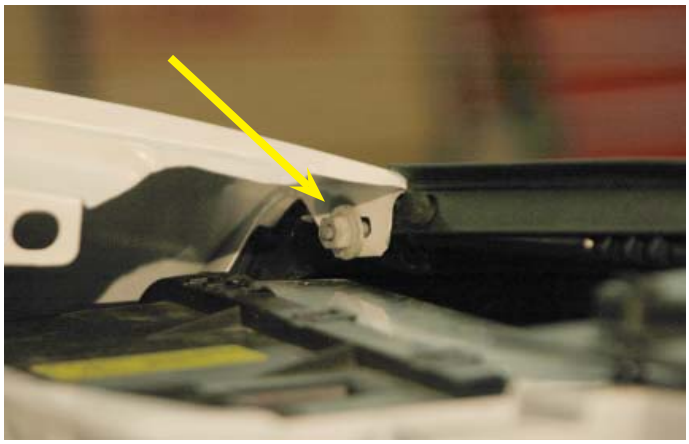
15. Remove the forward 3 push-pin rivets holding the wheel well shroud to the fender on each side of the vehicle by prying out the center pin and then pull the push rivets out.

16. Once the rivets are out, pull back on the wheel well shroud to expose the bolt by the junction of the fender and the fascia and use a 10 mm wrench to remove the bolt on each side of the vehicle.



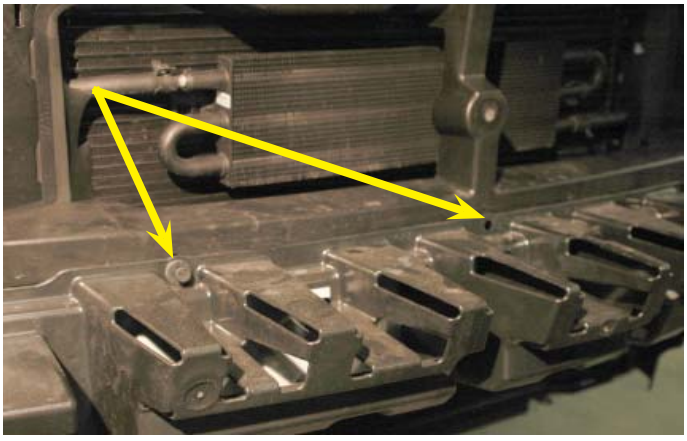
17. Carefully but firmly pull outward on the fascia near the side reflector to disengage the plastic mounting clips on each side of the vehicle.

18. From the top of the vehicle, where the corner of the fender by the hood attaches to the fascia with a 10mm nut on the fascia mounted stud. Loosen this nut/washer and remove from each side of the vehicle.

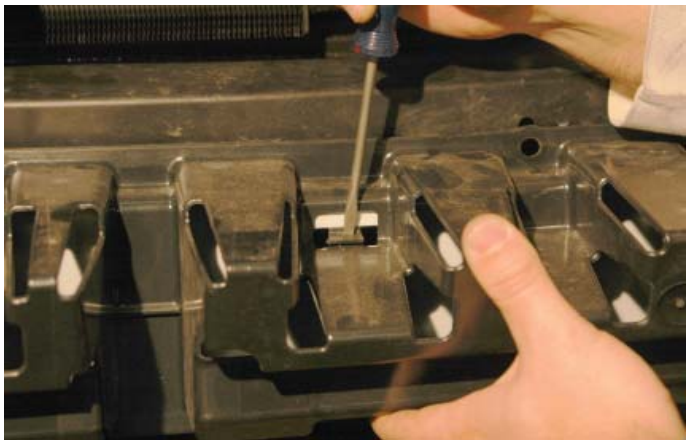


19. Six push pin rivets attach the top of the fascia to the frame support, pry out the center of the push pin which allows the rivets to be pulled free. Carefully pull the fascia/grill forward to remove from vehicle. There is a plastic guide pin that slides into the fender flange on each side. It helps to have an assistant and pull from the sides to allow the guide pins slide out more easily. Verify that your electrical connection is disconnected and set the fascia/grille aside in a safe place.

20. Remove the three push pin rivets holding the plastic bumper section to the sub frame.

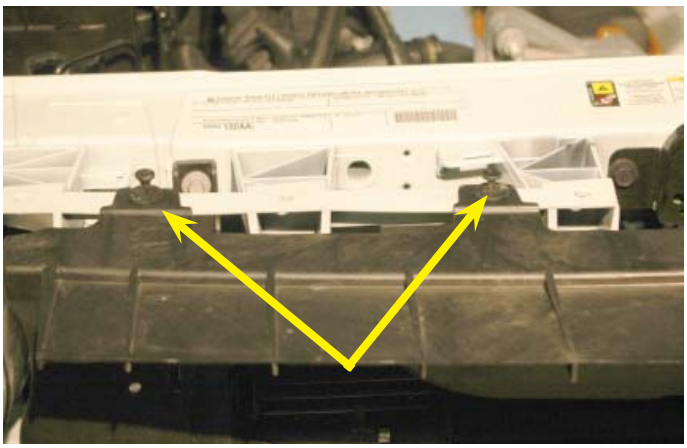


21. The remaining eight clips holding the plastic bumper section to the sub frame can be released using a flathead screwdriver to depress the locking tab.



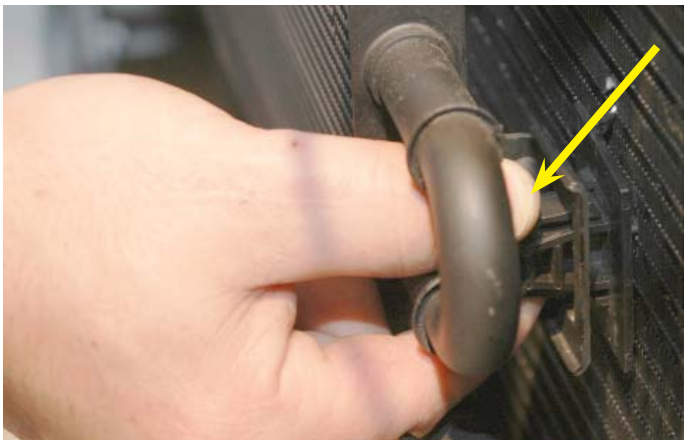
22. Once the clips are released, pull the plastic bumper section free and set aside for installation later.

23. Pull out the center post of the plastic push pin rivets on the upper plastic grille fascia support, pull the rivets out completely.

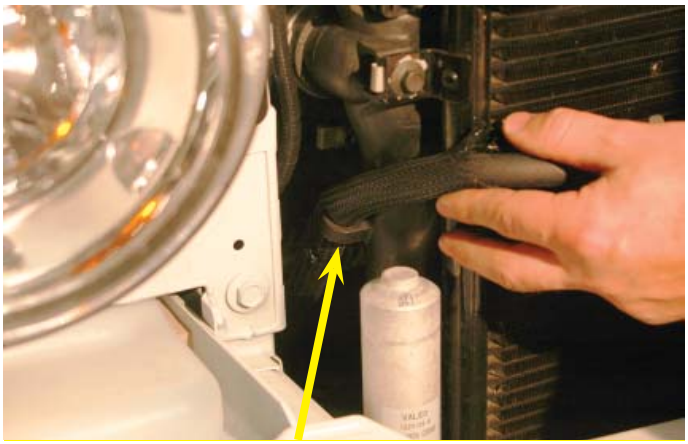


24. Remove the plastic grille fascia support and set aside for re-installation later.

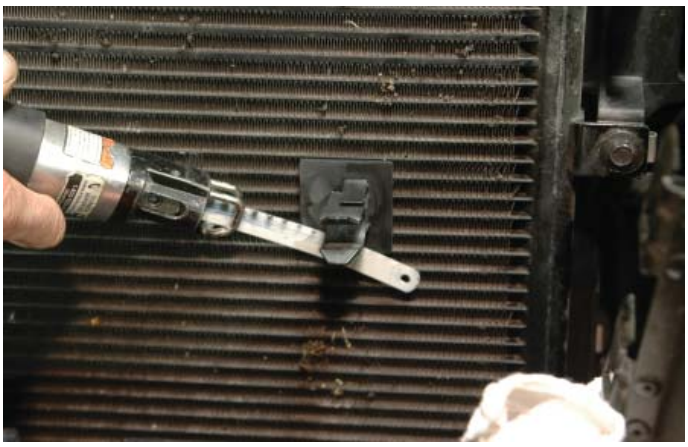
25. The power steering cooler is held to the upper section of the AC condenser with two plastic clamps. Release the clamps by depressing the locking tabs behind the tube and pull the power steering cooler off the mounting tabs.



26. On the right side of the vehicle the hose from the power steering condenser must be pulled off the mounting tab to allow the cooler to be moved forward.



27. Use a saw, or cutting wheel to remove the locking tab from the face of the power steering mounting bracket. Be careful to not damage the AC condenser.



28. Unplug the IAT from the intake air tube.

29. Remove the two clamps on the intake air tube using an 8mm wrench.

30. Remove the intake air tube from the vehicle, set aside for some parts that will be reused later.

31. Remove the 10mm bolt from the air box mount on the left side front of the engine compartment and pull the air box assembly out of the vehicle for later reinstall.

Section 3: Low Temperature Radiator (LTR) and Intercooler Pump Installation

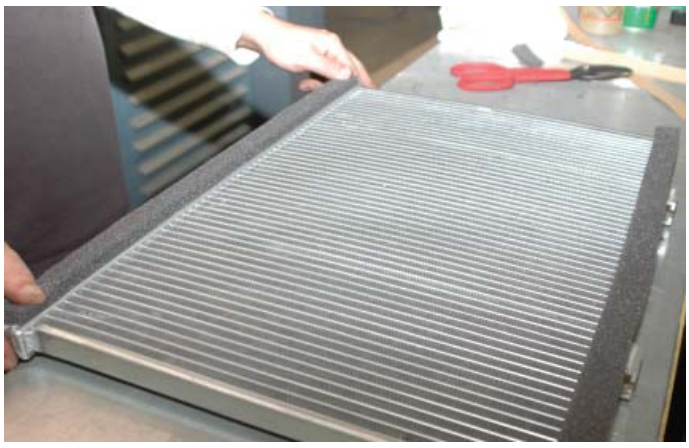
32. The supplied plastic brackets for the relocation of the power steering condenser will mount on the face of the supplied Low Temperature Radiator (LTR) (the face is the side with the hose barbs). From the top of the intercooler heat exchanger fins (the top tank has the hose barbs), just below the upper tank tube, measure down 3” on each side.

33. Measure three inches from the out-side of each side of the LTR as shown, and mark the location by deforming the fins between the tubes.

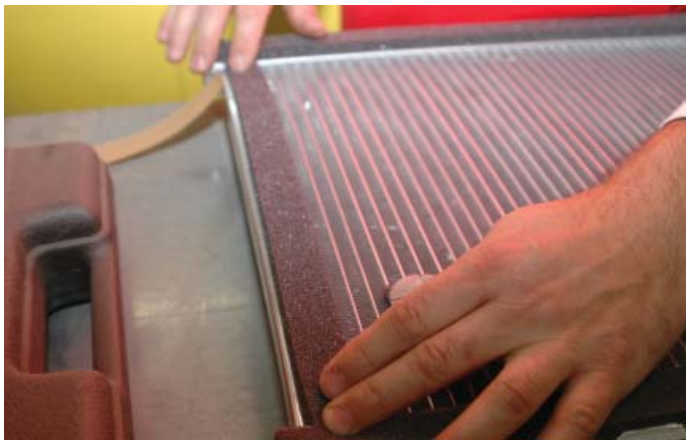
34. Add one of the supplied rubber mounting bracket squares to each of the supplied AC condenser mounting brackets, and carefully press the supplied mounting brackets through the LTR fins at the junction of the top and side measurements. Orient the brackets as the original were oriented, the tube slots are horizontal.

35. Add another of the supplied rubber mounting bracket squares to each of the exposed pins on the mounting brackets you just installed (on the back-side of the LTR) and push the supplied retaining clip disks onto the pins protruding through the inter-cooler heat exchanger to lock the mounting brackets in place. Cut off any remaining nibs of the pins so they will not interfere with the existing radiator surfaces.

36. Clean up the end cap surfaces of the LTR using acetone or lacquer thinner. Cut the supplied sticky backed foam strip to fit the length of the end caps and attach to the inside surface of the end cap as shown.

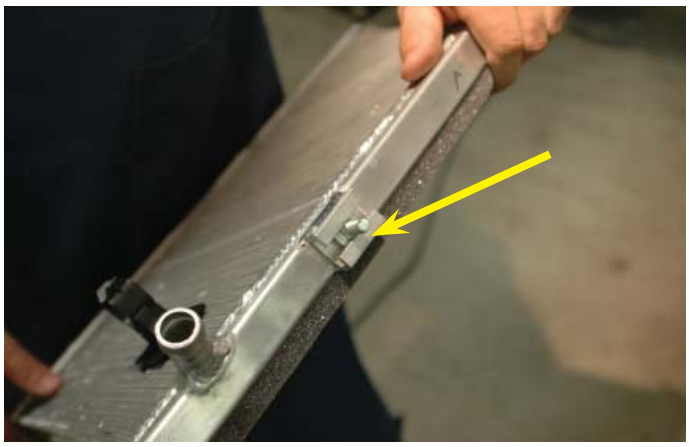


37. Add strips of the sticky backed foam to the vertical side rails of the LTR as well.

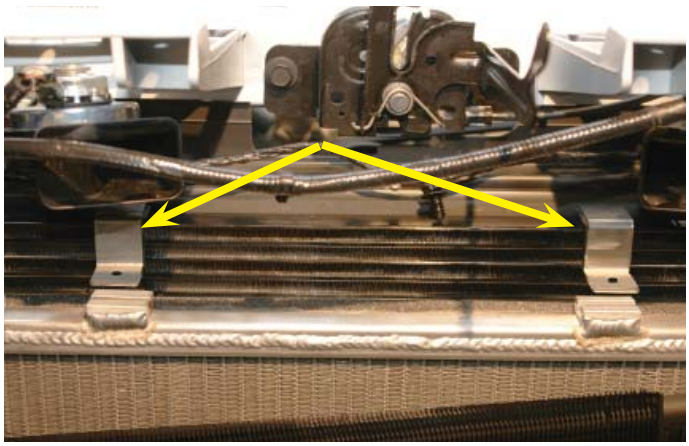


38. Cut the adhesive backed rubber strips and affix to the inside surface of the supplied LTR mounting hooks.

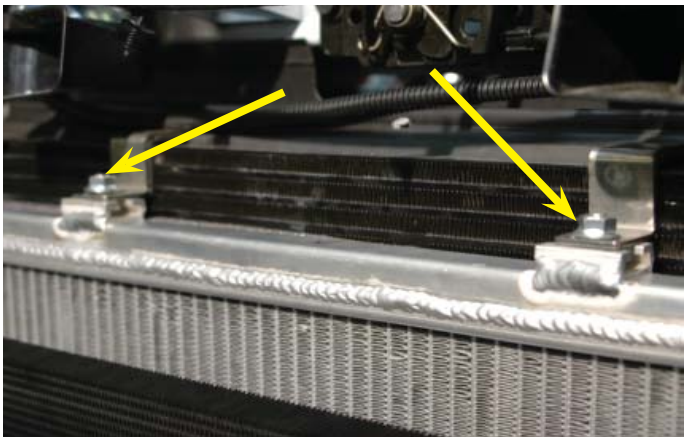
39. Insert two of the supplied carriage bolts in the slots on the top of the LTR (the top is the end that has the hose barbs) for attaching the mounting hooks.



40. Press the upper mounting hooks down onto the top of the AC condenser using the top of the LTR mounting slots as a location guide.

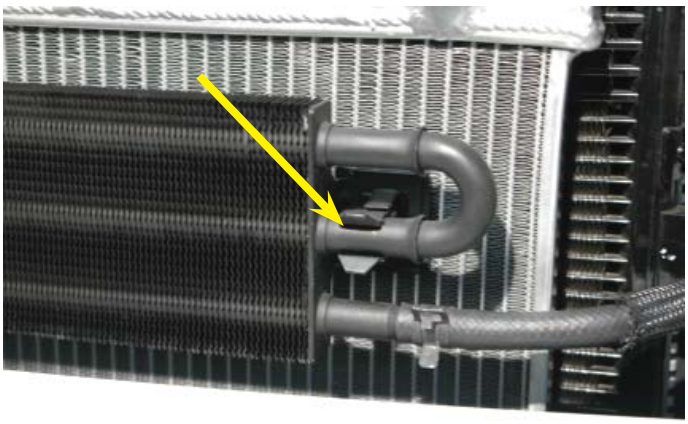


41. The air bleed valve should be on the bottom of the LTR. Push the LTR up from below the bumper sub frame, in front of the existing AC condenser, and behind the power steering cooler. The carriage bolts will pass through the hangers pressed on the top of the AC condenser. Use the 12mm nuts provided to secure the hangers in place.



42. Attach the remaining carriage bolt to the right side mounting slot on the bottom of the LTR. The remaining vibration damper backed bracket will clamp over the bottom of the air conditioning condenser and be secured to the carriage bolt just installed using the remaining 12mm nut.

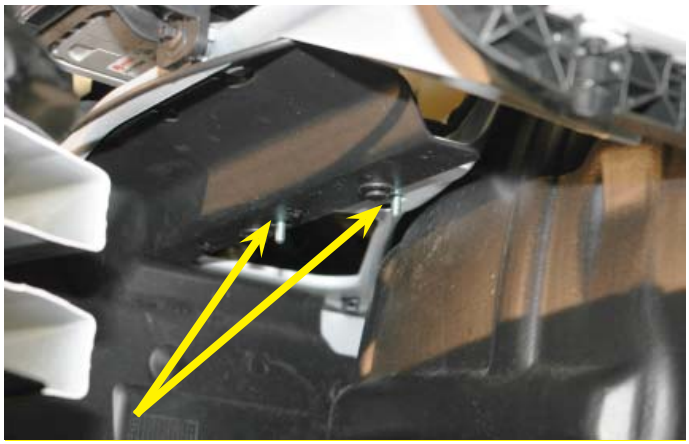
43. Press the power steering cooler onto the two mounting tabs attached to the LTR, ensure that the clips have engaged and the mount is secure.



44. On the front left side of the engine compartment, below the air box location there is a cross frame plate with the air box inlet hole. Open two existing holes indicated to accommodate the intercooler pump using a ¼" drill bit or stepped bit. Image here is viewed from below.

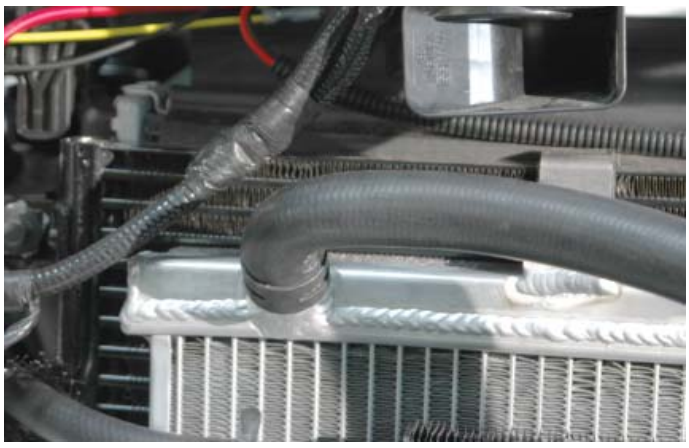
45. Loosely mount the intercooler pump to the provided bracket using the provided Adel clamps as shown.

46. Push the bolts down from the top through the holes you opened in the air box mounting panel.



47. Attach the intercooler pump and mounting bracket using the supplied 10mm nuts as shown. The discharge barb should be parallel to the ground plane and pointing out forward and toward the left side fender a bit. The inlet barb should be pointing forward angling toward the center of the grille. Tighten the Adel mounting clamps at this time.

48. Cut 8” off the long leg of the 4” x 60” x ¾” 90° elbow hoses, cut off the short leg leaving a little more than 1” on the short end (as measured from the inside of the curve) and attach the short end of the modified hose to the left side hose barb of the intercooler heat exchanger using another of the supplied spring clamps.

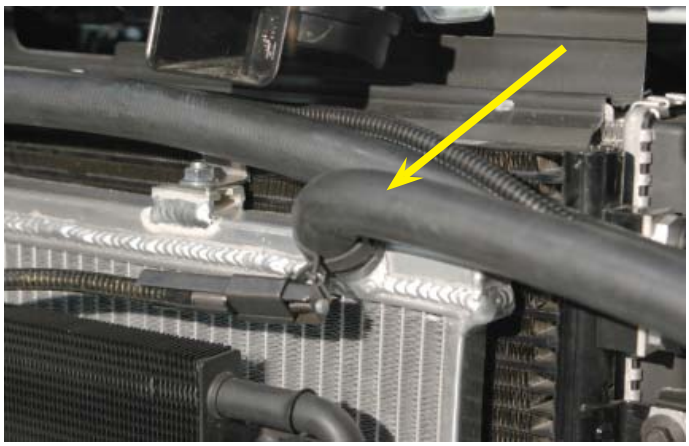


49. Route the other end of the hose toward the left side over and up into the engine compartment going through the socket where the left side headlight assembly is mounted.

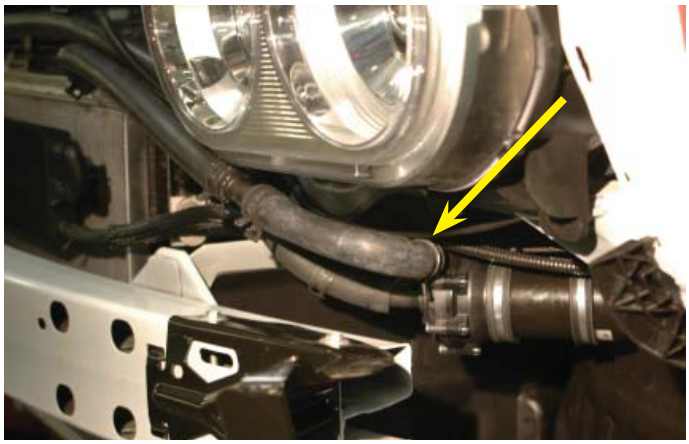
50. Cut off the short end of a 4” x 18” x ¾” 90° elbow hoses, leaving a little more than 1” on the short end (as measured from the inside of the curve). Cut the long leg of the 4” x 18” x ¾” 90° elbow hose to 12” in length.

51. Cut 2” off the short leg of the other 4” x 18” x ¾” 90° elbow hose. Cut the long leg to 5-1/2” in length and join the two (originally) 4” x 18” x ¾” 90° elbow hoses together at the long ends with the provided hose coupling (mender) and spring clamps as shown.

52. Attach the short end of the 4” x 12” x ¾” 90° elbow hose assembly to the left side hose barb on the intercooler heat exchanger using one of the supplied spring clamps. This hose assembly points toward the left side fender.



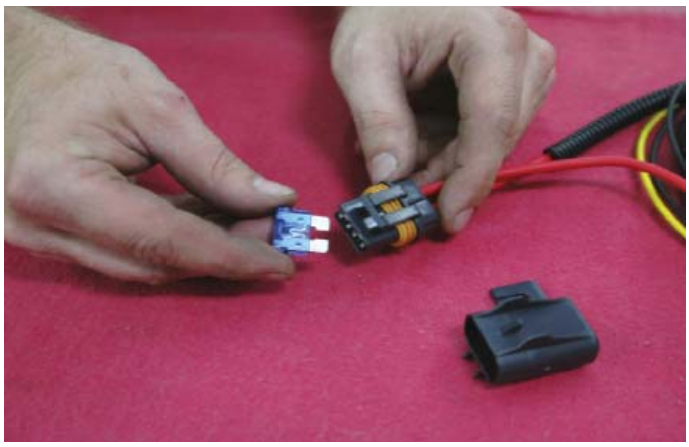
53. Route the long end of the hose over to the intercooler pump discharge barb, cut to length and secure in place using one of the provided spring clamps.



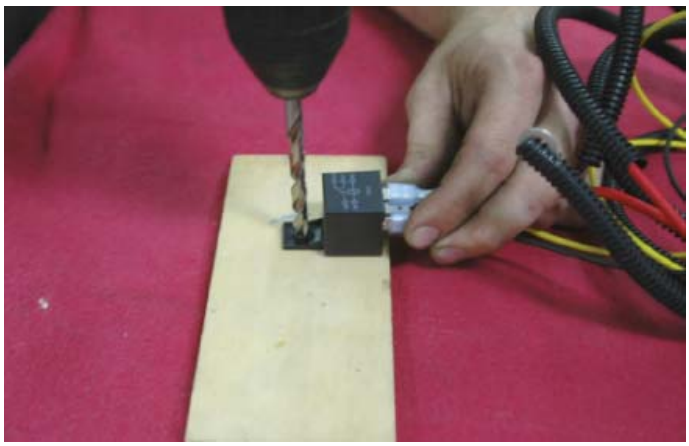
54. Connect one end of the supplied 36" x ¾" hose to the inlet barb on the intercooler pump using one of the supplied spring clamps, and route the other end up into the engine compartment through the socket by the left side headlight as before.

Section 4: Pump Wiring and Reservoir Intallation

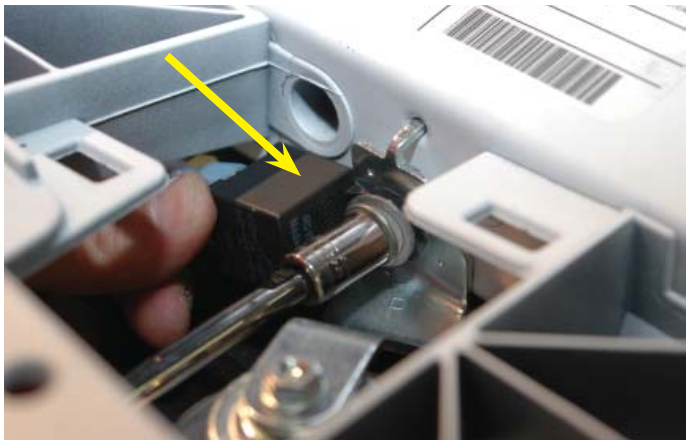
55. Insert the 15 amp fuse in the fuse holder of the intercooler pump relay.



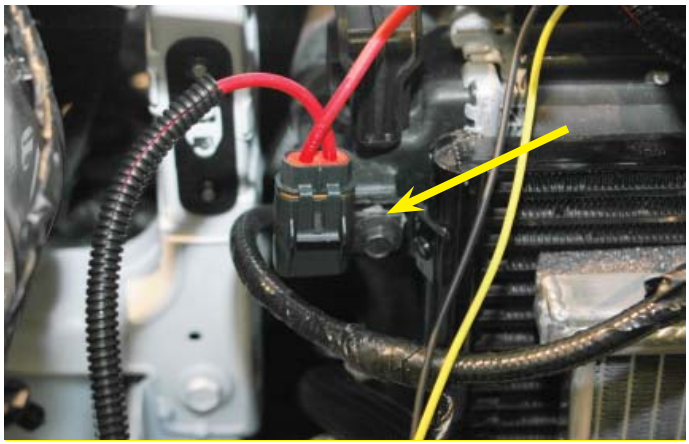
56. Use a ¼" drill bit to open the holes of the intercooler pump relay and fuse box.



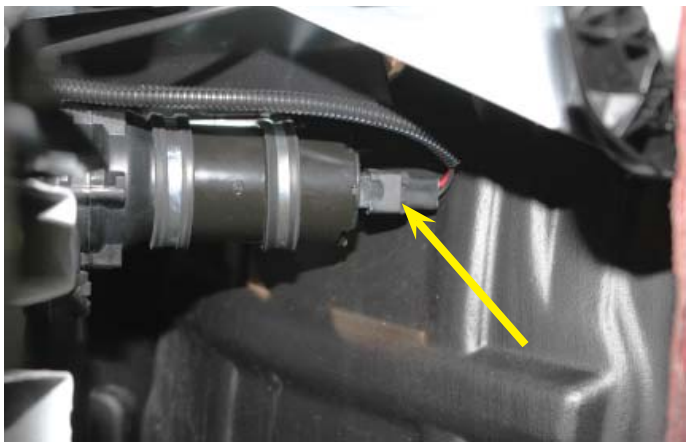
57. Use a 10mm wrench to remove the bolt from the right side horn mount, and replace the right side horn mounting bolt incorporating the intercooler pump relay as shown.



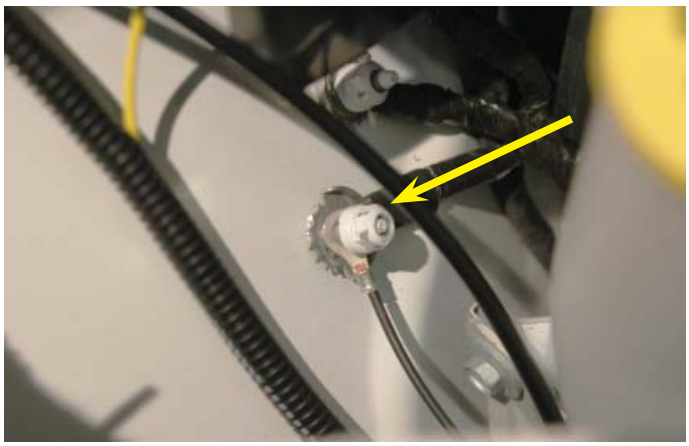
58. Use a 10mm wrench to remove the upper AC condenser mounting bolt on the right side and replace incorporating the intercooler pump fuse holder.



59. Route the intercooler pump plug harness across the top of the radiator section, over and down to the intercooler pump. Connect the terminal to the pump.



60. Route the black wire with the “eye” terminal into the engine compartment and down to the existing ground wire stud at the front, base flare of the wheel well near the windshield washer reservoir. Remove the nut with a 10mm wrench and replace incorporating the black ground wire.

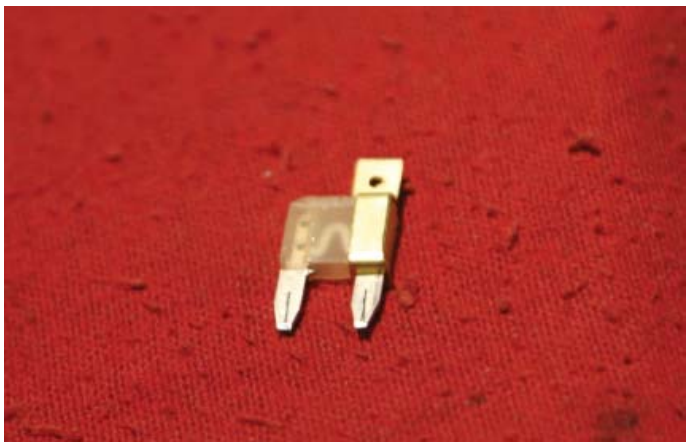


61. Remove the red wire cover from the positive (+) terminal on the outside of the fuse center box by unsnapping the clip and use a 13mm wrench to remove the positive terminal lug beneath.

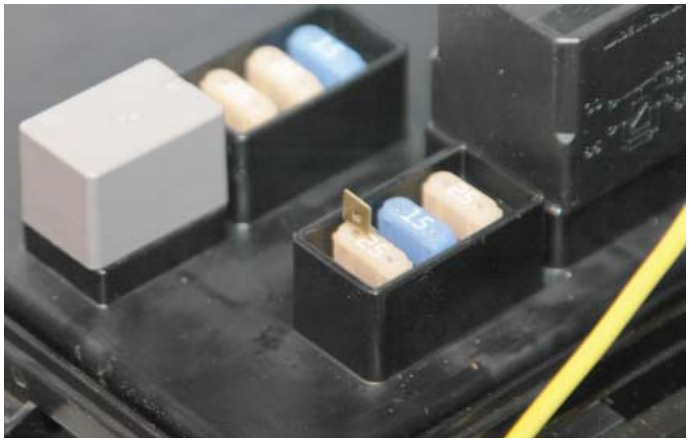
62. Tuck the yellow wire into the existing “Hot” lead split loom and route the harness into the engine compartment and over to the fuse center. Cut the existing red wire and split loom to reach the positive terminal of the fuse center. Strip off 3/8” of the red wire insulation and crimp on the supplied larger “eye” terminal securely. Replace the nut incorporating the new red wire terminal on the post. Tighten securely.

63. Remove fuse #6 (25 amp-injectors, coils, SRV) from the slot.

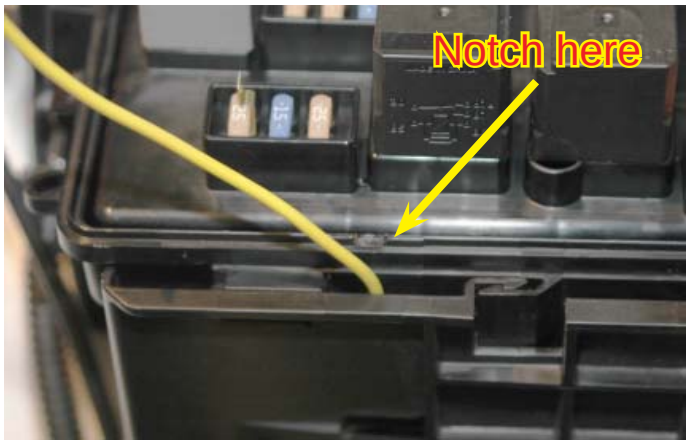
64. Install the provided fuse tap to one leg of the fuse you just removed.



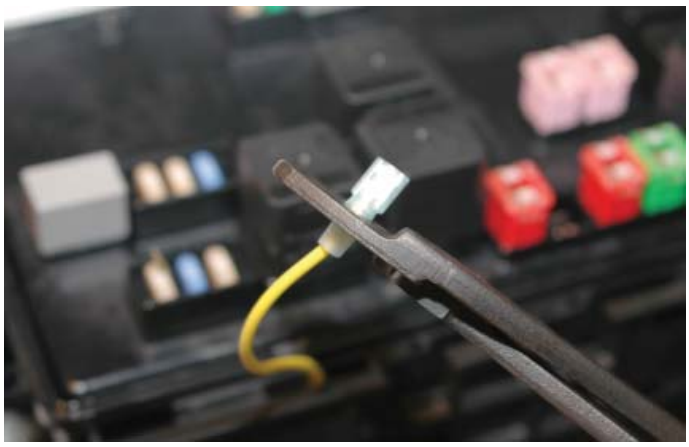
65. Replace the 25 amp fuse #6 back into its designated slot.



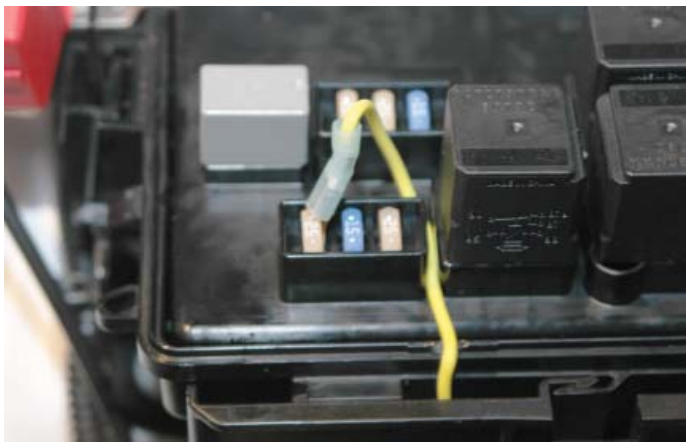
66. Pull yellow wire out of the split loom near the base of the fuse center box and route up under and into the fuse center as shown. Cut a small notch in the raised seal of the fuse box to allow the yellow wire access to the interior without crimping.



67. Strip off 3/8” of insulation and crimp on the provided spade connector.



68. Plug the yellow wire spade connector onto the fuse tap you just installed.



69. Replace the fuse center cover.

70. Mount the intercooler reservoir bottle to the provided mounting bracket using the three provided 10mm bolts. Tighten firmly.

71. Remove the nut on the stud just forward of the left side shock tower mount cover. Replace the nut incorporating the reservoir bracket and bottle assembly.

Section 5: Intake Manifold Removal

72. Remove the plastic HEMI coil covers by pulling up gently. Set them aside for future usage.

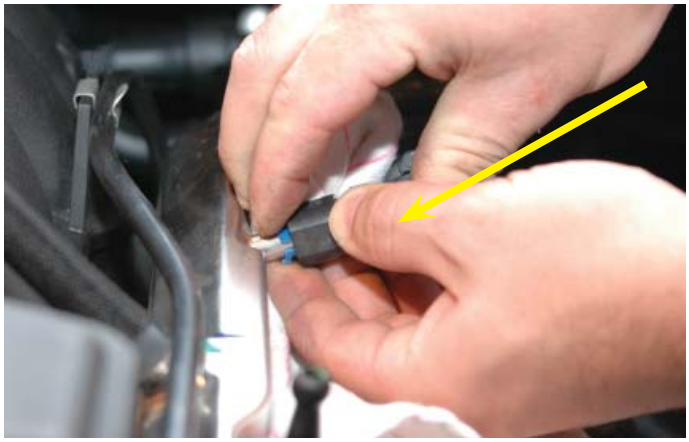
73. Remove the fuel rail insulation covers from both sides of the engine.

74. Pull the red locking clip back away from the connection and depress the release clip to unplug the Electronic Throttle Control (ETC) from the throttle body.

75. Pull out on the red locking clip and press on the release clip to unplug the eight fuel injector connections.

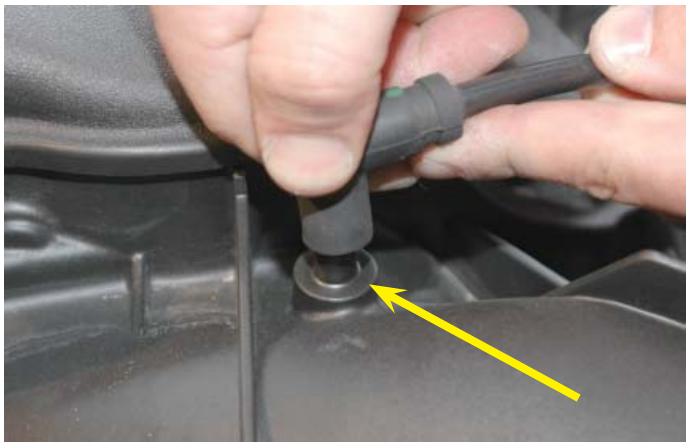
76. On the very back of the OEM intake manifold is the MAP sensor. Pull back on the red locking tab and press the release clip to disconnect this plug.

77. Remove the fuel line from the fuel manifold on the right side. First push the fuel line further onto the fuel manifold barb, then press the locking tabs to release the fuel line, and pull the fuel line free. Use shop towels to capture any residual fuel and dispose of properly. It's a good idea to cap the fuel rail barb and plug the fuel line to avoid seepage of fuel. The locking tab should be removed from the fuel manifold barb and pushed back into the fitting of the fuel line for later reconnection.

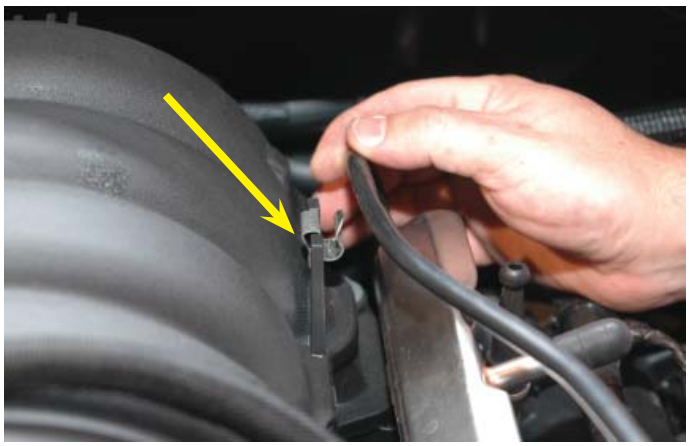


78. Disconnect the PCV vent hose from the air box and the oil fill spout extrusion.

79. Remove the EVAP line from the intake manifold behind the throttle body on the left side.

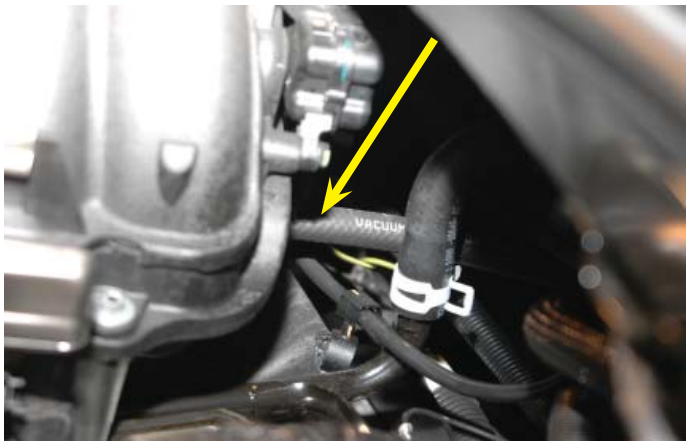


80. There are two clips holding the line to the intake manifold, one on the left side near the middle of the manifold, and the other on the back of the intake manifold itself. Remove the line from the clips and tuck the line out of the way.

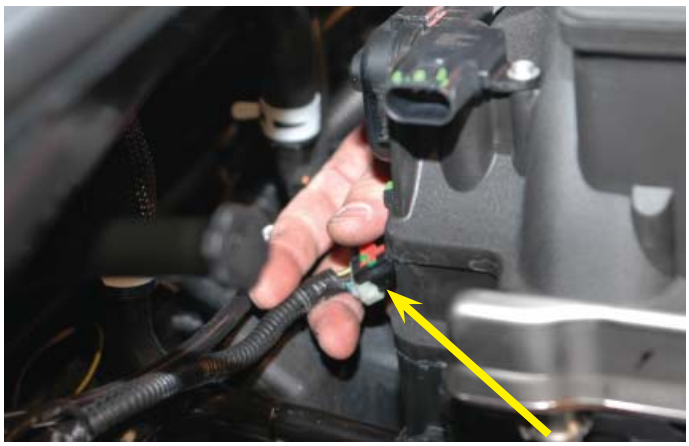


81. Remove the ten 8mm bolts holding the intake manifold to the heads.

82. Move the OEM intake manifold forward a bit to get access to the rear of the manifold. On the back of the OEM intake manifold, below where the MAP sensor was plugged in is the brake booster hose. Pull this hose free from the intake manifold.

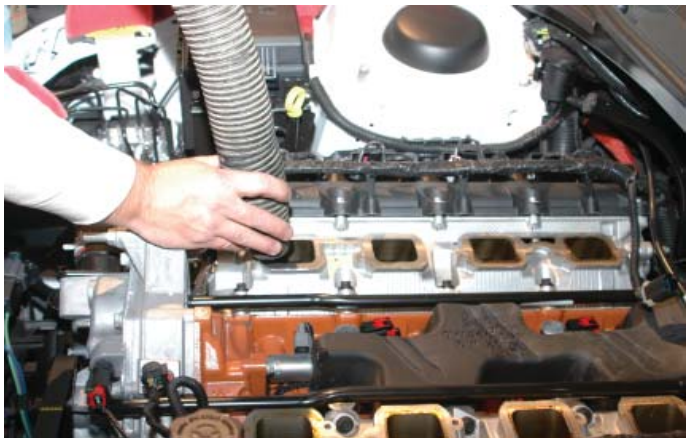


83. Also on the back of the OEM intake manifold is the Variable length intake runner control module. Disconnect the plug from this module by pulling back on the red locking clip and depressing the release tab to pull the fitting free.



84. Carefully lift the OEM intake assembly from the vehicle and set aside for some parts that will be removed later.

85. Use a vacuum to remove any debris from the heads and adjacent surfaces. Be careful to not allow any debris into the open ports.



86. Wipe the port surfaces clean using a shop rag and alcohol (lacquer thinner, acetone or some other non-petroleum based solvent).

87. Use tape or shop rags to cover the exposed ports and prevent debris from entering the ports.

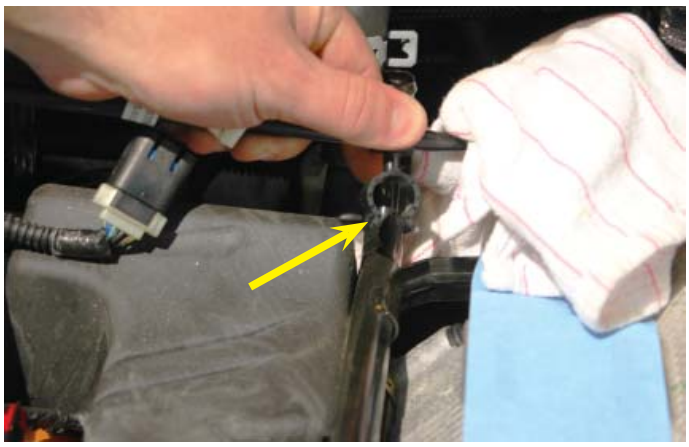
Section 6: Serpentine Belt Removal and Heater Hose Rerouting

88. To facilitate the hose install, use a 3/8” drive ratchet to spring the tensioner and remove the OEM fan belt. This will not be reused.

89. Remove the two heater hose clamps from the hard line tubes running forward to the water pump over the valley between the heads of the engine.

90. Disconnect the two heater hoses from the hard line connection at the rear of the engine by pulling the lines free from the hard line barbs.

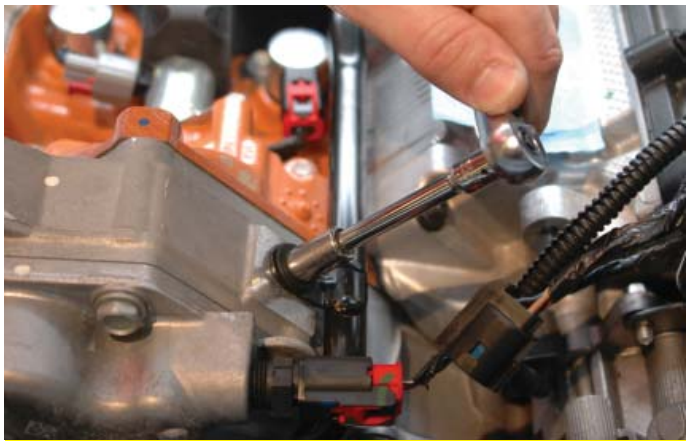
91. Unclip the EVAP line clip anchoring the EVAP tube to the hard line on the left side.



92. Remove the 10mm nut holding the ground sensor and an additional grounding wire to the left side heater hard line mounting bracket/stud at the rear of the head. Disconnect the grounds and make sure the wires are accessible for later install. Repeat on right side.

93. Remove the 10mm bolt-stud extension mounting the left side hard line bracket to the head.

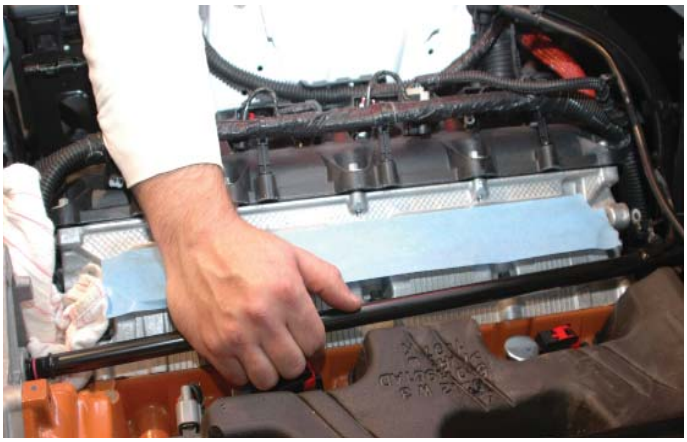
94. There is an additional 10mm bolt holding the left side hard line to the water pump. Remove this bolt using a 10mm wrench.



95. Remove the left side hard line by pulling up, or use a large screwdriver to lever against the water pump and pull it free from the water pump. Remove the hard line from the vehicle, this will not be reused. There will likely be some residual coolant inside the tube, so take precaution and be aware of potential spillage.

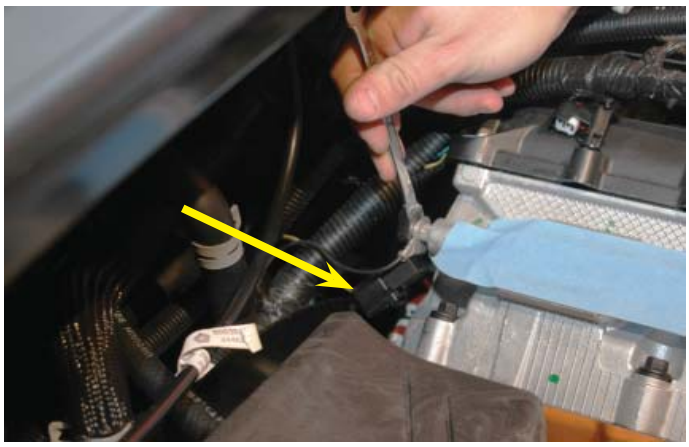
96. Remove the right side hard line mounting bolt/stud on the back of the head using a 10mm wrench.

97. Remove the right side heater hard line from the engine. If necessary, you can use a large screwdriver and with the back of the head as a fulcrum, lever the barb free. There will likely be some fluid inside the tube, so use care to not throw the fluid around your work environment, this tube will not be re-used.



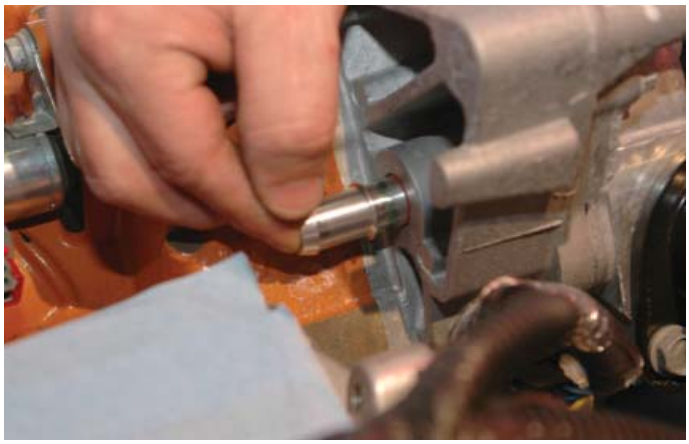
98. Replace the removed bolt/stud to the rear of the right side head, and re-attach the ground sensor and additional grounding wire removed earlier using the stock 10mm nut. Ensure that the ground sensor is clocked downward to avoid conflict with the new supercharger intake manifold.

99. Replace the left side bolt/stud removed earlier and attach the ground sensor and additional ground wire removed earlier, clock the ground sensor so that it points down to avoid conflict with the new supercharger and secure in place with the original 10mm nut removed earlier.



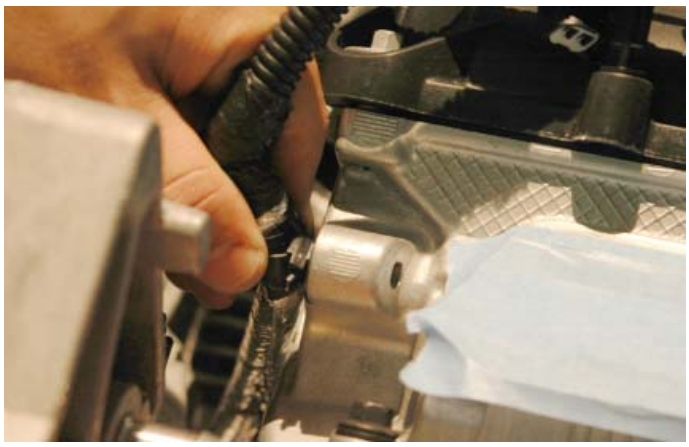
100. Put a generous amount of the supplied green Loctite 680 between the O-ring and stop ring on the shorter of the two supplied water heater barbs.

101. Press the prepared barb into the hole vacated by the right side hard line. Do not use any grease or lubricant on the O-ring as this will compromise the effect of the green Loctite 680. Allow the Loctite on the barb to cure before disturbing.

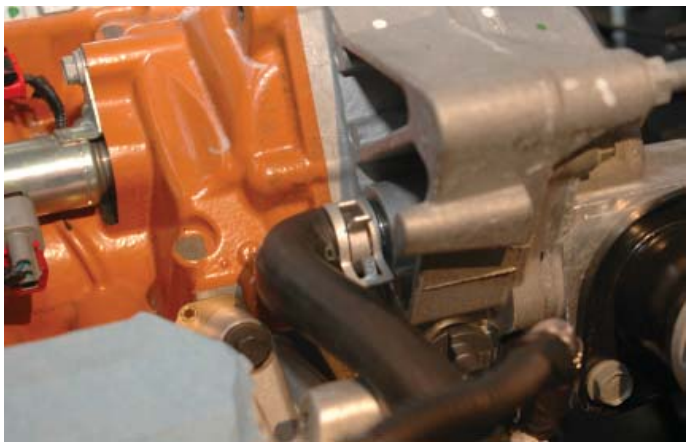


102. Put a generous bead of the supplied green Loctite 680 on the other (longer) water pump hose barb and press it into the hole vacated by the left side hard line earlier. Again, do not use any lubricant on the O-ring which could compromise the set of the Loctite. Allow the Loctite on the barb to cure before disturbing.

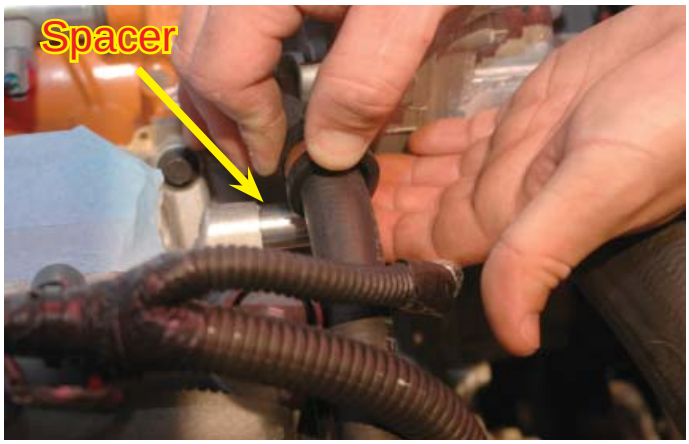
103. At the front of the right side head a wiring harness is attached to the head with a clamp on a press in “tree” connector pressed into a bolt hole. Pull this connection out. If it breaks, just push the remaining piece out through the back of the bolt hole.



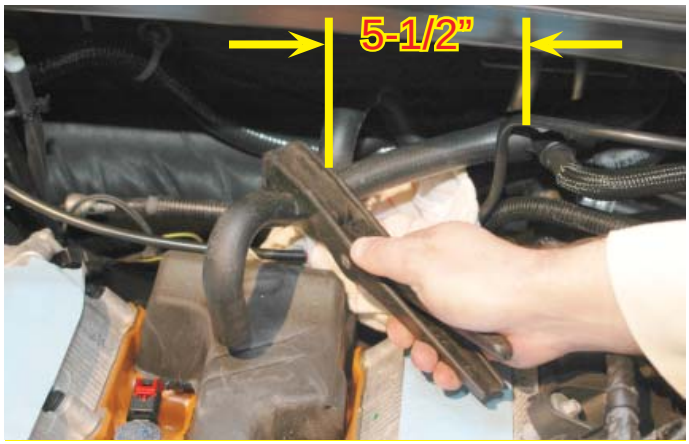
104. Cut 3” off the short end of the supplied 4” x 48” x 5/8” 90° elbow hose and attach the short end to the barb installed on the right side of the water pump using the supplied spring clamp.



105. Use the supplied spacer, Adel clamp, and 12mm bolt to mount the hose to the bolt hole at the front of the right side head that you pulled the split loom “tree” out of as shown. The spacer goes against the head, followed by the Adel clamp with the lobe of the clamp pointing toward the rear of the engine. Torque the bolt to 20 ft. lbs.



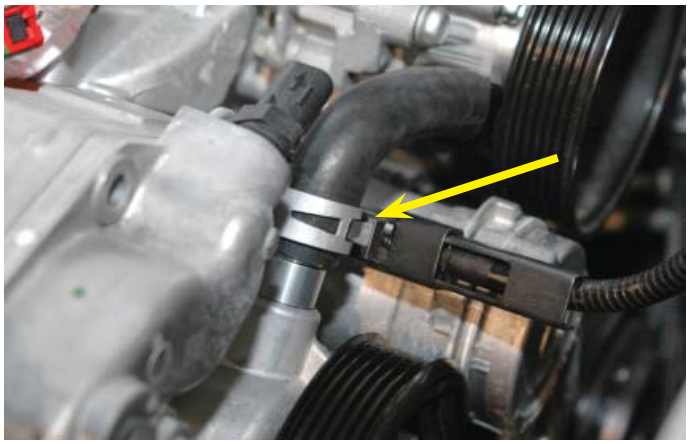
106. Cut the existing hose that went to the right side hard line after the “T” fitting leaving about 5-1/2” of hose after the fitting.



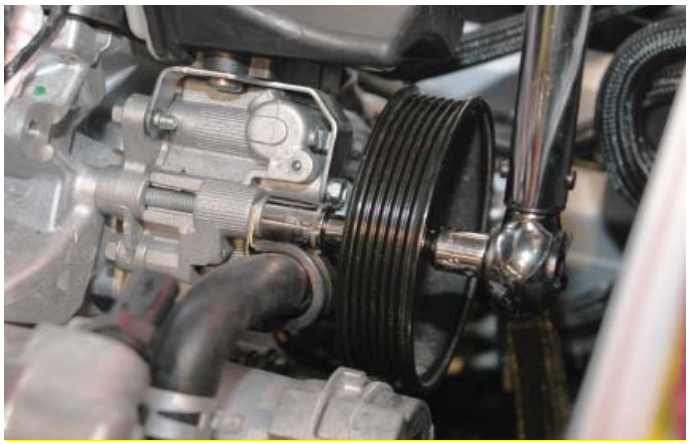
107. Route the hose from the right side water pump barb just installed, back around the oil dip-stick, below the coil packs to the back of the engine compartment. This hose will join to the ¾” hose you altered that originally went to the hard line going to the right side of the water pump. Trim the new hose to fit and use the supplied 5/8” to ¾” coupling (hose mender), with the ¾” end on the OEM hose. Secure the hose connections with the supplied spring clamps.

108. Use the provided split loom to buffer the hose from potential chaffing on adjacent surfaces.

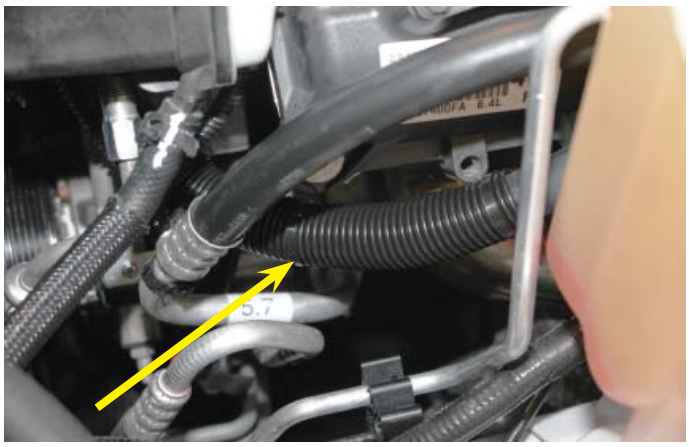
109. Cut the short leg of the supplied 4” x 48” x 5/8” 90° elbow hose to leave 1-1/4” from the inside curve. Use the supplied spring clamp to connect the short end of this hose to the left side hose barb on the water pump. Ensure that the barbs of the clamp are pointed down. Route the hose down below the power steering pump behind the pulley, and back just below the AC lines on the left side.



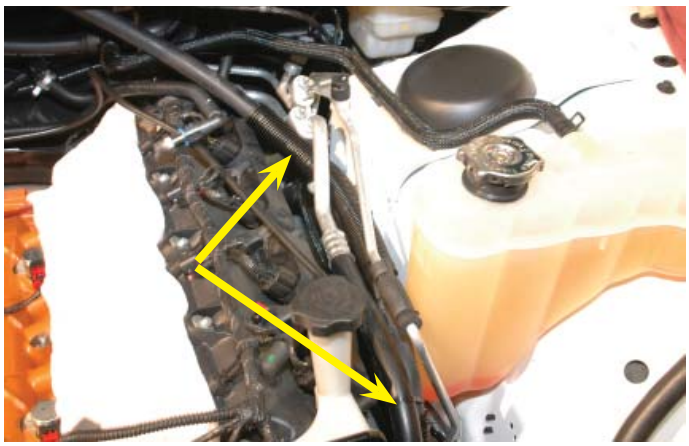
110. Remove the upper center most power steering bolt and replace incorporating the supplied Adel clamp encircling the hose just installed as shown. Torque the bolt to 18 ft-lbs with a 13mm torque wrench socket. Verify your torque wrench settings.



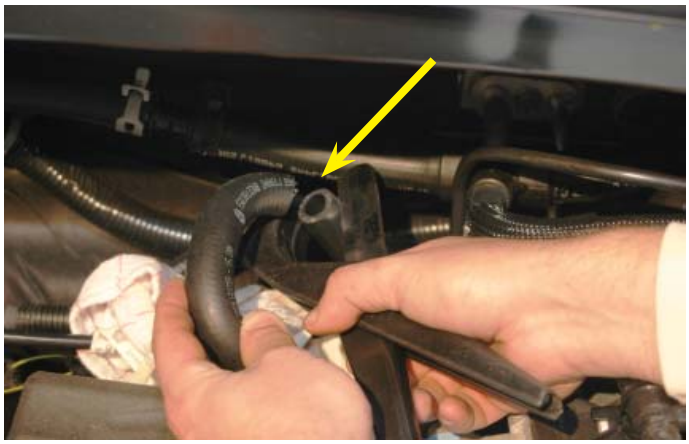
111. Slide a 14” piece of the supplied split loom up the hose to meet the Adel clamp just installed and wrap around to protect the hose from potential chaffing points along the head.



112. Install another section of the split loom along the hose as it routes along the AC lines as shown. Add cable ties to loosely secure the hose to the AC lines and the split loom to the hose as well.



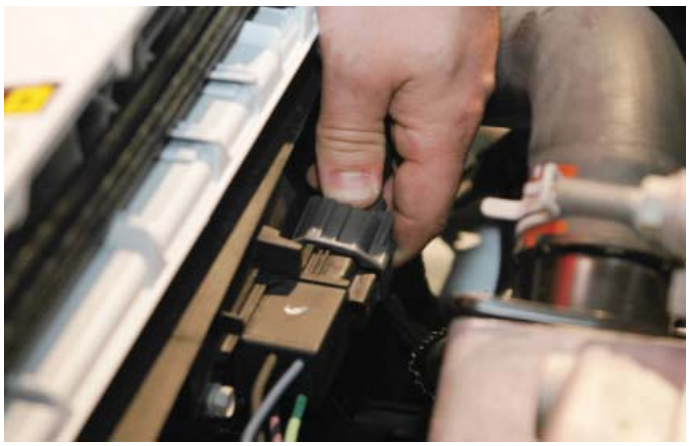
113. Cut the heater hose that went to the hard line on the left side below the OEM manifold after the first 90° bend beyond the “T” fitting leaving about 3” of hose beyond the angle (as measured on the outside of the curve).



114. Use the supplied 5/8” x 5/8” 90° hose coupling and the supplied spring clamps to connect the OEM hose just modified to the modified 4” x 48” x 5/8” 90° hose you mounted to the left side water pump barb and ran below the power steering pump. The hose angle should direct the hose toward the left side fender creating a “U” shape.

115. We’re going to jump to pinning the crank here while there is extra room on the top of the engine. Remove the two mounting 8mm bolts near the top on each side of the fan shroud assembly.

116. Disconnect the fan electrical power connection on the right side of the fan shroud assembly.



117. Remove the fan assembly from the vehicle by carefully pulling the unit down and out for reinstallation later. The transmission cooler line has a 10mm mounting bolt on the cross frame, remove the bolt to gain additional clearance on the bottom.

Section 7: Crank Pinning

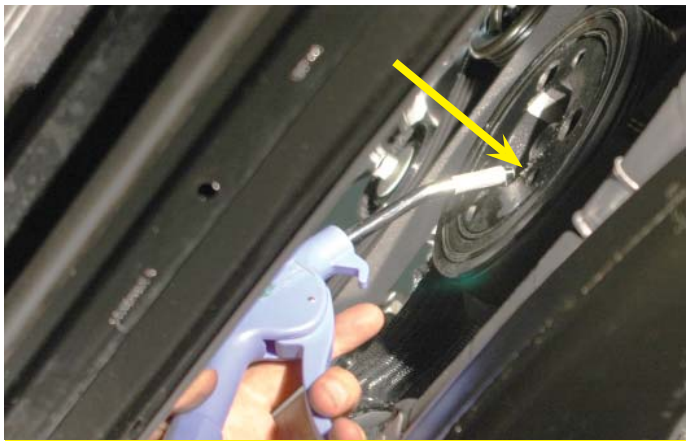
118. Use a 21mm wrench to remove the crank harmonic balancer pulley bolt. Set aside for later use. We found that using a couple of 5/8" dowels through two holes of the pulley, and a large flathead screwdriver can be used as a lever against the dowels to anchor the pulley from spinning when inserted between the dowels. These locations can be used again later for tightening and torque purposes. You can alternately search for a couple of large bolts to use for the purpose.

119. Install the crank pin drill guide with the provided bolt and a 22mm wrench. It's convenient to align the two holes for the crank pins in the drill guide horizontally for ease of access.

120. Torque the temporary bolt holding the drill guide to 40 ft-lbs.

121. Use the provided drill bit to drill the two holes using the pin guide holes. Before beginning, inspect the drill bit carefully. You will notice there are two small 'steps' in the diameter of the bit. The second step, closest to the shank is your stopping point at the drill guide. If you put a piece of tape around the high point of that step, you will have a visible stopping point as it touches the drill guide. Be sure to drill the holes completely to the second step.

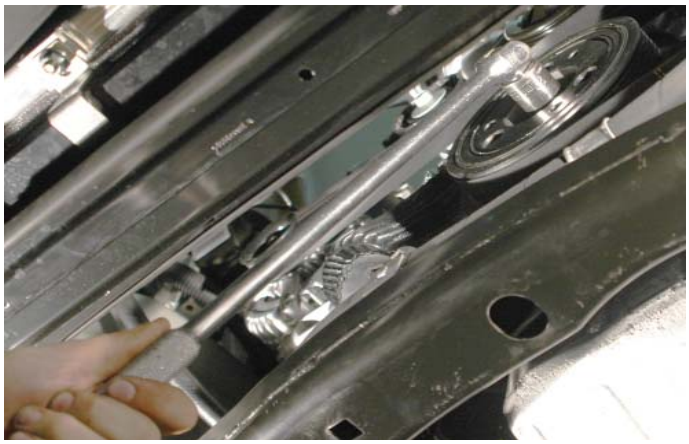
122. Blow out the holes using compressed air. Use protective glasses and be careful of your eyes!



123. Install the provided reaming bit into the drill motor and ream the holes you just made out.

124. When you're finished with the ream bit, blow the holes out again with compressed air watching out for your eyes.

125. Remove the drill guide kit using a 22mm wrench.



126. These are the two crank pins.

127. Put a generous bead of green Loctite 680 on the pins and press one into each of the two holes you just prepared.

128. Use a hammer and drift-pin or nail-set to tap the crank pins in completely. Ensure that they are in completely, and will not touch the surface of the crank bolt directly when installed.

129. Re-install the removed OEM crank bolt and torque to 129 ft-lbs. Verify your torque wrench settings. We used the two 5/8" dowels and a large screwdriver again to anchor the pulley while using the torque wrench. Should you wish, you can wait until the supercharger assembly is together and the belt installed and under tension at which point you can use a wrench on the supercharger pulley bolt to anchor the harmonic balancer pulley.

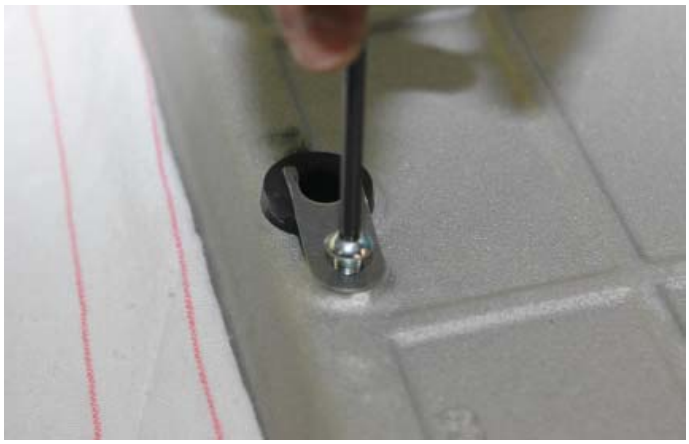
Section 8: Supercharger Preparation and Installation

130. Remove the throttle body from the OEM intake manifold assembly using an 8mm wrench on the four mounting bolts.

131. Flip the supercharger assembly over into an upside-down configuration on some clean shop towels and mount the throttle body onto the inlet incorporating the provided O-ring in the inlet groove. The throttle body motor will be oriented toward the top of the supercharger inlet (when the assembly is in correct orientation). In this view, it is on the bottom.

132. Secure the throttle body with the provided bolts. The bottom, left-side mounting bolt (when the supercharger is not upside-down) will be the provided button head 4mm Allen, the other three bolts provided are 10mm. Torque the mounting bolts to 106 in-lbs. Verify your torque wrench settings.

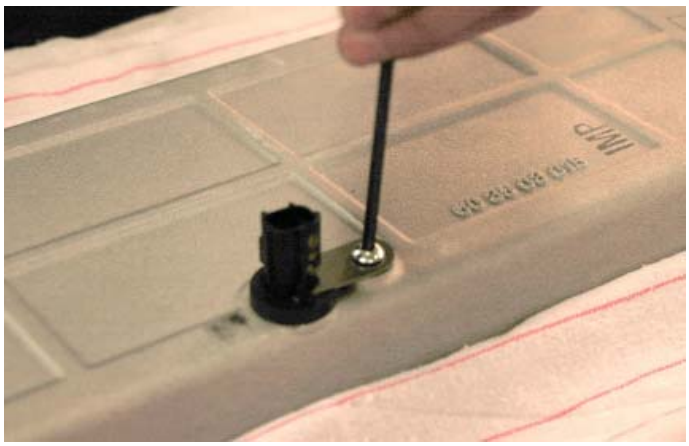
133. On the bottom of the supercharger assembly there is a rubber grommet with a hold down bracket. Remove this hold down bracket with a 4mm Allen head wrench.



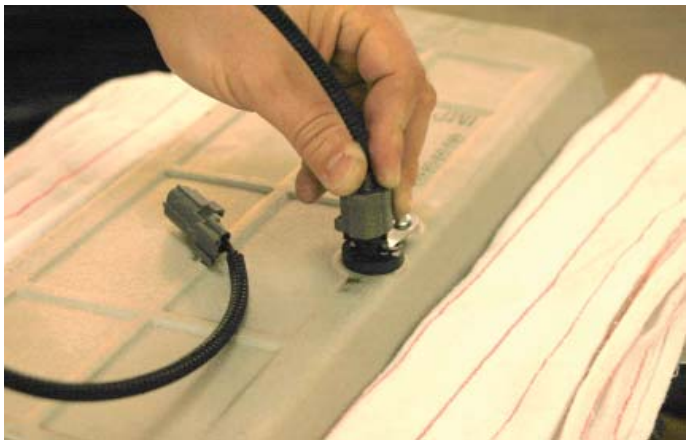
134. Place a bead of the provided Lubriplate lubricant on the grommet now fully exposed.

135. Press the provided Intake Air Temperature sensor (IAT) into the grommet. If there is an existing O-ring on the IAT sensor, it can be removed. The small stop tab should point to the adjacent outside edge of the intake manifold.

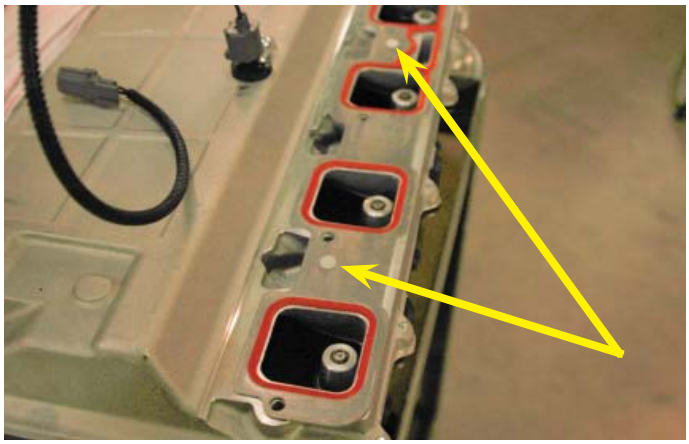
136. Replace the IAT hold down bracket and secure in place with the 4mm Allen head screw.



137. Plug in the provided IAT extension harness to the IAT sensor. The harness will exit toward the front of the supercharger.

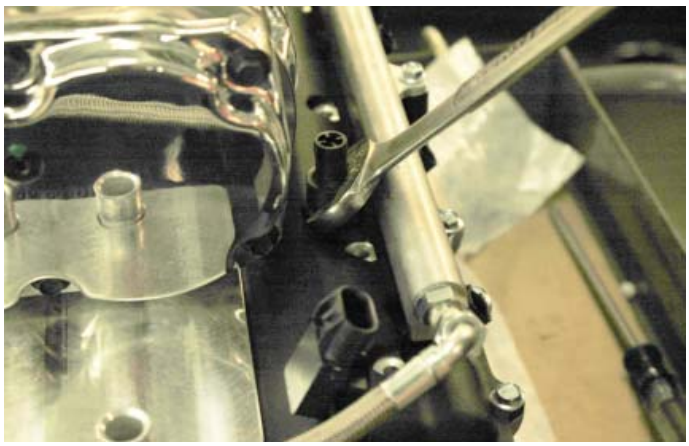


138. Install the provided intake manifold gaskets over the manifold ports and secure in place with the provided push pins.

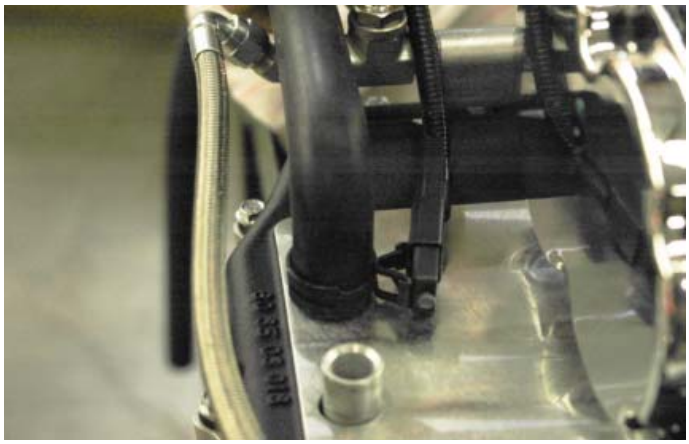


139. Flip the supercharger assembly right side up onto some blocks so the IAT sensor is not damaged. Place a bead of Lubriplate lubricant on the provided Manifold Air Pressure sensor (MAP), and install in the hole located at the rear, right-side of the supercharger assembly. Secure in place with the two provided Phillips head screws.

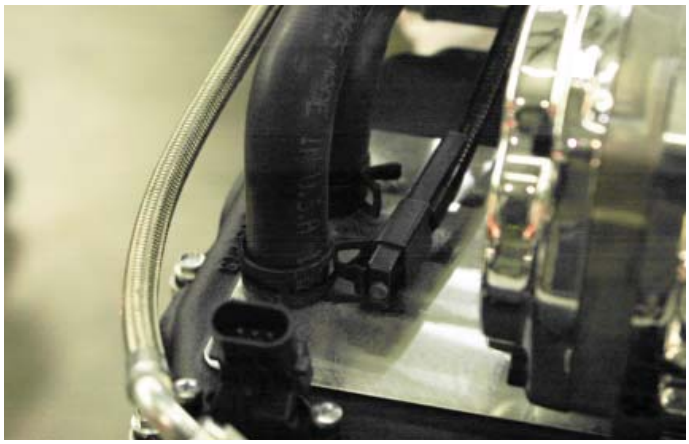
140. Install the provided Positive Crankcase Ventilation valve (PCV) in the threaded hole located just in front of the MAP sensor. Tighten in place with a 15/16” wrench.



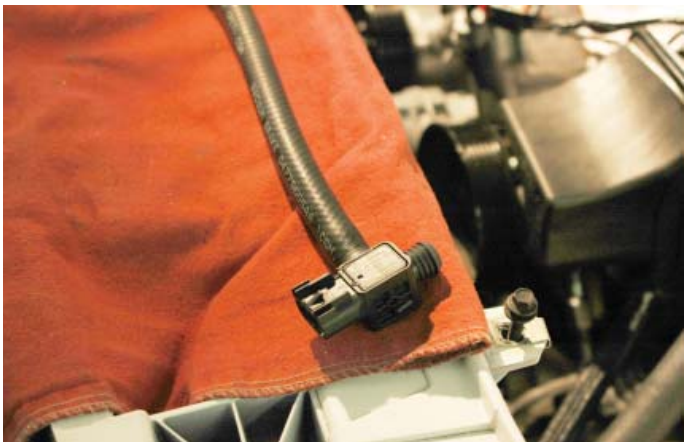
141. Cut 1-3/4” off the short leg of one of the provided 4” x 36” x ¾” 90° elbow hoses. Attach the modified leg to the left side inter-cooler hose barb at the rear of the super-charger lid with one of the provided spring clamps. Route this hose toward the left side of the supercharger assembly.



142. Cut ¾” off the short leg of the other provided 4” x 36” x ¾” 90° elbow hoses. Attach the modified leg to the right side in-tercooler hose barb at the rear of the super-charger lid with one of the provided spring clamps. This hose will also route toward the left side fender, just above the other hose.



143. Carefully pull the Brake Booster valve from the brake booster on the left side of the engine fire wall. The valve will be re-used, but the hose will have to be changed. Set aside for install later.



144. We need to remove the plastic cowl below the windshield wiper arms. Start by using a sharp instrument to pry out the cap covering the wiper arm mounting nut on each side.

145. Use a 12mm socket to remove the windshield wiper arm mounting nuts.

146. NOTE: Before pulling the arms off, use a marker to create a reference point between the splines of the mounting shaft and the splines of the wiper arm. You want to be able to realign these points to get the arm back in the original position after removal. Now pull up on the arm to release it from the splines of the mounting shaft.

147. At the corners by the hinge a rubber gasket is held to the body with a plastic “tree” push pin. Gently pry this pin out to remove the extension of the hood gasket from both sides.

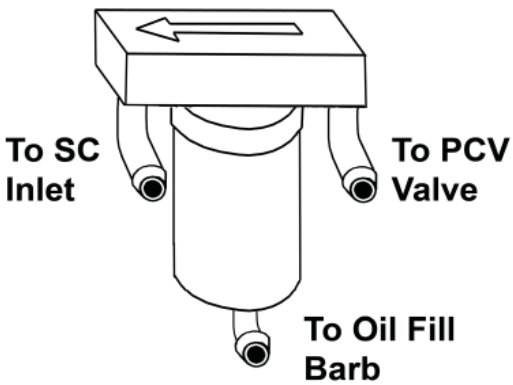
148. There are several more push pins holding the plastic cowl to the framework in front of the windshield. Carefully pry these out as they will be used again.

149. Don't forget the ones at the corner of the windshield post and fender, this is accessible from behind the opened hood.

150. Finally pull the plastic cowl free from the vehicle.

151. Assemble the Oil-Separator valve to the provided mounting bracket with the provided Adel clamp and bolt as shown. Orient the barbs of the valve as indicated in this picture.

152. This diagram shows the flow for the PCV valve thru the Oil Separator. We oriented the Oil Separator with the direction of flow toward the fender. This is not necessary, you can point it the other way, just make sure that the flow direction is maintained per this diagram.



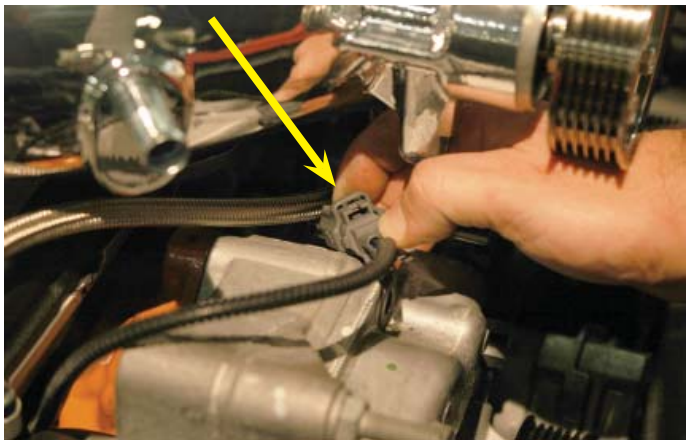
153. On the right side of the vehicle, loosen the bolt mounting the windshield wiper mechanism to the framework. Slide the notch of the Oil-Separator mounting bracket between the large washer and the rubber vibration damper disk. Tighten the bolt back up using a 12mm wrench.

154. Remove the tape or rags from over the ports of the heads. Clean the surfaces using alcohol, acetone, or some other non-petroleum based solvent.

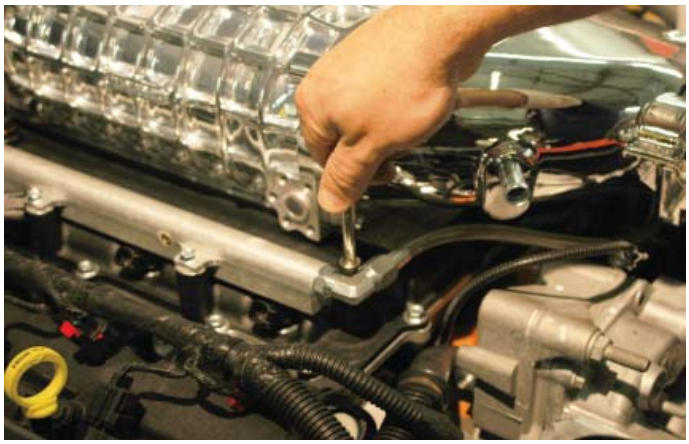
155. Lubricate the cleaned heads with some silicone spray or mild soap solution to facilitate aligning the supercharger on the heads.

156. With the help of an assistant, place the supercharger in position aligning the mounting bolt holes. Ensure that the IAT sensor harness is exiting the front of the valley on the right side.

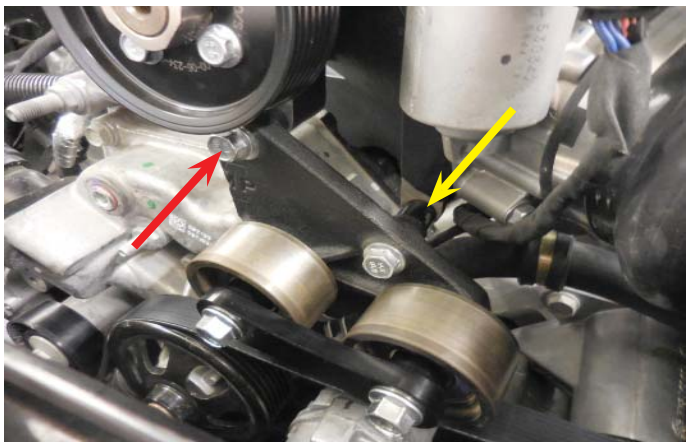
157. Plug the IAT extension harness into the OEM IAT plug. Tuck the wires back behind the forward fuel cross over line.



158. Install the ten provided 10mm bolts to anchor the supercharger assembly to the engine heads. Finger-tighten the bolts only at this time, DO NOT TIGHTEN THE BOLTS.

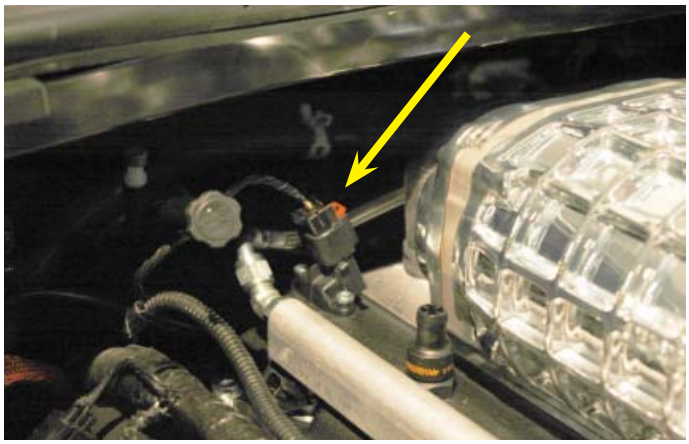


159. Mount the provided Idler bracket to the supercharger assembly with the provided bolts. Install the spacer where shown with a yellow arrow. The M8 x 50 mm long bolt goes on the side with the spacer, and the M8 x 35 mm bolt goes on the side with the red arrow. Torque the mounting bolts to 20 ft-lbs with a 12mm socket.



160. Now that the idler bracket is secured, torque the intake manifold bolts down to 106 in-lbs using a center-out, criss-cross pattern. Verify your torque wrench settings.

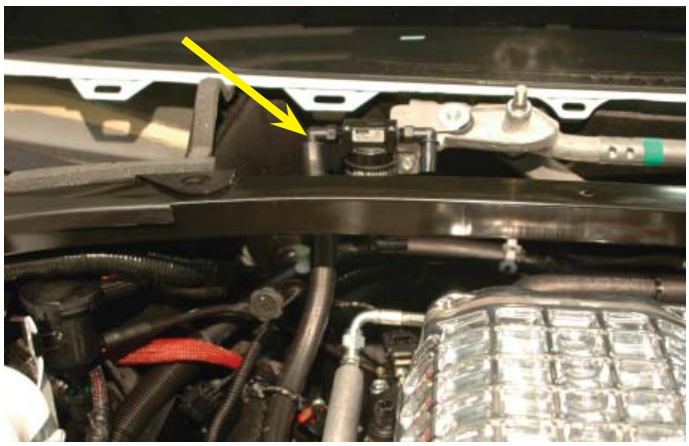
161. Connect the OEM MAP sensor plug to the MAP sensor at the rear of the right side intake manifold.



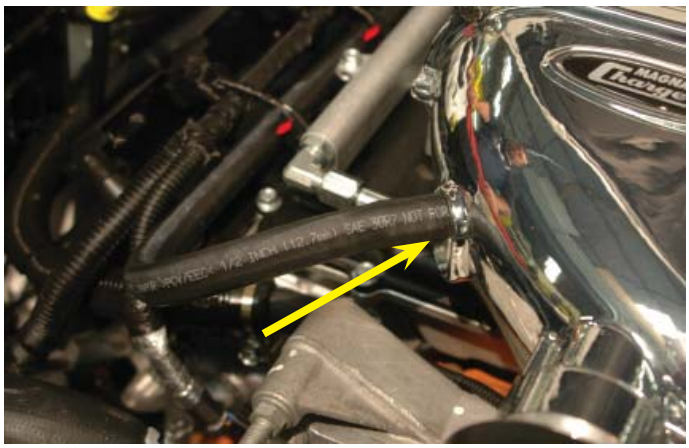
162. Plug in the eight injectors and engage the red locking clip.

Section 9: Hose Installation

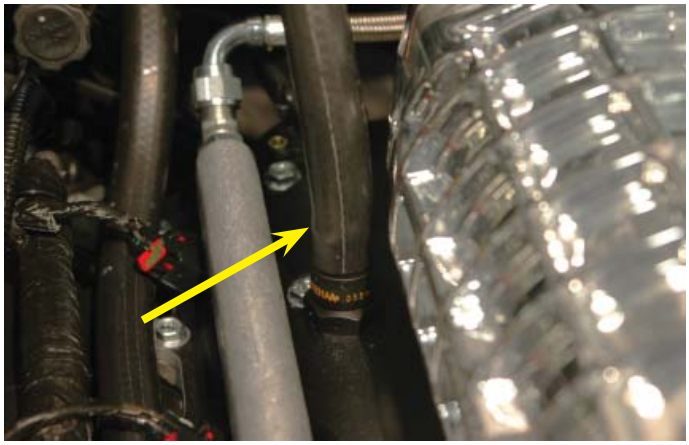
163. Connect one end of the ½" fuel-vapor hose provided to the discharge barb on the recently mounted Oil-Separator valve. This is indicated by the direction arrow on top of the Oil-Separator valve, for this install it's on the fender side of the valve.



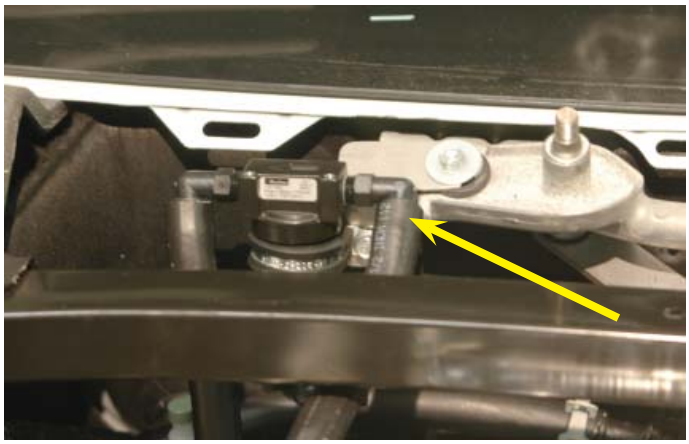
164. Route the free end down and forward, along-side the wiring harness for the injectors, cut to fit and connect the free end to the supercharger inlet hose barb as shown.



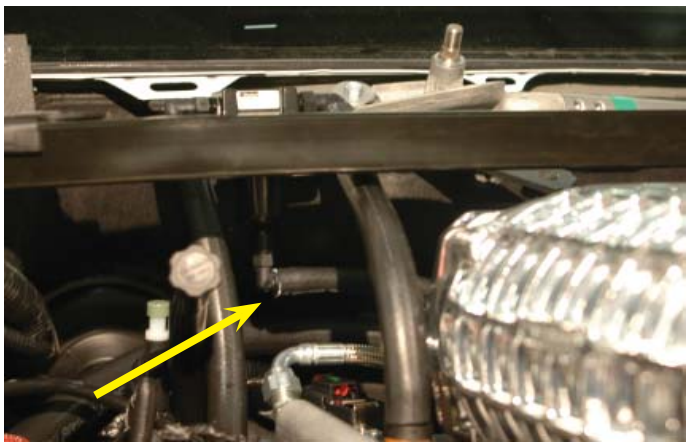
165. Connect one end of the remaining ½" fuel-vapor hose to the PCV barb near the back of right side of the supercharger between the fuel rail and supercharger body.



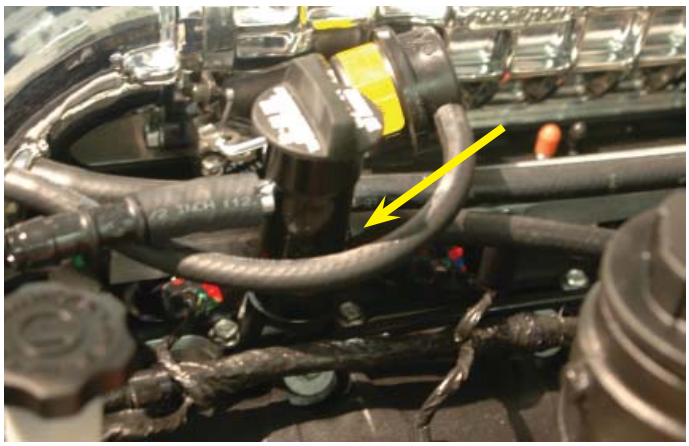
166. Connect the other end of the hose to the inlet side hose barb on the recently installed Oil-Separator valve. No clamps are necessary. NOTE: For this install, the inlet side of the valve is on the right side, as indicated by the arrow on the top.



167. Connect one end of the provided 3/8" hose to the bottom hose barb on the recently installed Oil Separator valve.



168. Route the free end of the hose over to the left side, and forward by the fuel rails, cut to fit and connect to the hose barb on the back of the Oil Fill spout.



169. Replace the cowl in front of the windshield using the original fasteners. Twist lock as necessary.

170. Remount the windshield wiper arms to the mounting shafts and secure in place with the original nut. Verify your orientation prior to tightening down and then push the cap back over the nut.

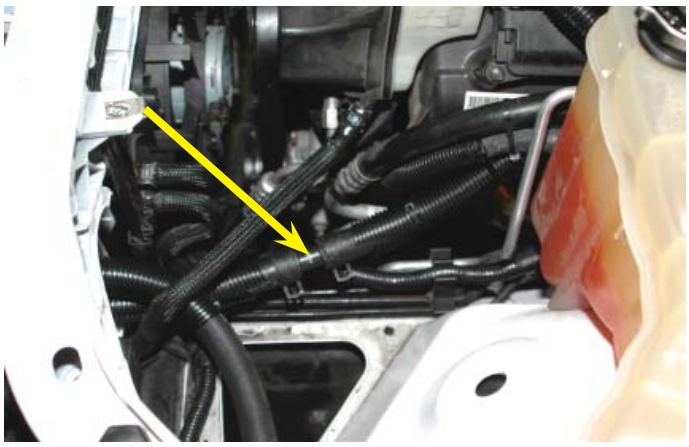
171. Attach the provided 11/32” hose to the brake booster valve you removed earlier.

172. Plug the brake booster valve back into the brake booster. A little dab of the provided Lubriplate Lubricant will ease the installation.

173. Route the 11/32” brake booster hose over above the fuel rails, and plug into the inlet hose barb as shown. No clamps are necessary.

174. Route the EVAP tube under the injector wires, cut a couple of inches off the tube to allow the stock 90° fitting to plug onto the forward inlet hose barb as shown.

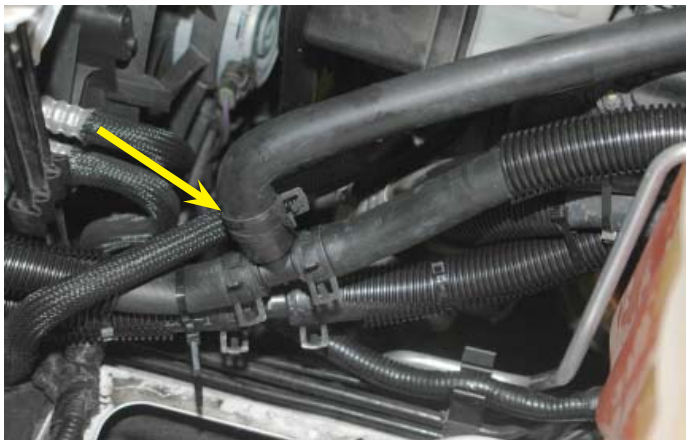
175. Route the right side intercooler hose over toward the left side of the engine compartment and down below the AC lines. Cut to fit and join to the right side hose run into the engine compartment from the heat exchanger. Secure the hoses together with the provided coupling (hose-mender) and the provided spring clamps as shown.



176. Route the left side intercooler hose toward the left side of the engine compartment, and forward just below the intercooler reservoir. Slide a piece of the provided split loom over the hose to protect from any chaffing points, including the bottom of the reservoir bottle.

177. Cut the intercooler pump inlet hose you ran earlier into the engine compartment and the right side intercooler hose you just routed to join together forward of the intercooler reservoir and down by the base of the air box inlet base plate. Connect together with the provided “T” coupler, rotate the provided spring clamps toward the adjacent fender or down, and the remaining “T” barb to point up and slightly toward the center of the engine compartment.

178. Cut about two inches off the short leg of the provided 4” x 18” x ¾” 90° elbow hose. Connect the short leg of the hose to the remaining barb of the “T” coupler you just installed. Orient the hose so that it points toward the intercooler reservoir.

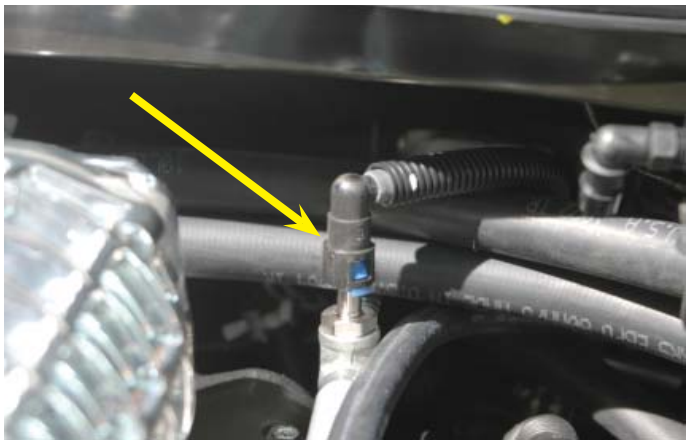


179. Align the hose just installed to fit to the Intercooler reservoir lower (forward) hose barb, and then add one and a half inches to the measurement before cutting. Connect the free end of the hose to the intercooler reservoir using a provided worm gear clamp. NOTE: It’s important to use only worm gear clamps on the intercooler reservoir.

180. Place the provided cap over the remaining (upper-rear) hose barb on the intercooler reservoir and secure in place with the provided worm gear clamp. NOTE: Again, it’s important to use only worm gear clamps on the intercooler reservoir.

181. Place a section of the provided split loom over the hose just installed to protect the hose from chaffing against the air box or adjacent contact points. Replace the air box in the vehicle and secure in place with the original 8mm bolt.

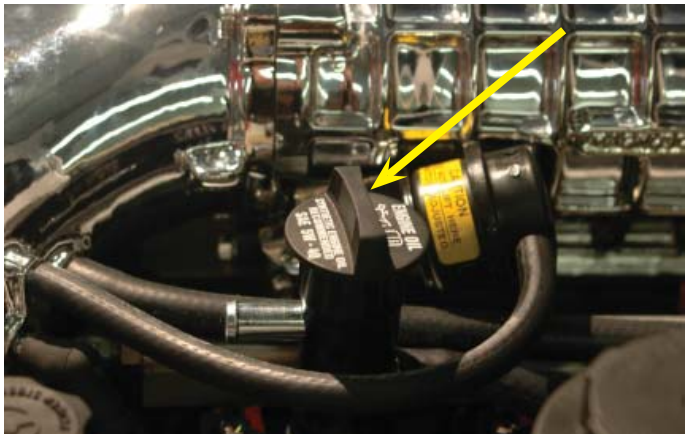
182. Ensure that the blue locking clip is installed in the fitting of the fuel line, and press the line onto the fuel rail barb located at the rear of the left side fuel rail. Ensure that the blue clips lock the line in place and it cannot be removed without disengaging the locking clips.



183. The throttle body plug needs to be extended to reach the new location on the supercharger inlet. Plug the provided throttle body extension harness into the existing OEM throttle body plug and plug into the throttle body receptacle. Coil the excess wire harness together and tuck behind the idler bracket.

184. Use a 3/8” socket and a piece of pipe or tubing for extra leverage, or use a 3/8” breaker bar to spring the tensioner and using the belt routing diagram as a guide, install the drive belt on the components. Ensure that you have routed the belt correctly, all idlers should be on the smooth side of the belt and pulleys should engage the grooves.

185. Remove the Oil Fill cap from the OEM intake manifold and install on the new supercharger oil fill spout.



186. Using a OEM recommended coolant mixture, fill your intercooler reservoir system. The intercooler system will hold approximately six quarts of liquid. Fill the reservoir until the fluid level comes to about one and a quarter inch from the top edge of the filler neck.

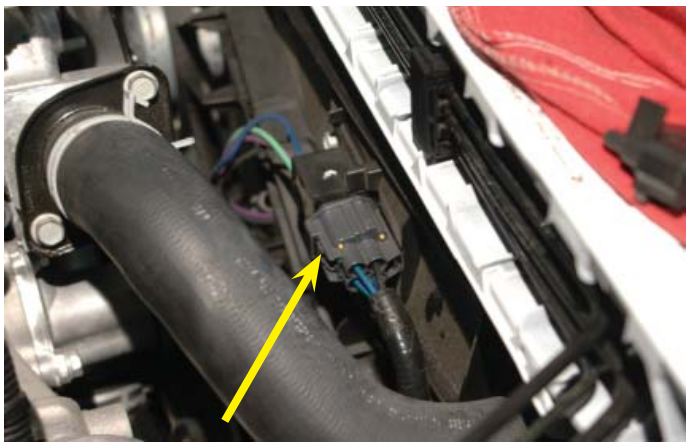
187. Ensure that your radiator hoses are all connected, and the drain petcock has been closed, strain and re-fill your radiator system with the fluid you drained earlier. Add more new coolant if needed to top off your system.

188. Install the fan shroud assembly back in the vehicle. We found it slightly easier to remove the mounting bolts of the upper radiator mounts to allow the radiator to pitch slightly forward. You don't need to remove the mounts, just pull the bolts out. This is easiest from below the vehicle, rotating the fans up in sequence starting with the left side fan (not shown here) entering the opening through the right side.

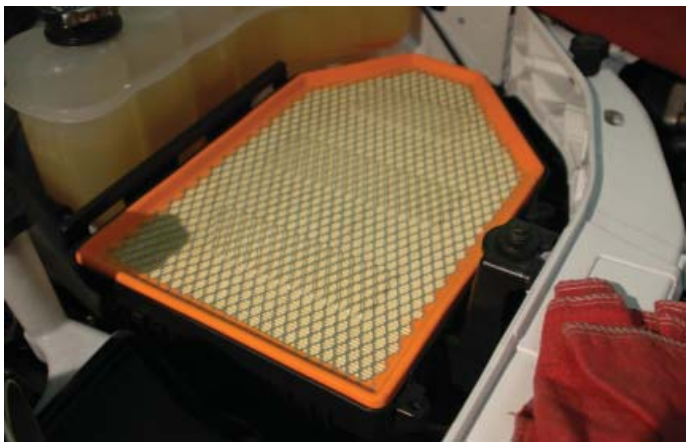
189. Reinstall the bolt mounting the power steering line to the top of the frame cross member with a 10mm wrench.

190. Reinstall the two OEM bolts mounting the fan shroud assembly to the framework with a 10mm wrench.

191. Connect the Fan control plug to the fan shroud.



192. Install the OEM filter back in the air box.



193. Remove the OEM intake tube clamps and install on the provided inlet tube. Attach the large end to the air box.

194. Slide the other end of the hose onto the throttle body and tighten your hoses in position.

195. Mount the lid to the air box back in position using the three OEM 8mm bolts.

196. Install the OEM hose to the air box PCV barb, and using a provided 5/8" x ½" hose coupling (mender) connect to the forward oil fill spout barb with a short piece of 1/2" hose.

Section 10: Testing and Front Fascia Replacement

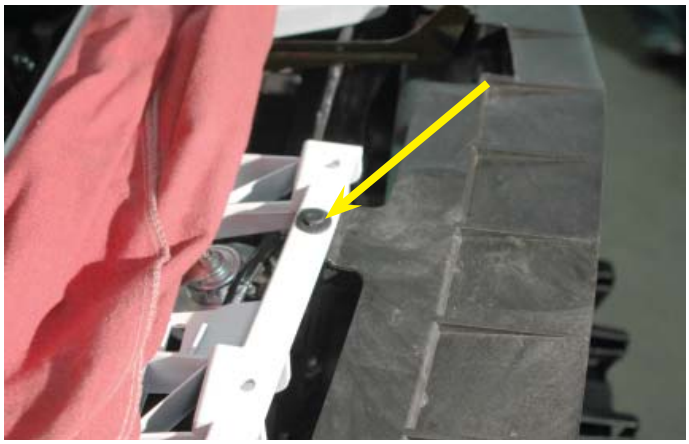
197. Re-attach the battery negative (-) connection in the trunk using a 10mm wrench.

198. Affix your MagnaCharger button sticker to the recess on the supercharger inlet, the premium fuel only stickers on your gas fill door, and the routing diagram sticker to a conspicuous location under the hood.

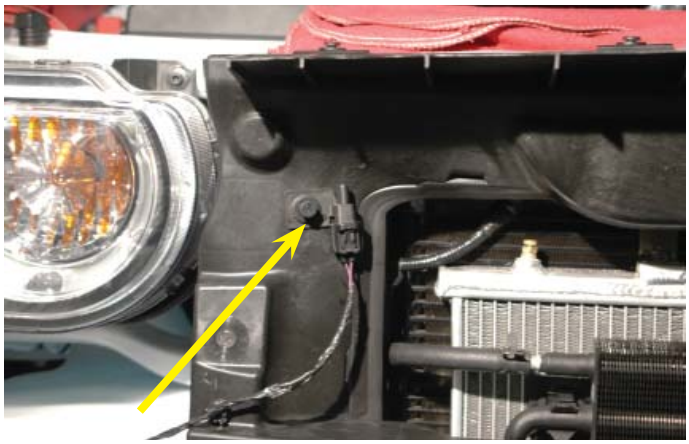
199. Have someone turn the ignition switch to the accessory mode to trigger the pump on for 5 -10 seconds. Do not start the vehicle. This will circulate the fluid. Check for fuel leaks at this time too. Fill the inter-cooler reservoir while the pump circulates. Repeat this process until the system is full. Check for coolant leaks throughout the system.

200. Start the vehicle for five seconds and shut off. Check for fuel, coolant leaks and supercharger belt alignment. Check radia-tor and intercooler reservoir levels and top off as necessary. Start the engine again and let it idle for 5 minutes. Recheck the coolant level in the engine and intercooler reservoir. Check all hose connections.

201. Reinstall the plastic fascia nose support using the OEM push pin rivets. Note that the right side heat exchanger hose should route up at the split in the center of the soft rubber air diverter.



202. Install the outside air temp sensor to the right side mounting hole with the OEM push pin rivets.



203. Connect the plastic 5 mph bumper back on the vehicle, engaging the snap in clamps and use the OEM push pin rivets to finalize the install.

204. By first sliding the plastic guide pins into the slots, then paying attention to the metal threaded studs as they guide into the mounting holes, install the nose fascia using the OEM push pin rivets on the top cross frame member.

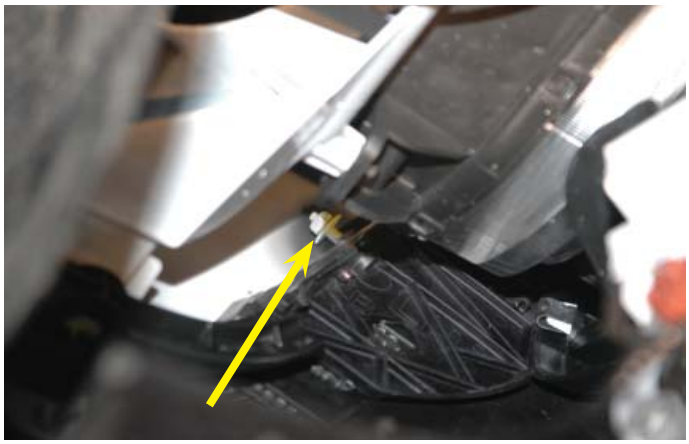
205. Press back and in on the side panels where they join the fender to reengage the locking tabs.

206. Replace the nuts on the upper fender to fascia connection. Tighten in place with a 10mm wrench on each side.

207. Reinstall the OEM 10mm bolt holding the top of the fascia to the bottom fender mounting bracket, tighten in place on each side.

208. Replace the three factory push pin rivets in the fender well on each side.

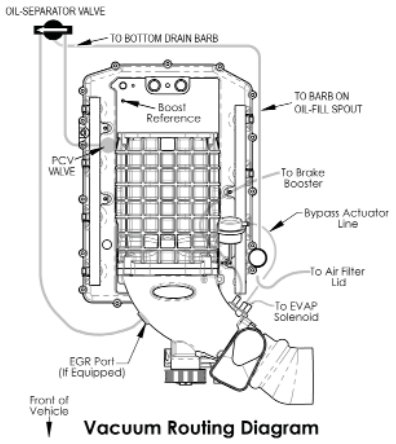
209. From beneath the car, reach up to the nose stud at the bend of the fender from horizontal to vertical and replace the 10mm nut holding the nose fascia assembly to the fender, tighten securely.



210. Use a 10mm wrench to mount the rear splash shield back in position. The front bolts are not tightened just yet, they will incorporate the forward splash shield as well.

211. Reinstall the front splash shield with all the OEM hardware removed earlier. Snap your radiator covers back in place at this time as well.

212. This is a PCV Hose Routing diagram to show you the general positions and connections. A larger version of this diagram is on the next page.



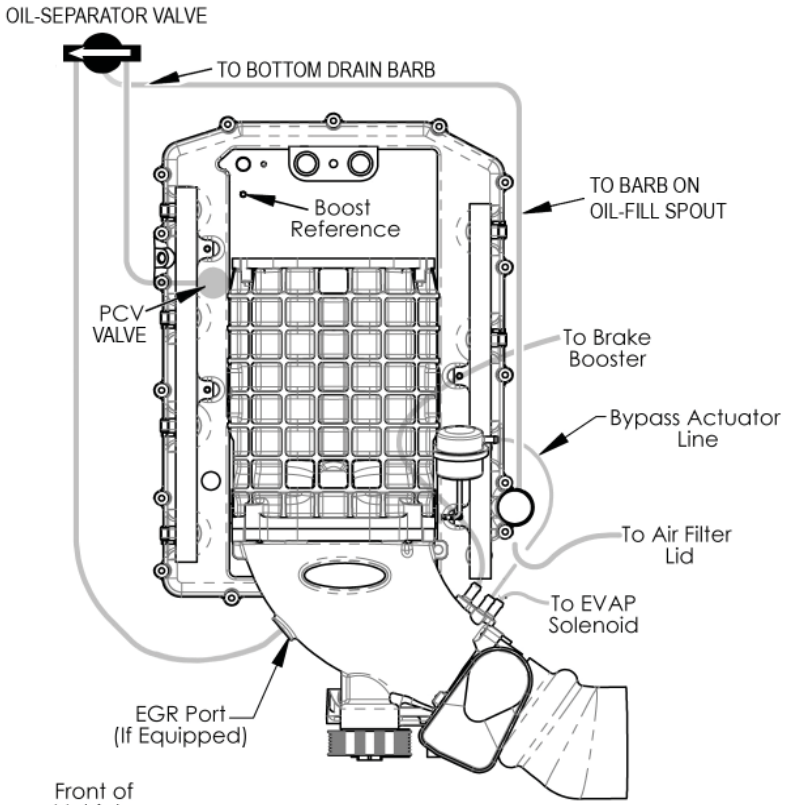
Vacuum Routing Diagram

213. Test drive your vehicle for a while taking care to not get into boost immediately. Pay close attention to the sounds of your engine, if you notice detonation (pinging) back off immediately and contact your installation facility. The supercharger does have a whining sound while under boost. When you are through with the initial test drive check again for any leaks, and top off with coolant if necessary.

214. 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 is caused by low octane fuel still in the tank. NOTE: PREMIUM GASOLINE FUEL MUST BE USED, 91 Octane or better. Have fun and think about getting a radar detector!

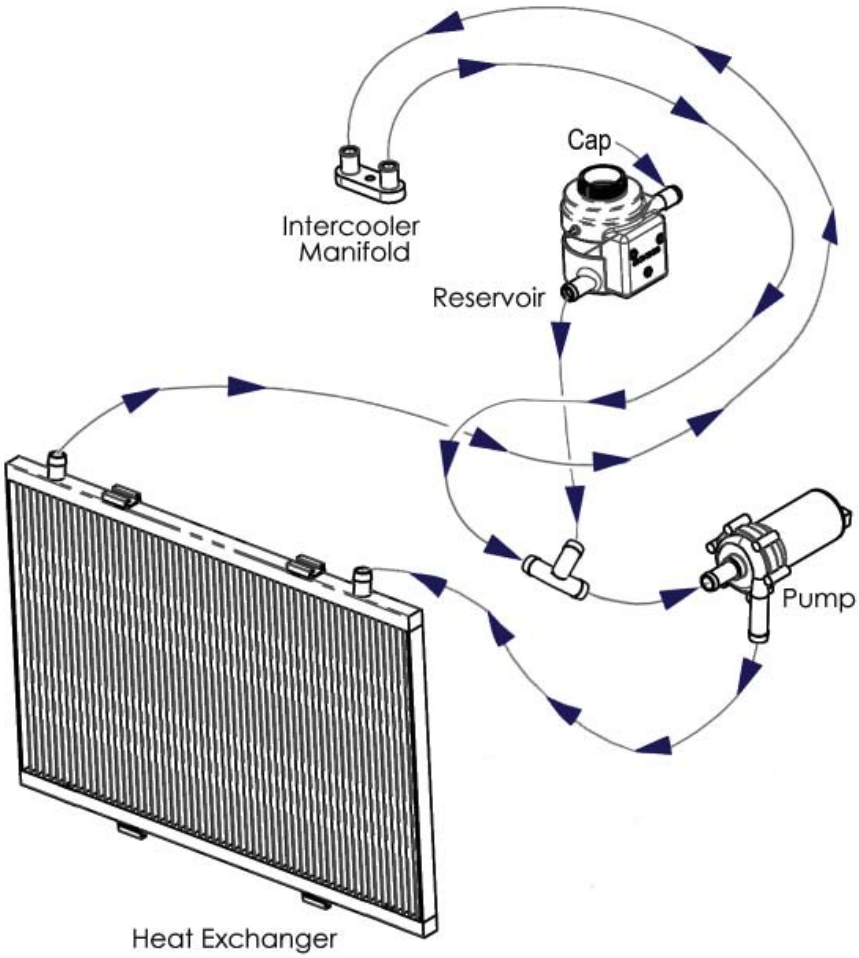
If you have questions about your vehicles performance, please check with your installation facility.

Diagrams



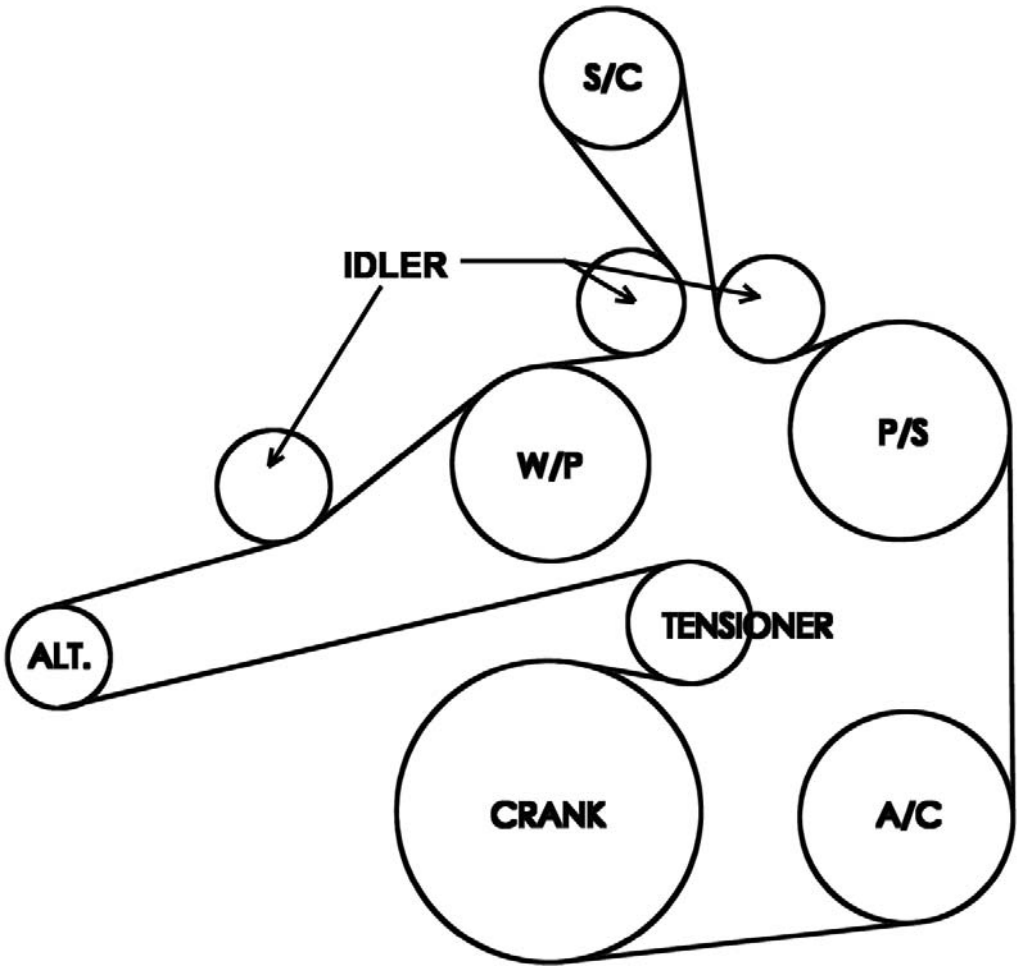
Vacuum Routing Diagram

Diagrams



Intercooler Routing Diagram

Diagrams



HEMI Belt Routing Diagram

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SUPERCHARGERS