



INTERCOOLED SUPERCHARGER SYSTEM

2019+ Chevrolet & GMC Trucks

Magnum DI 5.3/6.2L



MAGNUSON
SUPERCHARGERS

INSTALLATION INSTRUCTIONS



PREMIUM GASOLINE FUEL REQUIRED

INSTALLATION INSTRUCTIONS

Chevrolet & GMC Trucks Intercooled Supercharger System GM 5.3L, 6.2L DI 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 your dealer 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

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. **DO NOT ADD OCTANE BOOSTER TO THE EXISTING FUEL IN YOUR VEHICLE.**

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 oil filter change using the vehicle manufacturer's specified products
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 specification OR new specifications required by the installation manual.
- Engine coolant system pressure test and flush and refill.

NOTE: YOU MUST USE THE GM SPECIFIED COOLANT MIXTURE!

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

TOOLS REQUIRED

- 1/2" breaker bar (for tensioner)
- Phillis and flat head screwdrivers
- Pliers and cutters
- Belt Removal Tool
- Drill
- Painters Tape
- Pry Bar
- Safety glasses
- Metric wrench set
- 1/4", 3/8", and 1/2" drive metric socket set (standard and deep)
- 3/8" and 1/2" drive foot pound and inch pound torque wrenches
- 17/64" Drill Bit
- M8X1.25" Tap

PARTS REQUIRED

- If you have a **5.3L ENGINE** you will need to purchase a 6.2L Throttle body (GM# 12678223) or Lingenfelter Ported LT5 95 mm Throttle Body | GM Gen V V8 Applications (LPE # L270046914)
- 2019+ GM Magnum Truck **WATER PUMP SWAP** See Page 27 you may need a 6.6L Gas Engine Water Pump Assembly GM#12707680 Replaces GM#12699889 A/C Belt with Tool GM#12658178

IMPORTANT

For the purpose of these instructions, all references to left hand side or right hand side shall be interpreted as if being seated in the driver seat of the vehicle.

It is IMPORTANTANT to ONLY USE 91 Octane gasoline or better with your supercharger system. Before starting this installation on an empty tank, fill your tank to full with 91 Octane gasoline or better.

Never add Octane booster to your fuel. If you have used Octane Booster in the past, replace your spark plugs and check your O2 sensor before completing your supercharger install.

Your supercharger system is sensitive to corrosion. Use only the OEM recommended coolant mixture for your supercharger system as well as your engine.

Please remember to follow all safety rules that apply when working, including the following.

- 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.



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





NOTE TO CUSTOMERS WITH MODIFIED VEHICLES



The Magnuson calibration included with this kit is intended to work on stock vehicle configurations, including stock trim levels and OEM vehicle options. Therefore, modifications to your stock vehicle, including but not limited to engine, flywheel, clutch, torque converter, transmission, wheels, tires, axles, gears, driveshafts, induction system, exhaust system, and additional weight such as bumpers, racks, etc., can have a significant impact on your vehicle's calibration and may require modifications to our calibration supplied.

While we attempt to minimize the need for modifications during our development process, our team can't account for all possible build variations and combinations. In some cases, you may need to supply an additional element of customization for your vehicle, custom calibration, and work at your own direction and expense with a local service facility to address your unique combination of hardware and make calibration adjustments as necessary.

Please be aware that the standard product warranties and governmental emissions certifications are predicated on stock vehicle configurations. Vehicle modifications and calibration changes may affect or even void the powertrain warranty and emissions certification status, such as CARB emissions certification. It is the sole responsibility of the customer making a warranty claim to prove that any vehicle modifications and calibration changes were within the warranty. It is also the customer's sole responsibility to determine if the modifications and changes comply with all local, state, and federal emissions standards.

CONTACT INFORMATION

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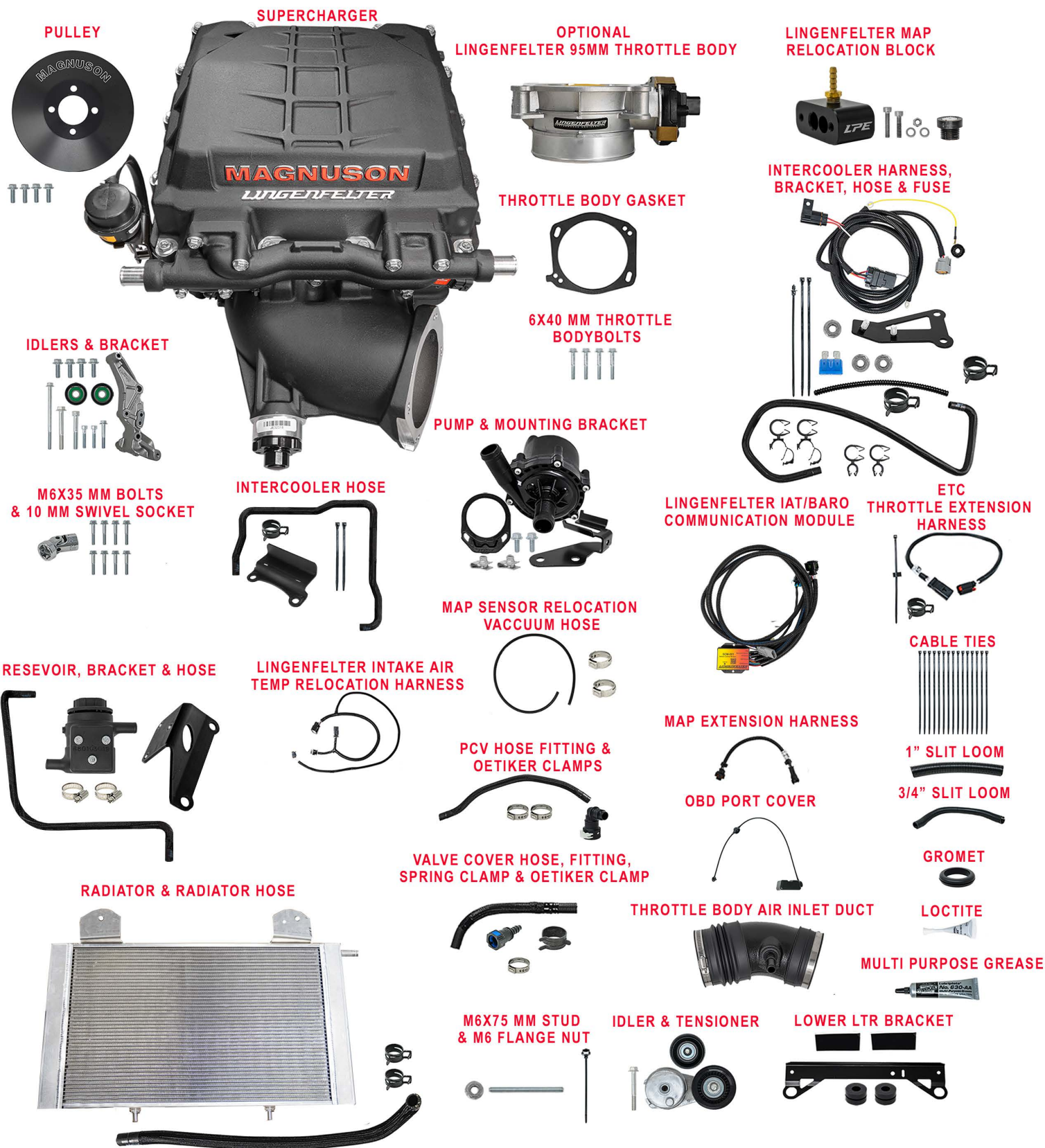


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Your Supercharger kit includes instructions as well as a reusable shipping box for your to use to ship your ECM. **BE SURE THE INSTRUCTIONS INCLUDED HAVE THE CORRECT SHIPPING ADDRESS TO SEND YOUR ECM BACK TO YOU.** This box will also be used to ship your ECM back to you.



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



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



Section 1: Tuning your Vehicle Computer and Initial Steps

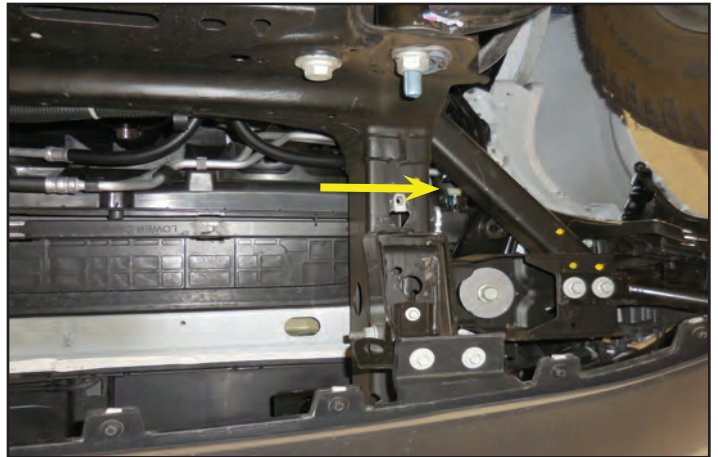
1. Loosen the nut shown with an arrow using a 10mm socket wrench to disconnect the negative battery terminal. Cap or cover the terminal to protect against accidental contact with the battery post.



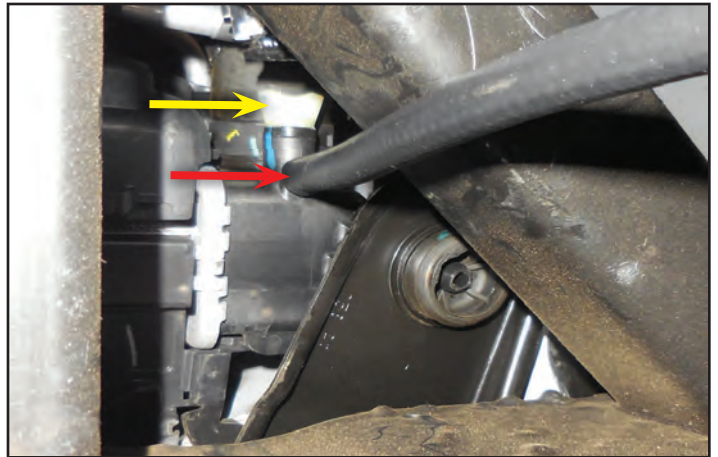
2. Ensure that the engine is cool before proceeding. Remove the radiator cap to help the coolant drain faster in the following steps.



3. Raise the vehicle using a lift to access the radiator drain plug on the passenger side.



4. Attach a hose at the red arrow and loosen the drain plug at the yellow arrow.

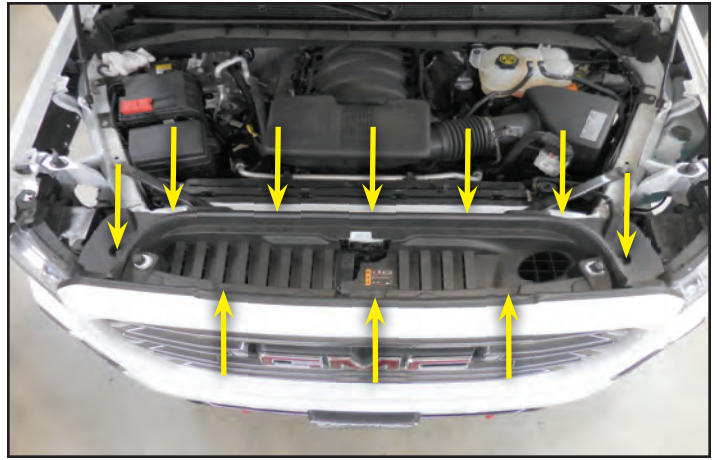


5. Drain the coolant into a clean pan so it can be reused if the coolant is still in good condition.



Section 2: Prepare for LTR Install

6. Remove the 10 plastic rivets holding the radiator cover.



7. Remove the inner portion of the rivet first and then extract the outer portion.



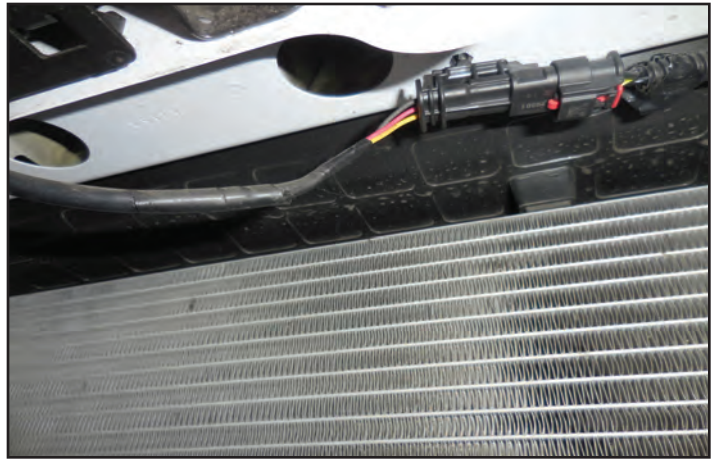
8. Remove the two T15 Torx bolts that hold the hood lever, and remove the lever.



9. Remove the grill and radiator cover



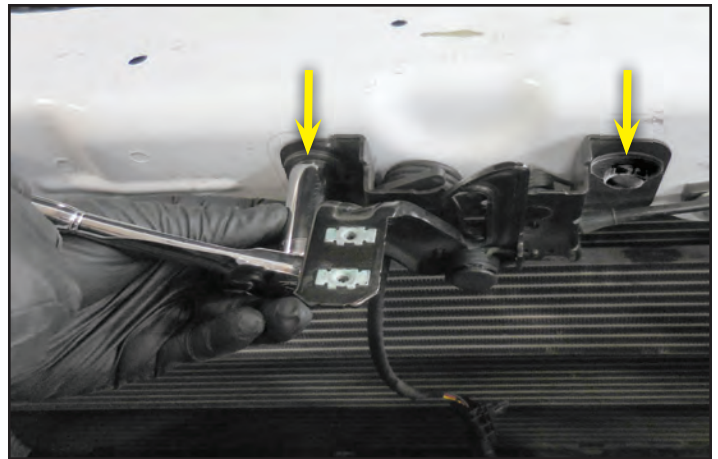
10. Locate the electrical connector for the hood latch shown that is on the underside of the cross support for the radiator.



11. Disconnect the electrical connection for the hood release and at the same time remove the anchor holding the connector to the frame.



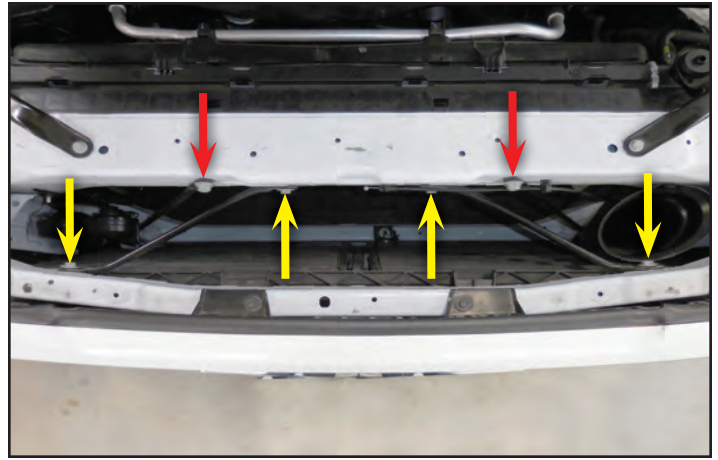
12. Trace around the bracket with a pencil to aid in re-alignment later. Remove the two bolts holding the hood latch assembly with a 13mm socket wrench.



13. Disconnect the release cable from the hood latch.



14. Remove the 4 bolts holding the two small diagonal braces in place shown with yellow arrows using a 13mm socket wrench. Remove the two bolts holding the longer diagonal brace shown with red arrows with a 15mm socket wrench.



15. Loosen the bolt on the opposite side of the long diagonal brace from the last photo. Use a 15mm closed end ratchet wrench if available to loosen 1/4 to 1/2 turn. **You do not need to remove this bolt.** The passenger side bolt is below the horns at the red arrow location.

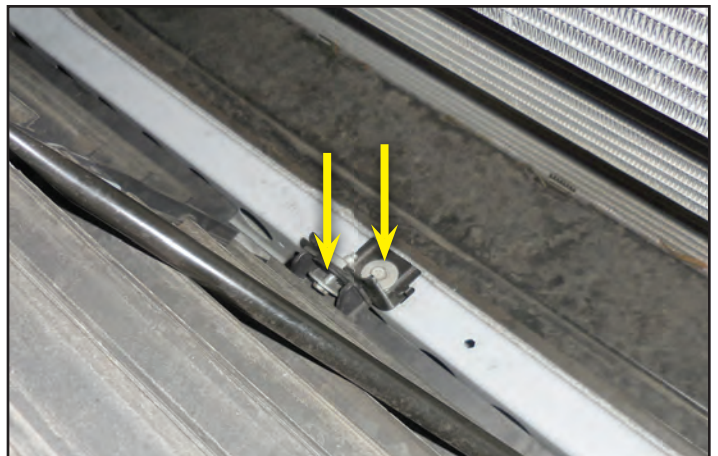


16. Once loosened, pivot the brace inward and down until it touches the back of the shutters. Here you can see the passenger side long diagonal brace moved out of the way. Repeat this process on the driver side long diagonal brace. This will give the necessary room to install the Low Temperature Radiator (LTR) for the intercooler system.



17. Remove the horn.

18. Remove the two bolts shown from the center bracket at the bottom of the grill.



19. Here is the bracket from the last step being removed.



20. Clean the lower cross brace shown here in white with a cleaning product like Simple Green followed by rubbing alcohol to prepare it for the provided lower LTR bracket.



21. Gather the provided Lower LTR Bracket, two Grommets and two Double Sided Adhesive Strips. The Double Sided Adhesive will be installed in the green highlighted areas.



22. Clean the lower surface of the bracket using rubbing alcohol.



23. Peel the white cover off the double sided adhesive strip.



24. Place the double sided adhesive strip in the location shown highlighted in green. Repeat this installation process on the opposite side.



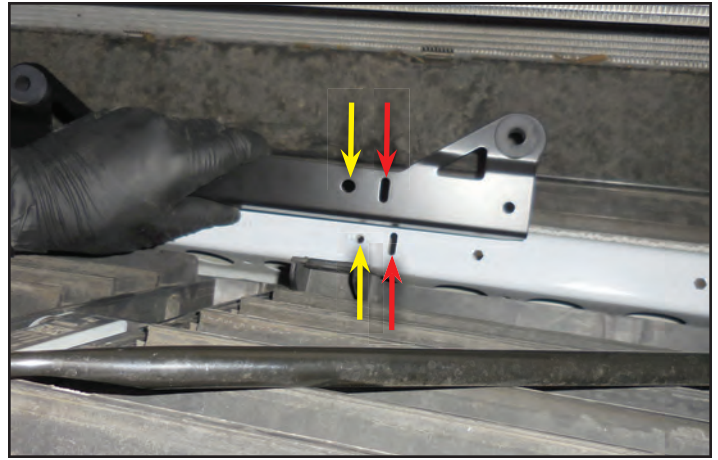
25. Install the two rubber grommets in the large holes of the bracket.



26. Remove the clear cover for the adhesive strips on both sides.



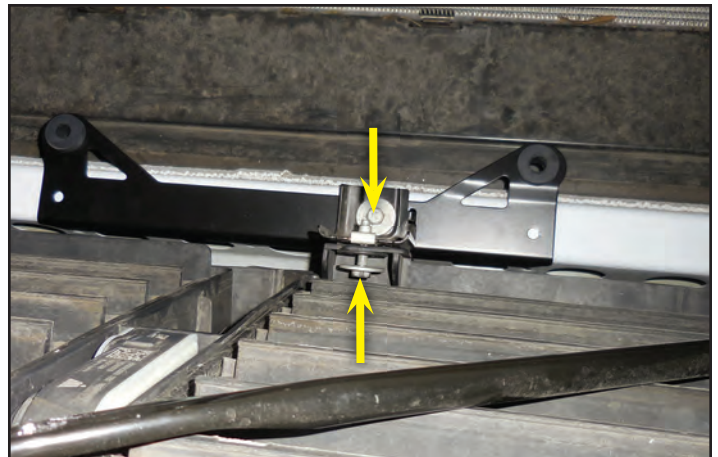
27. Use the hole and slot in the bracket to line up with the matching hole and slot in the frame rail as shown.



28. Install the bracket as shown here.



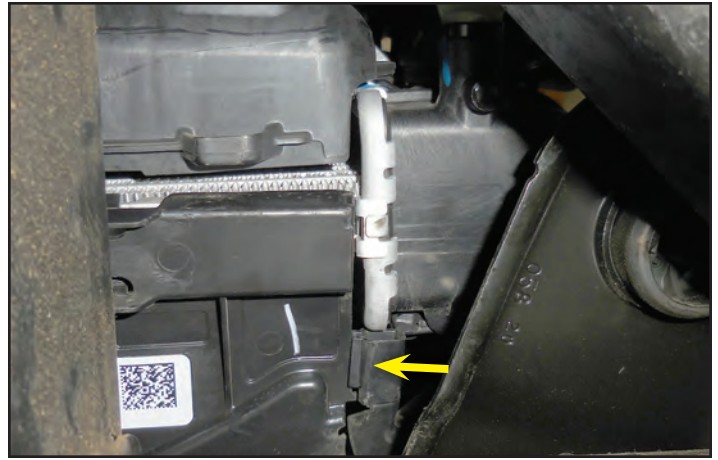
29. Reinstall the OEM center bracket that was removed earlier.



30. Raise the vehicle and remove the plastic cover shown by pinching at three areas, and pulling down. Two of the areas are shown here with pairs of arrows.



31. Release the tab on the passenger side shown for the cover from the last step.



32. Tilt the cover at an angle and pull it free. The small photo shows the tab on the passenger side.



33. Use the template provided at the back of this manual to determine the location for the 1.75" diameter hole. Line up the template as shown here on the smooth underside of the passenger side. Use a center punch to transfer the hole location.



34. Use an electric drill with a hole saw to drill out the 1.75" diameter hole. Deburr the hole after drilling.



35. Install the provided grommet shown.



36. Reinstall the cover. Ensure that the tabs are lined up and the clips are locked in place.

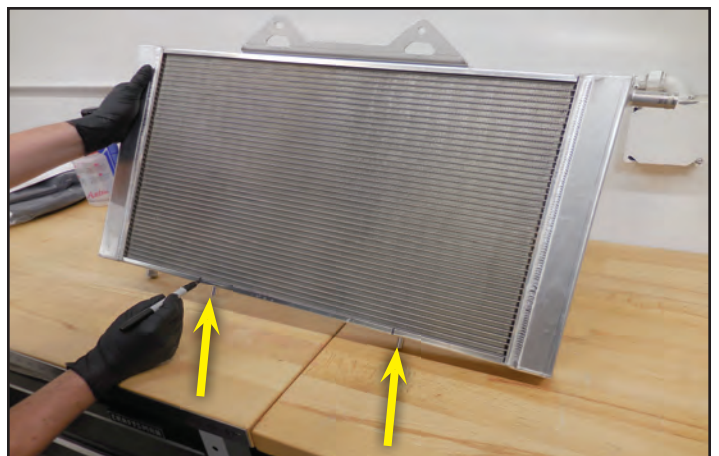
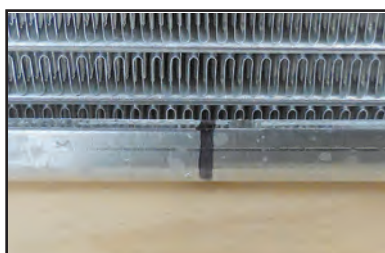


Section 3: Install LTR and Intercooler Pump

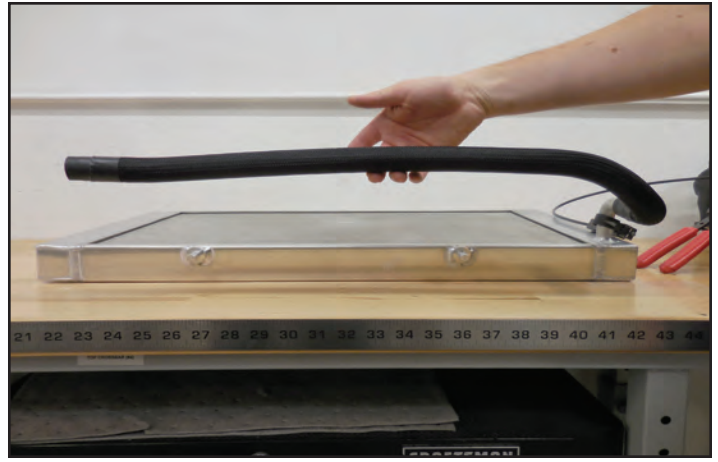
37. Gather the provided Low Temperature Radiator (LTR), hose and spring clamp shown.



38. Mark the LTR on the front side to show the pin locations that are on the bottom side. Ensure that you mark over the top of the flange as shown in the photo below. This will aid in aligning the LTR later.



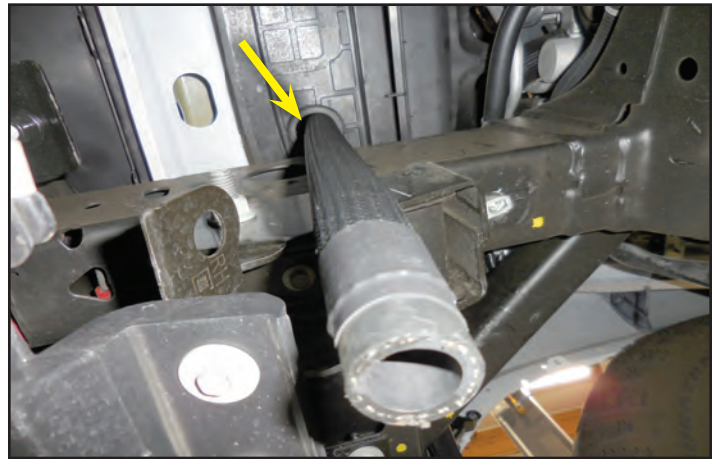
39. Install the hose assembly from the last step at the lower LTR inlet pipe and secure with the clamp from the last step.



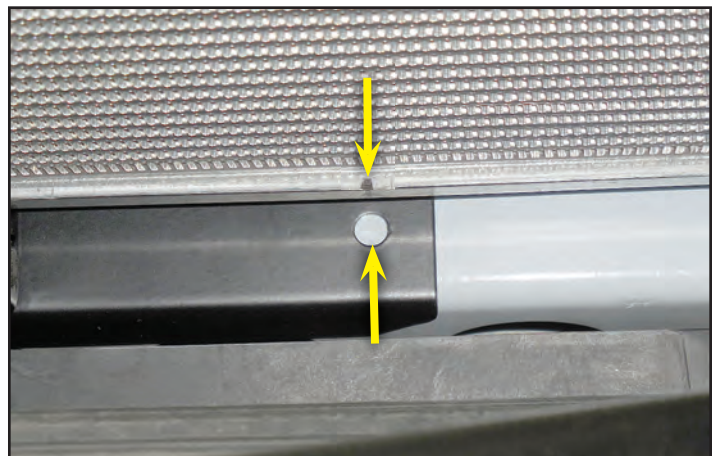
40. Insert the LTR in front of the radiator with the lower inlet pipe facing down and to the passenger side as shown with the arrow. At the same time have someone help you run the hose from the last step through the hole you made in the lower radiator panel earlier.



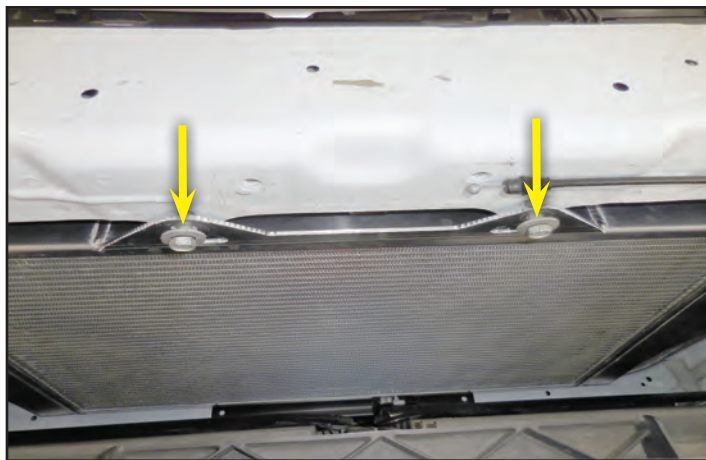
41. Here you can see the LTR hose installed through the radiator panel hole.



42. Line up the LTR using the marks that you made earlier with the holes in the bracket. This will allow you to line up the pins with the holes in the bracket. Verify the pins have aligned in the grommets by feel or with an inspection mirror.



43. Temporarily install the OEM bolts loosely to maintain the LTR position while performing other operations. You will need to pull up on the LTR to align these bolts. The LTR is not designed to rest on the lower bracket. Double check on the grommet alignment.



44. Gather the provided pump mounting bracket and hardware shown.



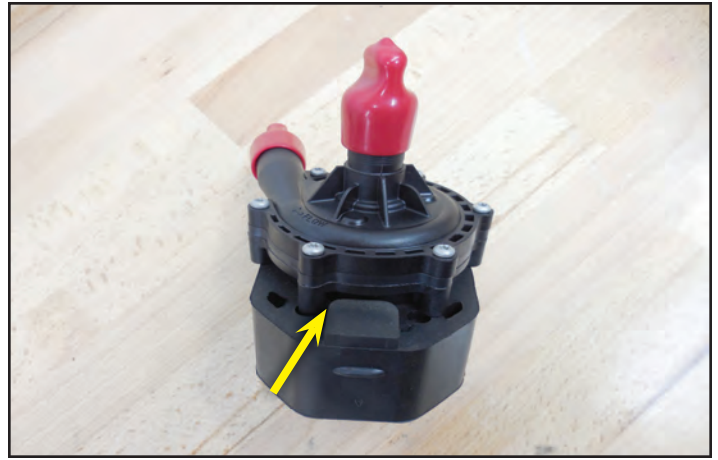
45. Install the two clip nuts in the locations shown.



46. Mount the bracket with the two bolts as shown.



47. Install the pump in the rubber insulator with the orientation shown with the pump bolt location close to the rubber boss at the arrow.



48. Install the rubber insulator on the bracket as shown. Ensure that it is fully engaged in the bracket.



Section 4: OEM Manifold Removal

49. Depress the gray locking tab to release the PCV vent hose coming from the valve cover at the air plenum on the passenger side of the engine. **Save this hose as one of the fittings will be used again.**



50. Using a 7mm nut driver or a flat blade screwdriver, loosen the clamps at the two arrow locations.



51. Rotate the air intake plenum as shown to reveal the final mounting location.



52. Pull the air intake plenum to the passenger side to remove it from the vehicle. This will not be reused.



53. Acquire a belt removal tool like the one shown. Alternatively you could cut the belt out.



54. If using the tool shown in the last step you can rotate the crank with a 1/2 breaker bar and socket to allow the belt to ride up the ramp and derail itself.



55. Remove the driver side PCV hose at the valve cover.



56. Release the blue locking tab, shown at the yellow arrow, on the MAP sensor electrical connection and unplug it.



57. Press the release button on the EVAP hose connector and unplug it from the EVAP solenoid.



58. Remove the EVAP solenoid electrical connection by pressing the release tab and unplugging.



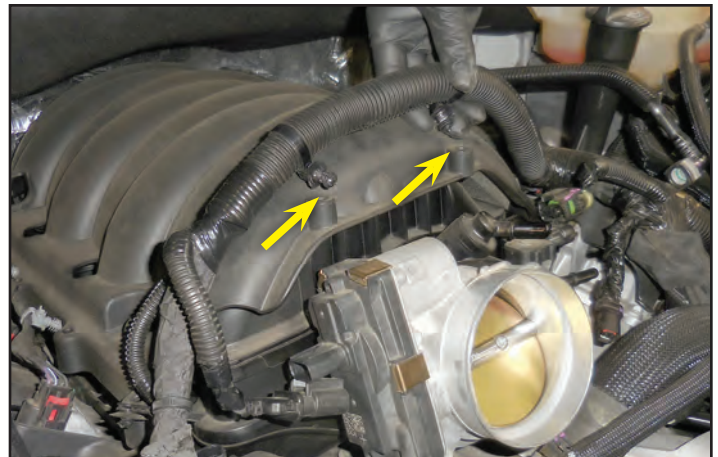
59. Disconnect the ETC connector from the throttle body. Depress the locking tab and pull the connector free.



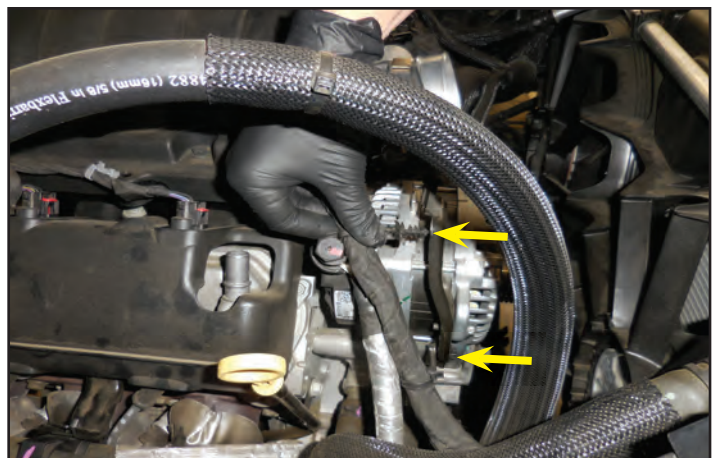
60. Unplug the alternator electrical connection shown with the arrow.



61. Remove the two cable tie fasteners shown with the arrows using a plastic pry bar.



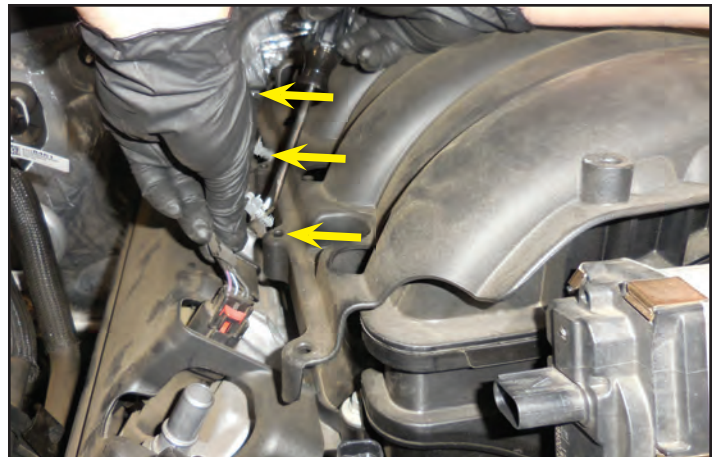
62. Remove the two cable tie fasteners shown with the arrows using a plastic pry bar.



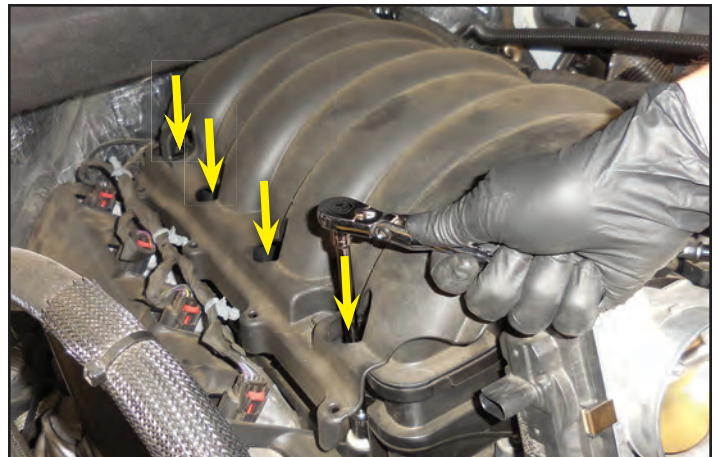
63. Pull the electrical wiring away from the throttle body to give room for intake manifold removal clearance.



64. Remove the cable tie fasteners from the arrow locations. Repeat this process on the opposite side of the intake manifold.



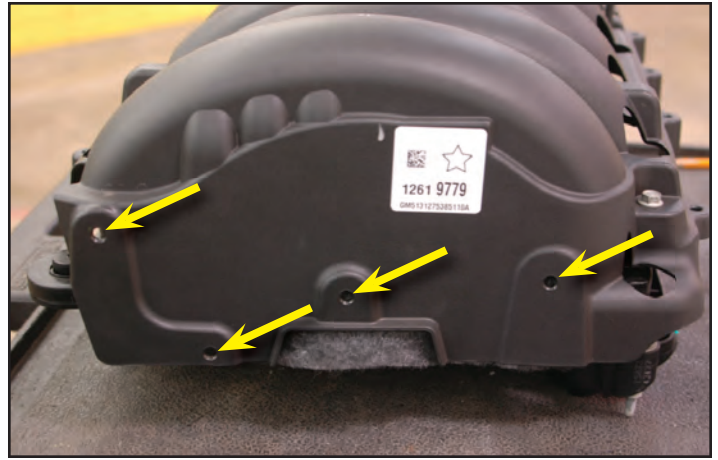
65. Remove the 10 bolts holding the intake manifold in place using a 10mm socket wrench.



66. **Be careful when pulling the manifold forward because the bolts can scratch the cylinder heads.** Pull the intake manifold forward a bit to gain access to the wiring harness “tree” anchors that hold the harness to the back of the intake manifold. Use a screwdriver or tree clamp remover to unplug these trees from the OEM intake manifold.



67. This image shows the location of the four tree connectors on the back of the intake manifold.



68. Carefully remove the intake manifold from the engine bay. Be careful not to drag the bolts across the sealing surfaces.



69. Clean the sealing surfaces on the heads using a cleaner like Simple Green.



70. Seal the intake ports with tape (Shown here in blue).



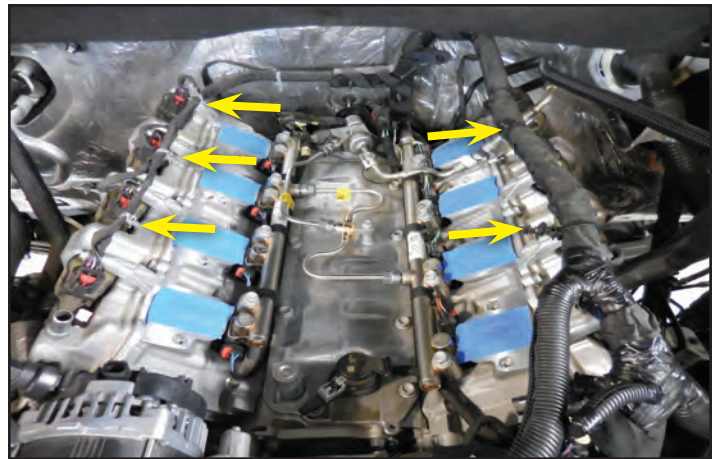
71. Remove the insulation pad from the engine valley. This will not be reused.



72. Remove the two plastic coil covers on the valve covers.



73. Remove the cable ties that are on the electrical harnesses. Several of these cable ties are shown below.



74. Unplug the top connection to all eight coil packs. Four coil packs are shown with arrows. Pull the red locking tab prior to unplugging.



75. Unplug the spark plug wires for the back two coils on both sides of the engine. Mark the two rear coils on each side to ensure that they are installed in the original locations later. Remove the two bolts holding each of the two rear coil packs on both sides of the engine using a 10mm wrench.

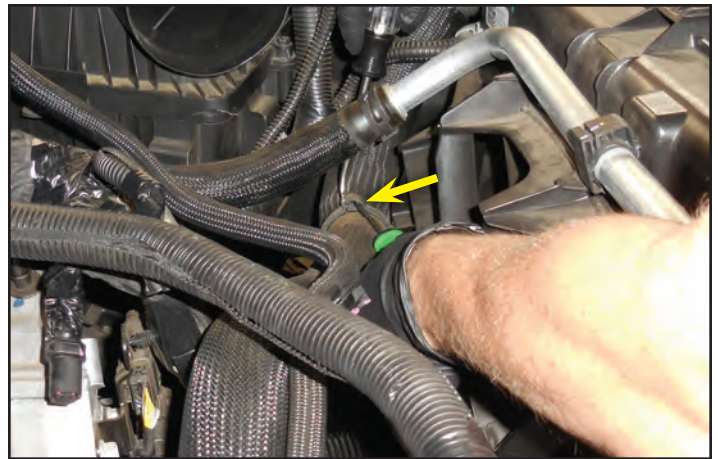


Section 5: Radiator Hose Modification

76. Pull up on the smaller hose that is connected to the upper radiator hose to disconnect it at the location shown with the arrow.



77. Remove the fastener holding the upper radiator hose at the arrow location. Try not to damage this plastic tie because it will be reused.



78. Cut the cable tie shown at the arrow. This will be replaced with a new one.



79. Pull the mesh away from the end of the hose connection. This will allow room for the hose to be cut. Also wrap the connection location with rags as shown to catch any coolant.



80. Mark the hose at two inches away from the end.



81. Release the clamp at the hose connection and pull the hose off .



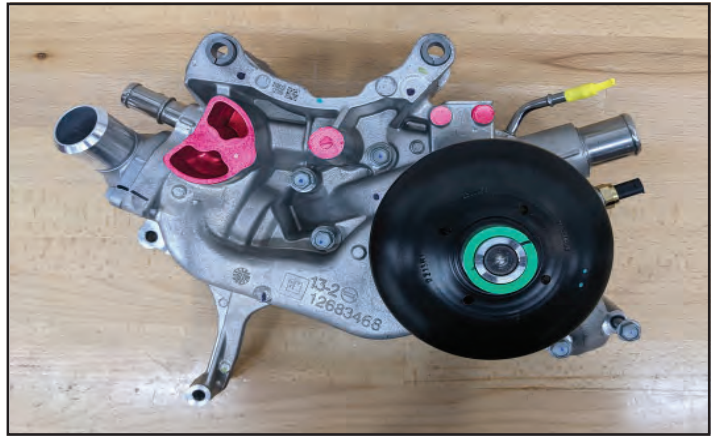
82. Cut the hose at the 2" mark that was made earlier.



2019+ GM Magnum Truck Water Pump Swap Addendum

The following instructions may be necessary depending on your specific water pump.

If your water pump does not have threaded holes on the surface as highlighted in red, you will need to swap out your water pump.



You will need to purchase the following items:

- 6.6L Gas Engine Water Pump Assembly GM#12707680 Replaces GM#12699889
- A/C Belt with Tool GM#12658178



Follow the instructions included with the A/C Belt Kit to remove the belt. The old belt will be cut out, and the new belt will be installed with the tool shown in the center of this image once the water pump has been swapped over.

Follow the instructions in a GM service manual to install the water pump. Disconnect the upper radiator hose followed by the radiator fan. Loosen the AC compressor, but leave the refrigerant lines connected. This will allow you to move the AC compressor out of the way while swapping out the water pump. **Torque all bolts to GM specifications.**



Continue with the supercharger installation once you have installed the new water pump and the new A/C belt.

83. Reinstall the hose with the tabs for the clamp facing to the rear.



84. Slide the mesh down close to the clamp.



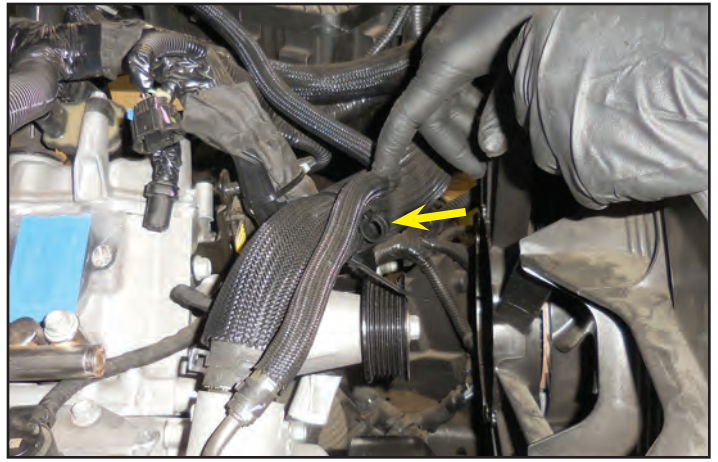
85. Rotate the clamp for the smaller hose so that the tabs face to the rear as you did with the other clamp.



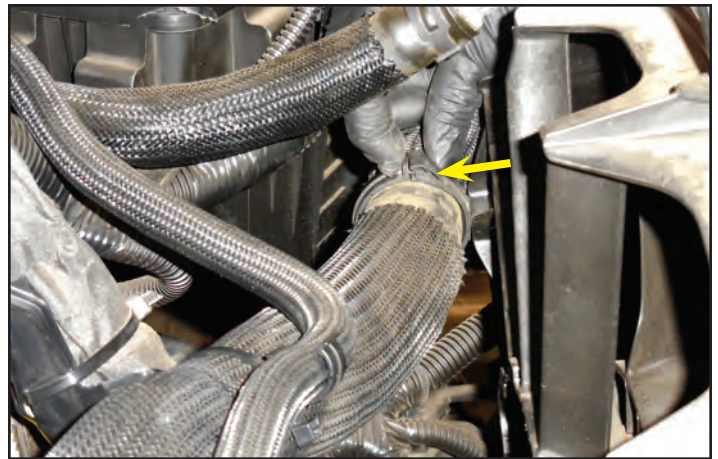
86. Gather the provided cable tie and clip shown. Remove the two tabs inside the clip.



87. Install the cable tie with the clip from the last step around the mesh on the upper radiator hose in the same location the OEM clip was and secure the smaller hose to it.

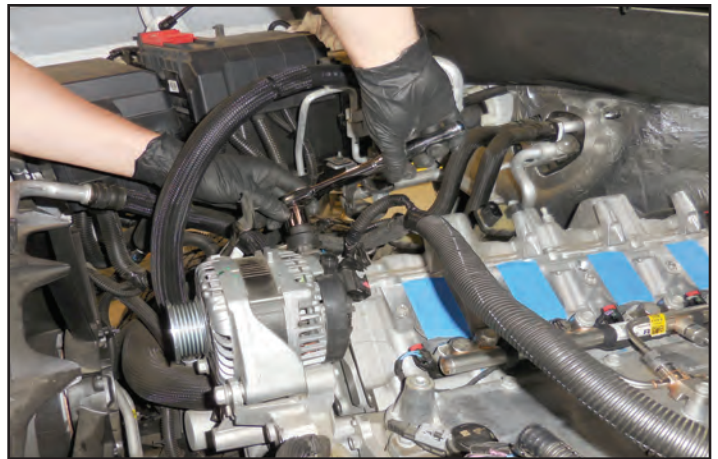


88. Reinstall the clamp that was removed earlier.



Section 6: Rotate Alternator and Install Tensioner and Reservoir

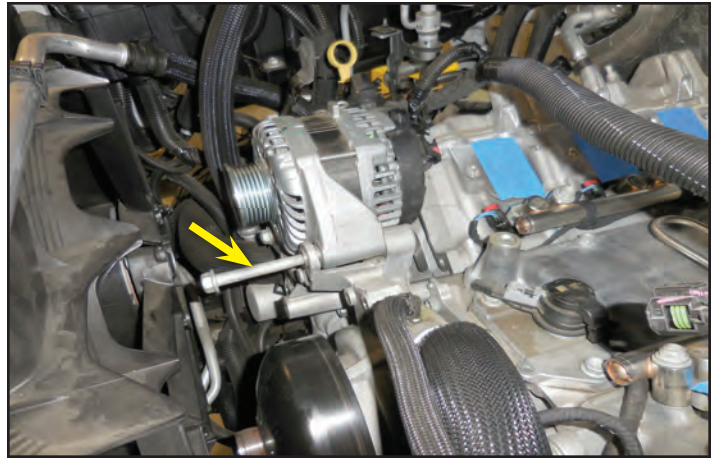
89. Loosen the nut holding the alternator positive cable with a 17mm socket wrench.



90. Remove the alternator positive cable terminal.



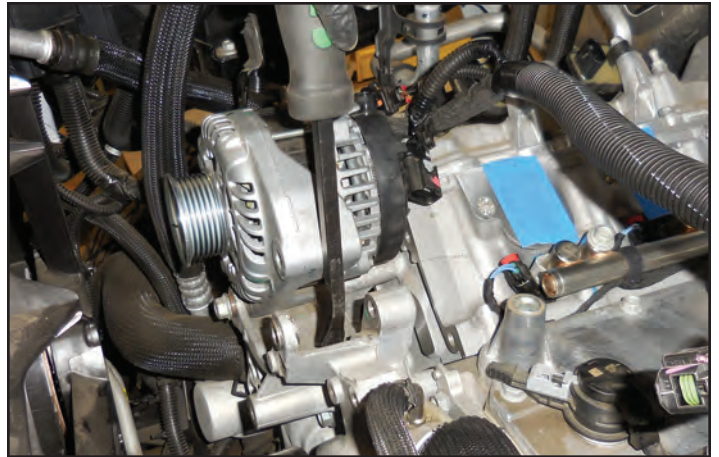
91. Remove the alternator bolt shown at the arrow using a 15mm socket wrench.



92. Loosen but do not remove the alternator mounting bolt on the opposite side with a 15mm socket wrench.



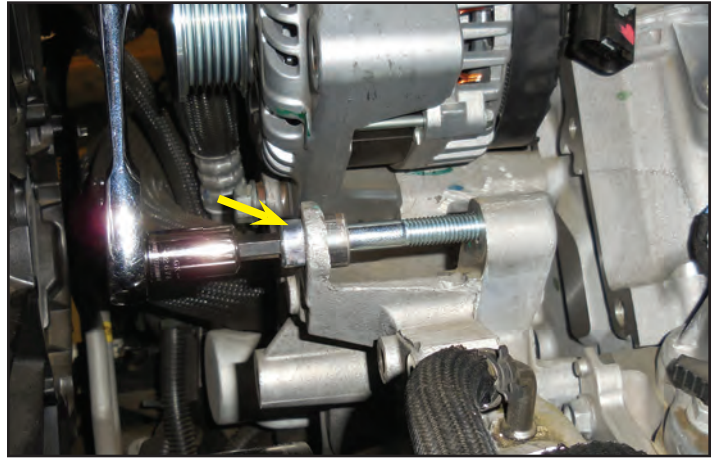
93. Use a prybar to lever the alternator up as shown.



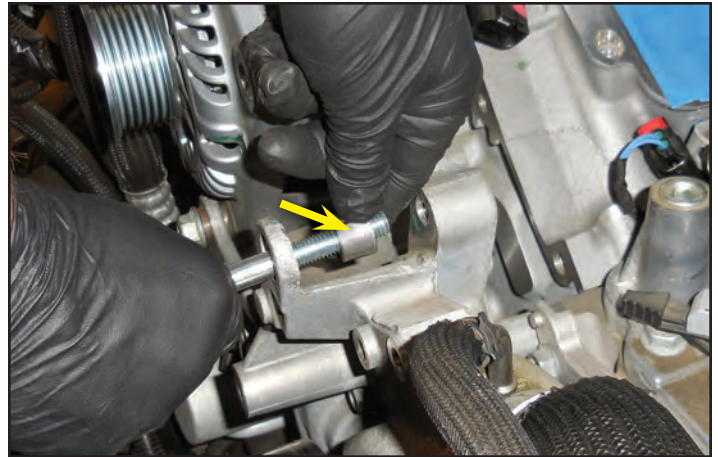
94. Remove the bolt at the water pump. The smaller photo below shows the location better with an arrow.



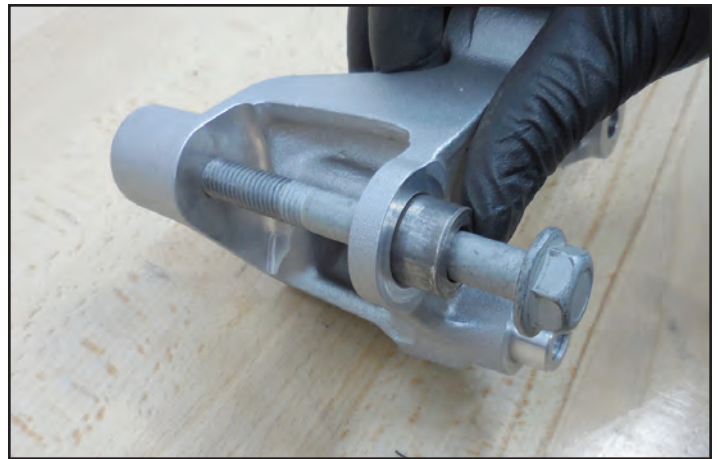
95. Use the provided bolt shown below to press out the bushing at the arrow.



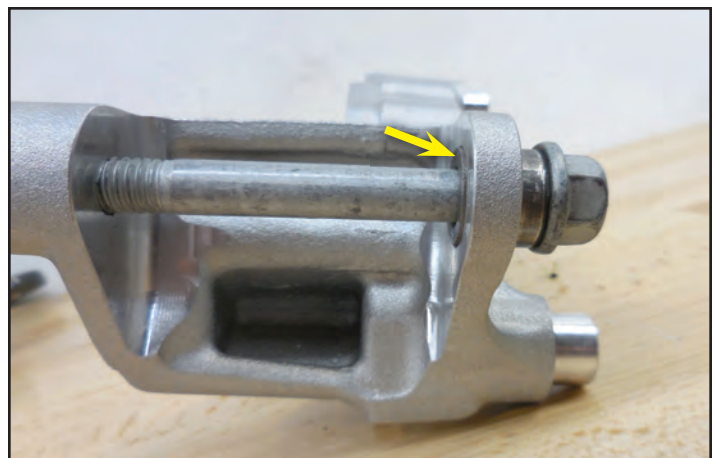
96. Remove the bolt from the last step after the bushing is pressed out and remove the bushing. This bushing will be used in the provided idler bracket assembly.



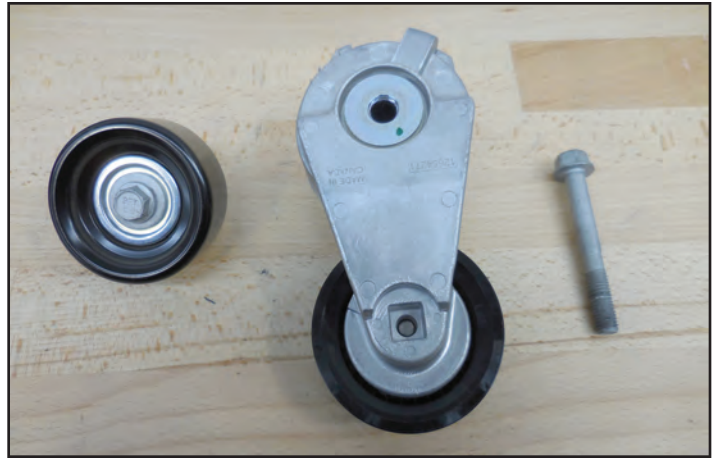
97. Gather the OE alternator bolt shown below along with the bushing that was removed in the last step. Insert the bushing into the provided bracket and tighten it in place with the bolt. See the next step for the bushing depth.



98. Ensure that the bushing is flush or less than 1mm past the arrow location.



99. Gather the provided idler, tensioner, and M10x80mm bolt shown.



100. **Apply Blue Loctite 242** to the threads of the pre-installed bolt on the idler.



101. Install the idler and bolt from the last step into the location below the alternator shown with the arrow using a 13mm socket wrench and **torque to 18 ft-lbs.**



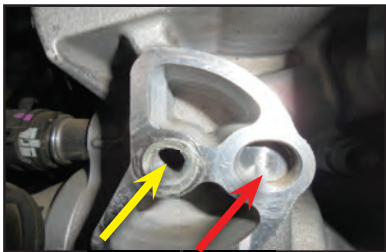
102. **Apply Blue Loctite 242 to the M10x80mm bolt** and install it into the provided tensioner.



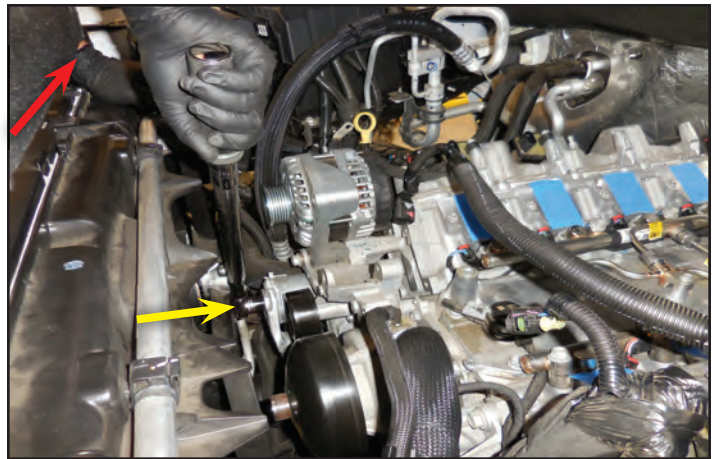
103. Once you have installed the bolt from the last step you will see the boss at the back of the tensioner shown with the arrow.



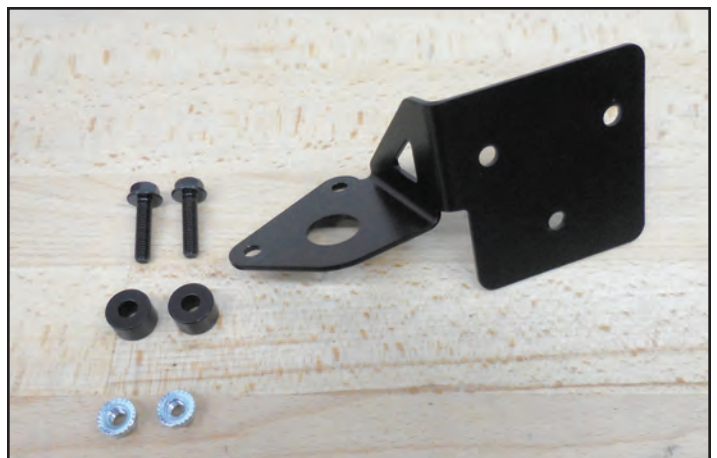
104. Line up the boss from the tensioner with the hole shown here at the red arrow in the photo below. The yellow arrow shows the location for the M10x80mm bolt. This is located below the alternator as shown in the photo to the right.



105. **Torque the tensioner to 25ft-lbs.** Make sure the boss stays properly aligned and tensioner is sitting flat before torquing.



106. Gather the provided reservoir bracket, M6x25mm bolts, spacers, and M6 serrated flange nuts shown. If you don't have a top side creeper this could be done after Step 265 to avoid having to lean over the reservoir.



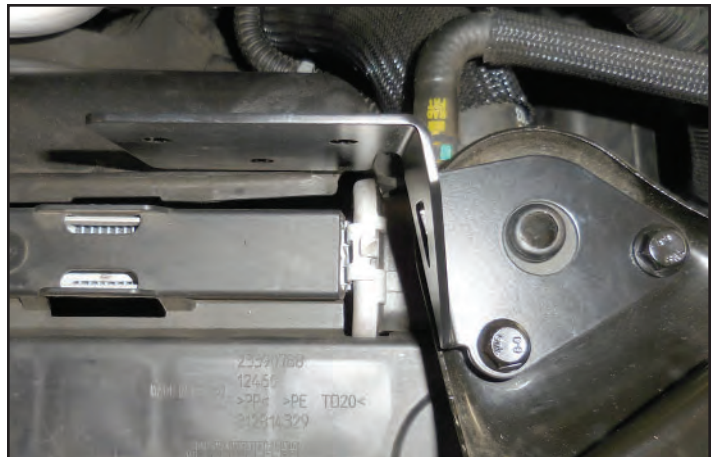
107. Place the two spacers from the last step at the location shown on the driver's side of the engine compartment.



108. Place the bracket on top of the spacers, and install the two M6x25mm bolts from two steps ago through the top and secure them with the M6 serrated flange nuts from below. Use a 10mm socket wrench on top and a 10mm open end wrench on the bottom.



109. Ensure that the bracket is lined up with the radiator as shown.



110. Torque the two M6x25mm bolts to 108 in-lbs.



111. Gather the provided reservoir, cap, and three M6x12mm bolts using an 8mm nut driver or a flat blade screwdriver, loosen the clamp at the throttle body.



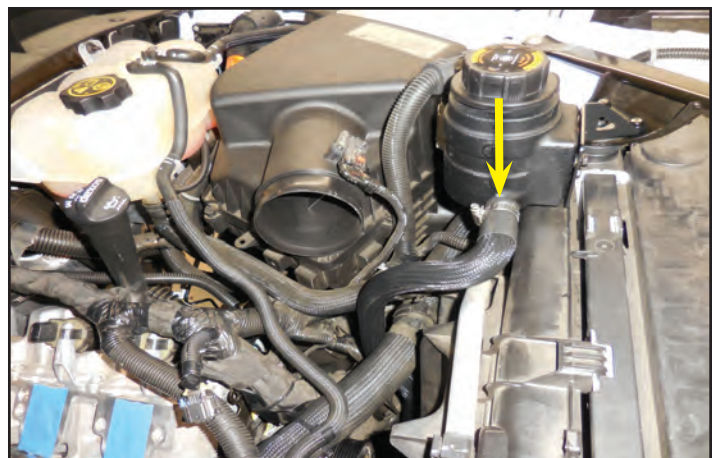
112. Install the cap on the reservoir, and secure in place with the three M6x12mm bolts by hand.



113. Gather the hose assembly shown below. This will be installed on the lower output pipe on the reservoir. Guide the hose (highlighted in green) behind the upper radiator hose at the arrow.



114. Install the hose from the last step onto the lower outlet pipe of the reservoir and secure in place with a provided worm gear clamp. **A worm gear clamp must be used to provide a proper seal.**



Section 7: Intercooler Pump Wiring

115. Gather the provided Lingefelter Performance Engineering MAP Relocation Harness, bracket, two serrated nuts and fuse shown.



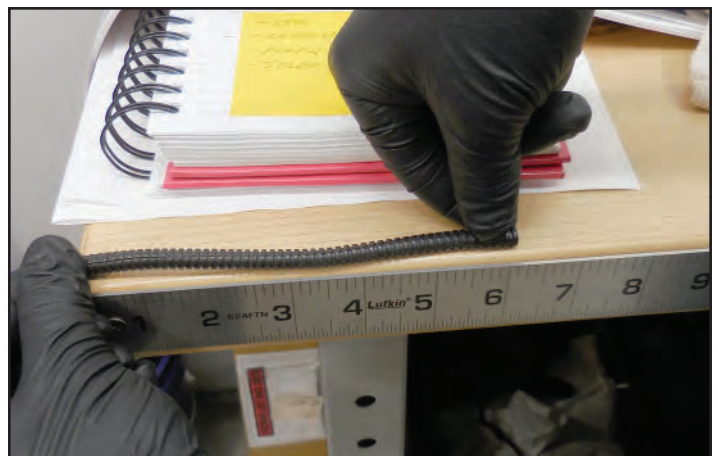
116. Insert the provided fuse into the electrical assembly and reinstall the cap.



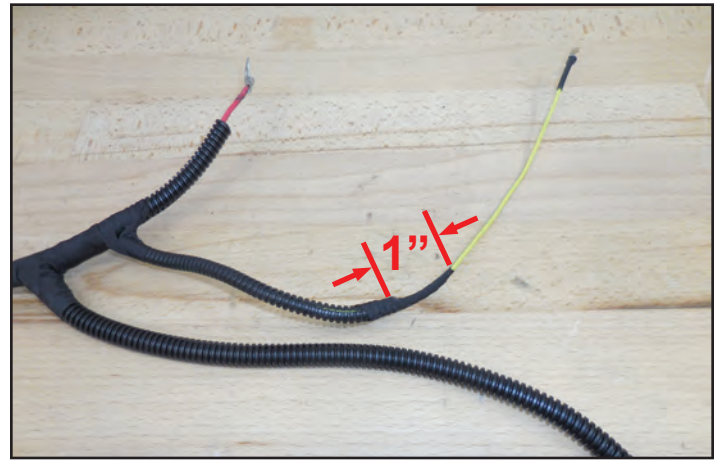
117. Remove the tape from the positive terminal side and remove one inch of the slit loom as shown.



118. Gather the provided 1/8th inch diameter slit loom that is 6 inches long.

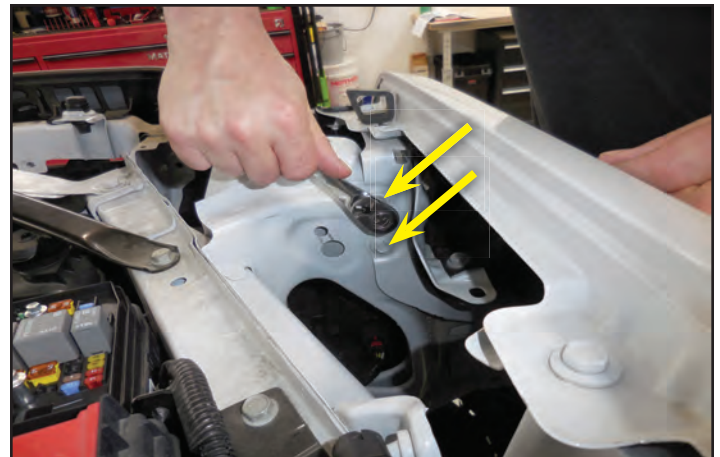


119. Peel back the yellow trigger wire through the OEM slit loom until it reaches the next tape junction. Cover the yellow wire with the wire loom from the last step and tape it in place at both ends. Continue the tape roughly 1" along the yellow wire.



Truck install instructions are currently being updated, for reference please see page 35 for updated SUV instructions. <https://www.lingenfelter.com/PDFdownloads/L250867219-L250877219.pdf>

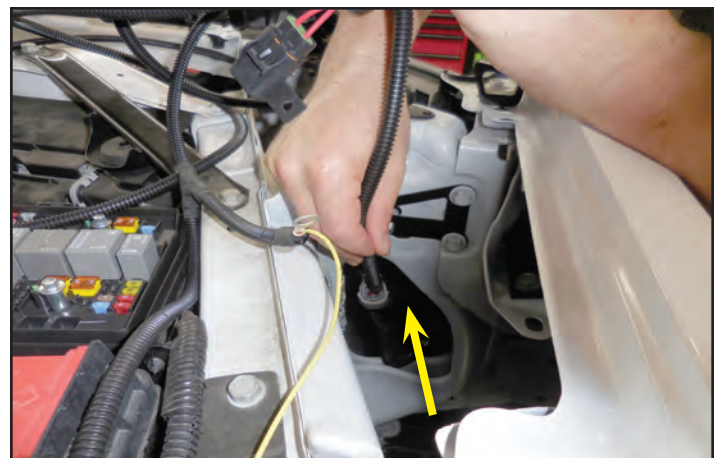
120. Remove the two bolts at the arrows that are located in the passenger side fender well, near the fuse box.



121. Place the intercooler electrical harness bracket in the location from the last step using the two OEM bolts that were just removed.



122. Run the gray plug from the intercooler pump harness through the opening shown with an arrow.



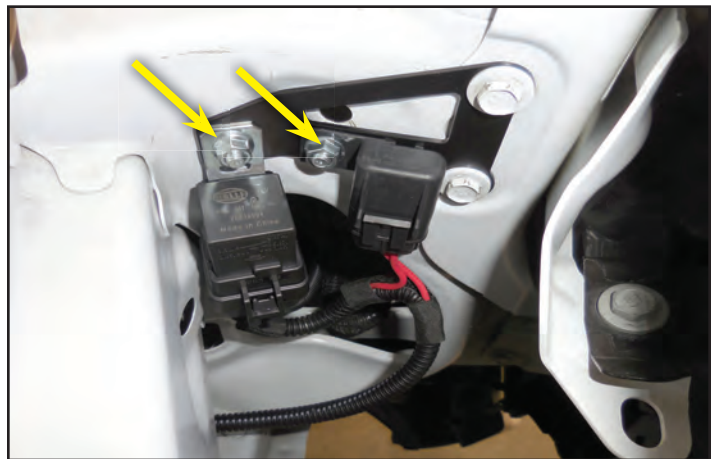
123. Continue to feed the gray plug and associated wiring through the hole in the last step until you have it near the headlight as shown.



124. Run the other length of wire with the in-line fuse through the triangular hole shown with the arrow. This will be fed under the fuse box.



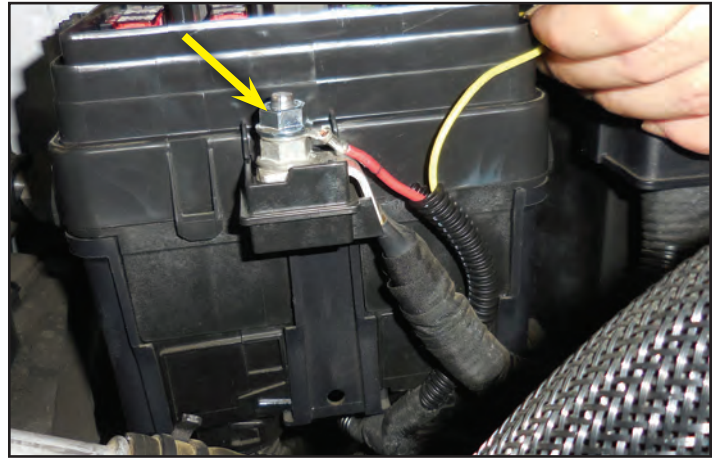
125. Secure the relay and fuse holder to the bracket with the provided serrated flange nuts.



126. Route the red positive wire, and yellow trigger wire under the fuse box.



127. Place the red positive wire's eyelet terminal over the main supply nut and secure with a provided serrated flange nut. Once the nut is tight, gently press down on the eyelet until it stops on the eyelet underneath.



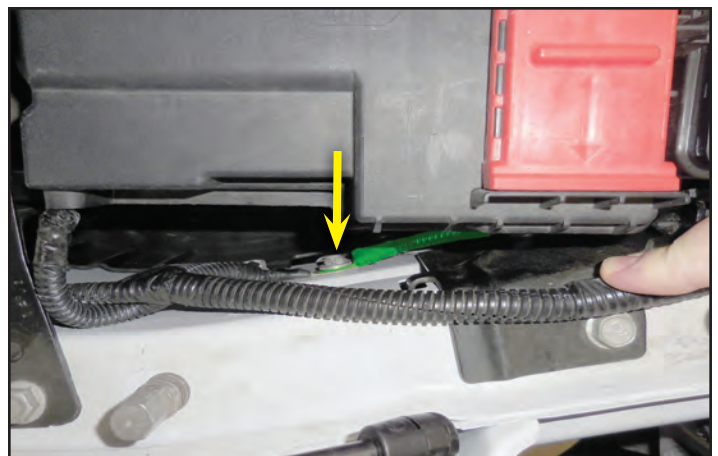
128. Remove the grounding bolt at the arrow location.



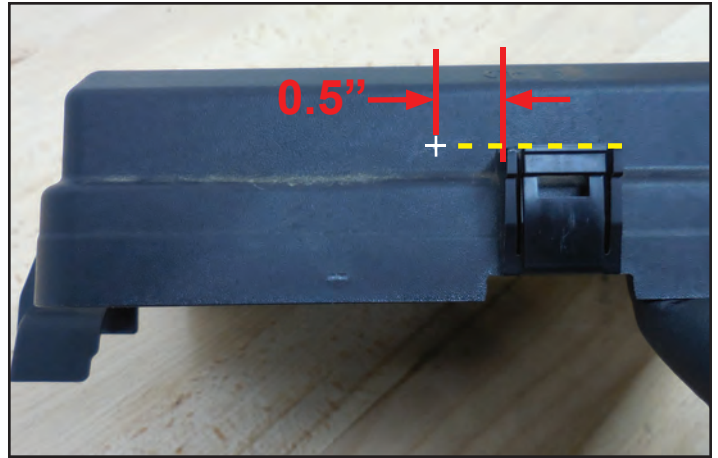
129. Route the ground wire for the intercooler pump harness as shown highlighted in green towards the bolt location from the last step.



130. Place the ground wire eyelet from the intercooler harness on top of the OEM ground and reinstall the bolt from two steps ago.



131. **Make sure you are referencing the locktab/side that faces the rear of the vehicle.** Mark a cross on the back of the fuse box lid indicating a location .5" from the release lever and level with it as shown here.



132. Use a center punch to indent the cross location from the last step. Use a 1/8" drill to start the hole location.



133. Use a step drill to open the hole up to 1/4" in diameter.



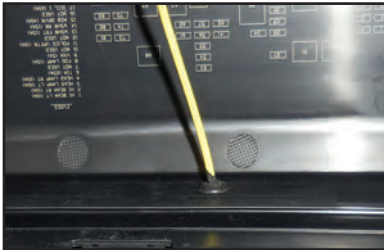
134. Place the supplied grommet over the yellow trigger wire.



135. Slide the provided grommet from the last step over the yellow trigger wire just above the tape that was added in a previous step at the arrow.



136. Route the yellow trigger wire through the hole that was made in the fuse box cover. Make sure the grommet is fully seated on both sides.



137. Remove the 10Amp fuse labeled as “#47 TCM IGN” at the location shown with the arrow.



138. Install the “#47 TCM IGN” fuse on the metal terminal at the end of the yellow trigger wire.



139. Reinstall the fuse at its original location.



140. You will have to use some needle nose pliers to press the fuse in tight.



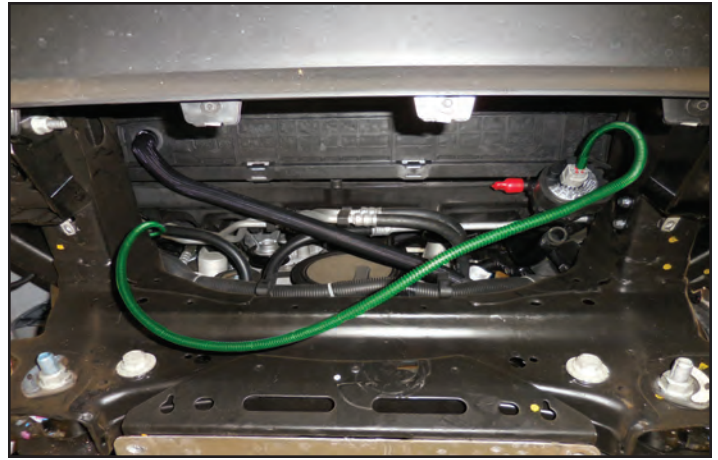
141. Route the end of the cable with the gray connector down from the top of the engine compartment as shown highlighted in green. This view is from under the vehicle on the passenger side with the wheel well cover removed. It is not necessary to remove the wheel well cover.



142. Route the end of the cable with the gray connector above the electrical harness shown at the arrow.



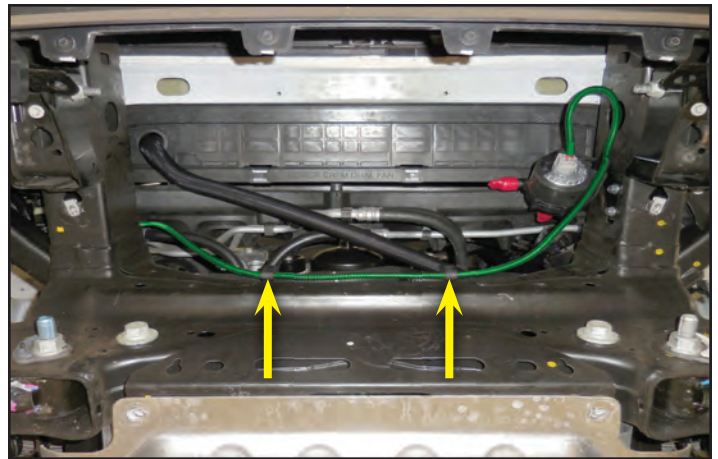
143. Route the gray connector over to the intercooler pump. Look at the next step to see how to attach a cable tie to the wire loom.



144. Ensure that there is enough slack to connect the cable from the previous step to the intercooler pump as you attach a provided cable tie with a tree connector on it (highlighted in green) at the location shown with the arrow here. This will provide a stress relief at the cable connection.



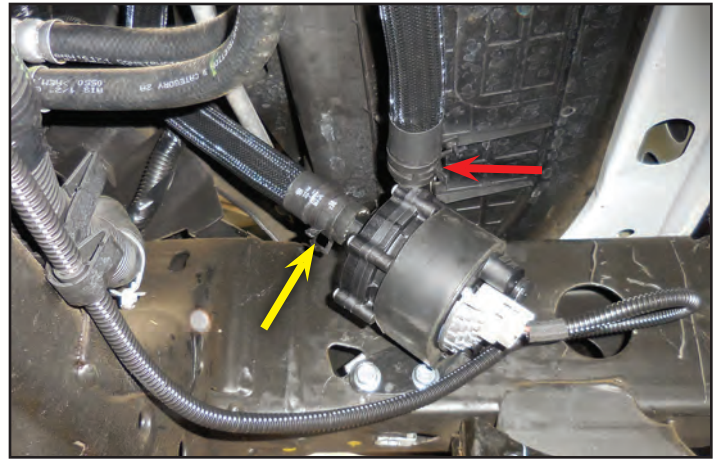
145. Hook the intercooler pump wire loom onto the two OEM connections shown with arrows if they are present. If these hooks are not present use some provided cable ties to secure this cable.



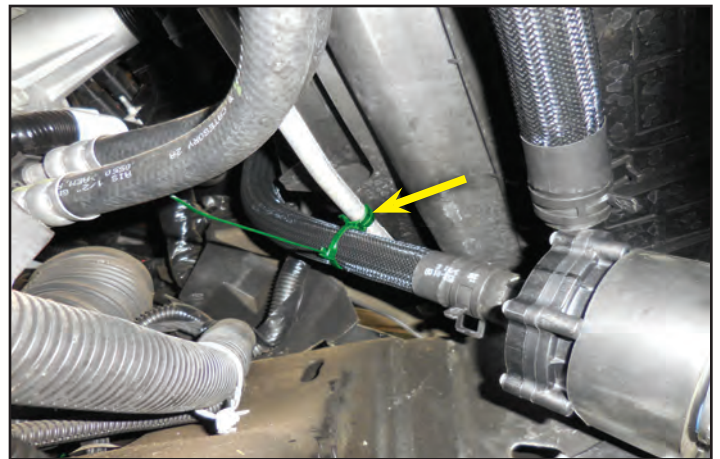
146. Remove the two red caps from the intercooler pump.



147. Attach the hose from the reservoir at the intercooler pump inlet yellow arrow location and secure with a provided spring clamp. Attach the hose that comes from the lower LTR inlet pipe to the output of the intercooler pump at the red arrow and secure with a provided spring clamp.



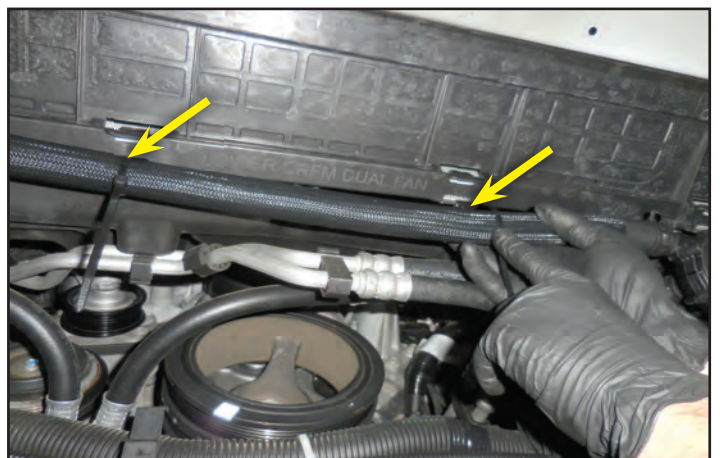
148. Remove the inner tabs from another cable tie with clip as shown below. Attach this clip at the tube shown and lightly secure the cable tie at the arrow location. The cable tie and clip are highlighted in green. Trim the excess cable away.



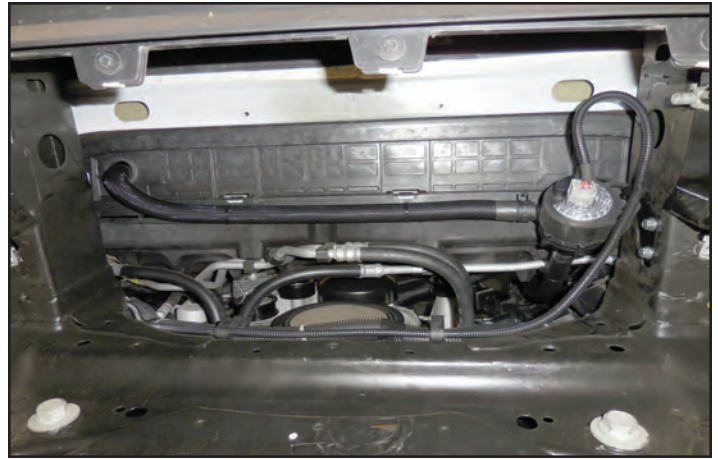
149. Gather two of the provided edge mount cable ties shown.



150. Lightly secure the “LTR to Pump Hose” with two edge mount cable ties that were shown in the last step to the lower plastic radiator panel that was removed earlier at the arrow locations.



151. Here is a photo of the completed routing of hoses and cable ties.

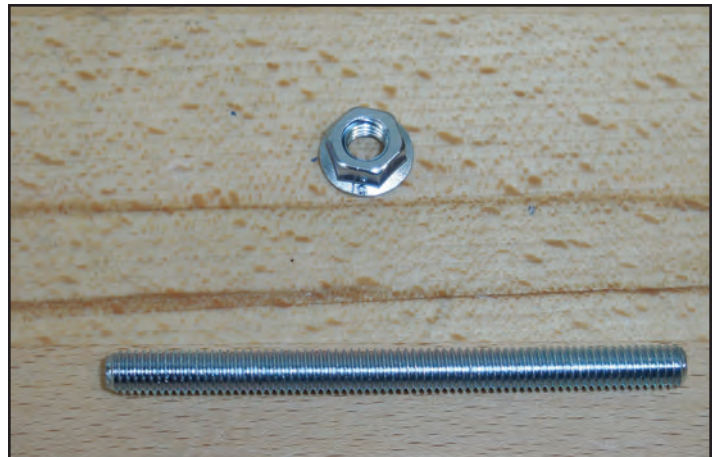


152. Use two cable ties (highlighted in green) to secure the slack of the wire harness that goes to the intercooler pump in the passenger fender well, behind the headlight bucket.



Section 8: Supercharger Preparation and Install

153. Gather the provided M6x75mm stud and M6 serrated flange nut shown here.



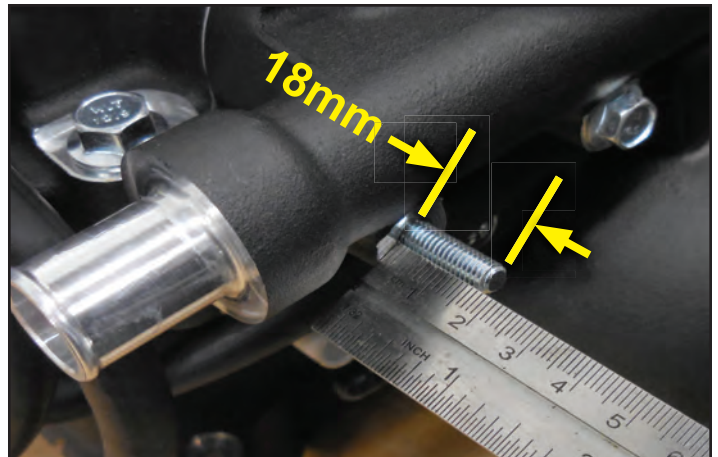
154. Remove the bolt at the arrow location from the supercharger with a 10mm socket wrench.



155. **Apply some provided Loctite Blue 242 to the stud** from two steps ago the stud from two steps ago as shown and install it at the location where the bolt was removed in the last step. It should thread in and bottom out by hand.



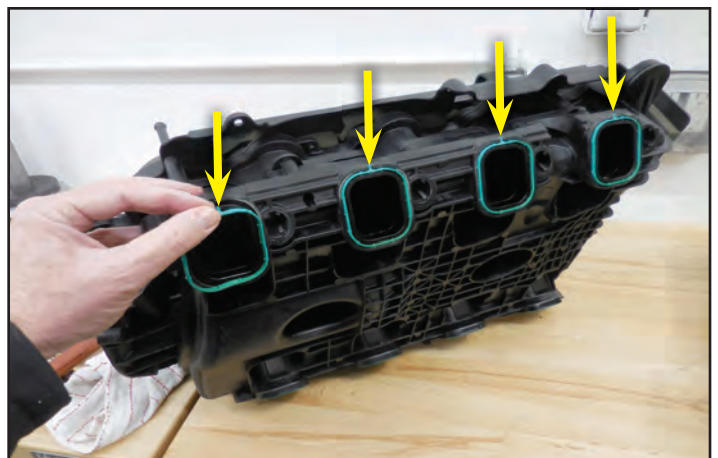
156. Ensure that 18mm of thread is protruding.



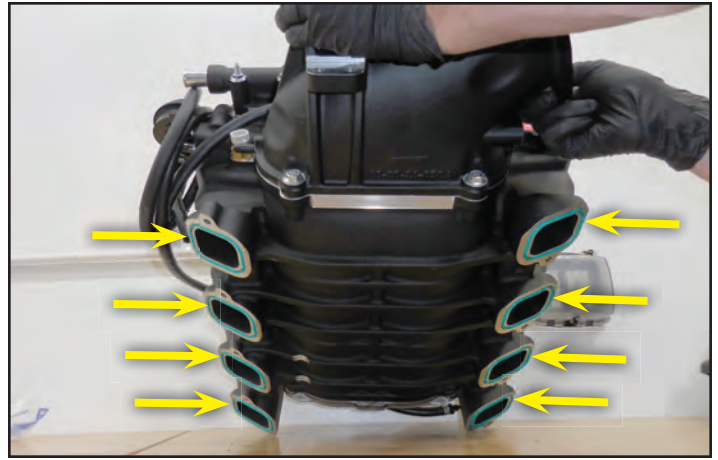
157. Install the provided M6 serrated flange nut on the stud and torque it to 108 in-lbs.



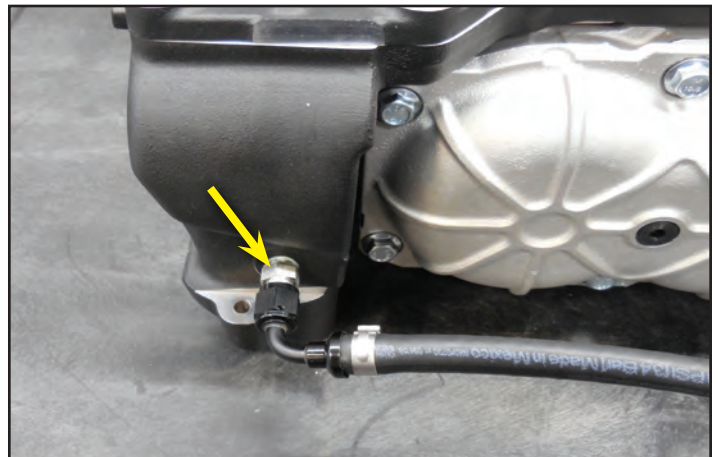
158. Remove the 8 intake manifold gaskets at the bottom of the intake manifold by first pulling at the tabs shown at the arrow locations. These will be installed on the supercharger housing. Replace any damaged gaskets with GM part# 12626354. Wipe the gaskets with a clean dry shop towel.



159. Install the 8 gaskets from the last step into the bottom of the supercharger as shown here. Ensure that the tab lines up with the notch in the top edge at the locations shown with yellow arrows.



160. If you need to install a boost reference port you should do so now at the rear left of the supercharger shown at the arrow.



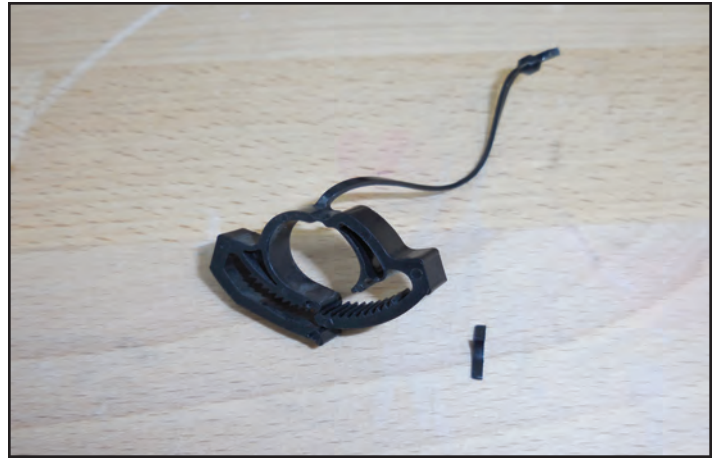
161. Cut 10 inches of the provided 1" diameter slit loom shown below and install it over the wire harness at the driver's side rear head location.



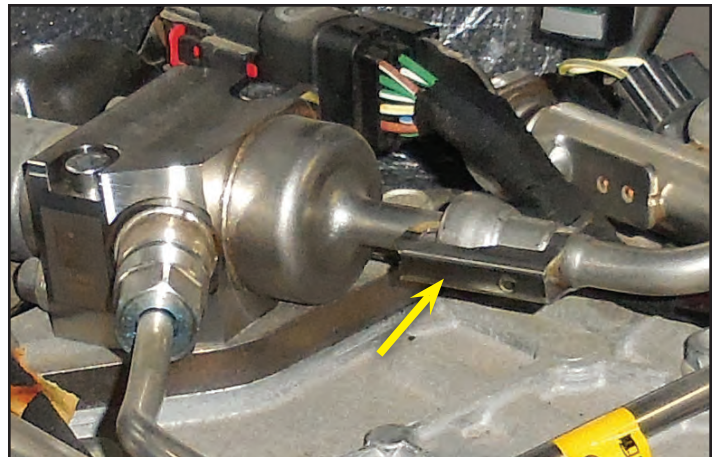
162. Use a small screwdriver to lever the security clip from the fuel line at the red arrow location. Then push the clip in the green arrow direction to remove it.



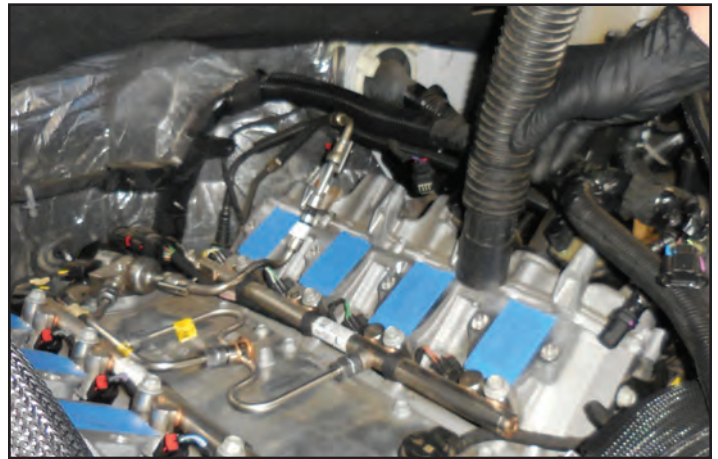
163. Remove the plastic tether from the securing clip. This will not be reused.



164. Reinstall the securing clip ensuring that it is now oriented to the side as shown with the arrow. This will allow the necessary clearance for the supercharger.



165. Vacuum around the intake ports and the engine valley to remove any loose debris.



166. Remove the tape from the intake ports and vacuum them out to remove any debris.



167. Use Simple Green or some other equivalent cleaner to wipe away any left over adhesive or debris. Apply some Tri-Flow or equivalent lubricant to a clean rag and wipe down the sealing surfaces.

168. For Global A vehicles Lay the MAP Sensor Relocation Vacuum Hose and SCM-001 Wire Harness between the water pump and valley cover. Global B does not use the Vacuum Hose.



169. Use an engine hoist to hook the installed strap and slowly lower the supercharger in place. You should have a couple of people to help you with this process. **Be extra vigilant Be extra vigilant around the fuel line to ensure that it does not get damaged.** Start with the back end of the supercharger pointing down as shown here and gradually work it to a level orientation once it gets closer to its resting spot. Zip tie the Sensor Relocation Vacuum Hose and SCM-001 Wire Harness on the ends of the snout after the supercharger is in place.



170. Ensure that the bolt holes on the supercharger line up with those on the heads. Make sure the harness lays over the top of the supercharger inlet as shown. Verify that the superchargers is fully seated on the heads and not hung up on anything.

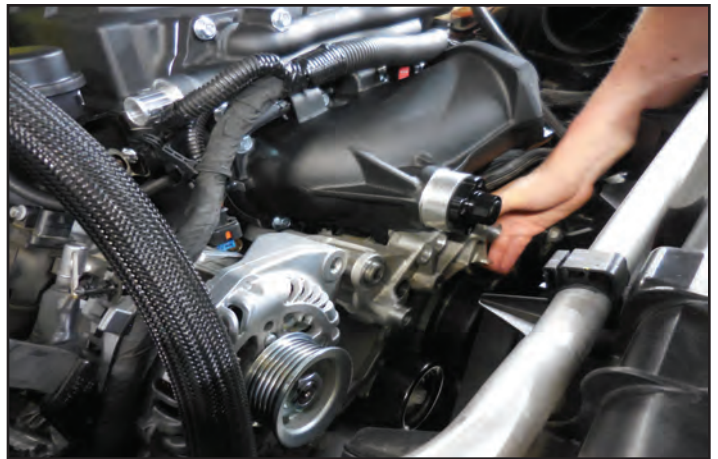
171. Gather the provided idler bracket, idlers and bolts shown.



172. Lift the front of the supercharger to place the idler bracket from the last step into position. You will have to align the bracket down in the pocket the alternator used to sit in. Gently lower the supercharger back down and verify that the bracket moves freely.



173. Here you can see the idler bracket placed in position.



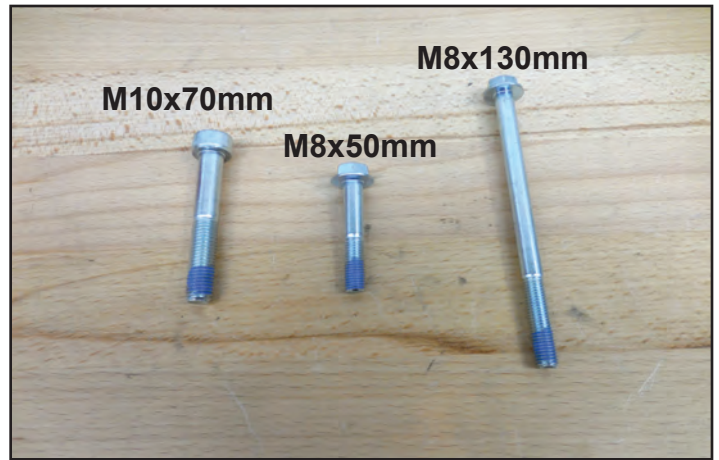
174. **Gather the 8 provided M6x35mm bolts and apply Loctite Blue 242 to the ends as shown and apply blue Loctite 242 to the ends as shown.** Gather the provided swivel socket shown below.



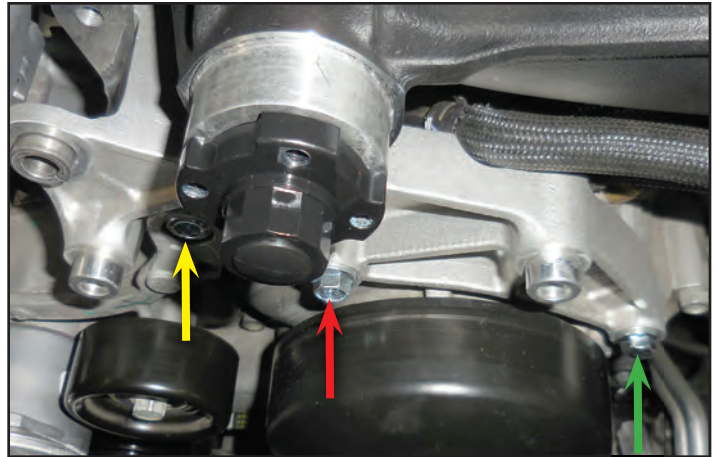
175. Use a magnetic telescoping pick up tool to install the 8 supercharger mounting bolts from the last step starting from the driver's side front.



176. Place some provided Loctite Blue 242 on the provided bolts.



177. Install the M10x70mm socket head bolt from the last step in the yellow arrow location. Install the smaller bolt from the last step in the red arrow location. Finally install the longer bolt from the last step in the green arrow location. Only hand tighten for now.



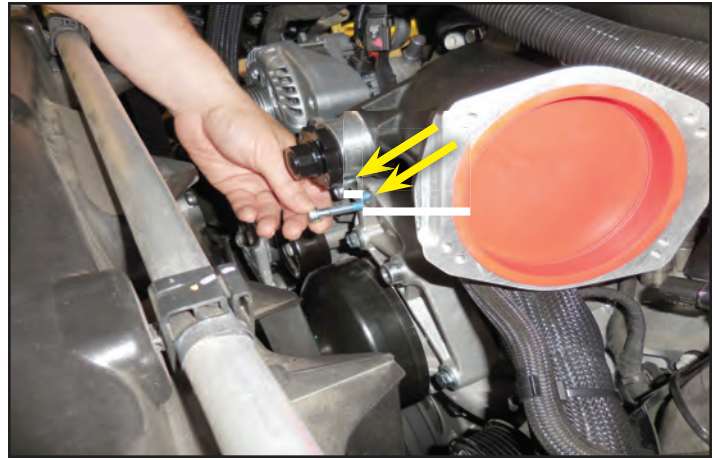
178. Use socket from three steps ago with a 1/4" drive long extension to tighten the 8 bolts that were just installed. Start out by spinning these bolts in place by hand without a wrench. Follow the torque order given at the back of this manual and gradually work your way up to the **final torque of 120 in-lbs**. Spin the supercharger at the input shaft to ensure that it is rotating freely after torquing the bolts.



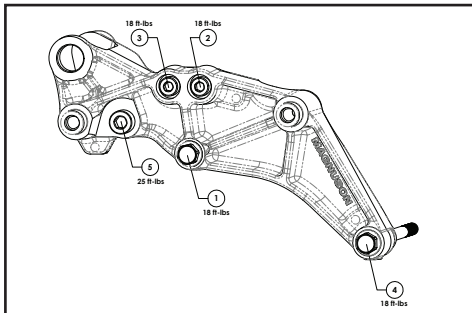
179. Ensure that the idler bracket sits flush with front of the supercharger at the arrow location



180. Gather the provide M8x40mm bolts shown below and apply Loctite Blue 242 to the ends. Install these two bolts at the locations shown with arrows below the supercharger input shaft. You may need to loosen the other 3 slightly to get these to align.

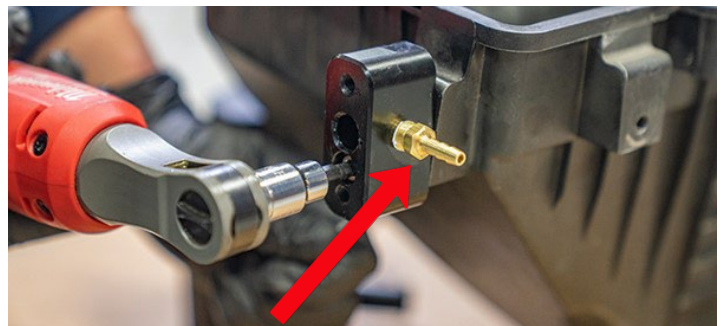


181. Torque all the bolts at the idler bracket according to diagram at the back of this manual.



SECTION 9: Lingenfelter IAT/BARO Communication Module & MAP Relocation Kit Install

182. Install the Lingenfelter Performance Engineering MAP Relocation Block to the lower airbox tab with the supplied lock nut, washer, and M6x30 bolt as shown. Removal of the lower air box may make the installation easier.

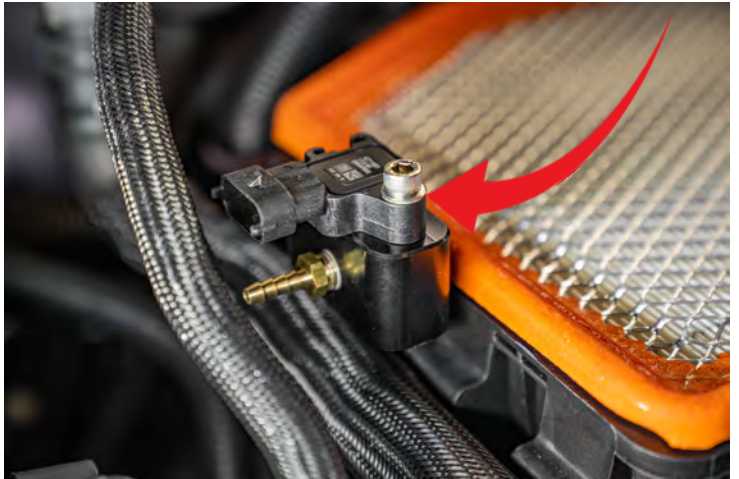


**GLOBAL A
USE
BRASS BARB**

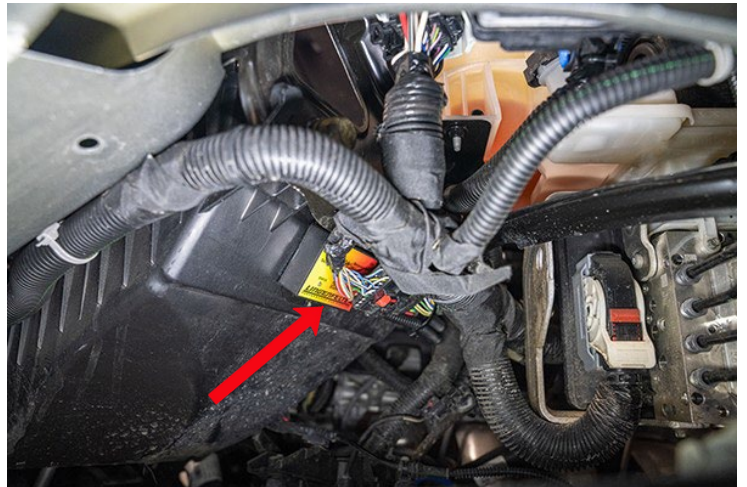


**GLOBAL B
USE
BREATHER VENT**

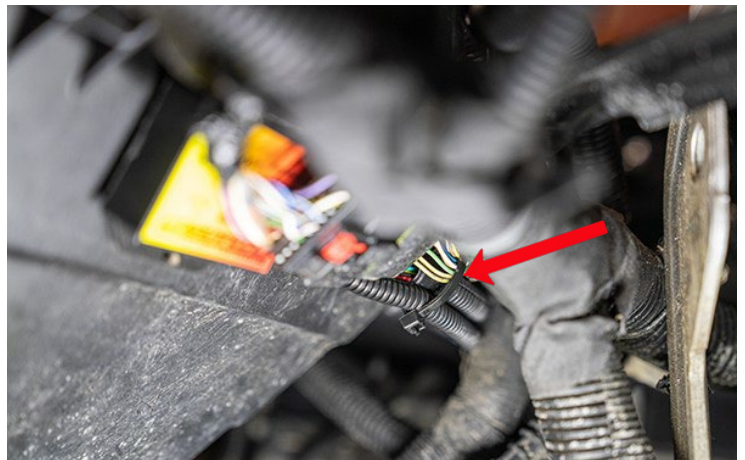
183. Install the MAP to the MAP Sensor with the included M6x25 bolt and washer. Be sure to use Loctite on the threads. **DO NOT OVER TIGHTEN**. Reinstall the factory airbox to the car.



184. Install Lingenfelter SCM-001 Module onto the bottom of the airbox through the left front wheel opening. Make sure you remove the red tape, so you expose the sticky part of the double-sided tape that is already on the back of the module.



185. Zip tie the harness to the SCM-001 Module to the vehicle harness and trim the ends as shown.

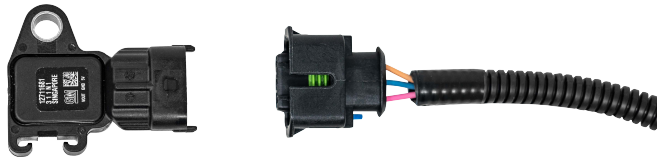


186. Plug in MAP Connector from SCM-001 harness to the MAP Sensor that was just installed on the airbox for Global B vehicles.



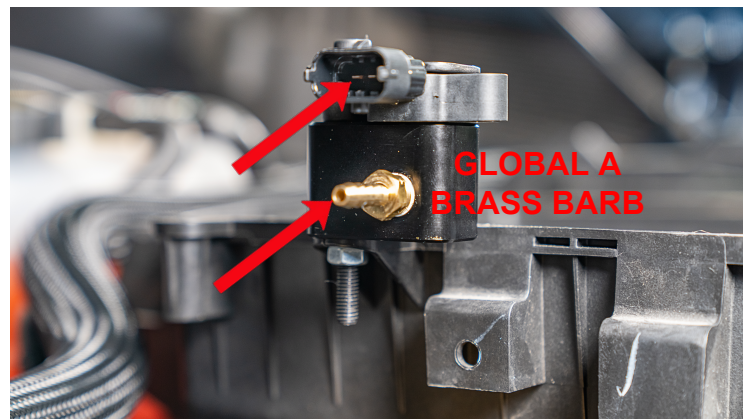
GLOBAL A VEHICLES

187. Plug in the IAT Connector from the Lingenfelter SCM-001 Sensor Control Module to the sensor on the front passenger side of the supercharger using the included GM MAP Sensor PN 12711681 shown below.



GLOBAL B VEHICLES

188. Plug in the IAT Sensor Connector from the Lingenfelter SCM-001 Sensor Control Module to the Factory MAP Sensor previously installed on the Lingenfelter Performance Engineering MAP Relocation Block. The GM MAP Sensor and MAP Sensor Relocation Vacuum Hose will not be used for Global B vehicles.



189. Plug the MAF Sensor Connector from the Lingenfelter SCM-001 Sensor Control Module to the connector between the vehicle harness and the MAF Sensor as shown in the photos.

NOTE The CAN Wire Connector on the Lingenfelter SCM-001 Sensor Control Module will not be used and should be capped off.

DO NOT REMOVE



189. Secure the SCM-001 Module harness to the vehicle harness using zip ties.



190. Install the Lingenfelter Performance Engineering Intake Air Temperature Relocation Harness to the MAP Sensor Harness as shown.



191. Rotate the alternator into the new idler bracket and insert the stock bolt.



192. Torque the two alternator bolts shown in the last step with arrows to 25 ft-lbs.



193. Rotate the alternator into the new idler bracket and insert the stock bolt.



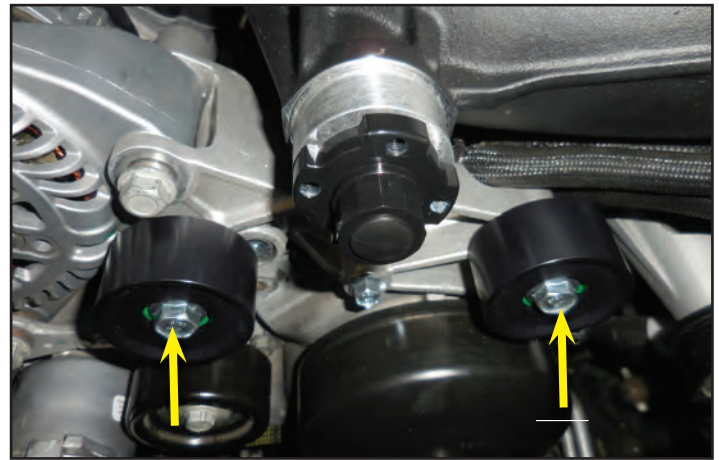
194. Torque the two alternator bolts shown in the last step with arrows to 25 ft-lbs.



195. Gather the two provided idler pulleys shown along with the two M10x30 mm bolts. Apply Loctite Blue 242 to the bolts. Ensure that the side with the bearing surface and clip shown below is facing towards the engine when installed.



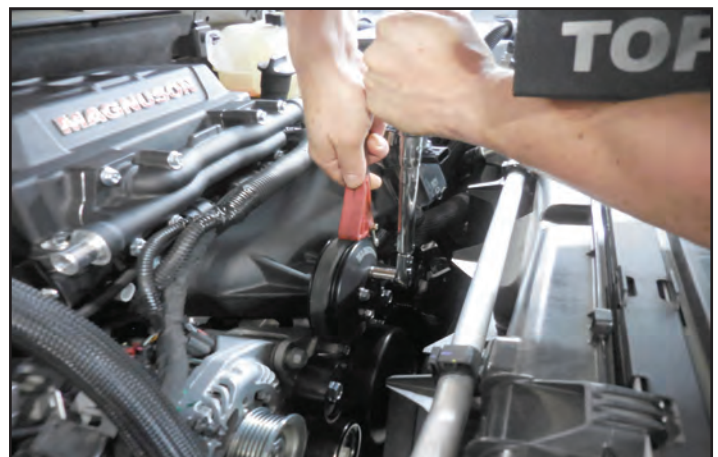
196. **Torque these two bolts to 25 ft-lbs** after installing the idlers at the arrow locations.



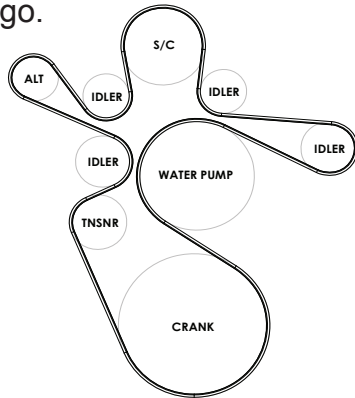
197. Gather the pulley and bolts shown. Apply Loctite Blue 242 to the four bolts as shown.



198. Use a strap wrench to hold the supercharger pulley in place while you **torque it to 108 in-lbs** using a 10mm socket wrench.



199. Install the belt following the diagram at the back of this manual. Connect a belt tensioner wrench or 1/2" breaker bar at the tensioner and rotate it counter-clockwise. The last pulley to place the belt over should be the smooth pulley that was installed on the right side three steps ago.



200. Remove the four supercharger lid bolts that are holding the two metal brackets that are securing the lift strap using a 12mm socket wrench. The 4 bolts will be reinstalled in the next step. **Save the strap and brackets in case you ever need to remove the supercharger.**



201. Apply Loctite Blue 242 to the 2 lid bolts from the last step. Reinstall the bolts in their original location and **torque them to 18 ft-lbs.**



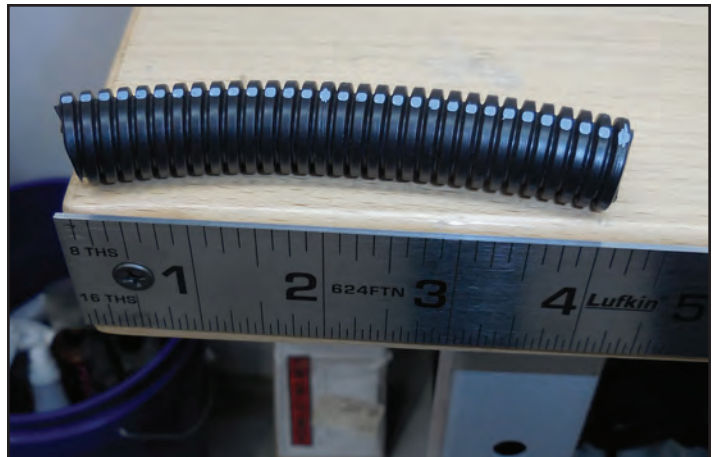
202. Reinstall the 4 rear coils in their original locations. Torque the 8 bolts to 108 in-lbs.



203. Reconnect the spark plug wires to the coils.



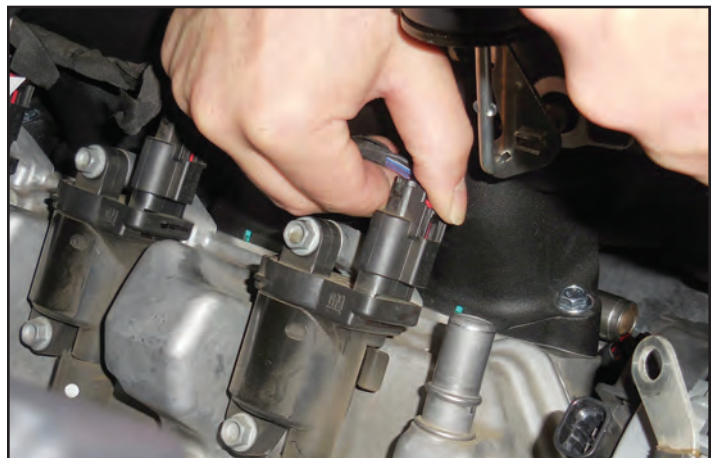
204. Cut the provided 3/4" slit loom to 4" long.



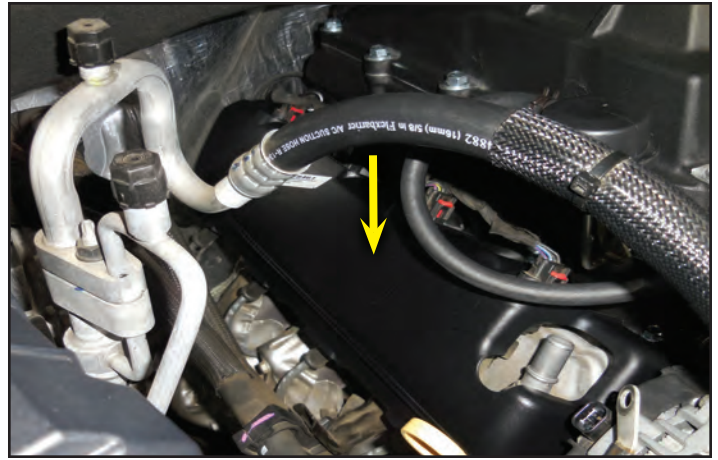
205. Install the slit loom from the last step (highlighted in green) over the wiring harness at the arrow location.



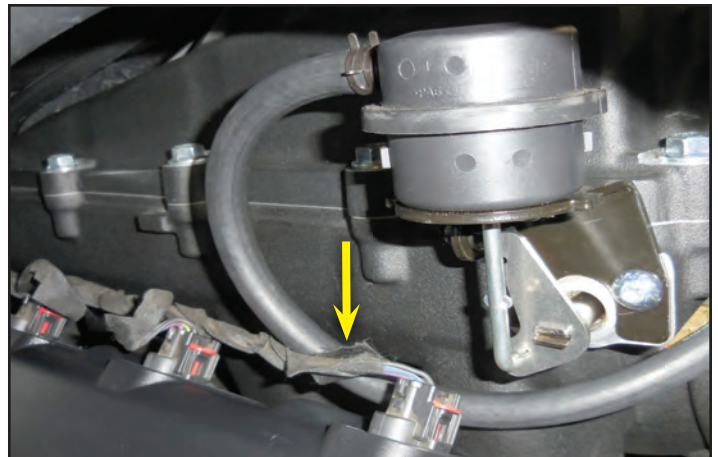
206. Plug in the electrical connections for all the coil packs on both sides.



207. Reinstall the coil covers on the passenger side.



208. Route the vacuum line for the supercharger bypass behind the wiring for the coils as shown at the arrow.



209. Mark the driver's side coil cover at the silver lines shown here. The area to be removed is highlighted in red.



210. Trim the driver's side coil cover at the lines that were made in the last step.

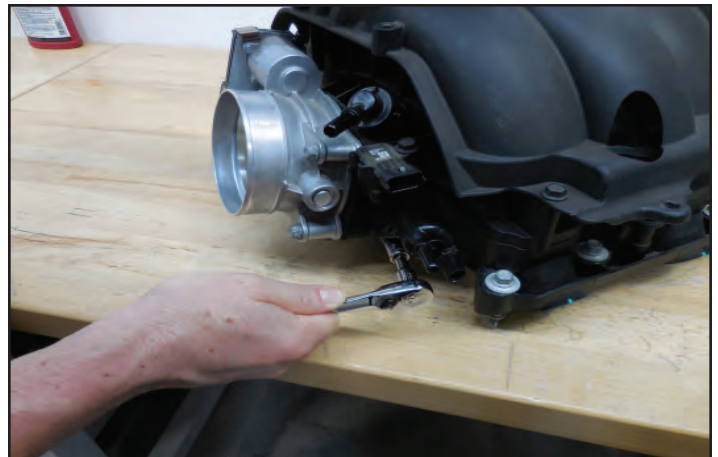


211. Reinstall the driver's side coil cover.



Section **10**: Throttle Body, EVAP Solenoid and PCV Hose Install

212. Remove the bolt holding the EVAP solenoid. Pull the EVAP solenoid out for installation in the supercharger. This bolt will not be reused.



213. Remove the four bolts holding the throttle body to the OEM manifold. You may be using your OEM throttle body depending on how your calibration is being handled. These bolts will not be reused. If you have a 5.3L engine you will need to purchase a throttle body (GM Part# 12678223) Or Lingenfelter Ported LT5 95 mm Throttle Body | GM Gen V V8 Applications (LPE # L270046914)



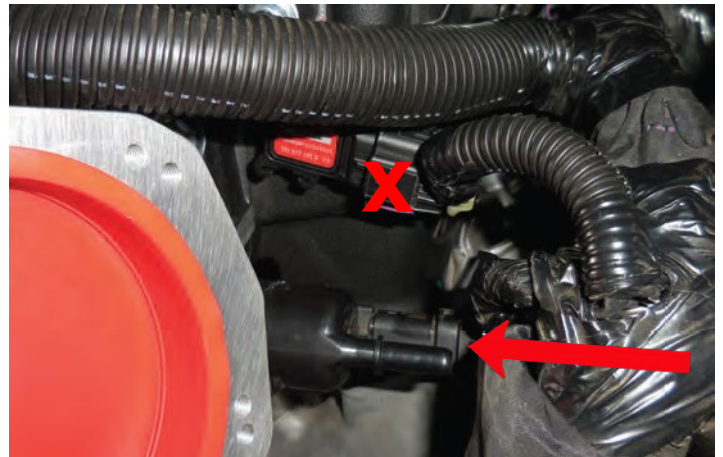
214. Gather the EVAP solenoid that you just removed and the provided M6x25mm bolt shown. Apply Loctite Blue 242 to the bolt prior to installation.



215. Install the EVAP solenoid in the location shown with the arrow using the provided M6x25mm bolt from the last step.



216. Plug in the electrical connection for the EVAP solenoid at the red arrow location for Global B vehicles. Ensure that you have secured the locking tabs on both fittings. Plug the factory engine harness into the MAP sensor at the red "X" location. For Global A vehicles, the factory MAP harness will plug into the factory MAP sensor mounted to the Lingenfelter Relocation Block.



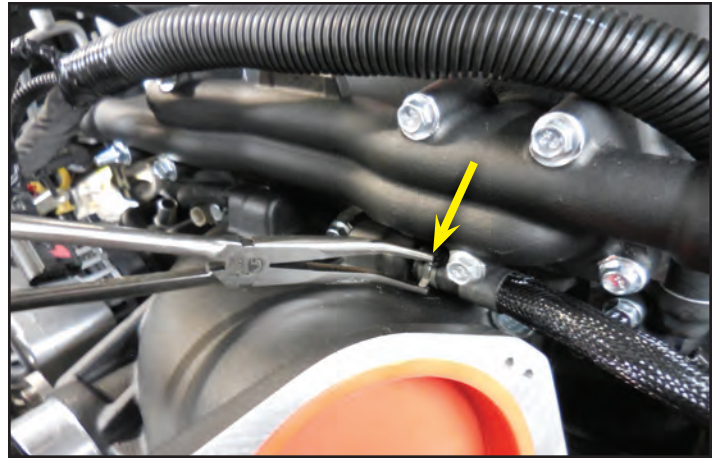
217. Gather the hose, fitting and Oetiker clamp shown.



218. Slide the Oetiker clamp on the hose followed by the fitting. Use the Oetiker clamp pliers to crimp the end of the clamp as shown.



219. Preinstall the provided spring clamp shown below on the side of the hose from the last step without the fitting and secure that end on the supercharger at the arrow location.



220. Install the fitting from the hose in the last step onto the driver's side valve cover at the arrow location. This hose will route over the EVAP solenoid, but under the main harness as shown.



221. Install the EVAP hose line at the arrow location.



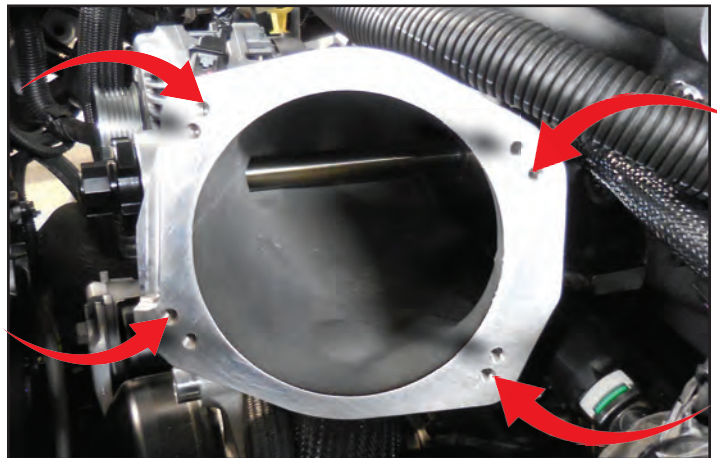
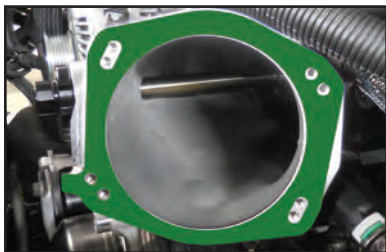
222. Remove the red cap at the supercharger inlet.



223. Remove the rubber adaptor from the end of the provided inlet duct.



224. Install the provided gasket oriented as shown below highlighted in green.



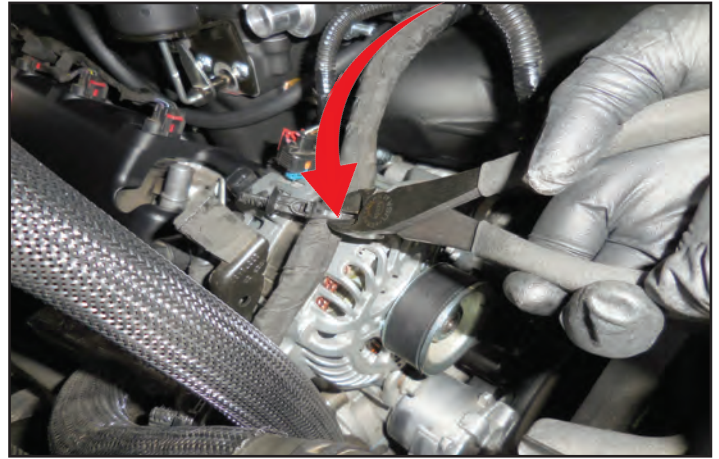
225. This photo shows the 95mm LT5 throttle body installed. **Apply Loctite Blue 242 to the ends of the provided M6x40 mm bolts as shown below.**



226. Torque the four M6x40 mm bolts in two stages with the final torque of 130 in-lbs



227. Cut the cable tie for the electrical harness shown at the arrow. It will not be reused.



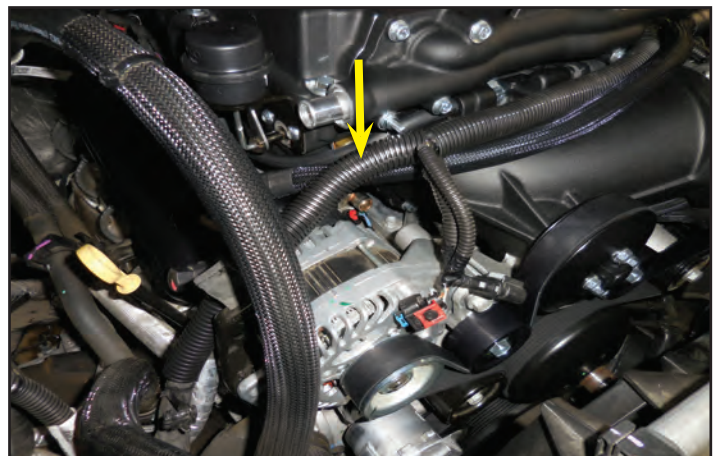
228. Install the power wire back onto the alternator and tighten the nut with a 17mm socket wrench.



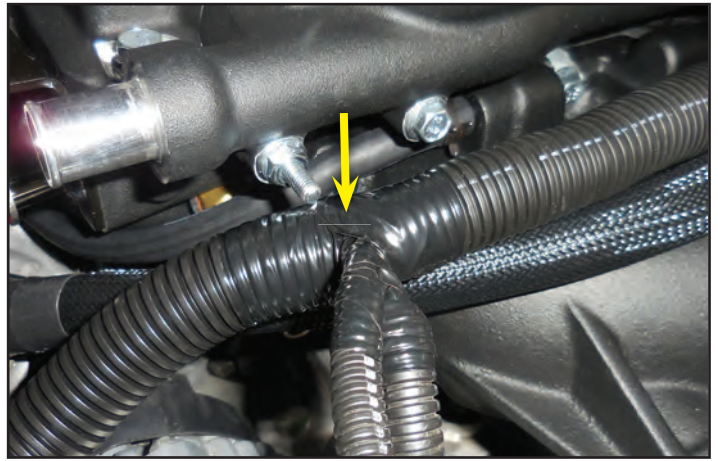
229. Unwrap the tape at the electrical harness junction shown.



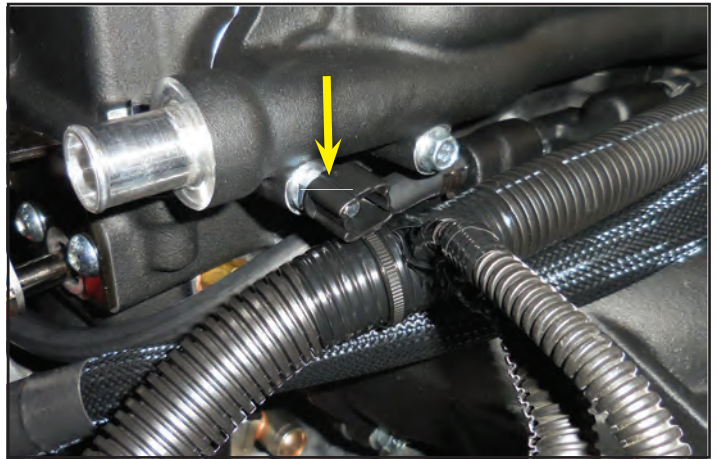
230. Cut 10 inches of 3/4" slit loom and install it at the arrow location.



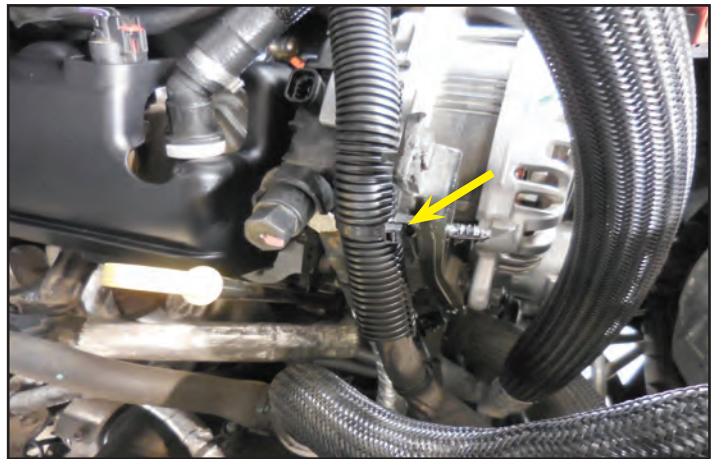
231. Re wrap the junction with electrical tape as shown.



232. Install the provided cable tie with the M6 thread connection at the arrow location. Make sure the tie wrap does not pinch the wires at the junction.



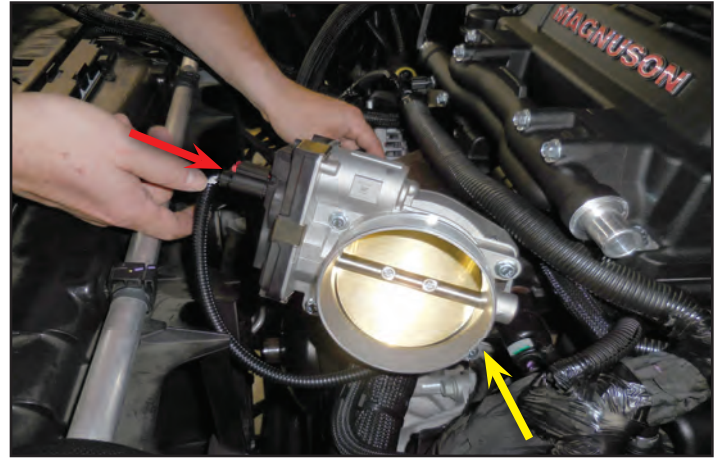
233. Install a provided tree style cable tie at the arrow location.



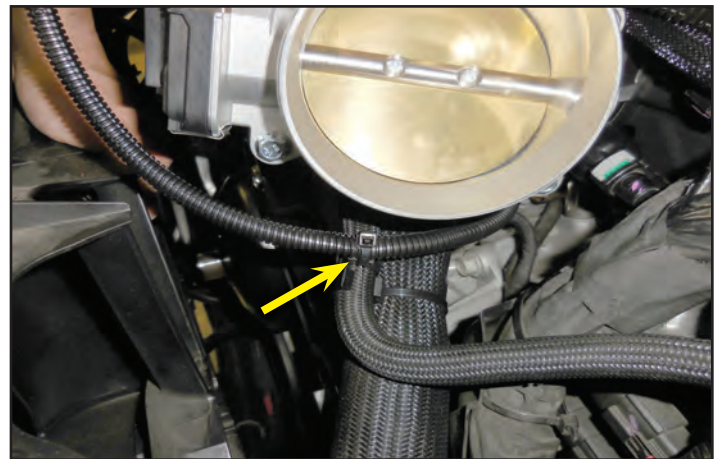
234. Plug in the electrical connection for the alternator and engage the lock.



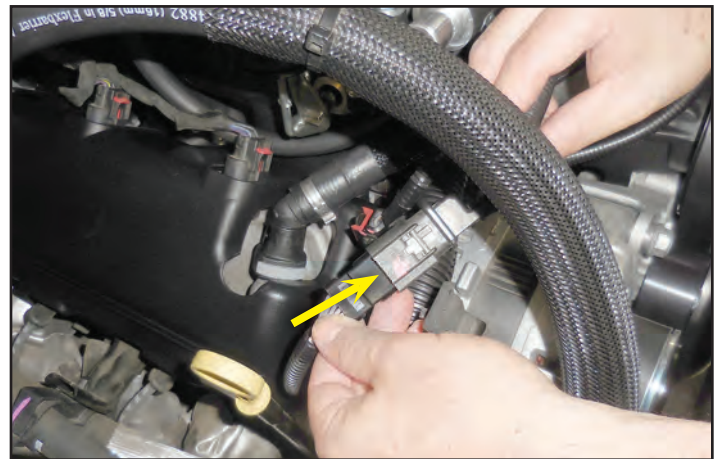
235. Gather the provided electronic throttle control (ETC) cable extension shown below. Route the cable end under the supercharger inlet at the yellow arrow. Plug it into the throttle body and engage the lock.



236. Remove the tabs from another cable tie clip shown below. Install the clip on the ETC cable and secure it to the arrow location.



237. Connect the ETC extension to the OEM plug and engage the lock.



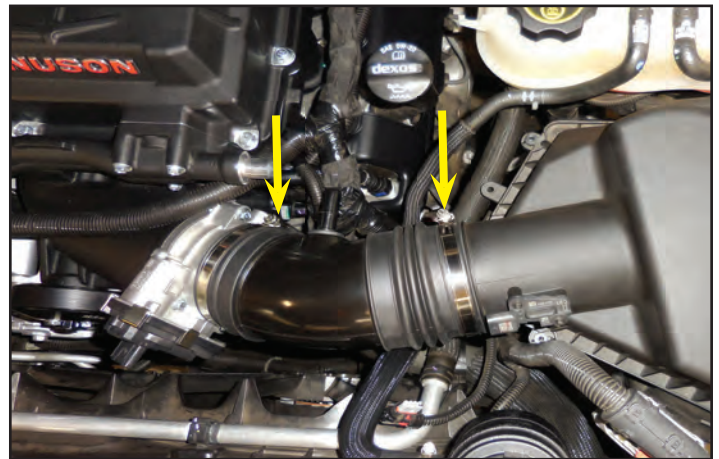
238. Remove the bolts holding the air filter lid with an 8mm nut driver. Inspect the filter and replace if necessary. The lid will remain loose for now to install the provided air inlet duct.



239. Gather the provided air inlet duct and the two hose clamps shown attached at the ends.



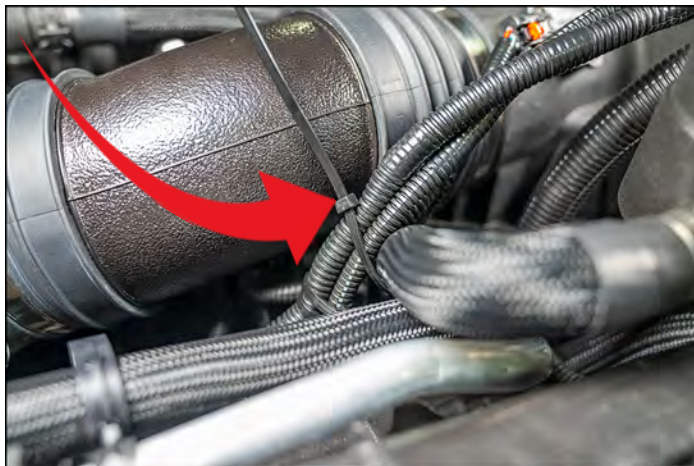
240. Install the air inlet duct between the throttle body and the airbox lid. Secure in place with the two hose clamps. Install first on the airbox lid and then lower the lid/duct assembly down, sliding the duct onto the throttle body. Secure upper air box lid to the lower air box lid.



241. Install the Lingenfelter Performance Engineering IAT/BARO Communication Harness to MAF sensor as shown.



242. Zip-tie the Lingenfelter Performance Engineering IAT/BARO Communication Harness as shown, then clip off the end.



243. Gather the OEM PCV hose shown and carefully remove the fitting shown. Ensure that you do not cut into the barbed fitting when cutting through the plastic hose.



244. Gather the hose assembly, fittings and Oetiker clamps shown. The fitting on the left was removed earlier from the OEM PCV hose. The other items are provided.



245. Install the provided 90 degree fitting oriented on the hose as shown and secure with Oetiker pliers.



246. This photo shows the final location for the fitting from the last step.



247. Secure the OEM 45 degree fitting on the opposite side as shown with another Oetiker clamp.



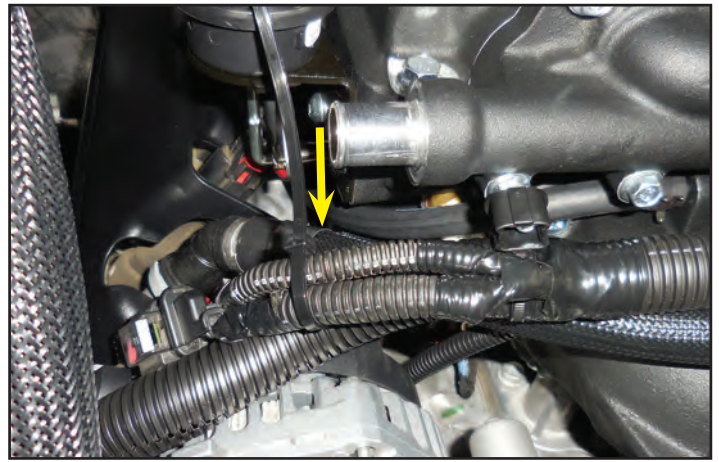
248. This photo shows the final orientation of both fittings from the past two steps.



249. Install the hose assembly from the last step at the two arrow locations on the passenger valve cover and the air inlet duct. Ensure that the connections engage fully with a click. Gently pull on the connections to verify they are locked.

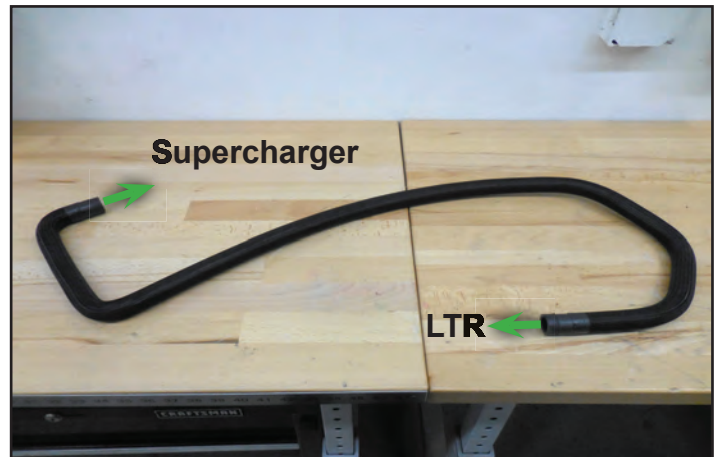


250. Secure the electrical harness to the PCV hose with a cable tie at the arrow location.



Section 11: PCV Hose Install Intercooler Hose Install

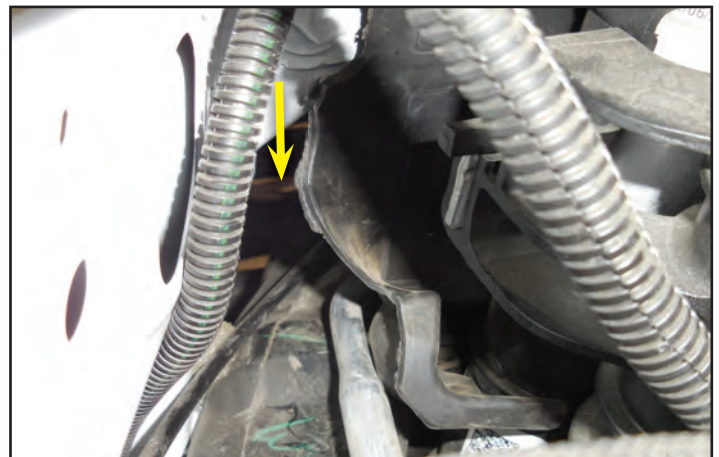
251. Gather the provided hose assembly. Ensure that the hose is connected as labeled here.



252. The hose from the last step will pass through the location shown with the arrow. There is a rubber shield that will be bent out of the way. A close up of this location is shown in the next step.



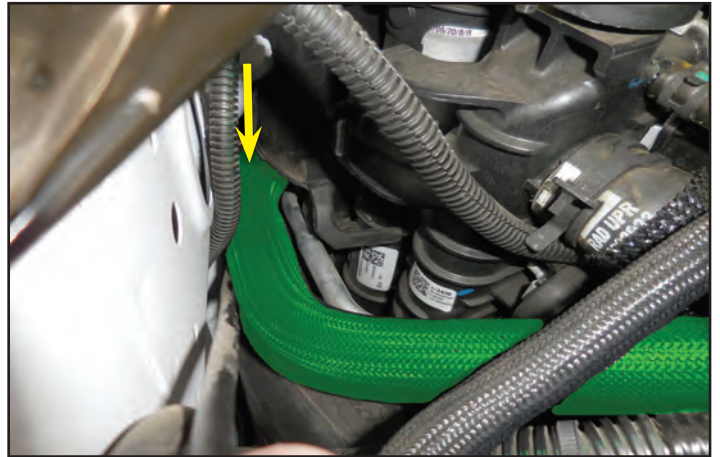
253. The arrow shows the area where the hose from two steps ago will pass through to the LTR.



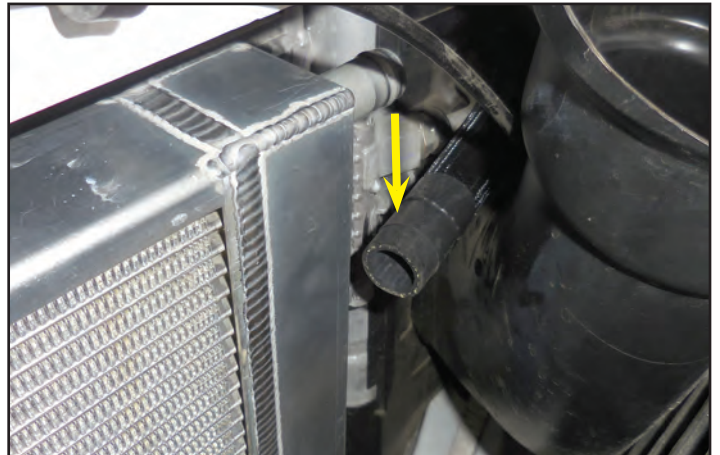
254. Route the hose from three steps ago as shown highlighted here.



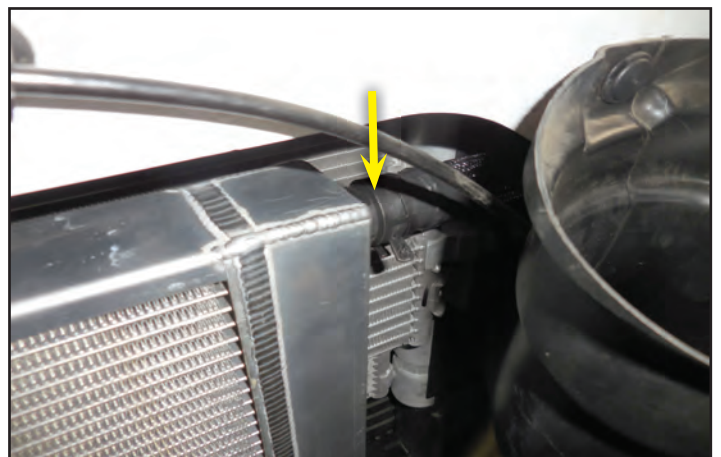
255. Here you can see the hose assembly from the last step being passed by the rubber shield.



256. After the hose passes through the rubber shield it will be seen through the front like this.



257. Attach the hose to the outlet pipe of the LTR at the arrow location with a provided spring clamp.



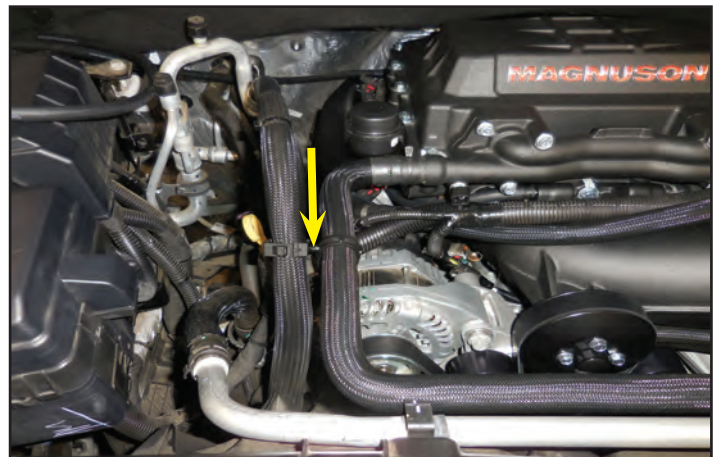
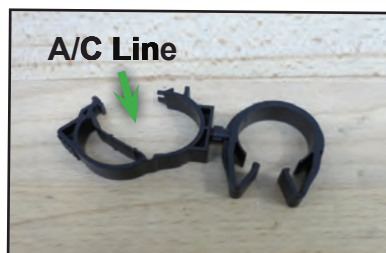
258. Attach the opposite end of the hose from the last step onto the inlet of the supercharger charge air cooler pipe at the arrow location.



259. Here is a close-up of the inlet pipe hose connection to the supercharger charge air cooler.



260. Gather the swivel hose connector shown below and install it at the arrow location.



261. Gather the two hose clips shown and install them at the arrow locations.



262. Gather the provided hose assembly.



263. Route the hose from the last step as shown here. This hose will go around the air box.



264. Install the hose from the last step at the supercharger charge air cooler outlet pipe with a provided hose clamp at the arrow location.



NOTE, If you do not have a top side creeper now is the time to install the Steps 106-114 for the Reservoir Bracket and tank.

265. Here is a top view of the hose routing highlighted in green.



266. Secure the opposite end of the hose to the reservoir with a worm gear clamp. A worm gear clamp is necessary for proper sealing at the reservoir.



267. Gather the two clamps shown below. They will be used to connect the hose from the last step to a wiring harness behind the air box at the arrow locations.



268. Here you can see the two clamps from the last step at the arrow locations.



269. Here is a view of the completed hose installation.



Section 12: Leak Test and Final Reassembly

270. It is highly recommended that you use a vacuum tool to bleed your coolant system. Follow the tool manufacture's directions for performing the bleeding process. Ensure that you use the same coolant mixture recommended by GM for the engine coolant in your intercooler system. Once the system has been filled and verified leak free, proceed to the next steps.



271. Remove the two bolts holding the LTR in place to allow the reinstall of the hood latch.



272. Reconnect the cable to the hood latch.



273. Plug in the electrical connector for the hood latch shown that is on the underside of the cross support for the radiator.



274. Align the hood latch using the pencil marks that you made earlier **and torque the original bolts to 108 in-lbs.**



275. Reconnect the two large diagonal braces shown here with a 15mm socket wrench. Torque the two upper bolts to 25 ft-lbs and hand tighten the two lower bolts (one is shown below with the arrow.)



276. Reconnect the two small diagonal braces as shown here. Sandwich the LTR behind the two braces, you may need to pull up on the LTR again to align them.



277. Torque the four bolts from the last step to 18 ft-lbs.



278. Reverse steps in section #2 for installing the radiator cover.



279. Ensure that you follow all the supplemental manuals for installing the boost-a-pump and any other items.



280. Install the programed ECM and plug in the three connectors.



281. Reconnect the battery.



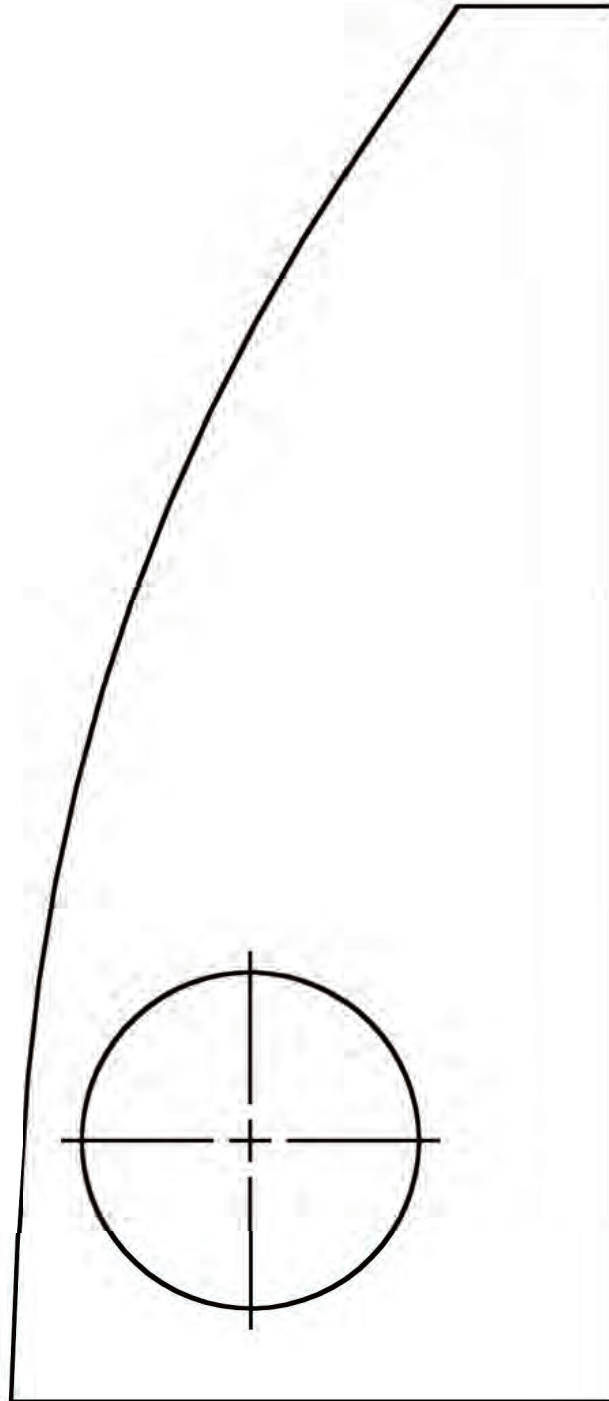
⚠️ VERY IMPORTANT Check your SUV coolant level every 200 miles for the first 600 miles and add more as needed. Your supercharger will require more coolant during this break in period.



IMPORTANT After you finish your installation and road test on your vehicle, please fill out the Magnuson Products Limited Parts Warranty Registration Form found at the bottom of the page on the Magnuson website here: magnusonsuperchargers.com/pages/warranty

NOTE Ensure that you follow all the supplemental manuals for installing the boost-a-pump and any other items.

INTERCOOLED SUPERCHARGER SYSTEM
2019+ Chevrolet & GMC Trucks
Magnum DI 5.3/6.2L
Template

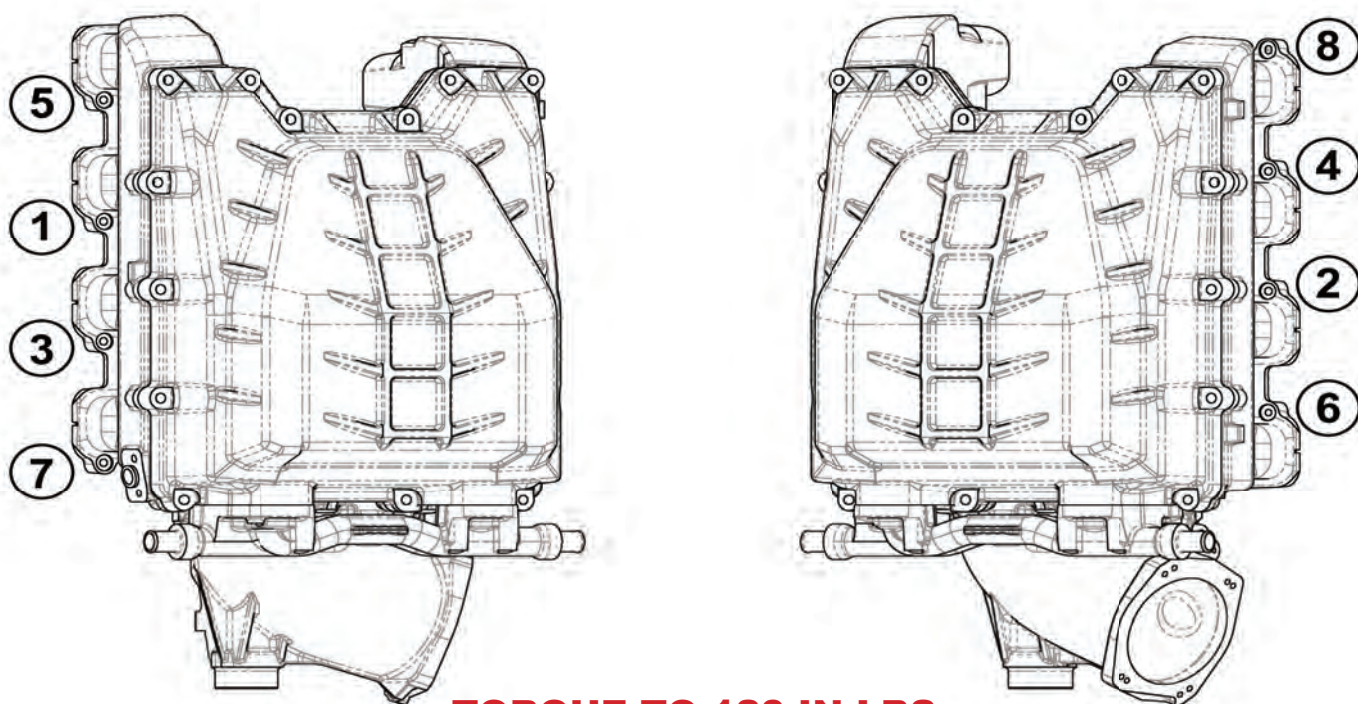


INTERCOOLED SUPERCHARGER SYSTEM

2019+ Chevrolet & GMC Trucks

Magnum DI 5.3/6.2L

Torque Sequence



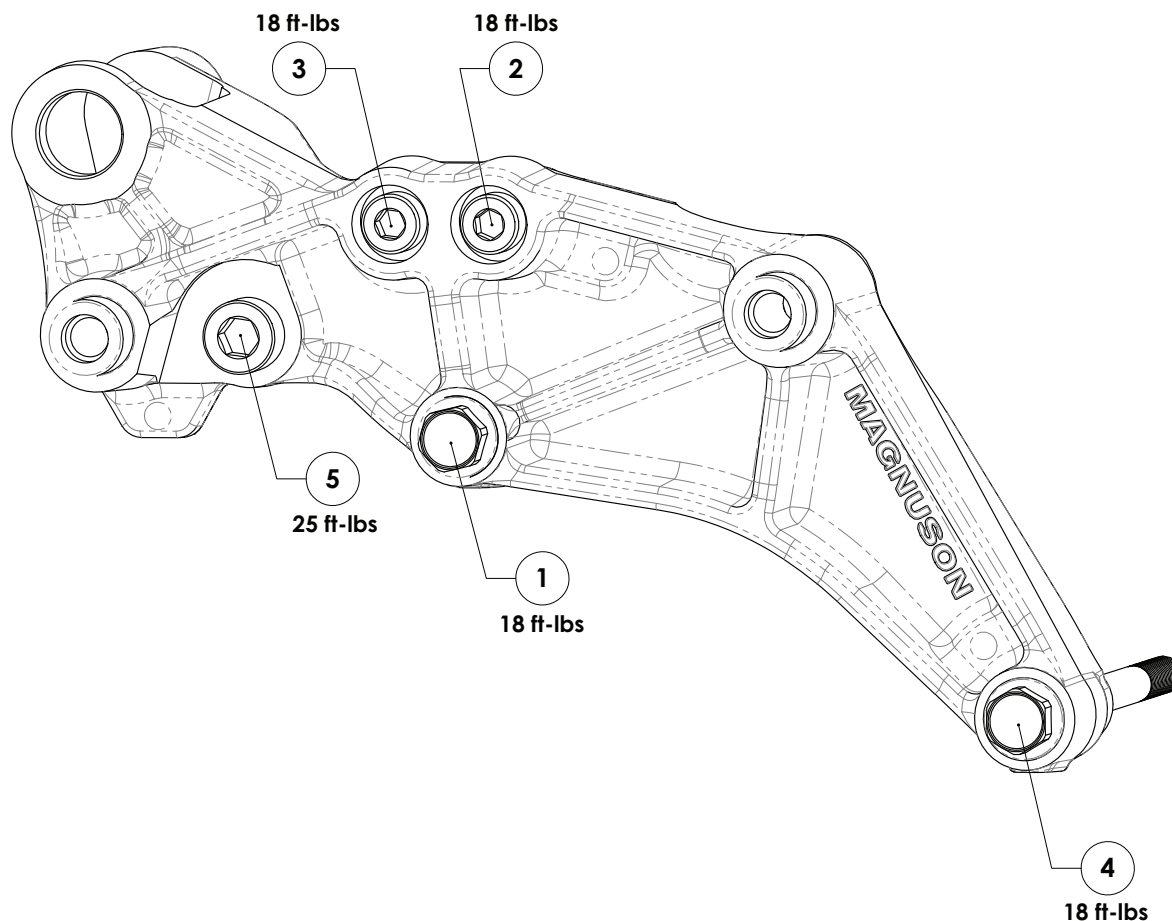
TORQUE TO 120 IN-LBS

INTERCOOLED SUPERCHARGER SYSTEM

2019+ Chevrolet & GMC Trucks

Magnum DI 5.3/6.2L

Idler Bracket Torque Sequence

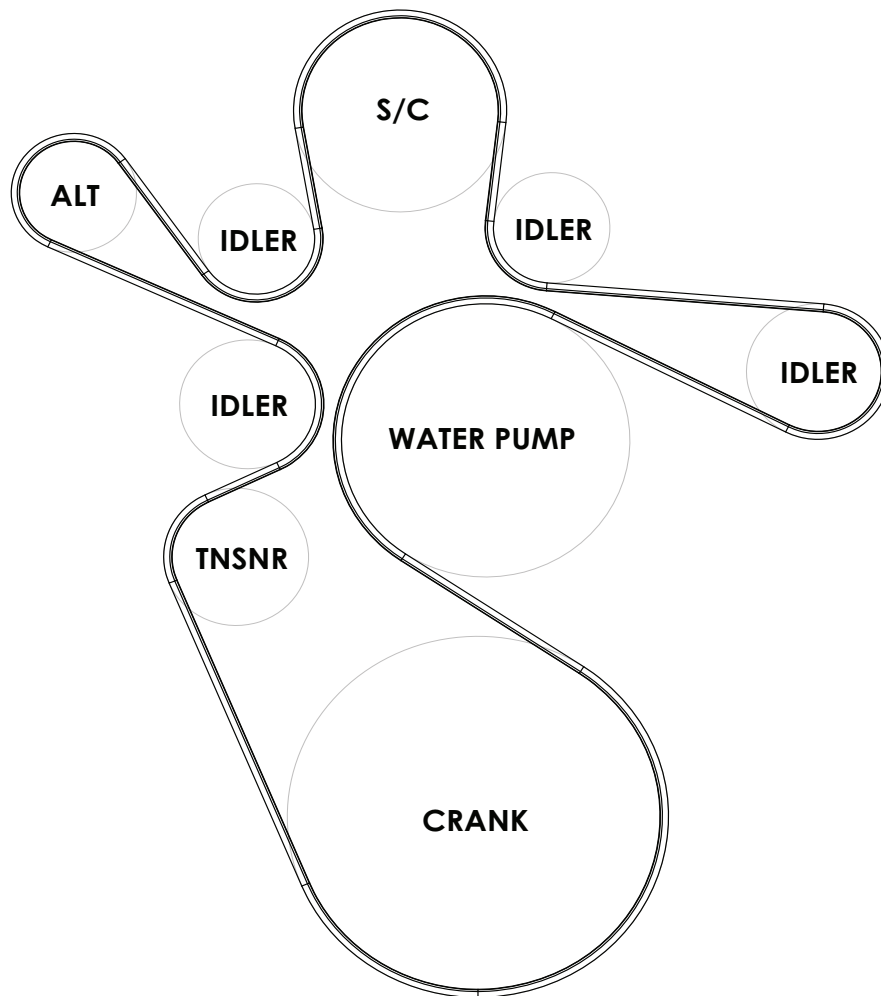


INTERCOOLED SUPERCHARGER SYSTEM

2019+ Chevrolet & GMC Trucks

Magnum DI 5.3/6.2L

Belt Routing- 5.3L/6.2L





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