4/1/2015

ADM PERFORMANCE

LSA SUPERCHARGER INSTALL GUIDE

ADM DIY LSA Supercharger Install Guide

To best utilize this guide, please take a few moments to review this guide before you begin. First review the following:

1. Review the parts list to verify you kit is the correct one and that all parts are accounted for
2. Review and verify you have the necessary tools to complete the installation of this kit successfully
3. Verify you have adequate ventilation as you will be working with fuel lines during this install
4. Take all precautions in avoiding contact with liquids such as fuel and coolant
5. Tag all connectors, lines, and note where they came from
6. Take pictures BEFORE you disassemble so you know where everything was and how it was connected.
7. Average time of install is usually one full weekend (Friday – Sunday).

Please note:

This kit does not come with a tune. You as the installer are responsible for locating a tuner. You must install a 'starting' tune before you start you engine for the first time. ADM cannot be held responsible if you chose not to install a starting tune first.

Caution must be taken whenever you relieve fuel pressure from the fuel system. You MUST relieve the fuel pressure from the system to avoid possible injury.

Altering the kit or components, improper fuel quality, tune, or install can and will damage you engine. ADM Performance recommends using 93 octane or 91 with Torco Accelerator if 93 is not available. If 91 octanes are only available, your tune MUST take that into account.

Some nominal, additional items may need to be purchased to finish the install (add a circuit, fuses, etc.)

NOTE: take ALL safety precautions when working with dangerous liquids (such as gas) to prevent sparks and avoid open flames. You assume all responsibility for safely installing this kit.

Pre Install

These steps are to be performed first before starting any disassembly (this should be done with the engine cold)

- ☐ Before disconnecting the battery, open your driver's door so the window lowers:

- ☐ To disconnect battery in the trunk, use a 10 MM Socket with ratchet and loosen then remove the negative (-) battery cable from the terminal:

- ☐ Remove the gas cap to relieve pressure:

Uninstall

- ☐ Open hood and remove the Beauty Cover (if installed) and the Air Intake from Throttle body (you may also remove your air intake if its stock as you will need a ZL1 or compatible air intake) – Since there are many different types, it is necessary to make sure all tubes going to the throttle body are removed. At this point you may remove the throttle body as it will be reused with the kit (seal the openings of the throttle body with painters tape to prevent any materials from entering) and also cover the intake manifold opening to prevent objects from entering:

- ☐ To release fuel pressure from fuel injector rail, use a shop towel to capture all release fuel – use proper safety measures:
  Remove cap and relieve pressure – use a shop towel and proper safety measures:


Unclip fuel line
retainer clip on the
driver's side


Use 3/8" fuel line disconnect tool to remove fuel line (requires a retty good tug/pull)
Have a rag ready to catch the fuel that spills out

- ☐ Unbolt fuel line from intake:

- ☐ Remove fuel line from hard line near passenger side (use a shop towel to trap any spillage and use all safety precautions). You will not be reusing the hose, but will reuse the clips so save them aside. Cover the open fuel hard-line to prevent any fuel from leaking:

- ☐ Remove the rear beauty cover hold-down bracket if installed :

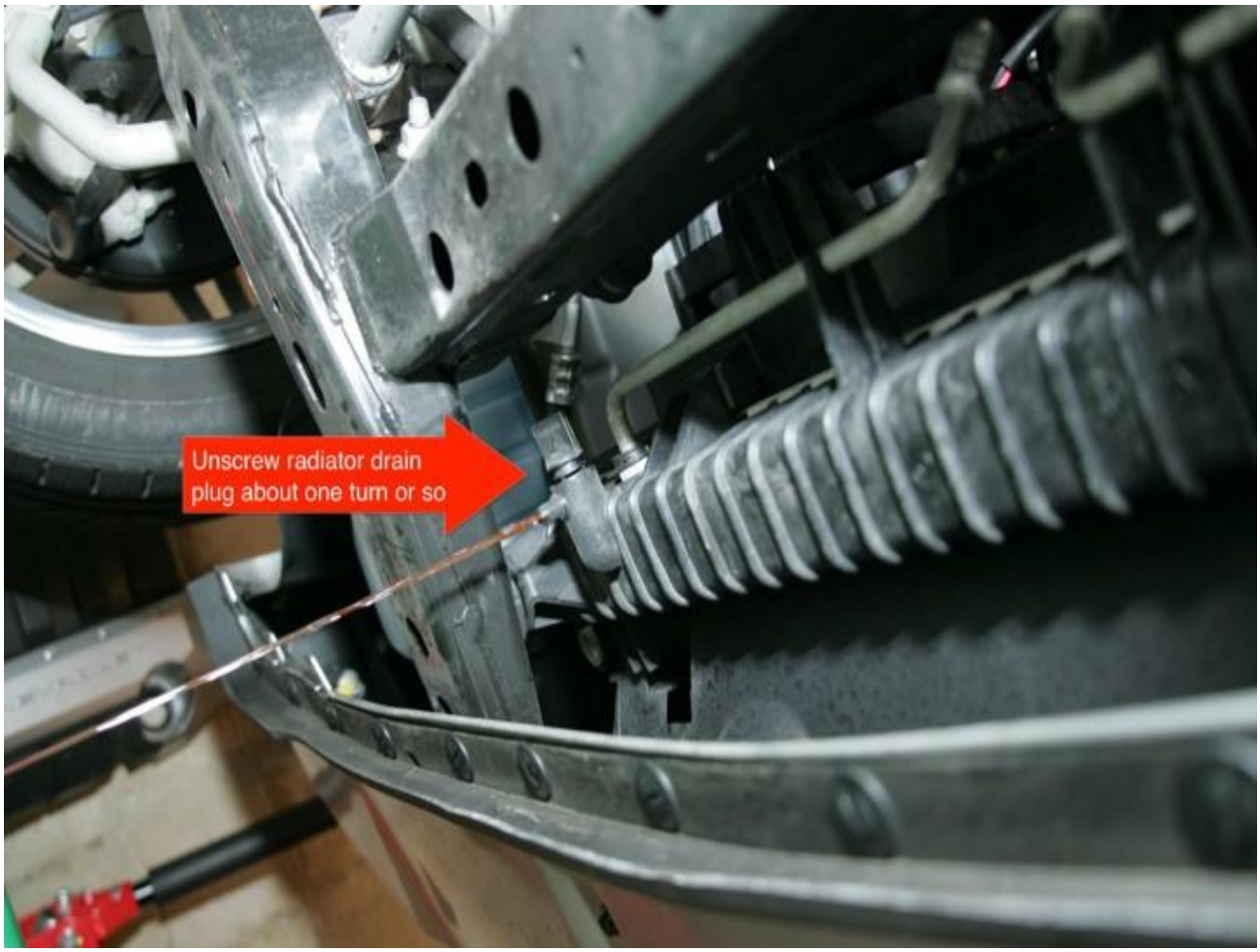
- ☐ Remove MAP and PVC lines from valve covers (drivers, passenger) and intake (front) – LS3 is different :

LS3:


MISSION FUEL
017 EPA Part 1060
MADE IN USA

☐ Remove the EVAP line and connector (marking the connector as you'll need to extend the wire) from the EVAP solenoid:

- ☐ Raise front of car to gain access for draining coolant from radiator (remove radiator cap to assist coolant drain):


Unscrew radiator drain
plug about one turn or so

☐ After the radiator is fully drained; you can now proceed in removing the intake, radiator fans, and radiator hoses and associated connectors:

First, remove the plugs on the injectors. These need to be removed in order to remove the intake:

Note that each connector should be marked to assist in re-assembly later.

- ☐ Disconnect the oil sending unit in the rear:

☐ Disconnect the MAP sensor and mark the connector. We will need to extend the wiring on this for the super charger:

☐ Disconnect the upper radiator hoses and steam line:

☐ Disconnect and remove radiator fans:

Removing the radiator fans should give you enough room to pin the crank. Be sure to plug the transmission lines!

☐ Unbolt the intake manifold – you will also need to remove the booster hose from the brake booster. For L99s, the rear can get caught so make sure there is clearance. LS3 have a hose connected to the rear so you will need to remove it and install it in the Supercharge manifold later:

L99 (no hose):

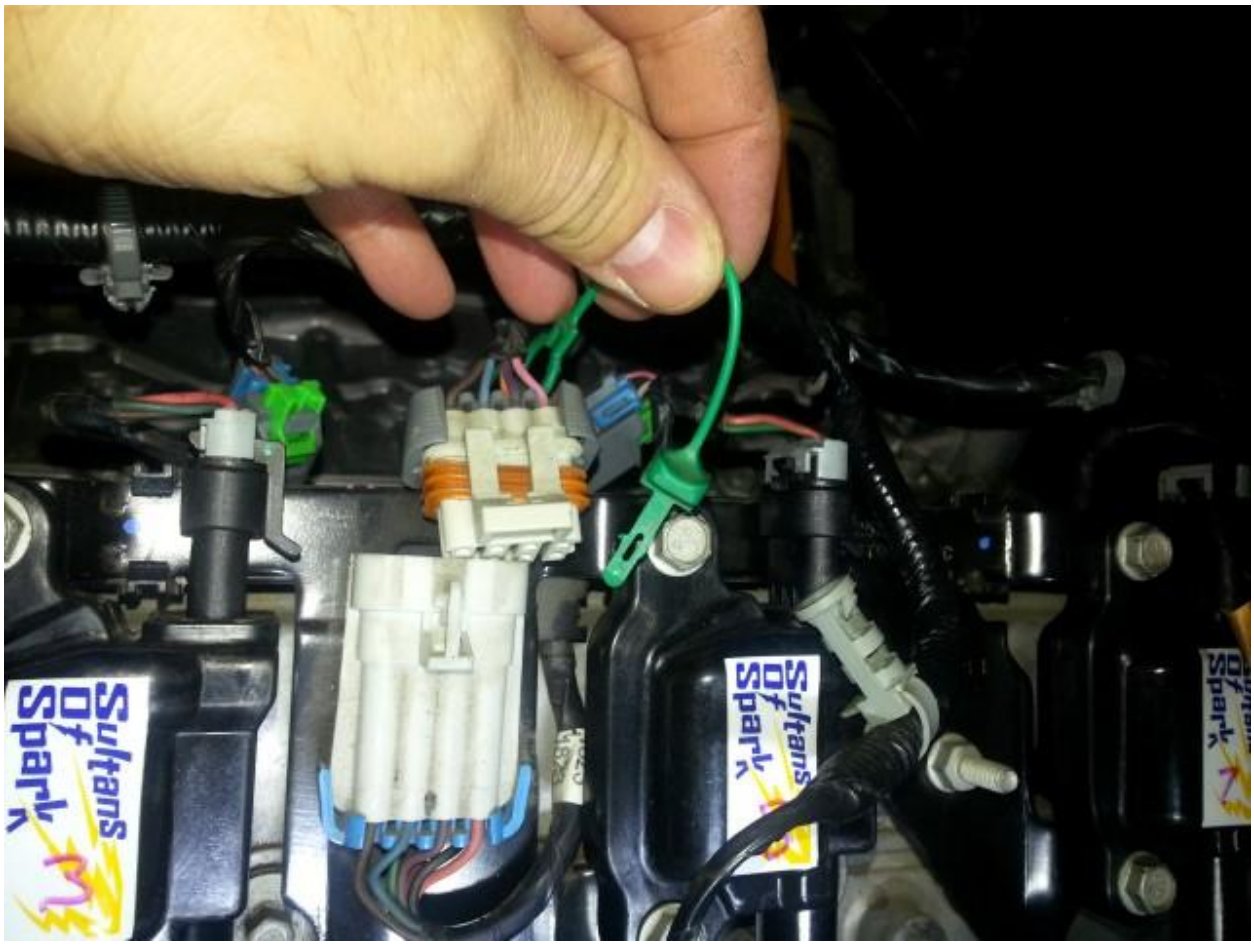
The L99 has a brake booster connector that you will also need to remove and mark the connector for re-assembly. The booster hose from the manifold is NOT re-used.

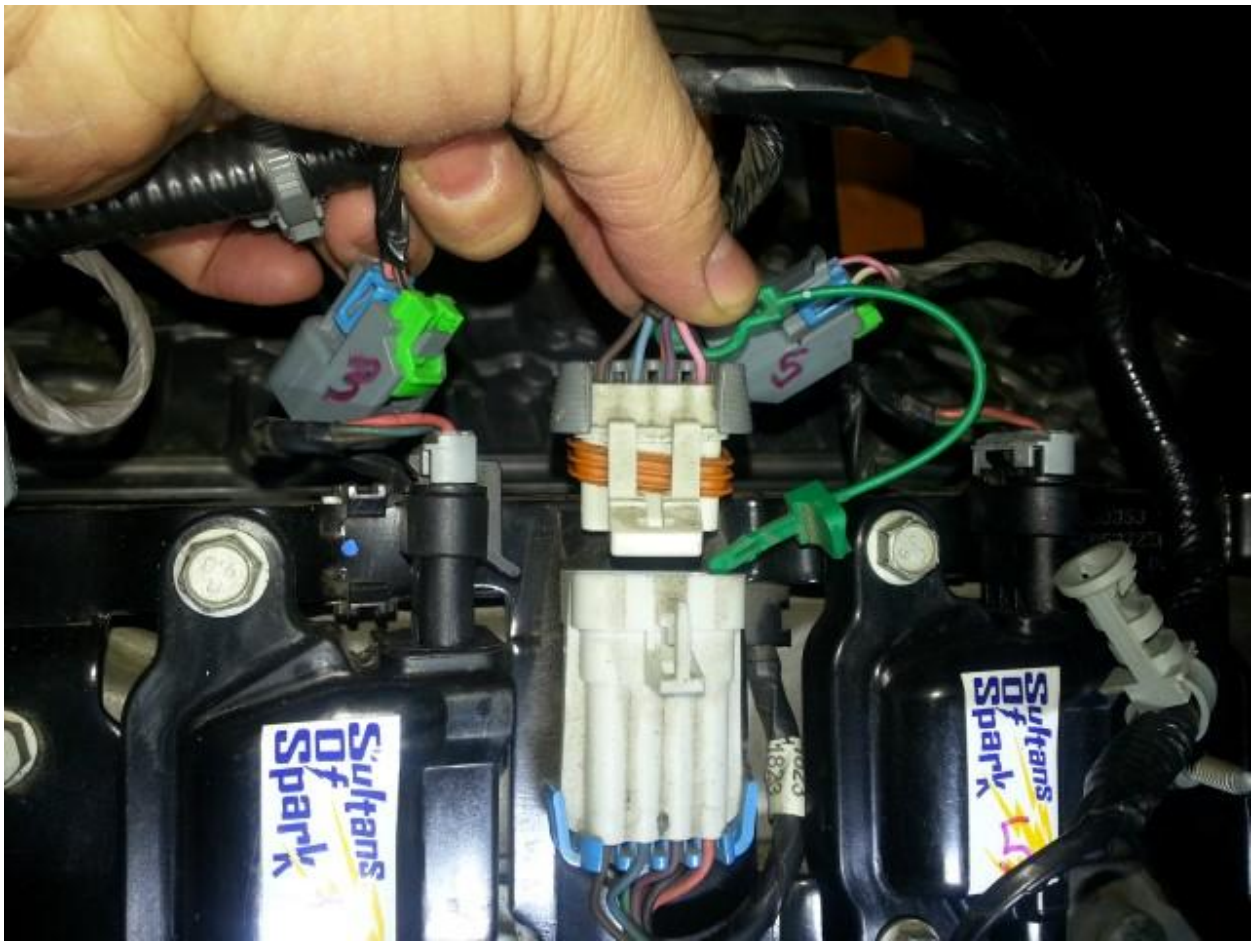
☐ With all the intake bolts loosened all the way, the fuel lines removed, vacuum hoses removed, injector connectors removed, lift the intake and set aside. Be careful and do not let dirt fall into the opening of the head:

☐ Once the intake is off, sweep and then clean the intake openings and tape them – don't allow dirt to fall into the intake openings:

You can also remove the throttle-body from the intake if you have not done so – you will reuse this on the supercharger.

☐ Now, disconnect the coils – mark each connector. You will unbolt and remove the coils to 'drill' them in order to give more room to the injector connectors in the supercharger (main coil pack disconnected is the only connector to remove:




3
5
Sultans Of Sparks
Sultans Of Sparks

Unbolt coil packs and then drill the holes so you can ‘lower’ the coil packs for installation:

Note the bolt is ‘raised’ from the original location. You’ll need to drill just above the existing hole:

☐ L99 will want the DOD delete and LS3 valley cover. This is optional – the details below assume dod delete:

Unhook the connector for DOD delete (tap up connector as it will not be reused), loosen the oil pressure switch (tape up the connector):

DOD valley cover removed (L99 only):

New valley cover with oil sending unit installed and bolted:

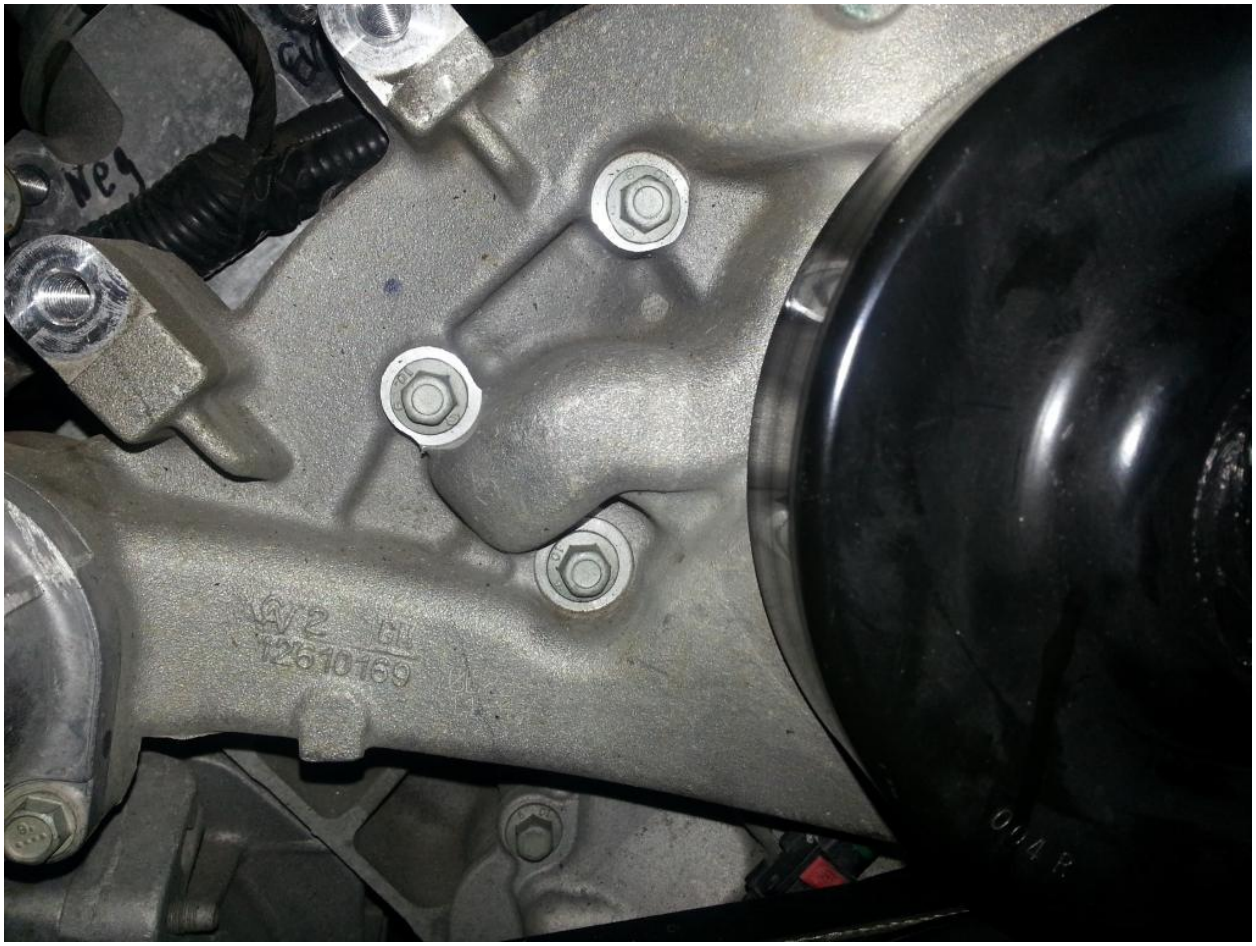
Valley cover bolts are torque to 18 ft. lbs., oil sender is 15 ft. lbs.

☐ Remove the insulation that is behind the intake manifold. The ZL1 does NOT have it and you will need it removed in order to have ample room to install the Supercharger lid (3 plastic nuts hold the insulation on):

☐ Remove the serpentine belt, tensioner and EVAP solenoid (make sure you've marked the EVAP connector for later wiring):

EVAP:

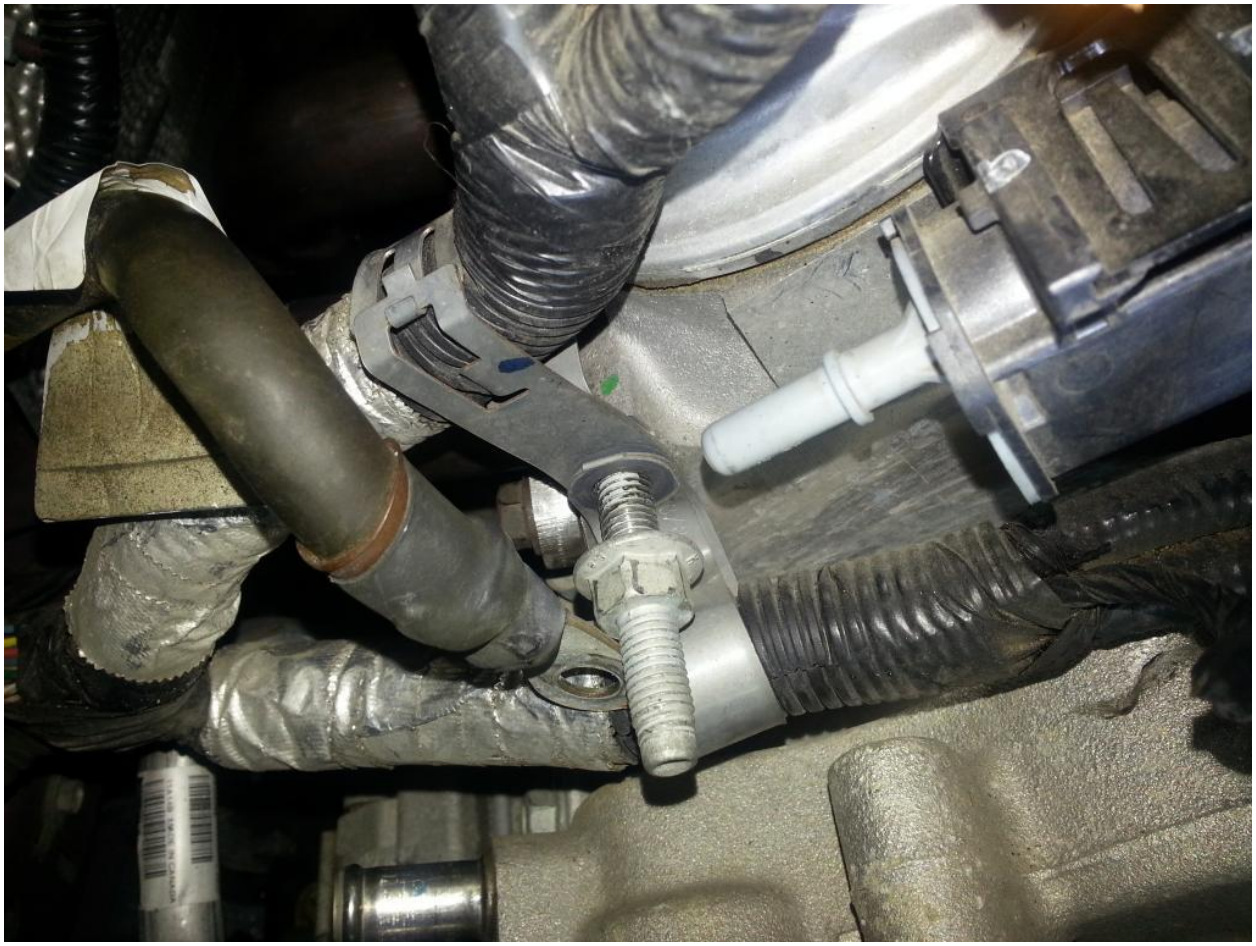
Tensioner and belt removed:



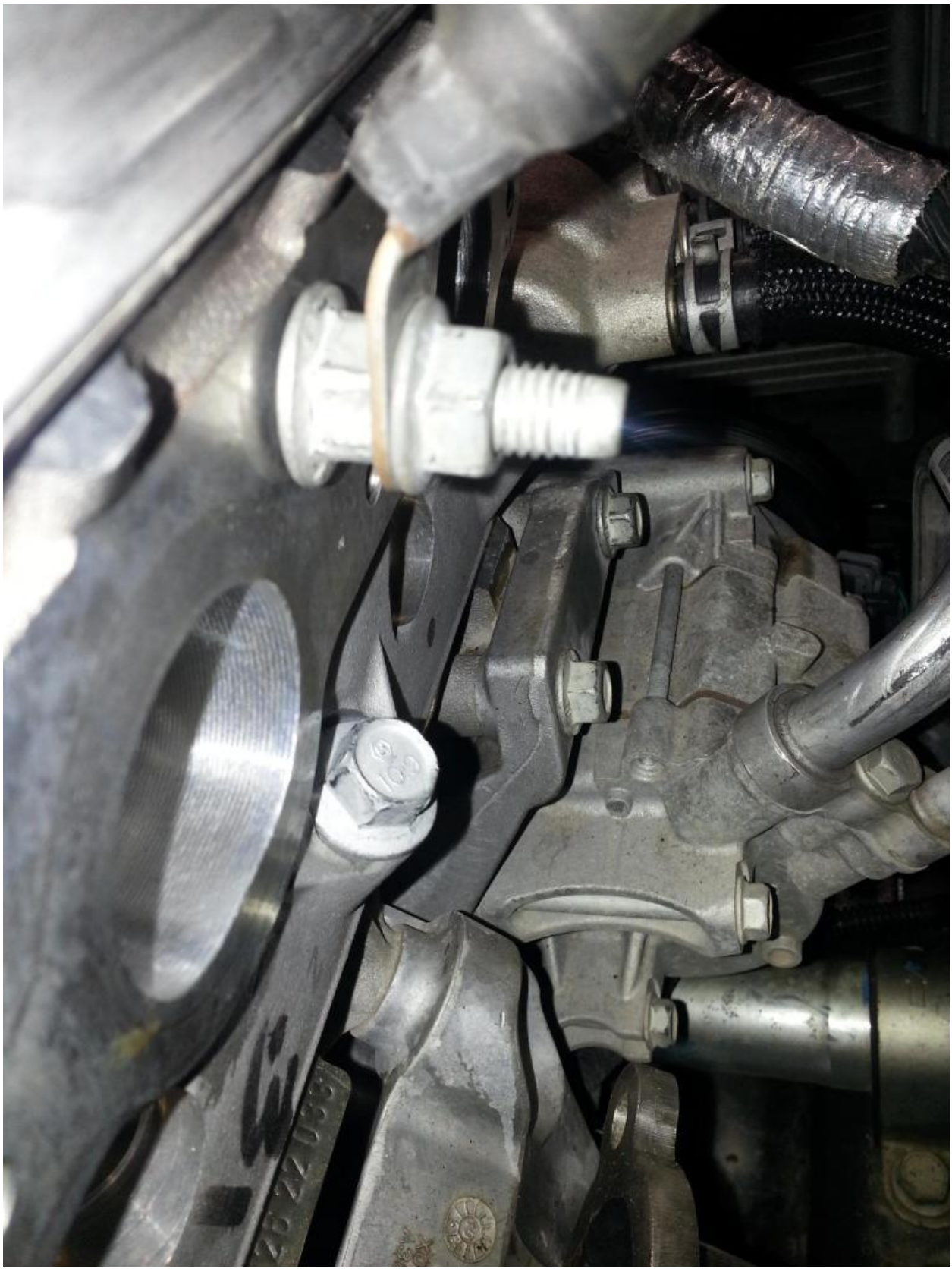
☐ Early model Camaros (10, and 11) that have the heater hoses going over the intake will want to consider the heater hose relocation kit, otherwise, it will be necessary to reroute the hoses:

☐ A 160* thermostat can also be installed at this time (recommended, but not required) re-install the heater hoses @ this time if you relocated the heater hoses:

☐ Relocate the ground from the ‘front’ of the head to the location on the ‘passenger’s’ side of the head (it will be necessary to shorten the bolt – using a nut and a hacksaw, trim the bolt length by about 3 to 4 threads):



Header removed for clarity:



☐ While the coils are off, this would be the right time to install the new Spark plugs. These should be the correct ‘range’ for running the supercharger (8 total) NOTE: these do NOT require anti-seize. Torque to 15 ft lbs:

☐ With the front of the engine cleared, you can now pin the crank – follow the directions that come with the pinning kit. It is best to use a 'cutting' oil (wd-40 works) and drill slowly and, using compressed air and a rag, clear the metal shavings often:

Pinning kit (has instructions):

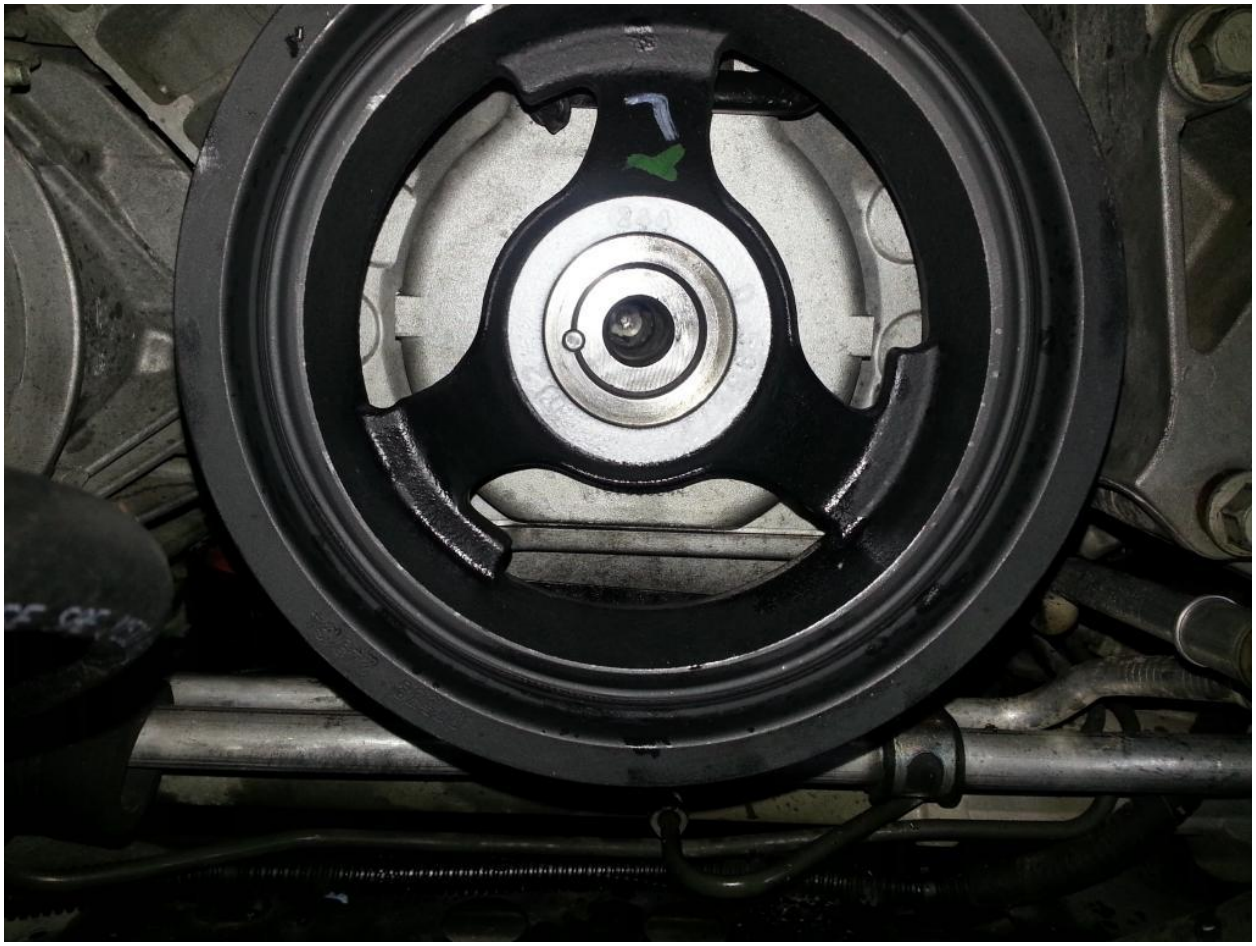
Pin punch (you'll need to supply):


STANLEY
BOSTITCH
3/16 " (5mm)

Ready to pin:

Hole drilled:

Pin installed:



Bolted per pinning instructions (use red loctite on bolt threads) each car is different so verify the steps the proper torque steps and sequence:

Supercharger Installation

☐ Depending on where you purchased the lower supercharger manifold, it may be necessary to remove the ‘locating’ pin – grid or machine off as required:

☐ If necessary, remove any ‘existing’ rivets from the manifold:

Measure depth of the provided rivets:

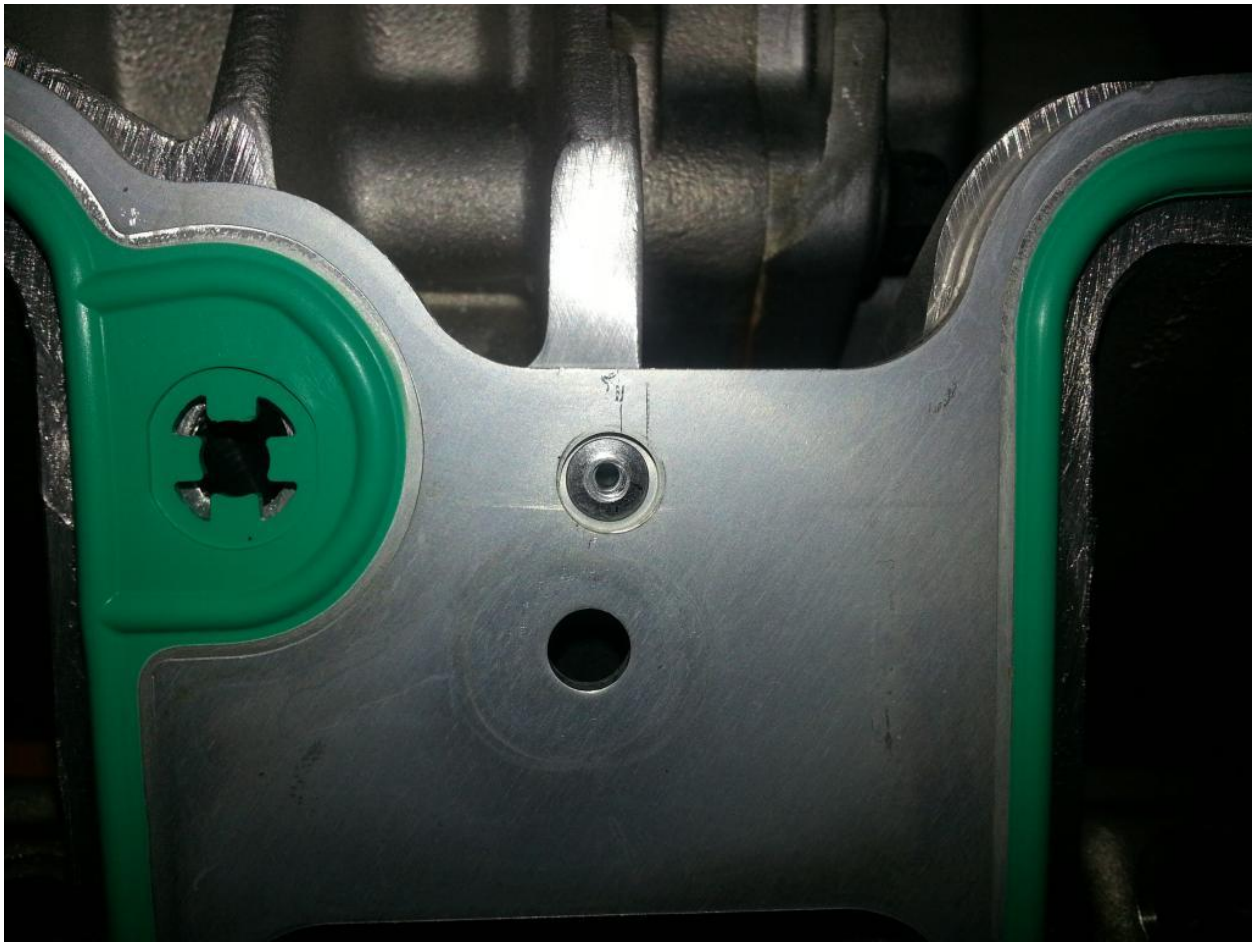
Drill out slowly and carefully:

☐ Now, looking @ the intake gaskets, they go on one way. Look @ the 'recess' in the gasket. This is the 'head' side. This will face 'outward' so the rivet will 'seat' when you pull it down. The back gasket is the 'intake' side:

Other side:

Place the rivets in the gaskets and set on manifold:

Make sure everything is centered up correctly (bolt holes) and rivet the NON-ELONGATED rivet first:



Then the ELONGAGED one:

Follow the same procedure on the other side.

☐ If your kit has injectors, you'll need to install them. You can re-use your injector clips from your existing manifold or purchase new ones (they are expensive) for a ZL1. Setup the fuel rail and prepare the injectors for installation:


stock ZL1
102- 12- IN

Place each injector in its location – note the orientation of the injector:


MICROFLEX
THE MOST TRUSTED NAME IN GLOVES


MOND GRI
MICR FLEX

All injectors installed – awaiting clips:

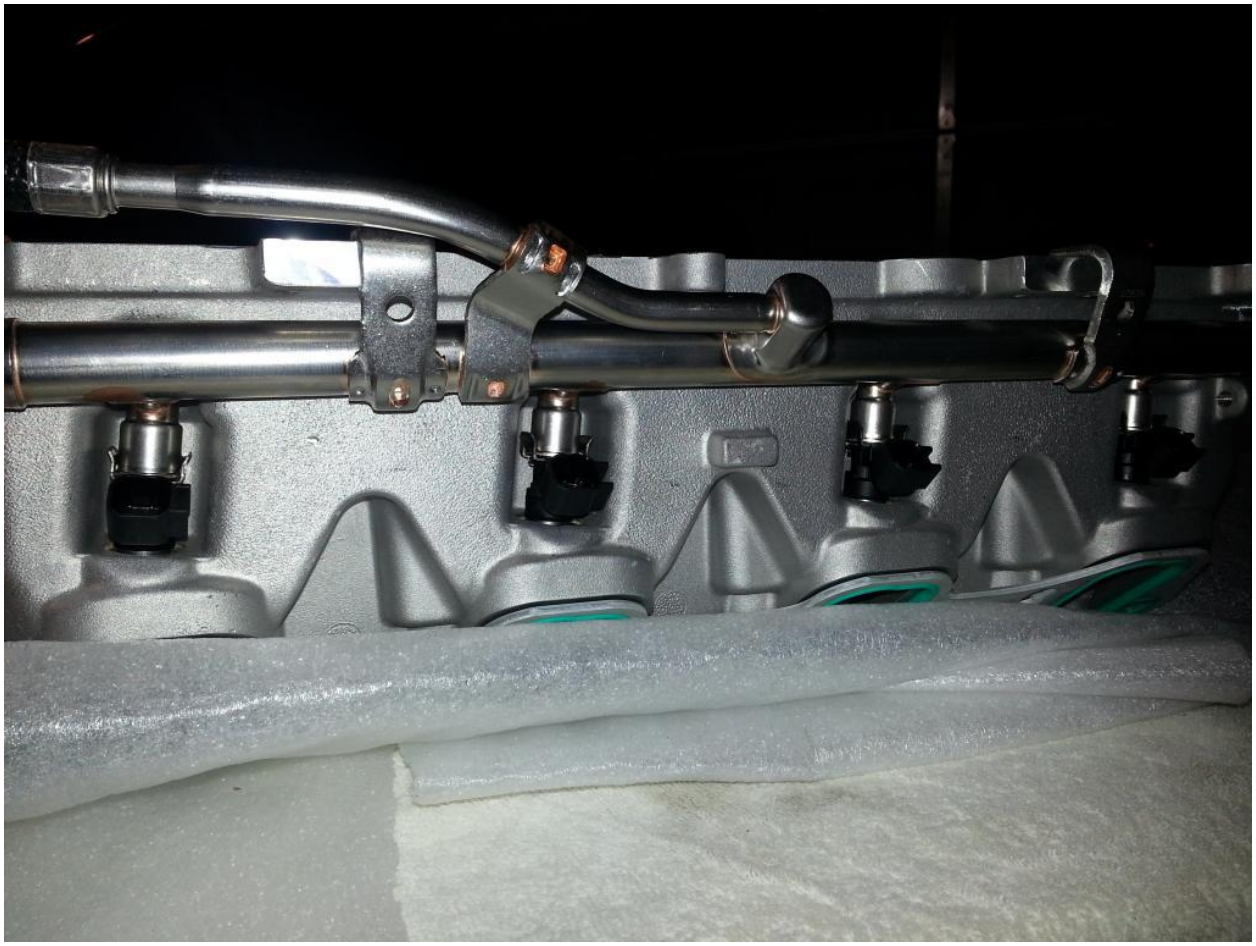
Clips:


MICR

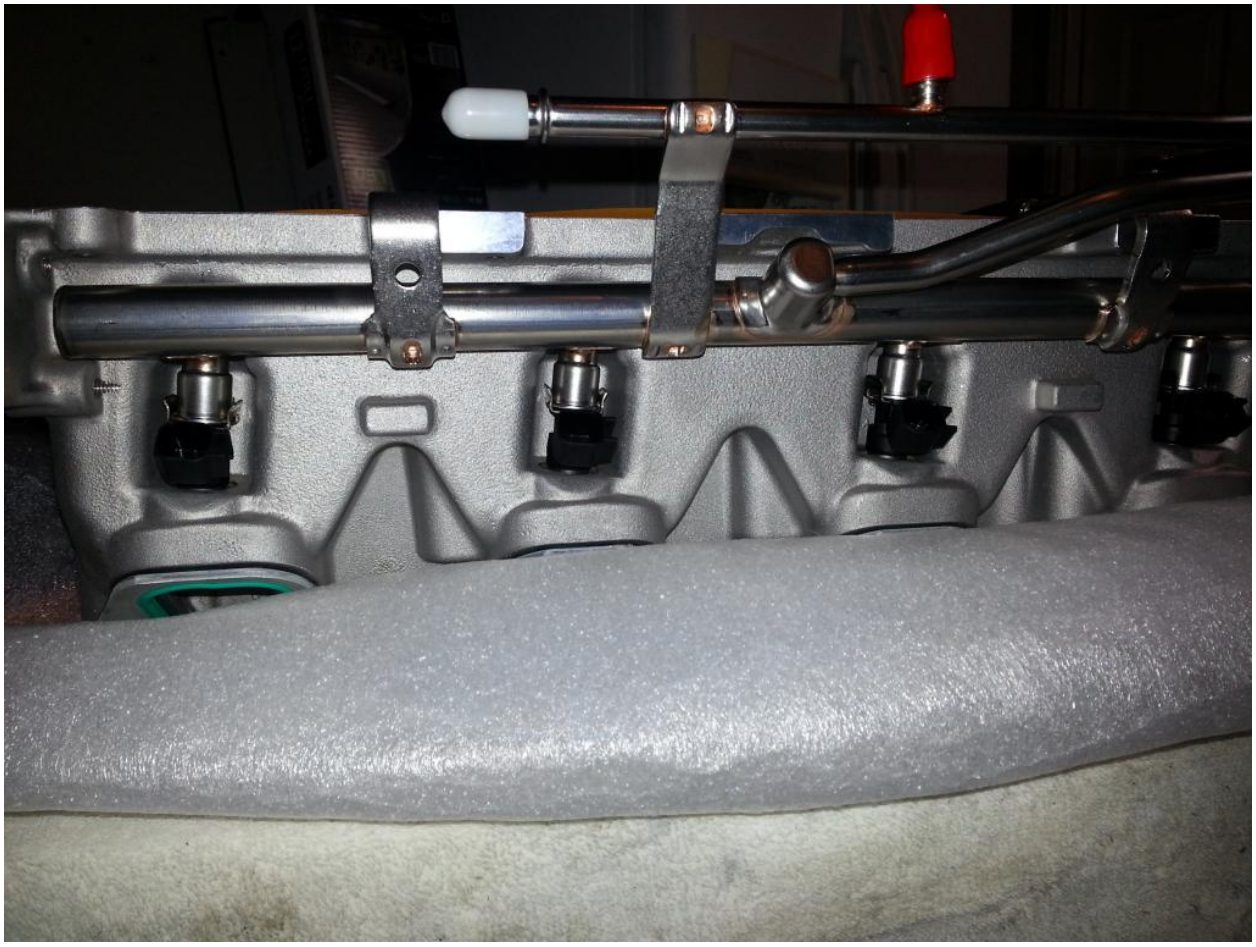
Ready for installing on the manifold:

Installation requires you do the 'drivers' side injectors first to allow for the passenger's side to fit:

Driver’s side:



Passenger’s side:



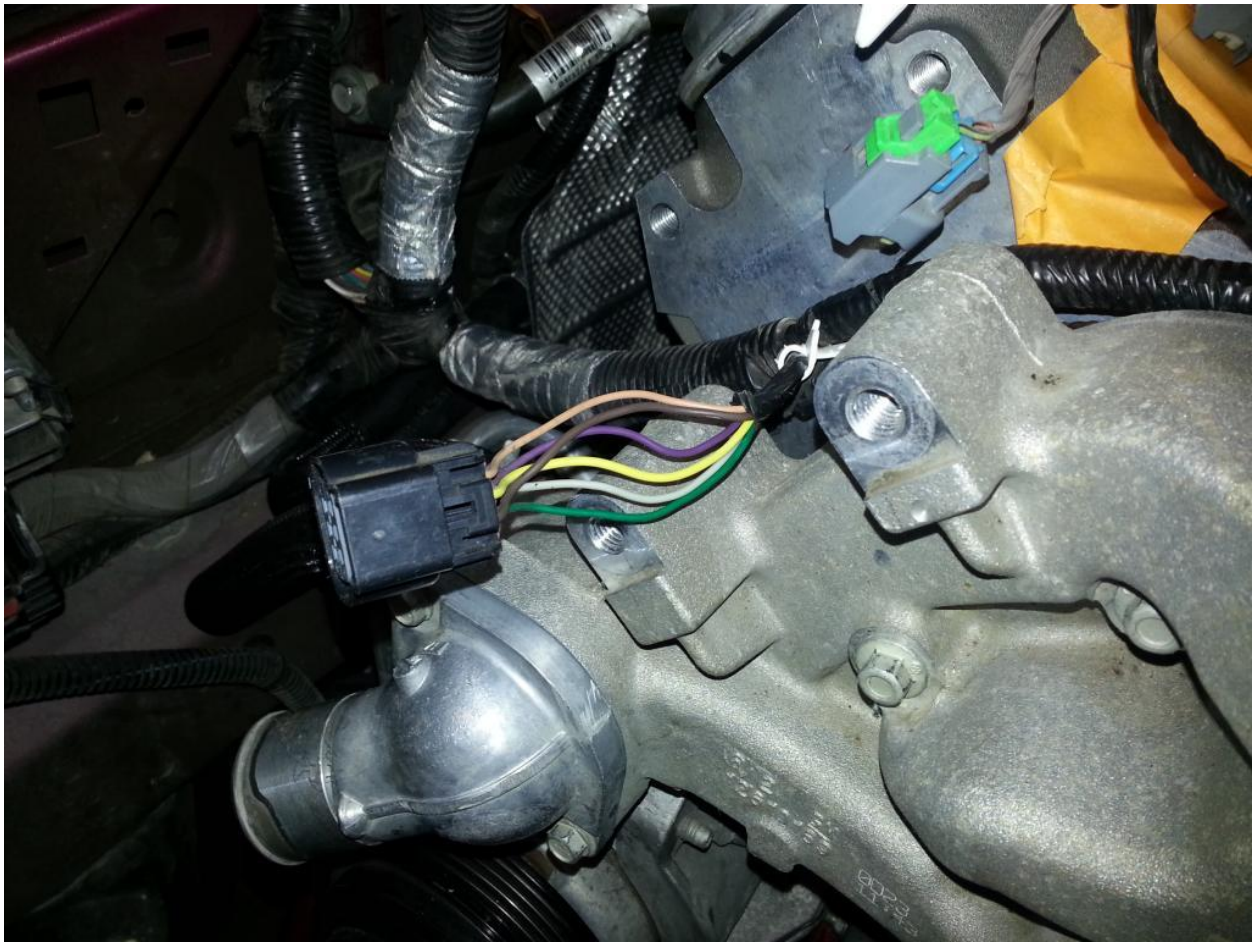
Bolted down -- NOTE leave OFF the very front bold on the fuel rail – you will have issues with removing the fuel rail should you need to while the 'lid' is on (the picture does show it on, but it was ONLY for show):

☐ Now is the time to wire up the MAP, Throttle Body, and EVAP sensor connectors.

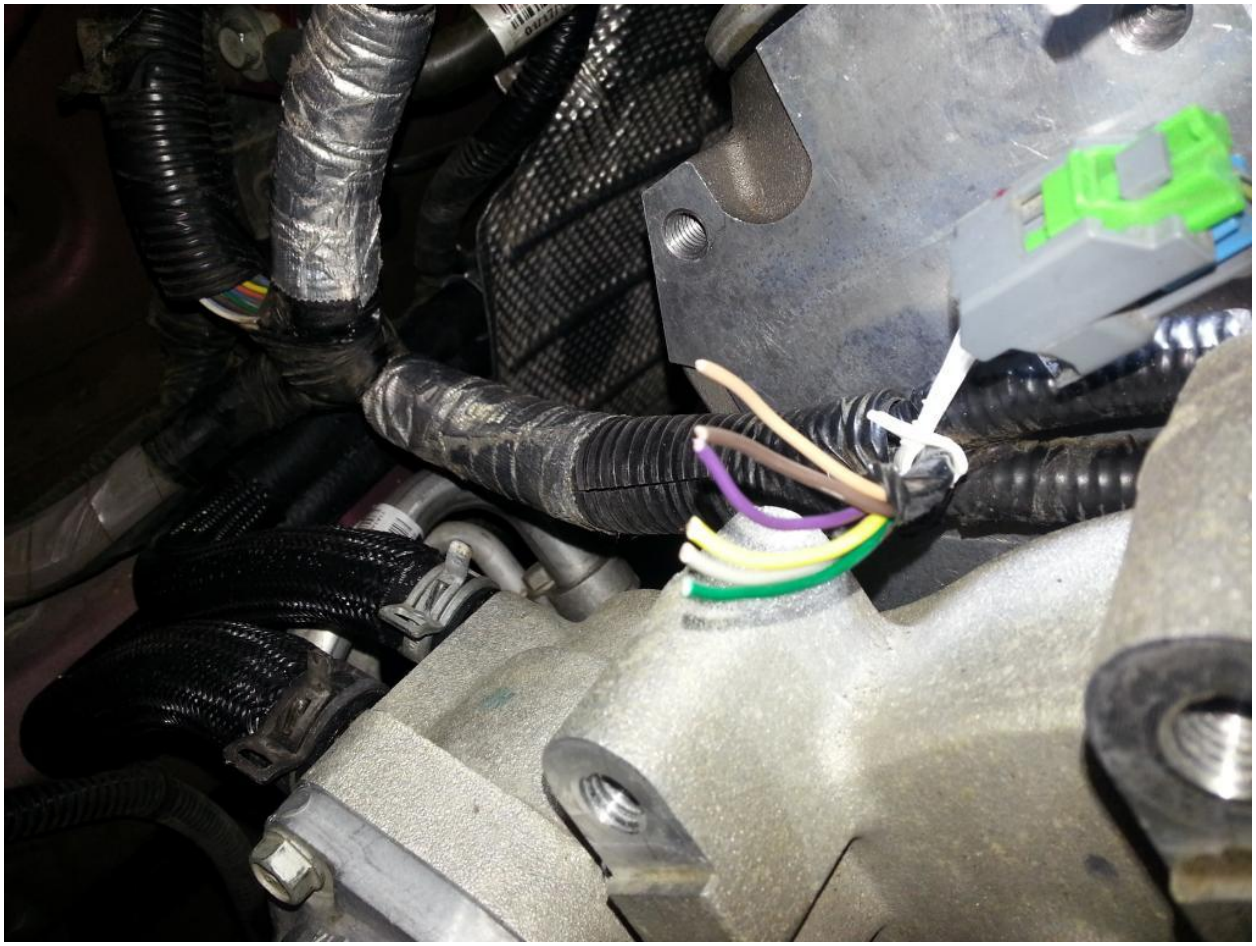
Throttle Body:

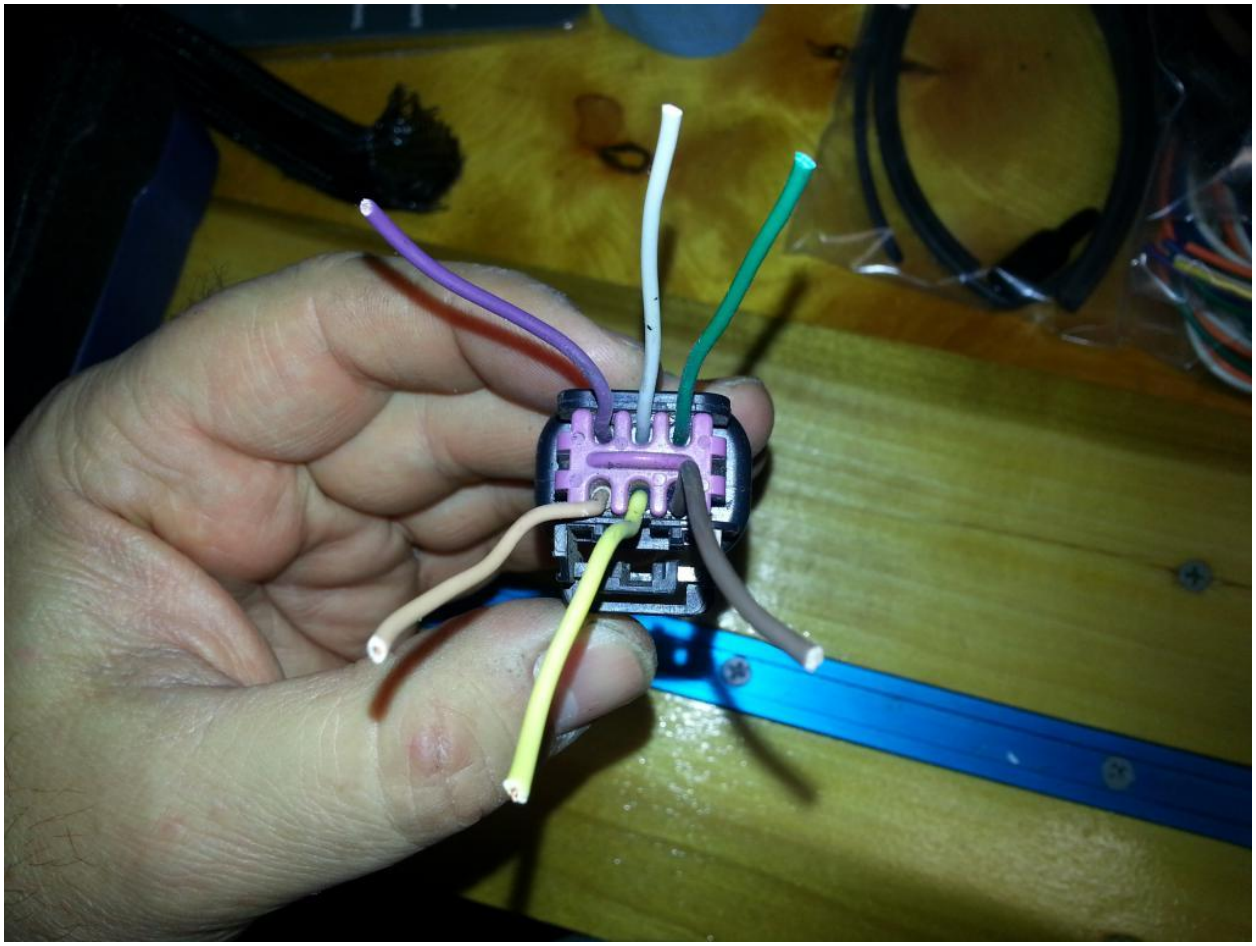
The color code for the kit is defined by the wires in the kit package – match the colors to the existing connector wire colors (may vary depending on wire supplier):

Connector:



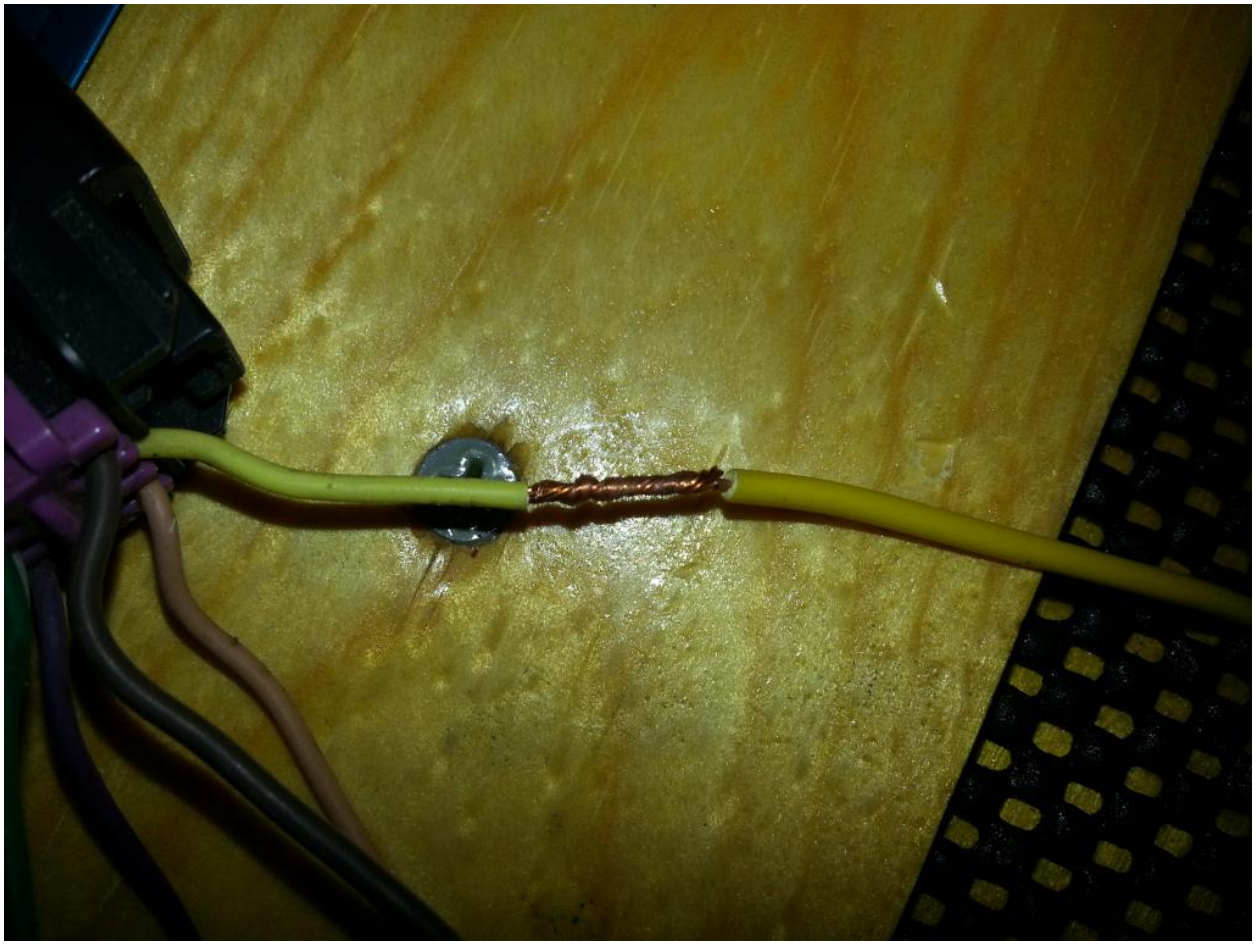
Leave enough wire on both sides so you can solder them together:

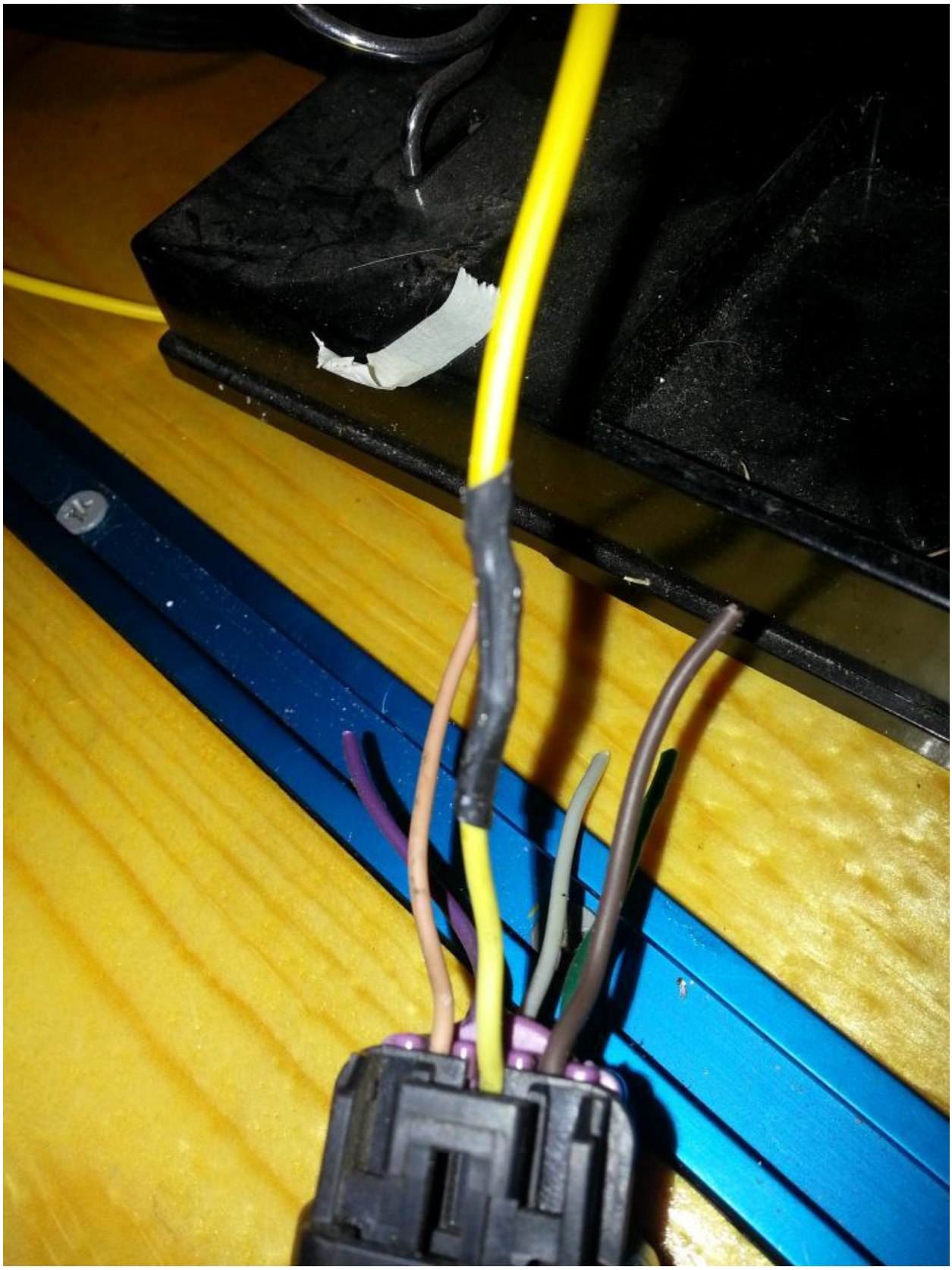




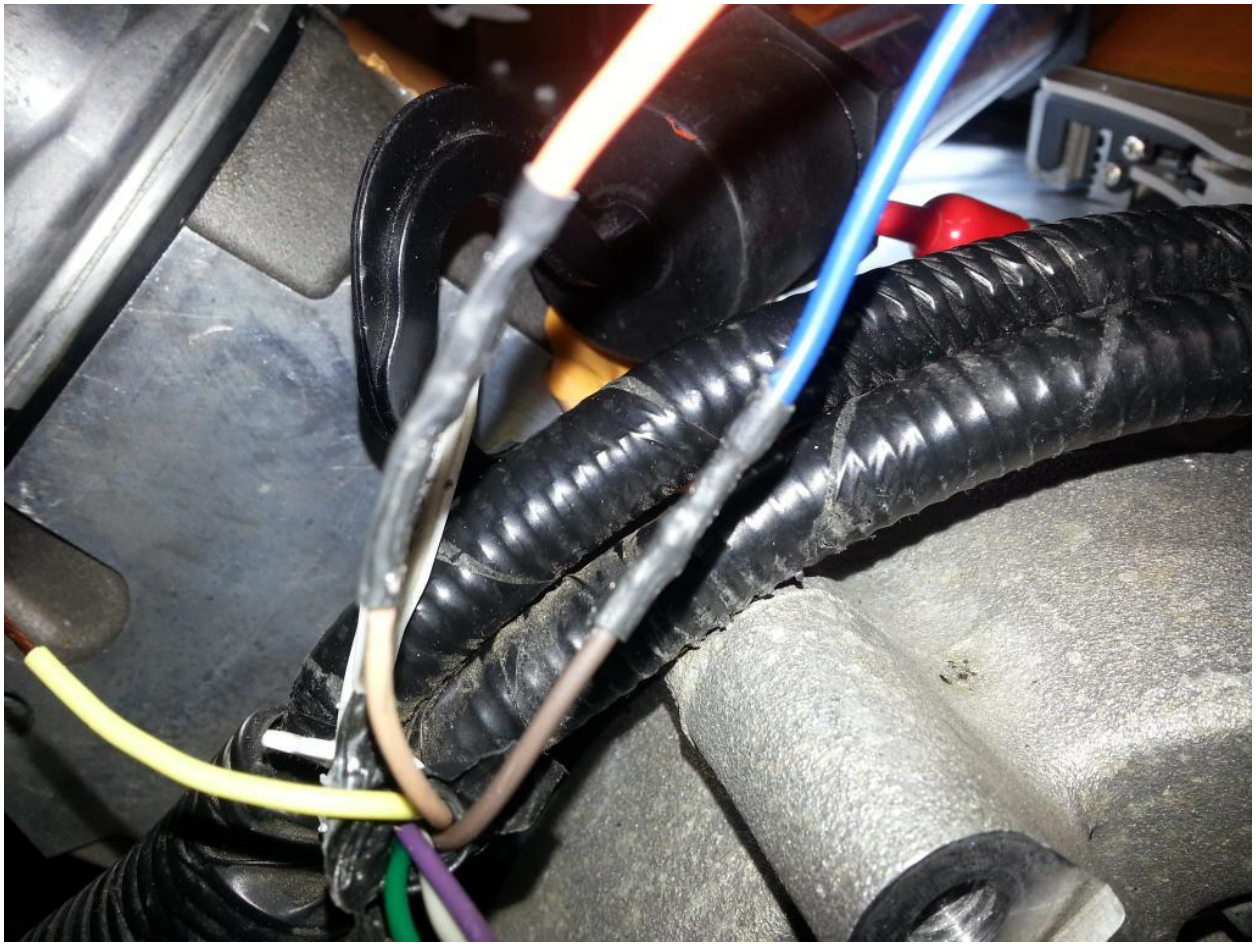
Now, using Rosin Core solders (60/40), begin by stripping the wire and soldering it. Also use the 'heat shrink tubes' to cover up the solder, then wrapped the sections of wire in electrical tape -- then finished off with the kit supplied wire cover (shrink wrap also):

This is a 'wrap' type connection for soldering:



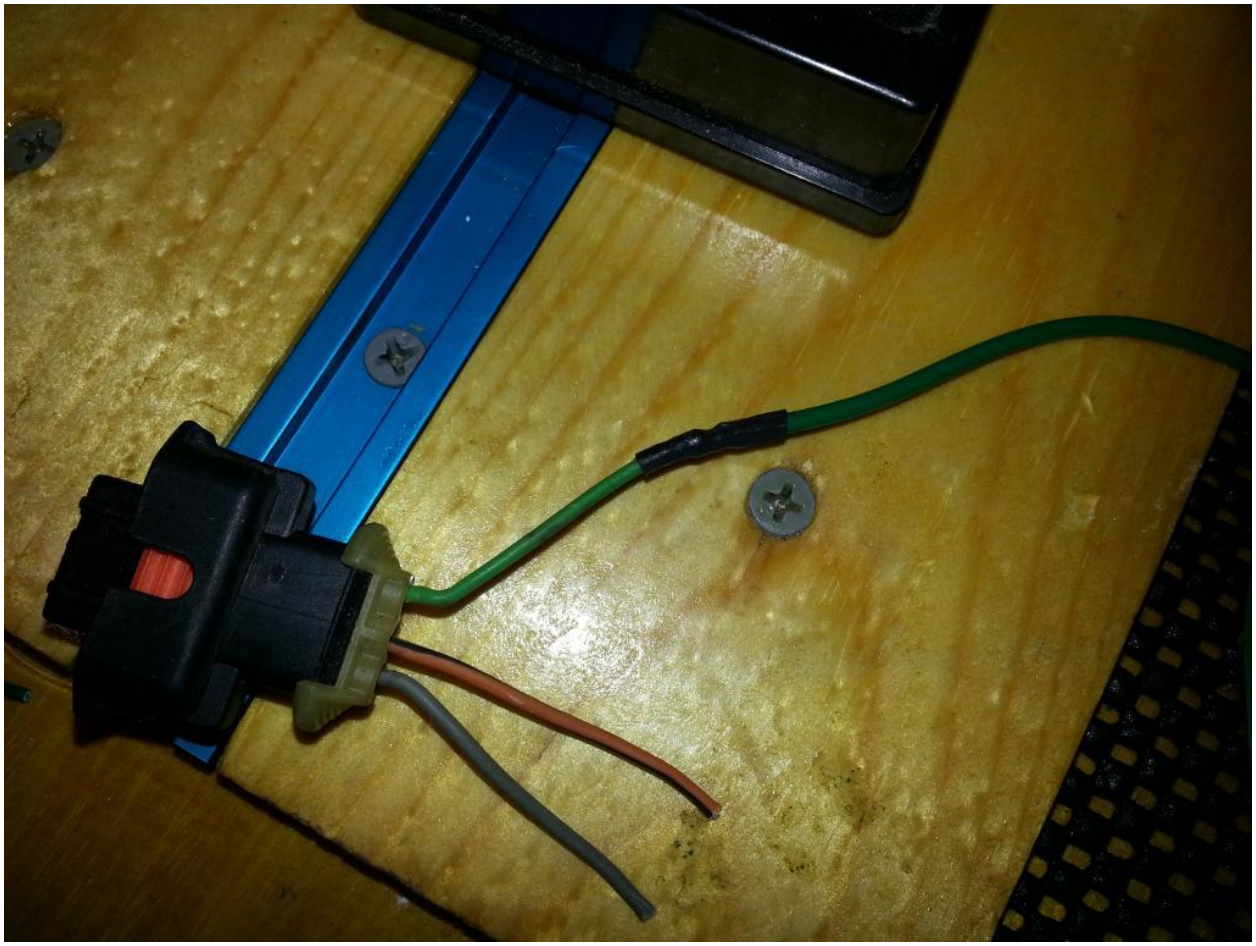


Soldering on the car with heat shrink tube also:



Throttle Body connector completed:

Following the same steps complete the Map Sensor Connector:



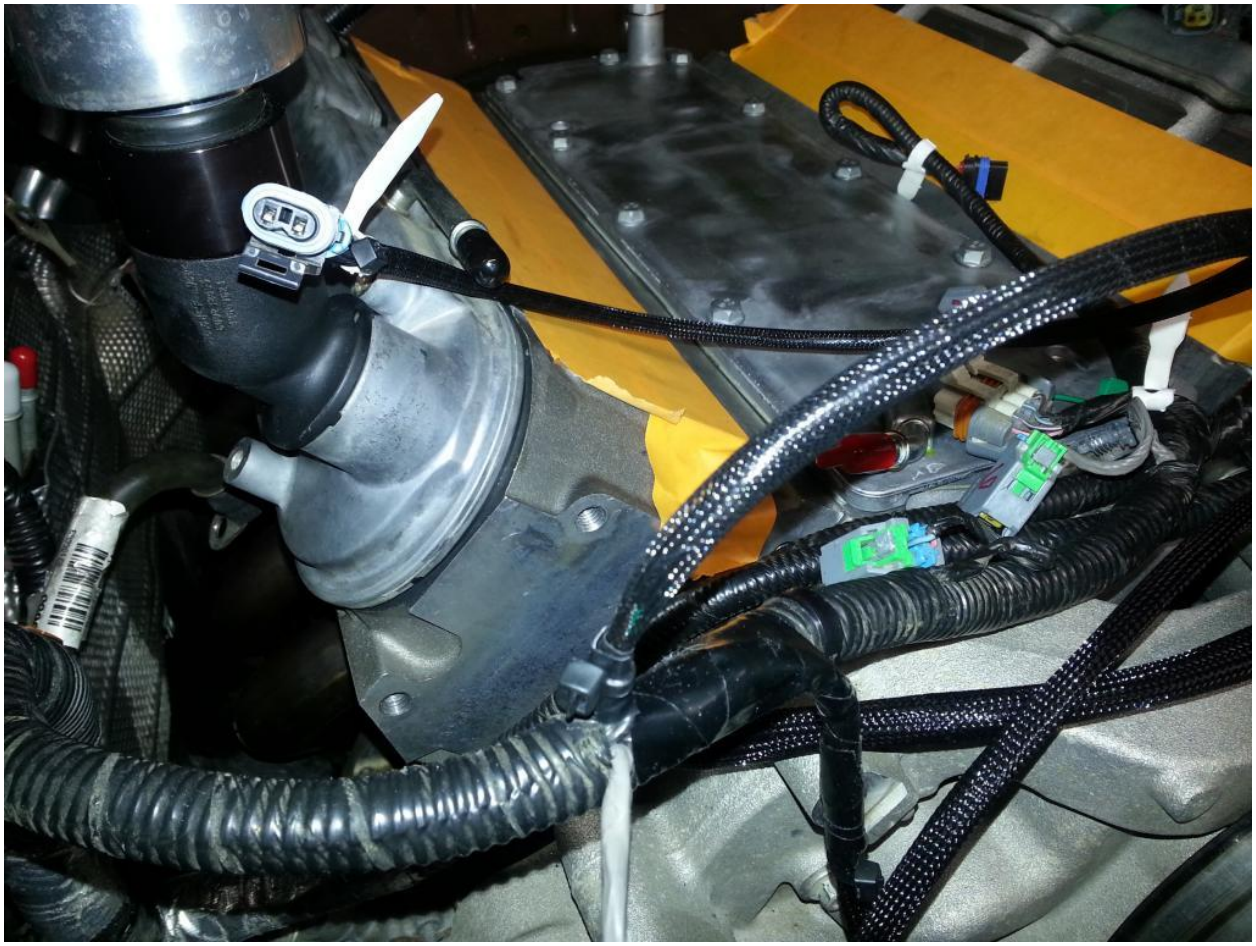
Map Sensor wire:

Completed:

EVAP Sensor connector:

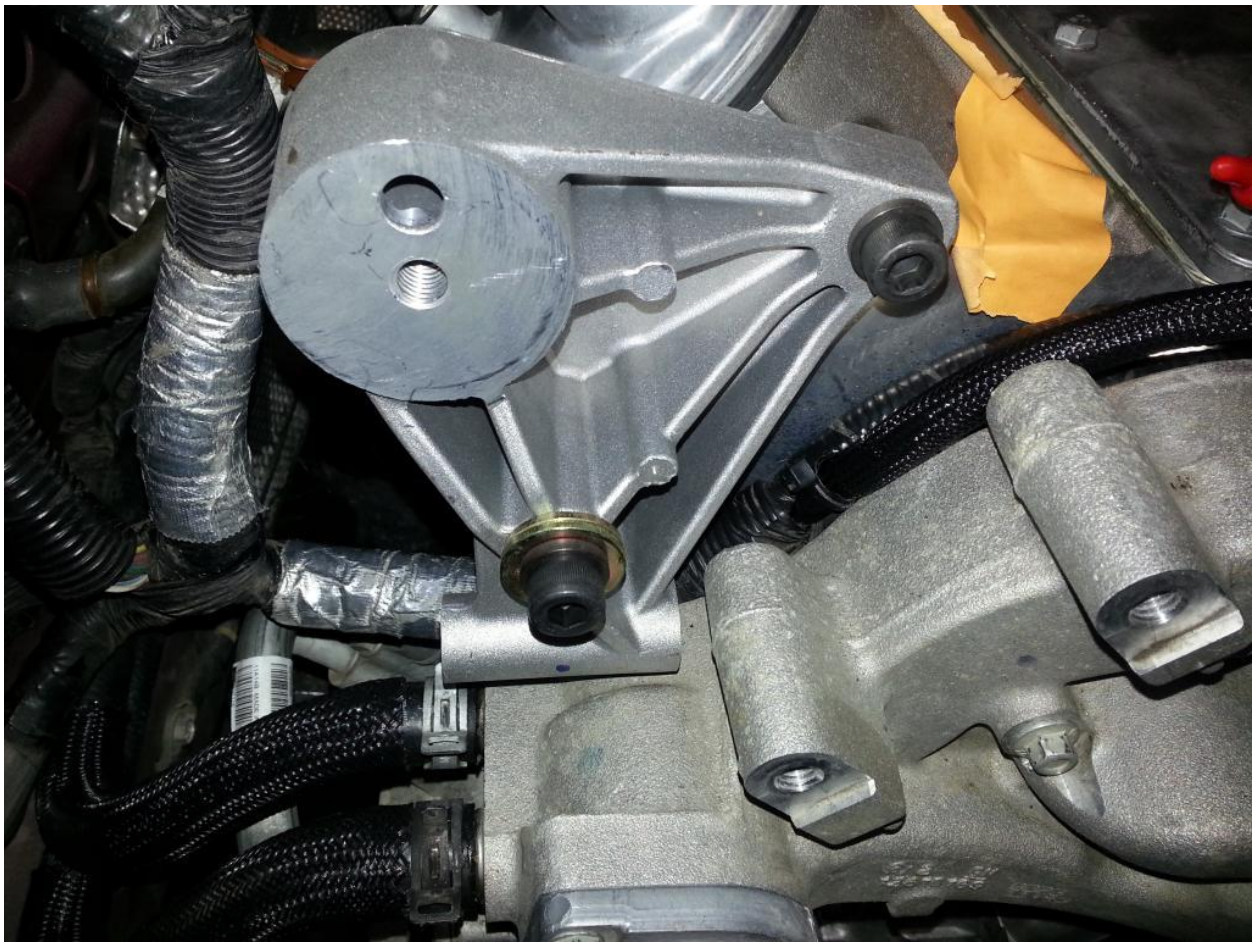
Wire:

Completed:



☐ Now, with the wiring done, now is the time to install the new Tensioner and pulley assembly. You will need to remove 1 bolt from the water pump (passenger side) – this will not be reused:

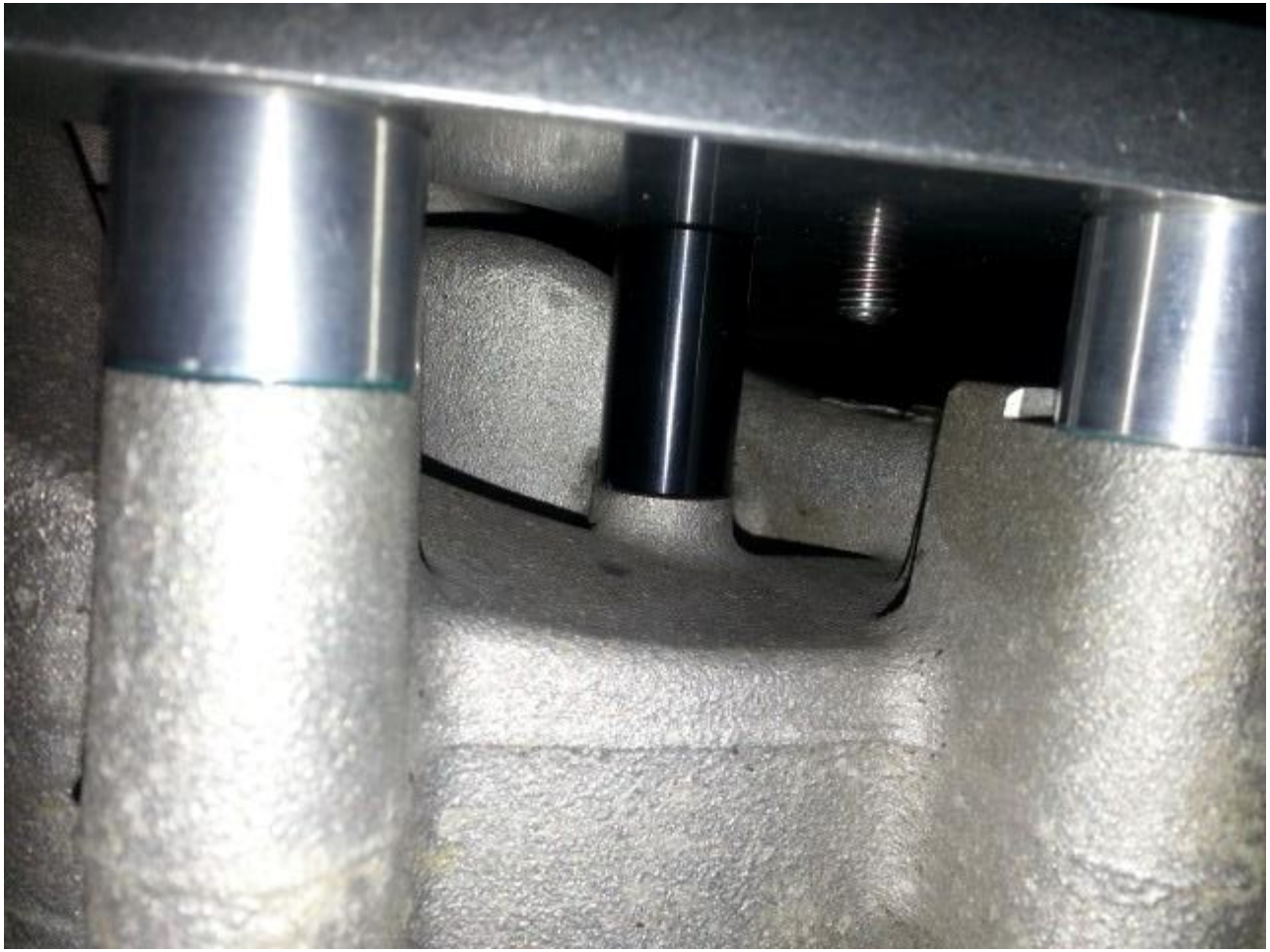
Tensioner (3 bolts torque to 32 ft. lbs MAKE SURE you route your wires underneath the bracket and are NOT pinching them):

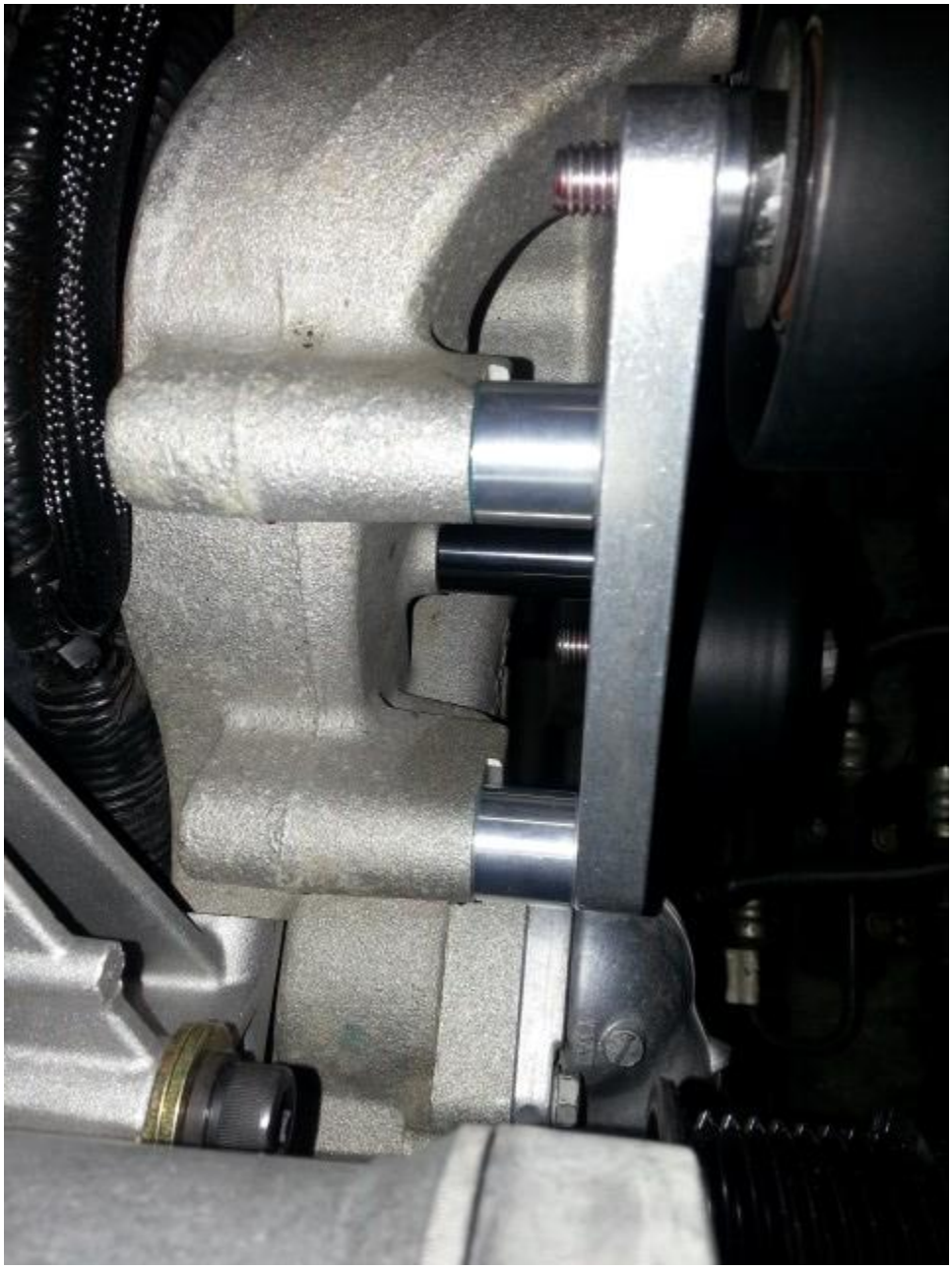


With tensioner installed:

Making sure wires are cleared of the bracket(s):

The pulley assembly is installed using the 2 open bolt holes on the water pump where the original tensioner was installed and one bolt where the water pump bolt was removed (note the blue allen bolt):





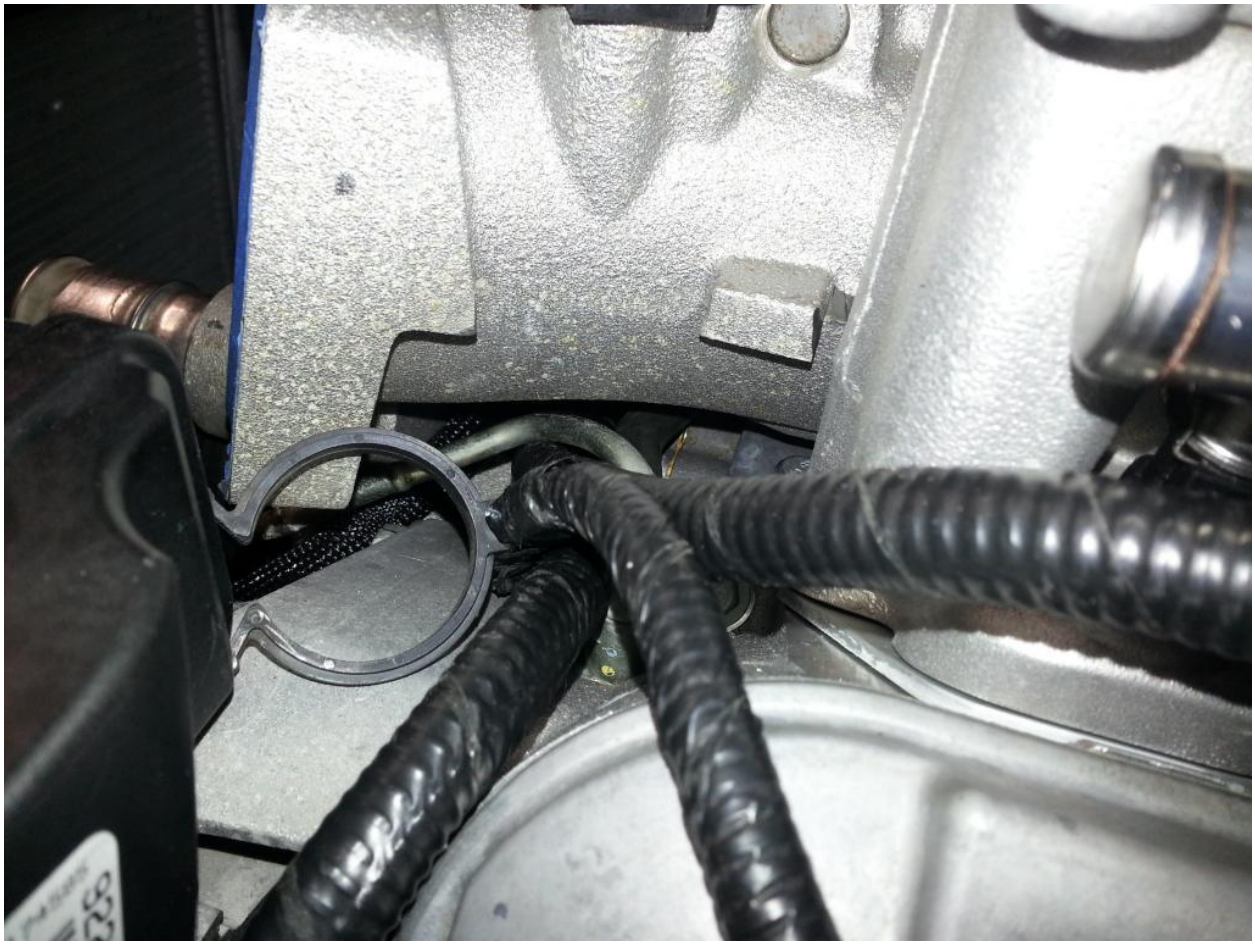
The two bolts main bolts (use RED loctite) on the top are torque to 32 ft. lbs. The ‘water pump’ bolt is torque to 19 ft. lbs. USE BLUE loctite on the water pump bolt.

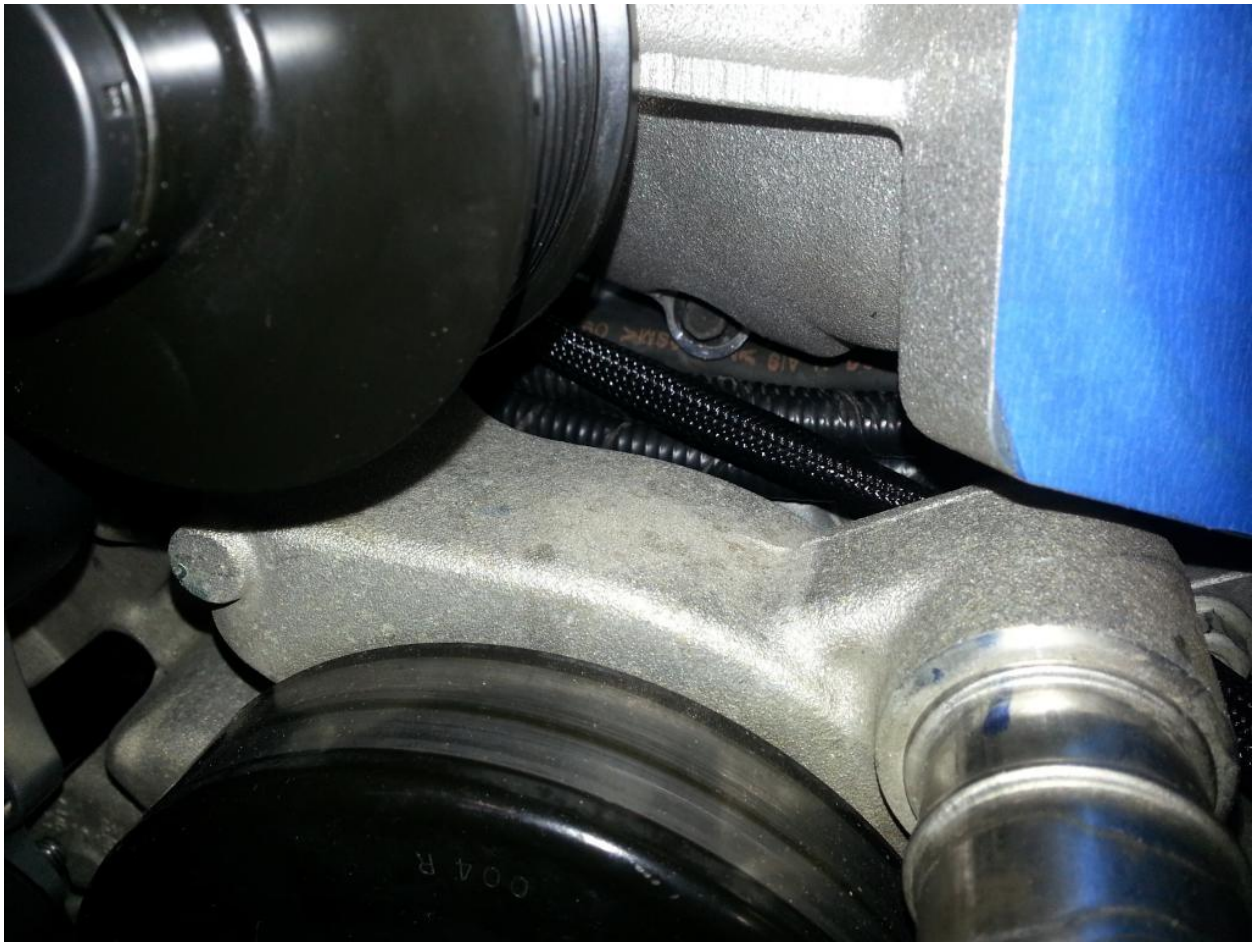
☐ Install the lower supercharger manifold on the engine – it is heavy and best to have a helper:

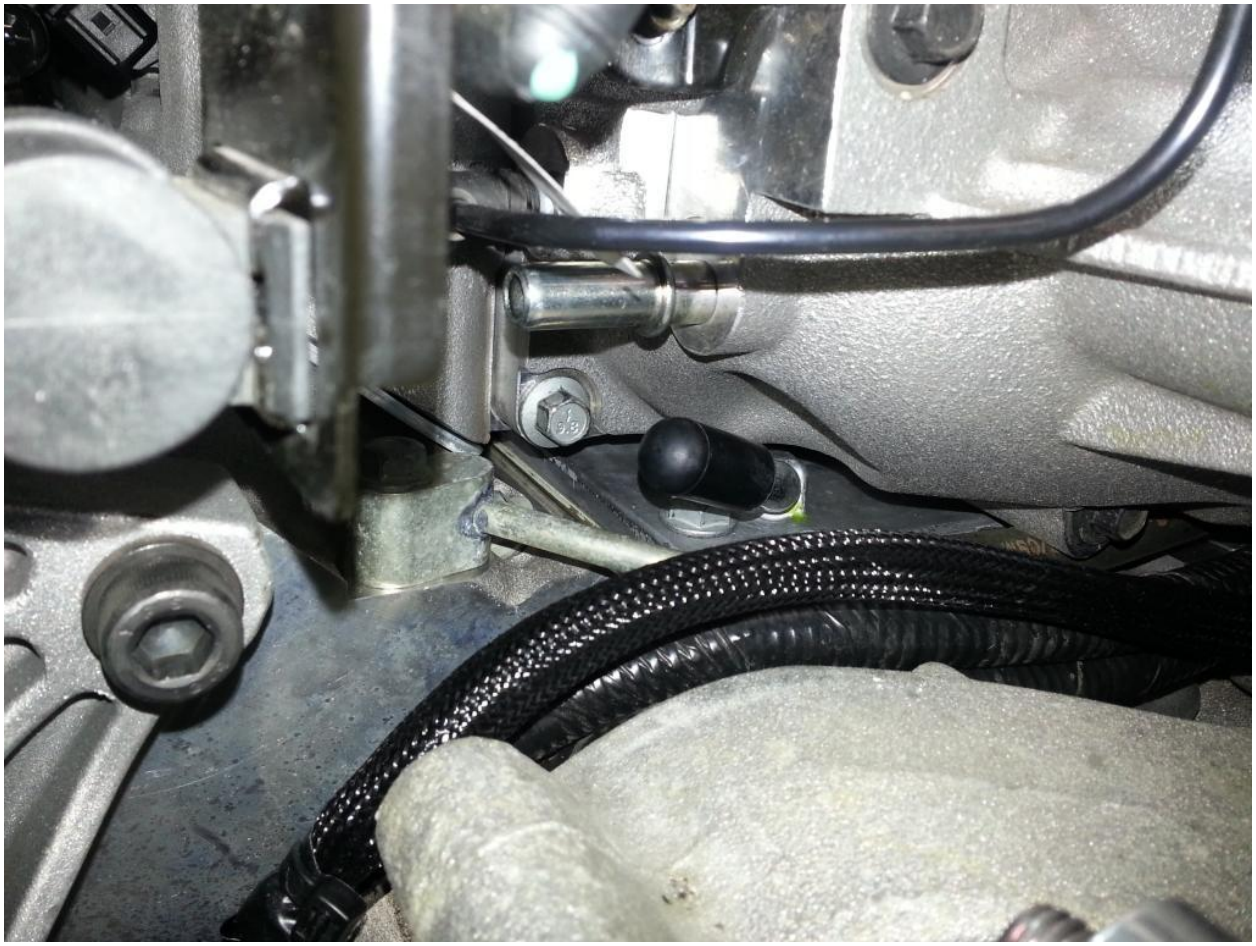
Prepped for installation – remove the tap covering the intake ports:

Lift the lower manifold onto the intake ports – this takes two people or a small ‘lift’:

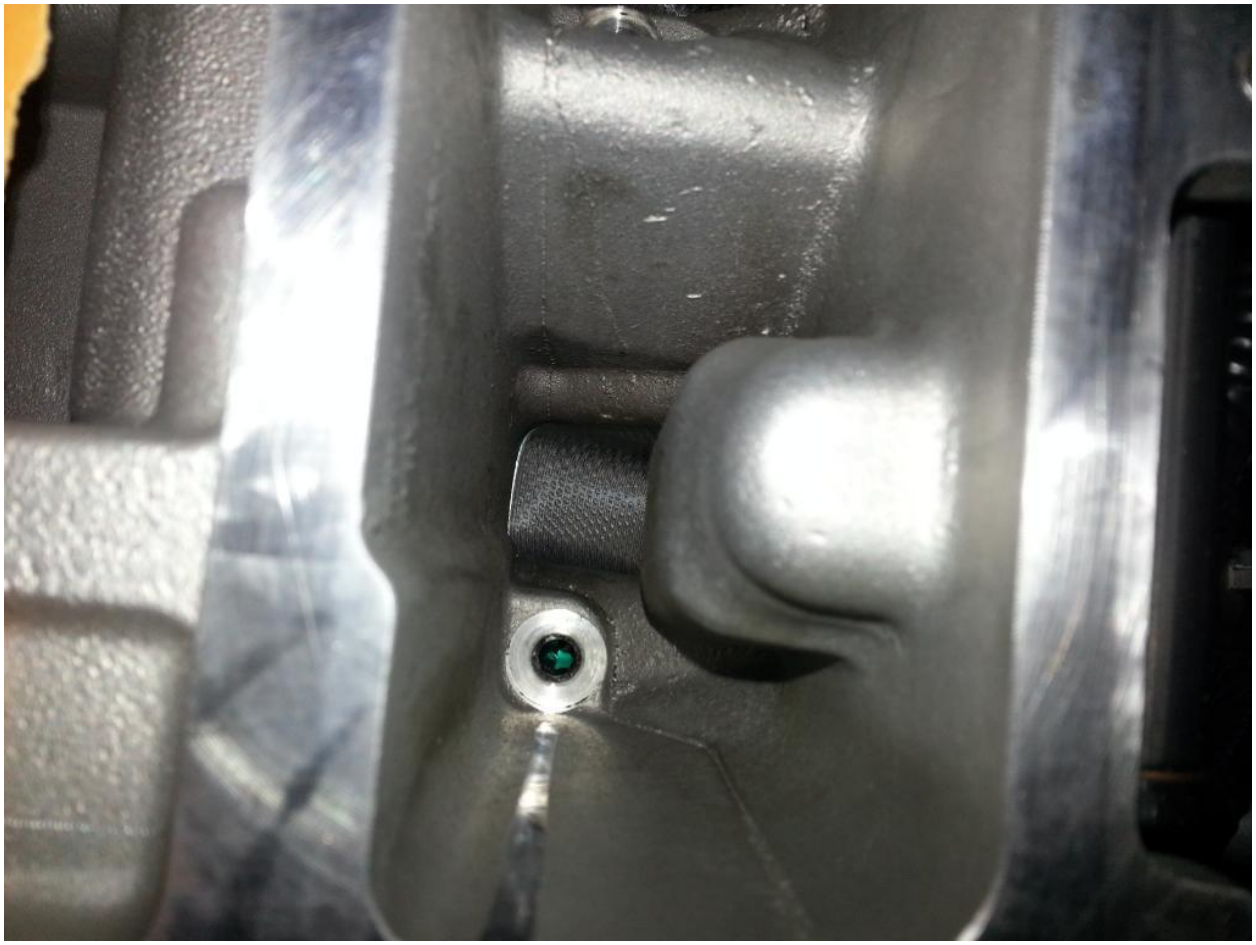
Make sure the wires are clear and not pinched by the Supercharger it will be necessary to ‘ease’ the steam tube down about 30 degrees to avoid hitting the manifold:







Open the covered Supercharger intake, then install all 10 bolts (used blue loc-tite) use a ‘magnetic’ 10mm socket to prevent any ‘accidental’ dropage:

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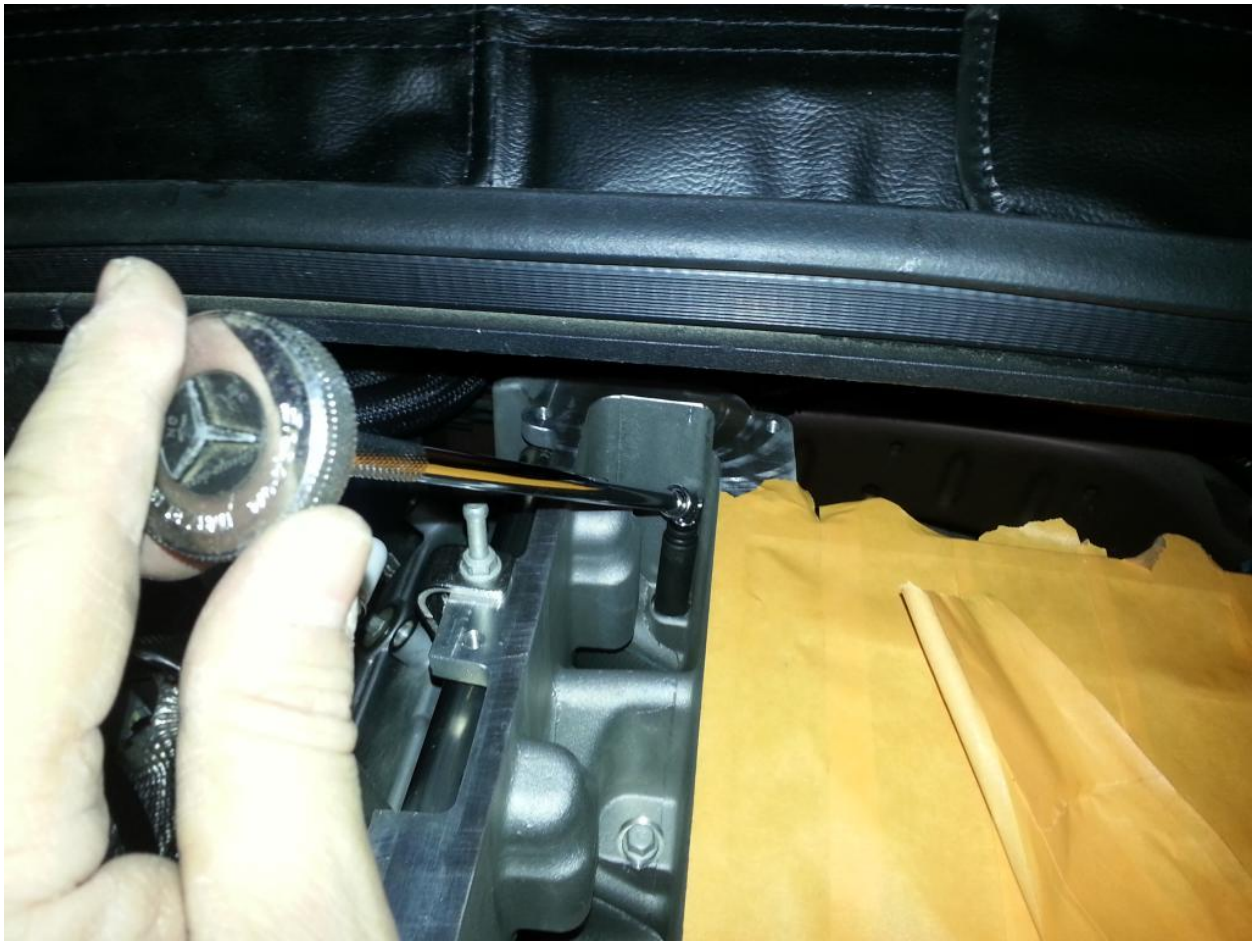
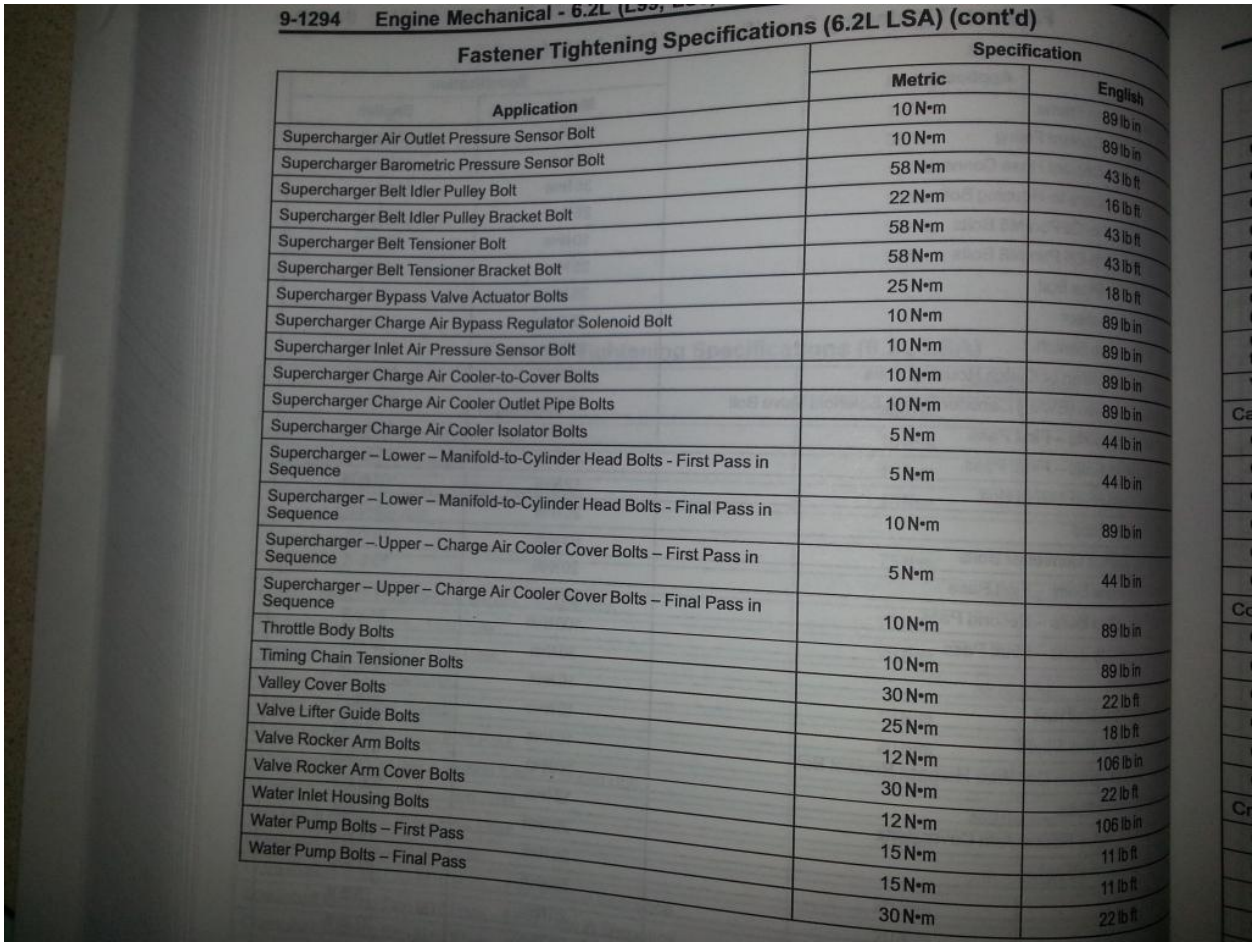
Snug the bolts but not too tight so you can move the manifold as necessary to install all of the intake bolts:



Plug in oil pressure sensor before you torque the intake:

Torque specs:



9-1294 Engine Mechanical - 6.2L (L

Fastener Tightening Specifications (6.2L LSA) (cont'd)

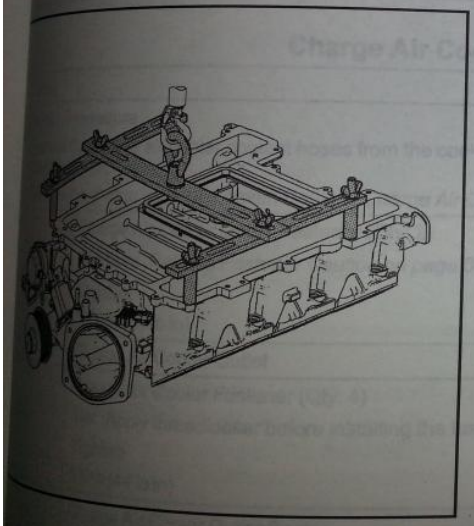
Application	Specification	
	Metric	English
Supercharger Air Outlet Pressure Sensor Bolt	10 N•m	89 lb in
Supercharger Barometric Pressure Sensor Bolt	10 N•m	89 lb in
Supercharger Belt Idler Pulley Bolt	58 N•m	43 lb ft
Supercharger Belt Idler Pulley Bracket Bolt	22 N•m	16 lb ft
Supercharger Belt Tensioner Bolt	58 N•m	43 lb ft
Supercharger Belt Tensioner Bracket Bolt	58 N•m	43 lb ft
Supercharger Bypass Valve Actuator Bolts	25 N•m	18 lb ft
Supercharger Charge Air Bypass Regulator Solenoid Bolt	10 N•m	89 lb in
Supercharger Inlet Air Pressure Sensor Bolt	10 N•m	89 lb in
Supercharger Charge Air Cooler-to-Cover Bolts	10 N•m	89 lb in
Supercharger Charge Air Cooler Outlet Pipe Bolts	10 N•m	89 lb in
Supercharger Charge Air Cooler Isolator Bolts	5 N•m	44 lb in
Supercharger – Lower – Manifold-to-Cylinder Head Bolts - First Pass in Sequence	5 N•m	44 lb in
Supercharger – Lower – Manifold-to-Cylinder Head Bolts - Final Pass in Sequence	10 N•m	89 lb in
Supercharger – Upper – Charge Air Cooler Cover Bolts – First Pass in Sequence	5 N•m	44 lb in
Supercharger – Upper – Charge Air Cooler Cover Bolts – Final Pass in Sequence	10 N•m	89 lb in
Throttle Body Bolts	10 N•m	89 lb in
Timing Chain Tensioner Bolts	30 N•m	22 lb ft
Valley Cover Bolts	25 N•m	18 lb ft
Valve Lifter Guide Bolts	12 N•m	106 lb in
Valve Rocker Arm Bolts	30 N•m	22 lb ft
Valve Rocker Arm Cover Bolts	12 N•m	106 lb in
Water Inlet Housing Bolts	15 N•m	11 lb ft
Water Pump Bolts – First Pass	15 N•m	11 lb ft
Water Pump Bolts – Final Pass	30 N•m	22 lb ft

2156983

. The supercharger, throttle body and sensors may be removed as an assembly. If not servicing the individual components, remove the supercharger as an assembly.

. Cover the inlet area of the supercharger to prevent dirt or debris contamination onto the rotors.

. Cover the supercharger rotors area (1) to prevent dirt or debris contamination onto the rotors.

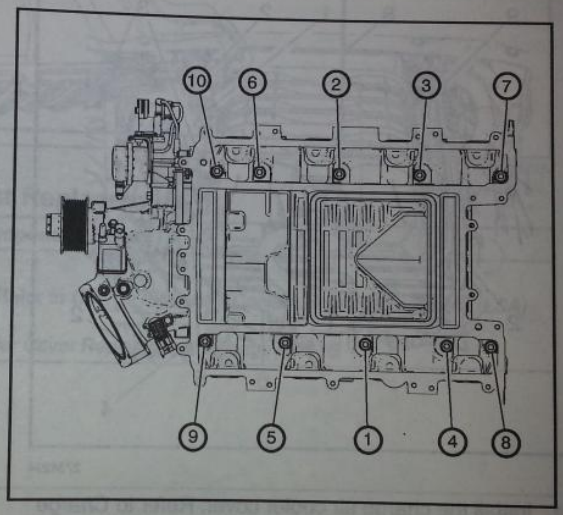


2156758

Install the *EN-48898* fixture to the supercharger.
Tighten the *EN-48898* fixture bolts and nuts

2156748

7. Apply a 5 mm (0.2 in) band of threadlocker to the threads of the bolts. Refer to *Adhesives, Fluids, Lubricants, and Sealers on page 9-1304*.
8. Install the supercharger bolts (1).



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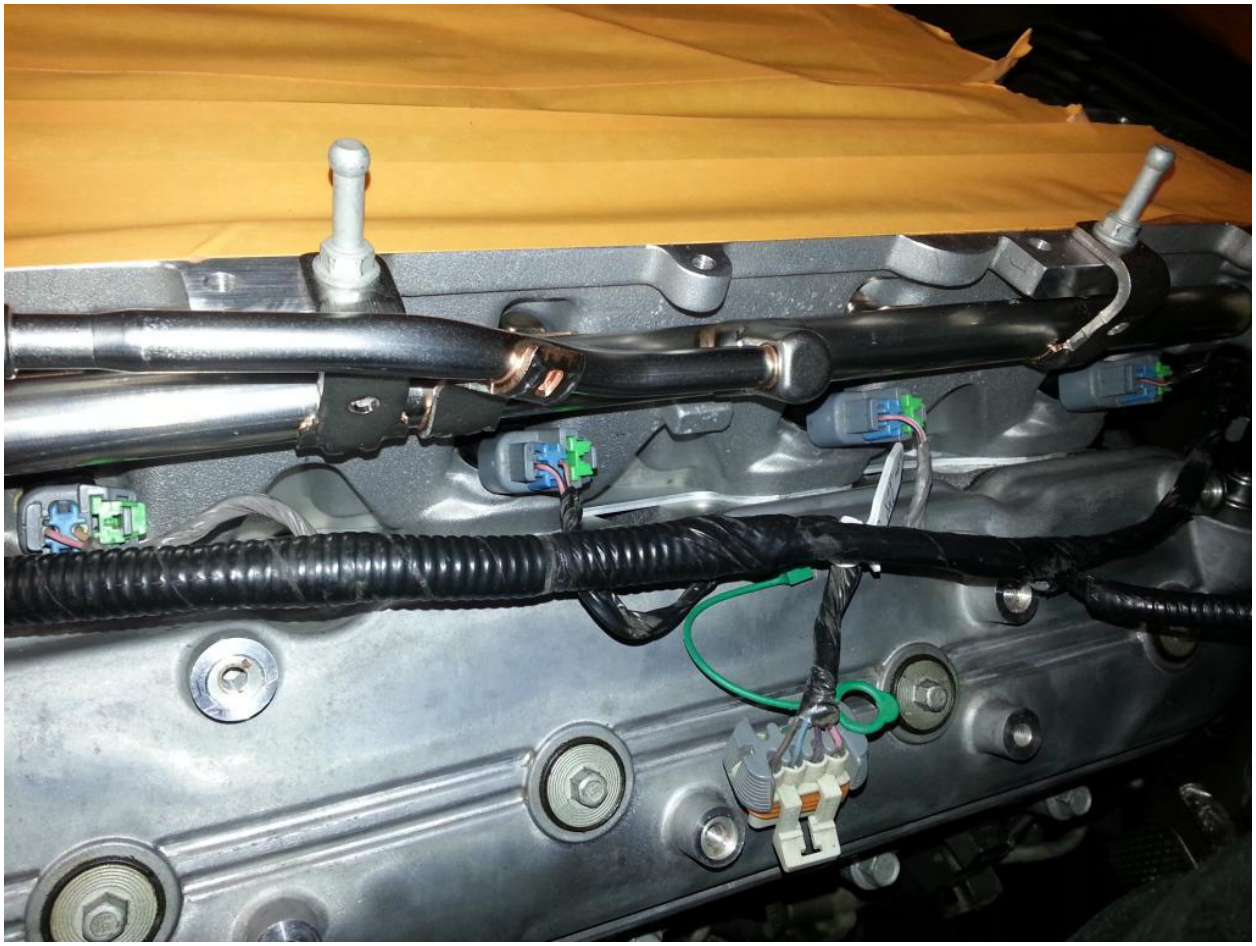
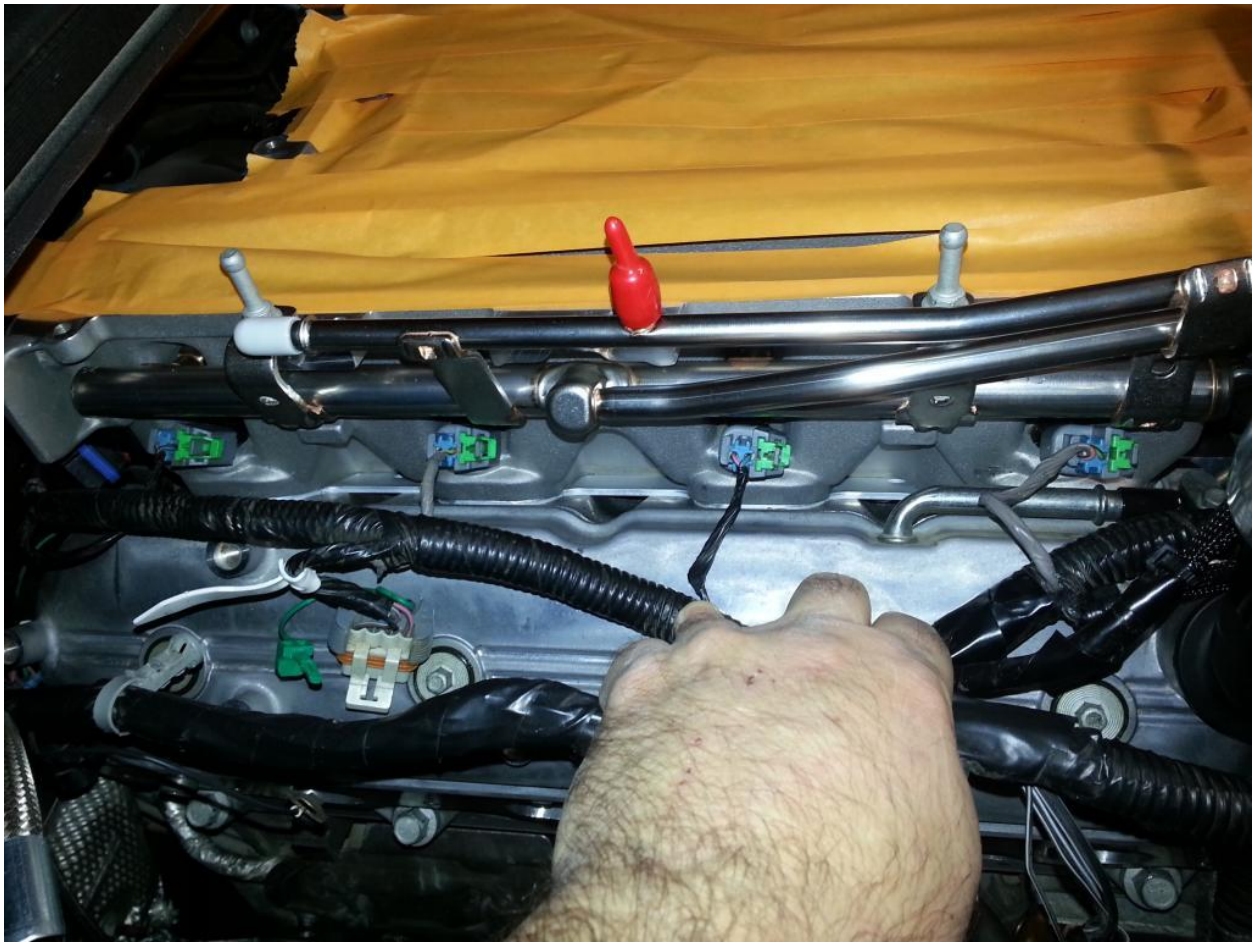
Caution: Refer to *Fastener Caution on page 0-7*.

9. Tighten the bolts.
   9.1. Tighten the bolts a first pass in sequence to **5 N•m (44 lb in).**
   9.2. Tighten the bolts a final pass in sequence to **10 N•m (89 lb in).**

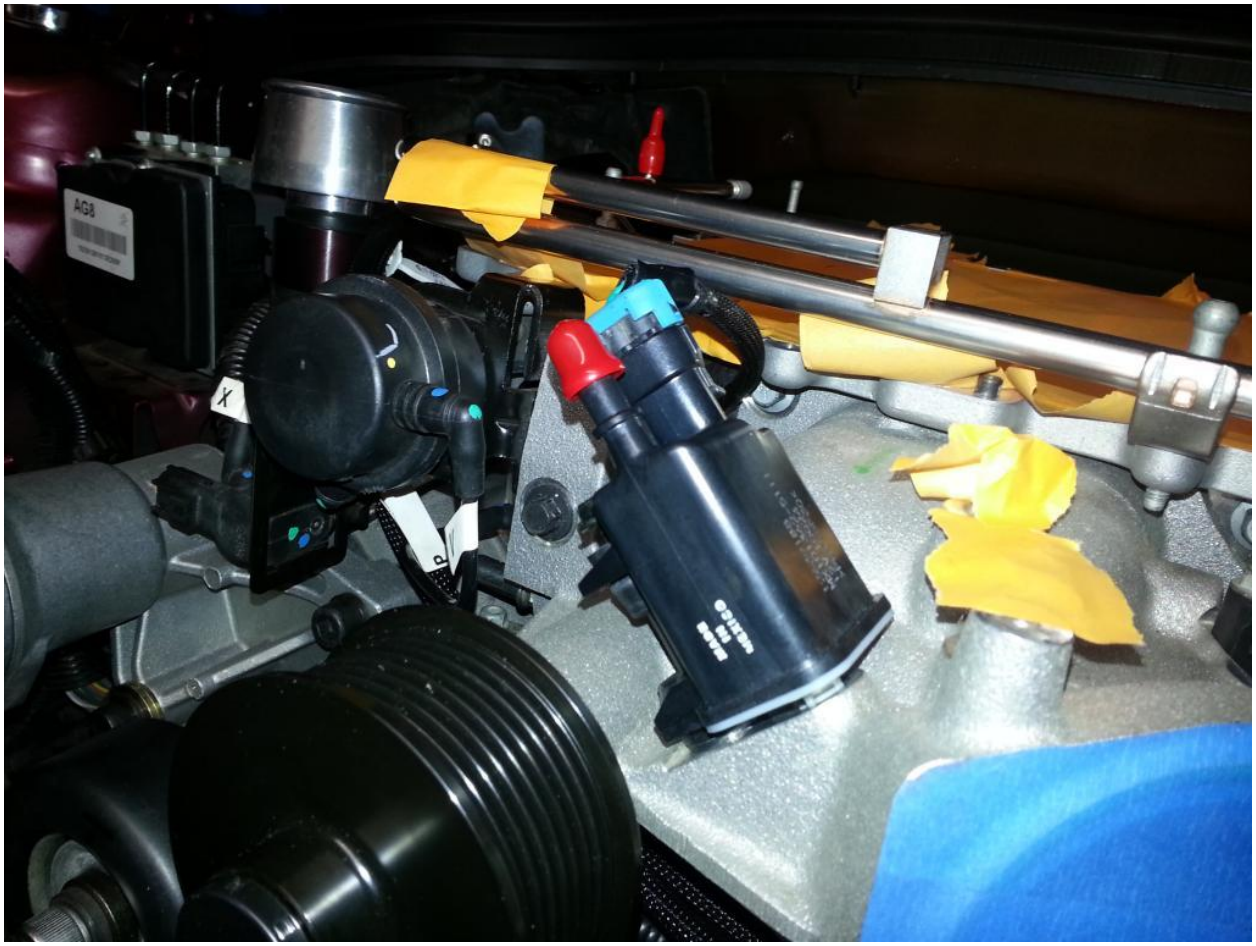
With the intake bolts torqued, cover up so nothing falls in until you are ready for the lid:

☐ Install the injector connectors:





☐ Install the EVAP solenoid in the kit and torque to 89 inch lbs (install the connector):



☐ Prep the lid for installation. Make sure the ‘green gasket is in place and place the lid bolt in the opens:

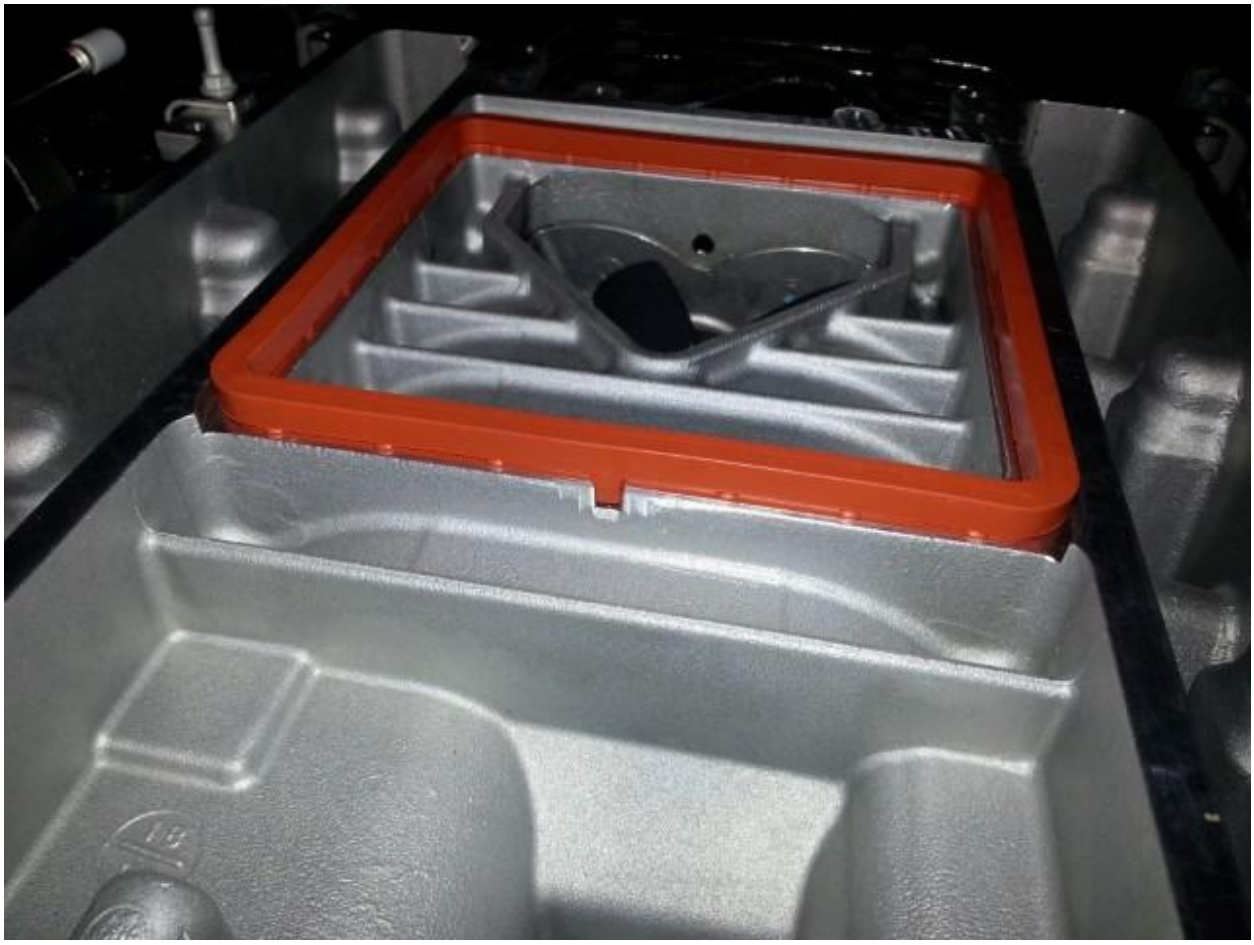
Bolt hole locations:

Prepped for install:

☐ Install ‘orange’ intercooler gasket into lower manifold – note orientation of proper gasket installation:

Gasket:

Installed:



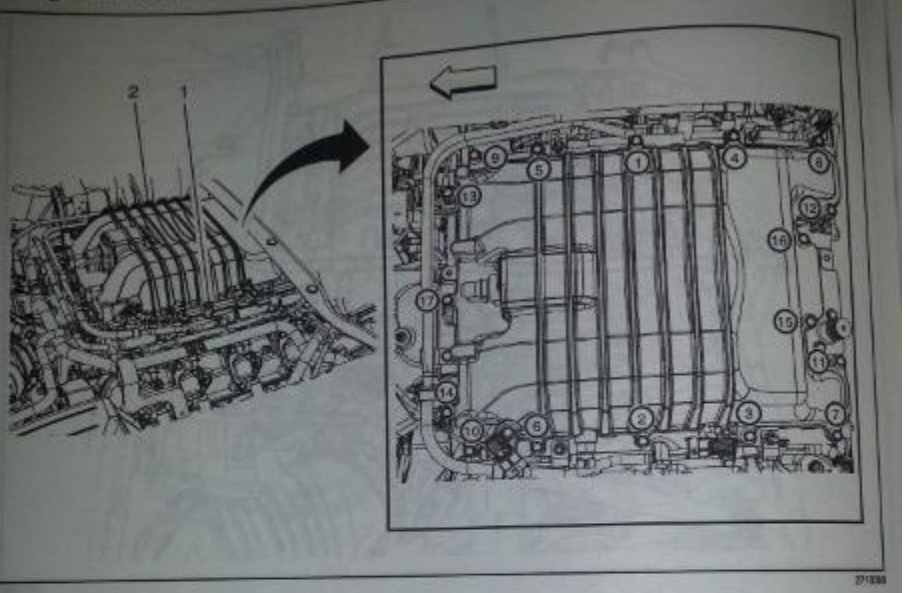
☐ Remove 2 of the ‘cowling’ pushpins. THIS is done if you intended to NOT drop the front cradle in order to install the supercharger lid:

☐ Using these types of tools, begin bolting down the lib (follow this sequence): To bolt down the # 15 and 16 bolts, you'll need to use a hammer handle (after you've tighted bolts 1-14) to give you better access:

Tools:

Sequence:

Charge Air Cooler Cover Replacement



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Charge Air Cooler Cover Replacement

Callout	Component Name
Preliminary Procedures 1. Remove the front intake manifold cover. Refer to *Intake Manifold Cover Replacement - Front on page 9-1383*. 2. Remove the positive crankcase ventilation hose/pipe/tube. Refer to *Positive Crankcase Ventilation Hose/Pipe/Tube Replacement (Dirty Air) on page 9-1384* or *Positive Crankcase Ventilation Hose/Pipe/Tube Replacement (Clean Air) on page 9-1385*. 3. Remove the charge air cooler coolant hoses from the cooler. Refer to *Charge Air Cooler Coolant Hose Replacement (LSA) on page 9-738*.	
1	Charge Air Cooler Cover Fastener (Qty: 16) **Caution:** Refer to *Fastener Caution on page 0-7*. **Procedure** To access the rear charge air cooler cover bolts the engine will need to be lowered. The front suspension crossmember fasteners will need to be loosened 3/4 of the way to allow the assembly to be lower approximately **25 mm (1 in)**. Refer to *Drivetrain and Front Suspension Frame Removal and Installation on page 3-105*. **Tighten** 10 N•m (89 lb in)
2	Charge Air Cooler Cover **Procedure** 1. Do not reuse old gasket a NEW gasket must be used. 2. Disconnect any electrical connectors.

Lid on supercharger:

Hammer handle (rubber handle) to aid in getting to the back bolts (15 and 16):

Reinstall the previously removed push pins back into the cowling.

☐ Install coil packs:

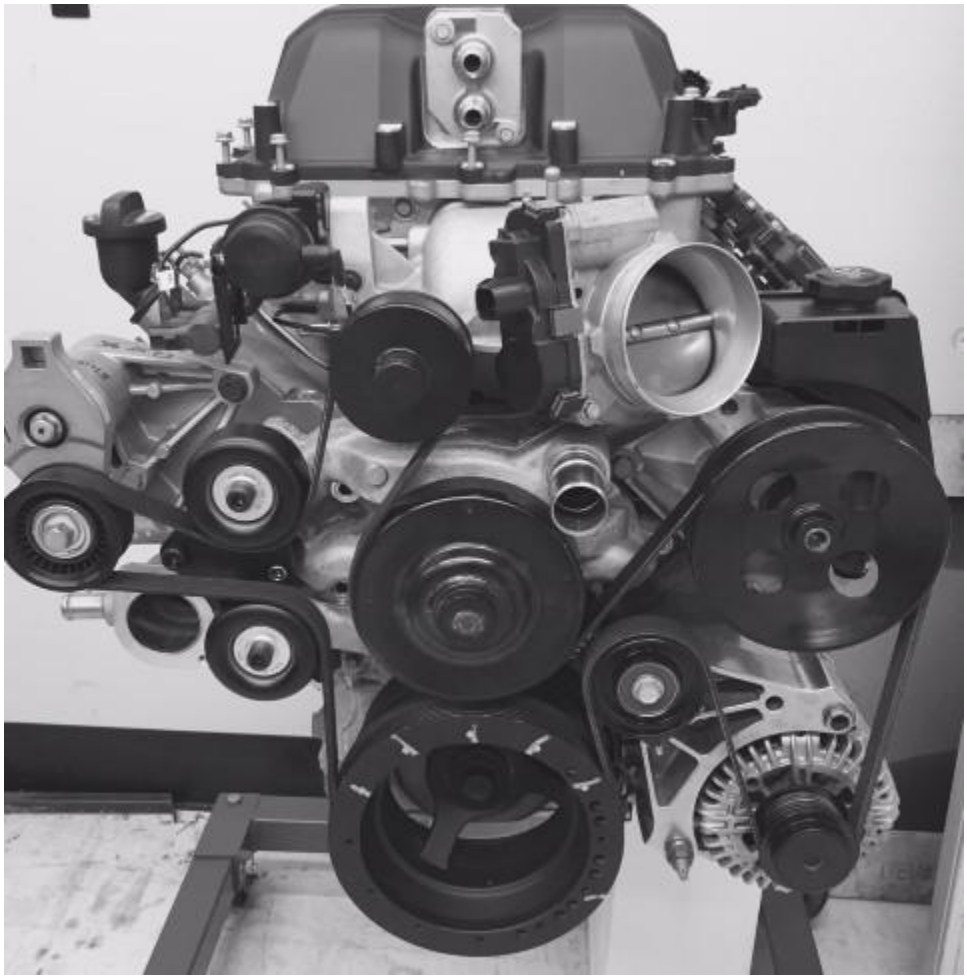
☐ Install MAP connector:

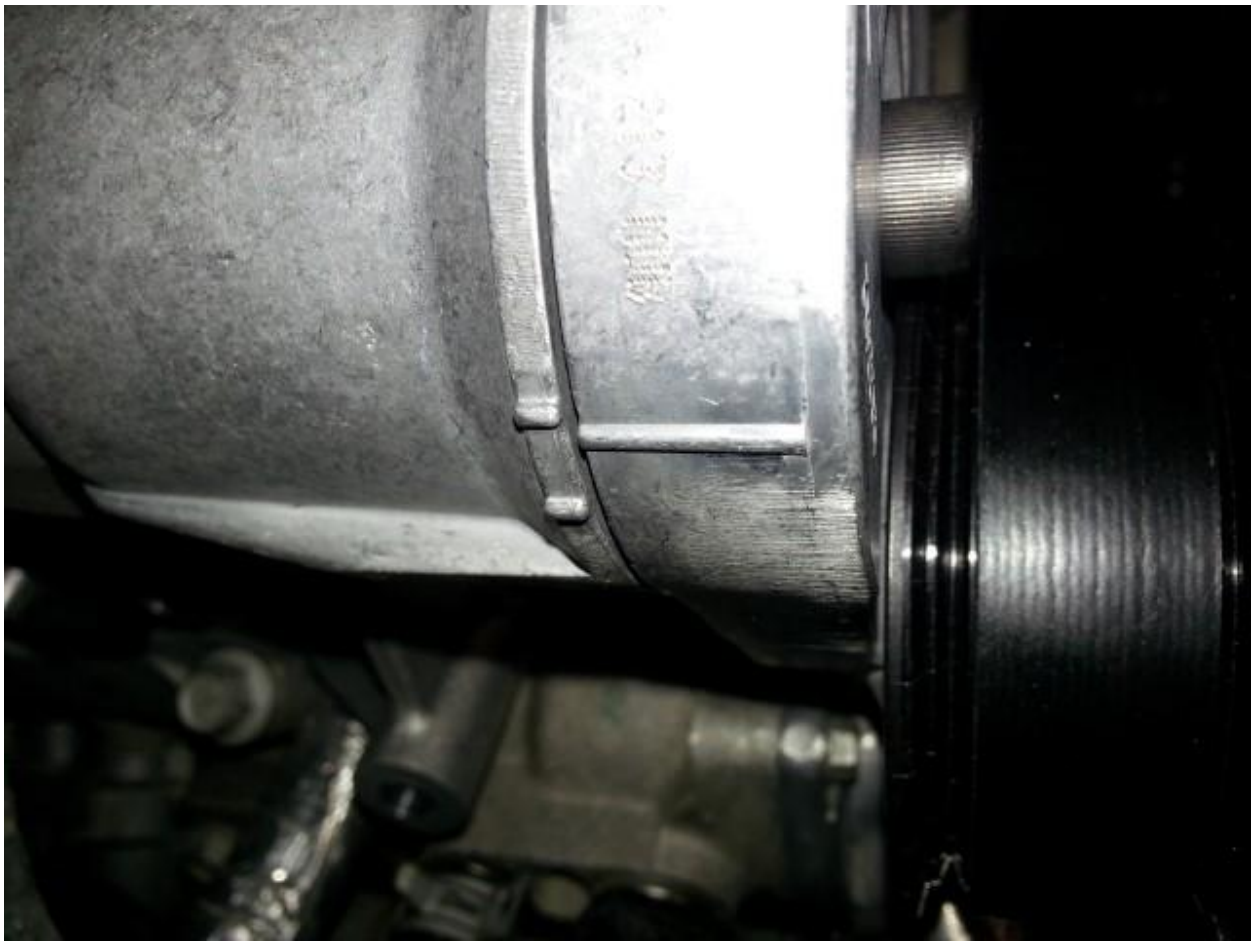
☐ Install the brake booster hose (and connector if required), vacuum hoses to the manifold:

Brake Booster:

☐ Install Fuel and EVAP Lines to hard lines:

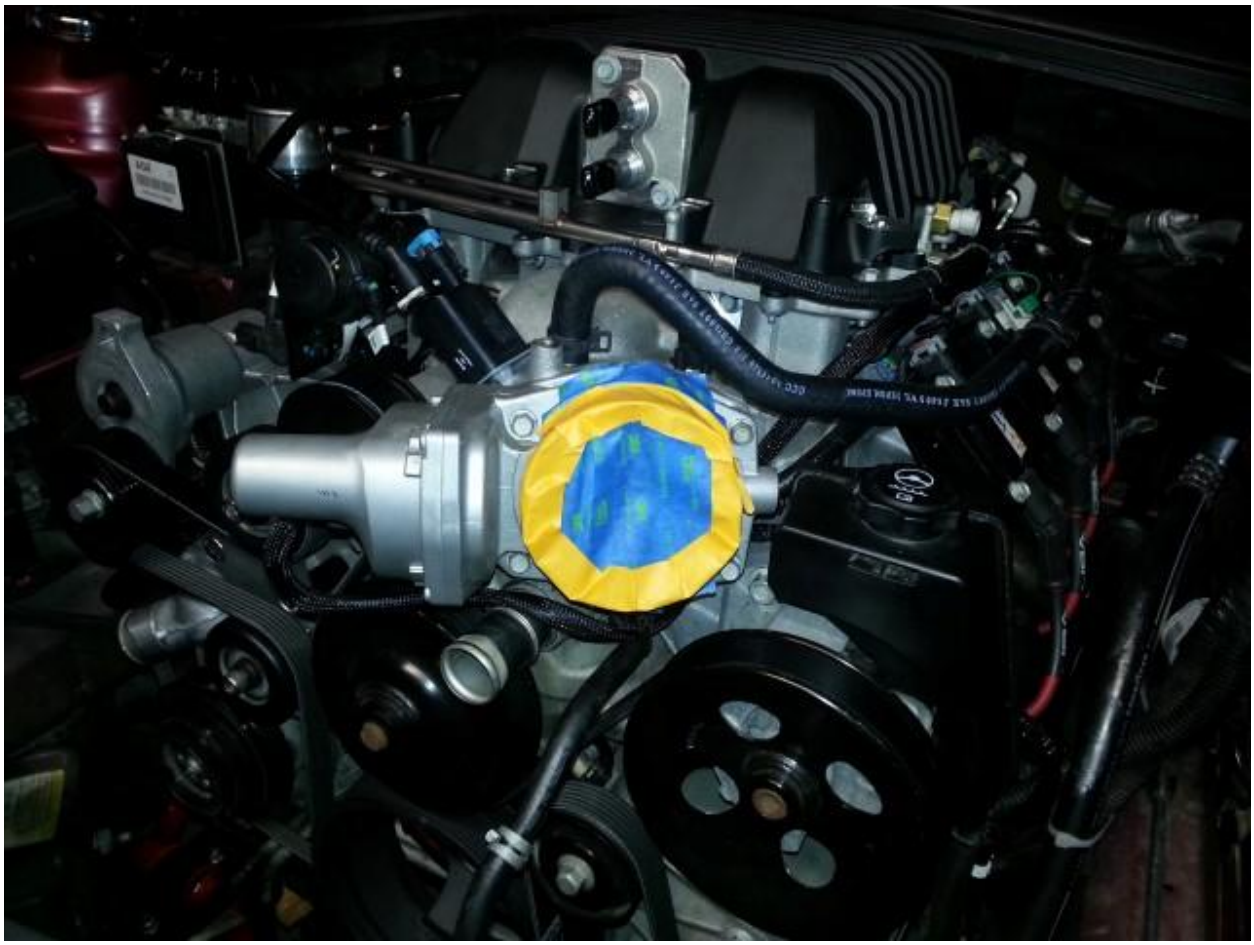
☐ Install the kit supplied serpentine belt (note the proper position on the tensioner):





If you have an electric Power Steering pump the flow is similar.

☐ Install the throttle body:



Note the clearance – if using the ‘stock’ supercharger pulley, there is room:

Connect the throttle body connector – make sure to route and avoid all pulleys:

☐ Install PCV lines to valve covers:


INJECT
1050

☐ Install hoses as necessary (upper radiator, steam, lower) make sure all connectors and hoses are clear of the pulleys:

☐ Prepare heat exchanger install. The front of the car will need to be removed. It is best to raise the vehicle, remove the front wheels, and remove the splash shields. This will give you access to the front bumper bolts:

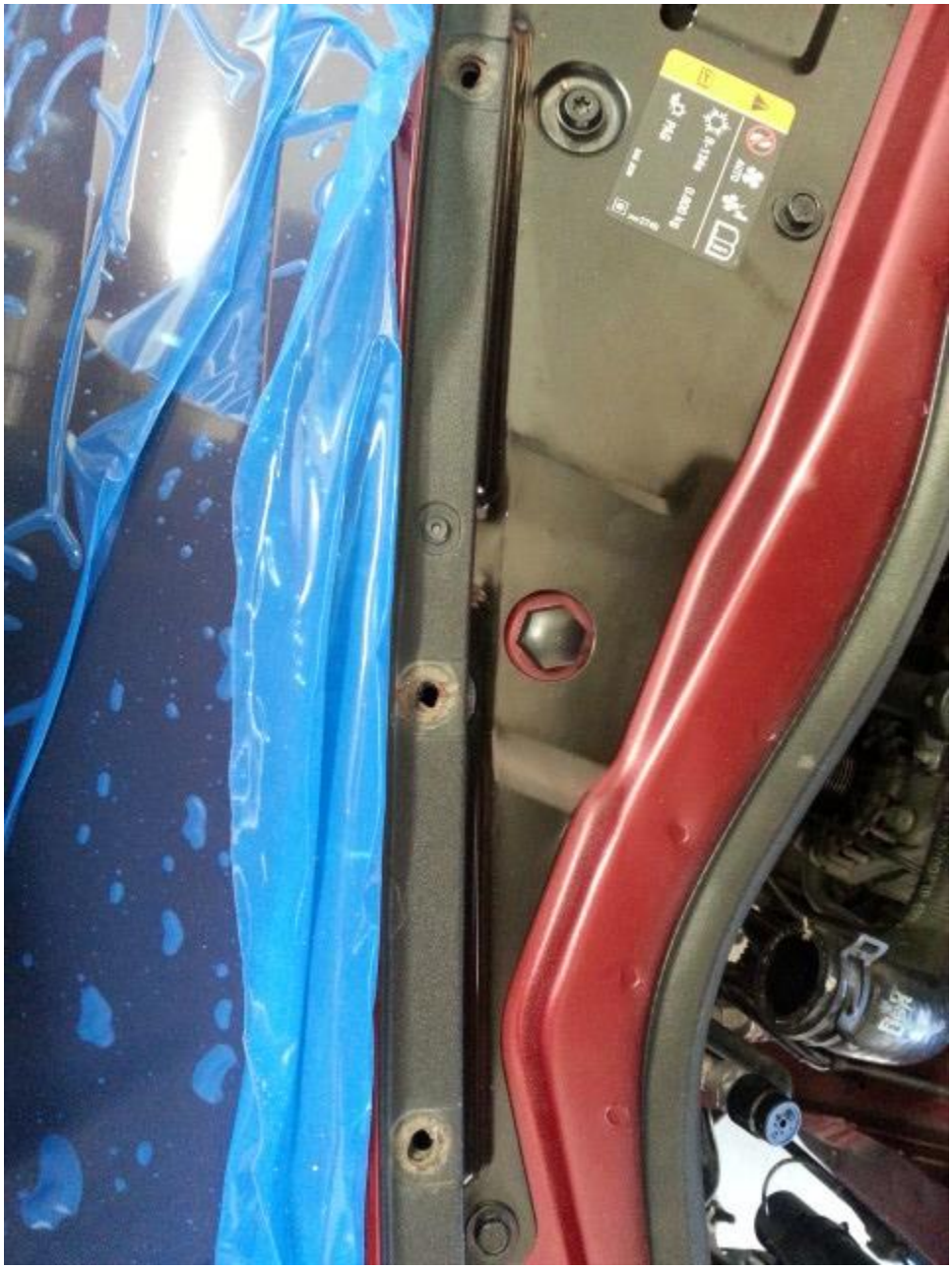
Splash shields (wheel wells):

Repeat for the opposite side.

Remove the bolts that hold on the bumper:

On the passenger side, you will need to disconnect the lighting:

Remove the push pins and bolts that hold the upper part in place:



Protect the lower portion of the bumper, and pull the bumper forward and off the car (watch for plastic spacers along the top ridge of the bumper):

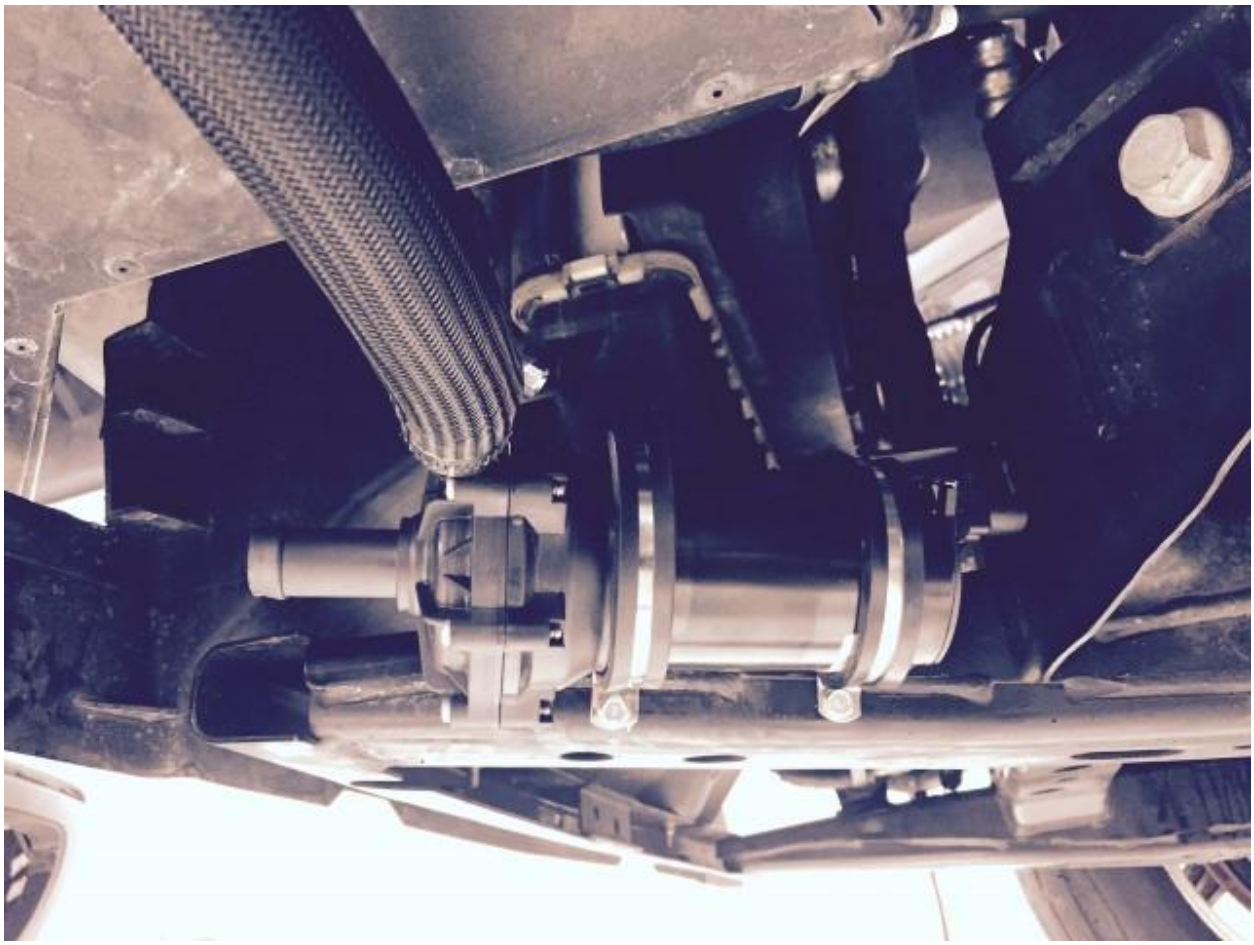
Brackets can be done in 2 was:

Or:

Install the intercooler pump. This is installed usually on the left lower side (near the radiator):

Harness:

Pump:



You can now route the hose from the pump to the inlet of the Heat exchanger (flow out is from the side):

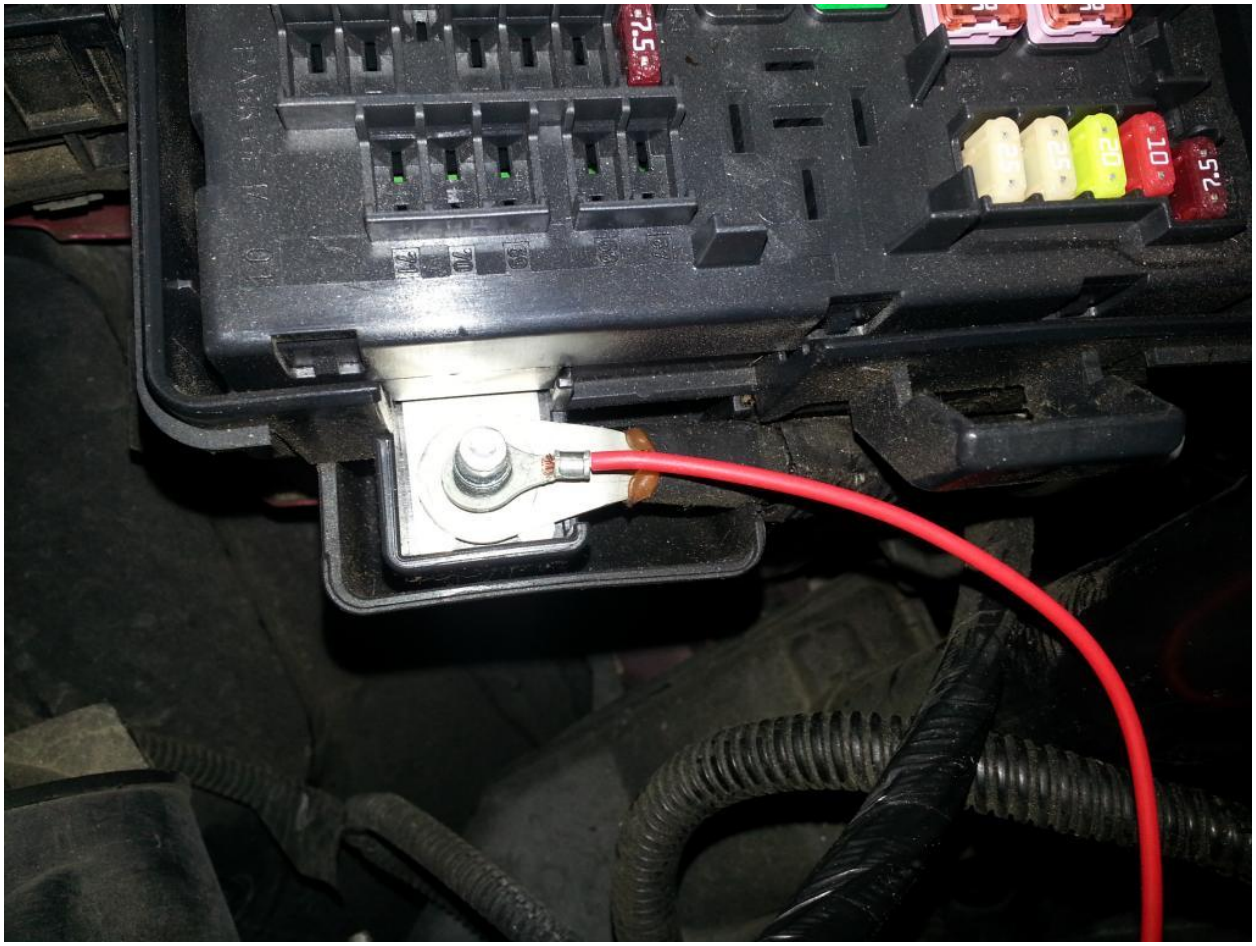
Wiring up the harness will need to use a ‘add a circuit’ connector:

15 Amp fuse for the main connector:

Add 15 amp fuse:

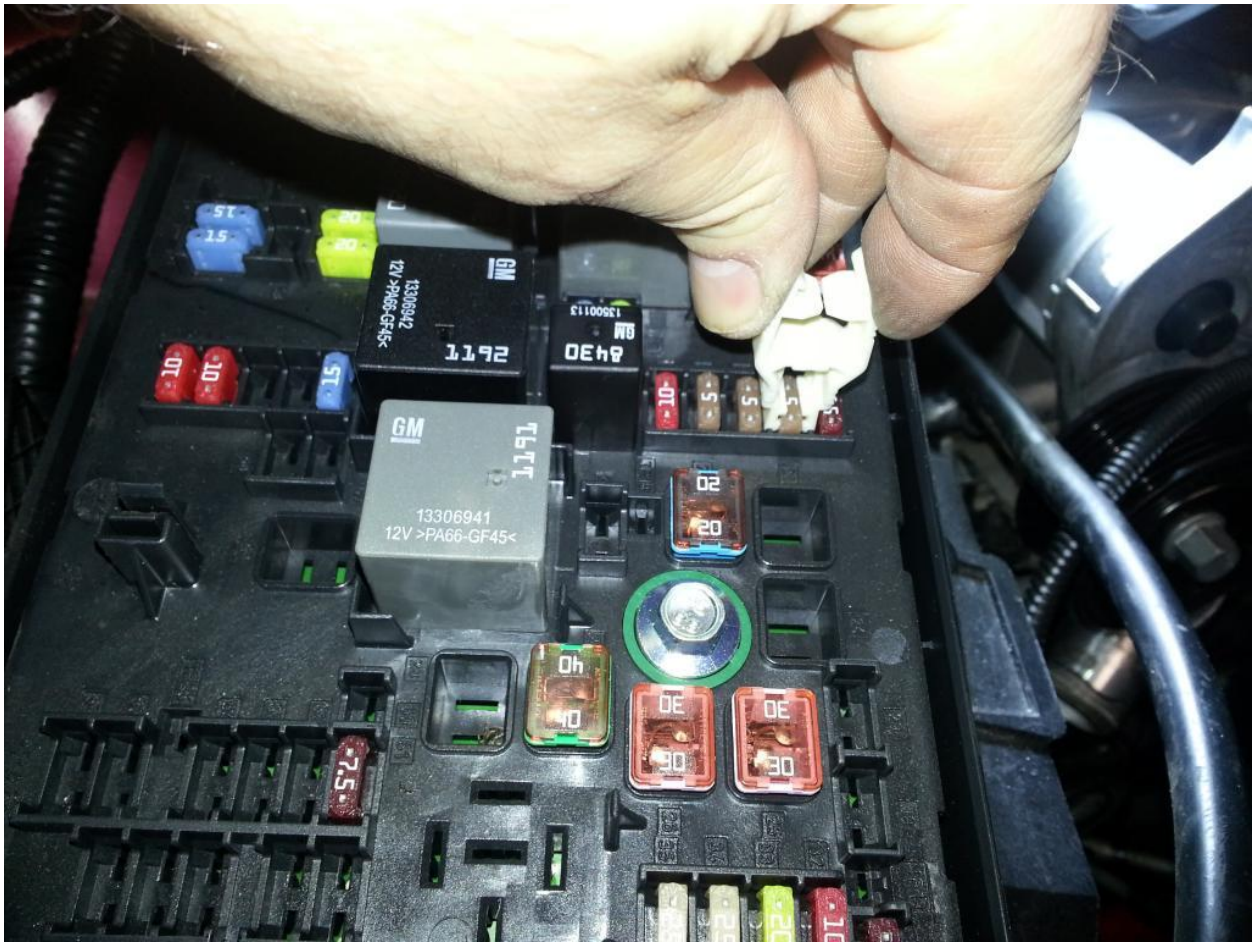
Mount positive cable:


13


7.5
10
7.5

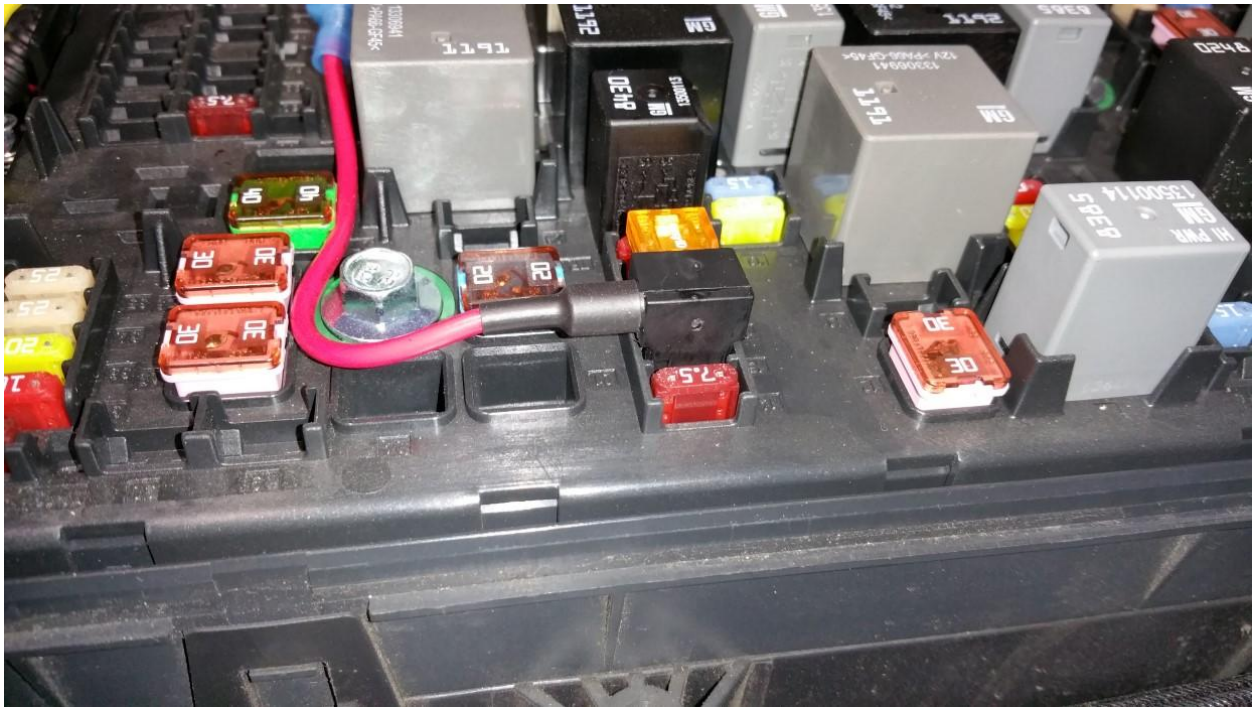
Connector for yellow wire and add a circuit (for the 5 amp fuse):

Remove 5 amp fuse:



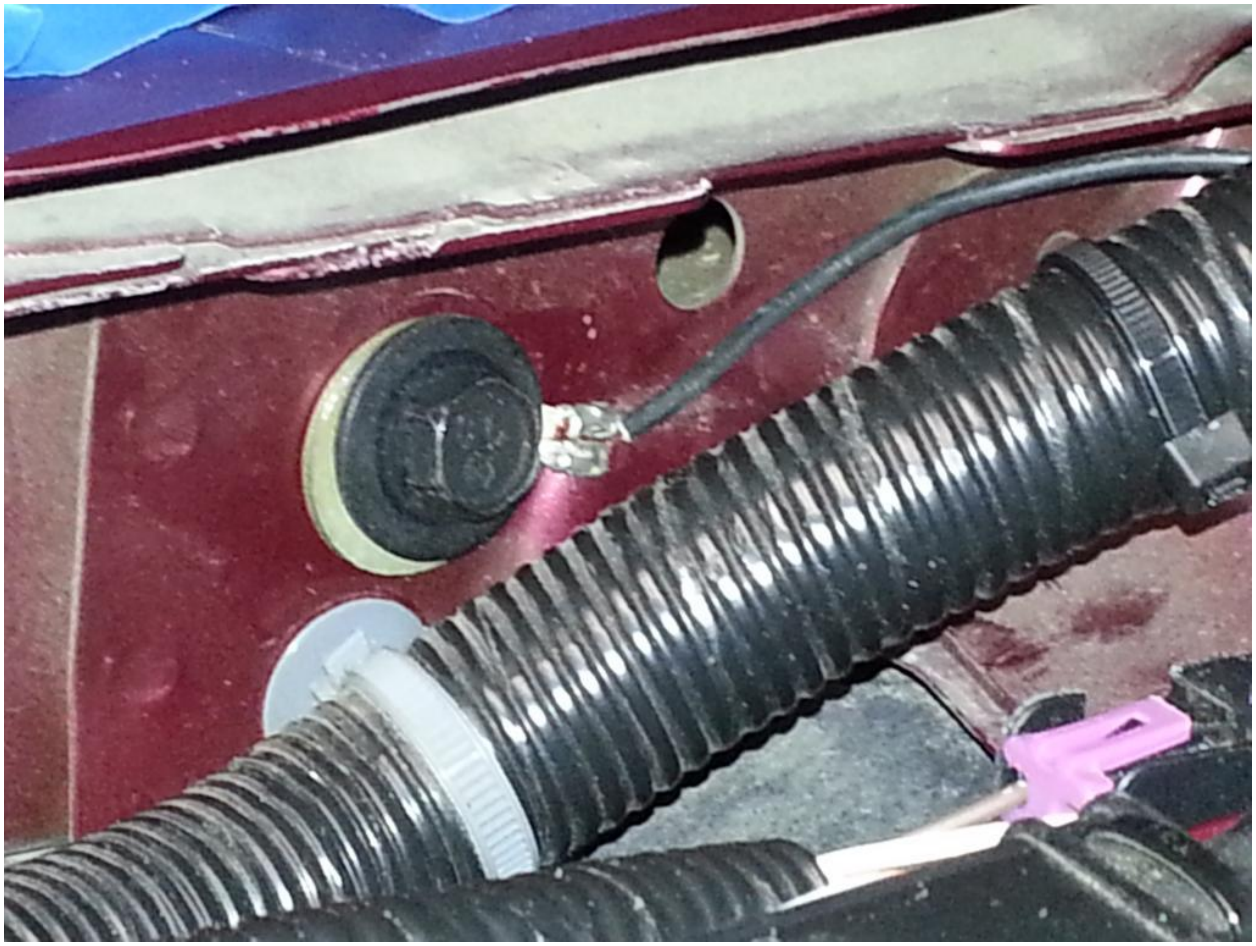
Strip yellow wire:

Locate the 5 amp fuse in the fuse box and add this fuse circuit and plug yellow line into this circuit – add additional 5 amp fuse:



Tie-wrap the harness' and verify they don't pinch when the fuse box is closed:

Add Ground:



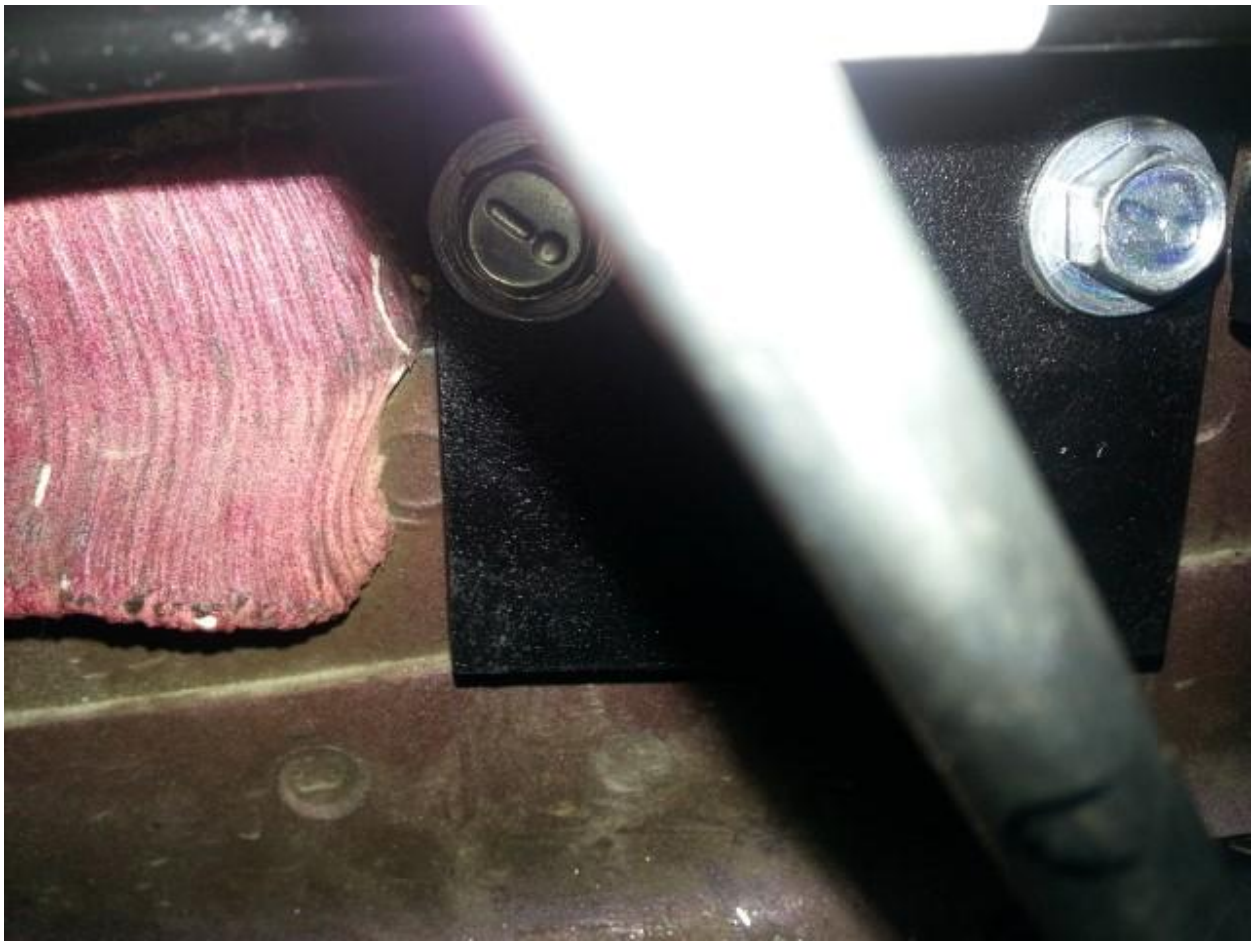
Route wire to the pump and connect.

Install the reservoir:

Locate on the driver's side and drill holes for mounting (location and size is up to the installer):


CENTRAL
PNEUMATIC


COOLANT
OPEN HOT



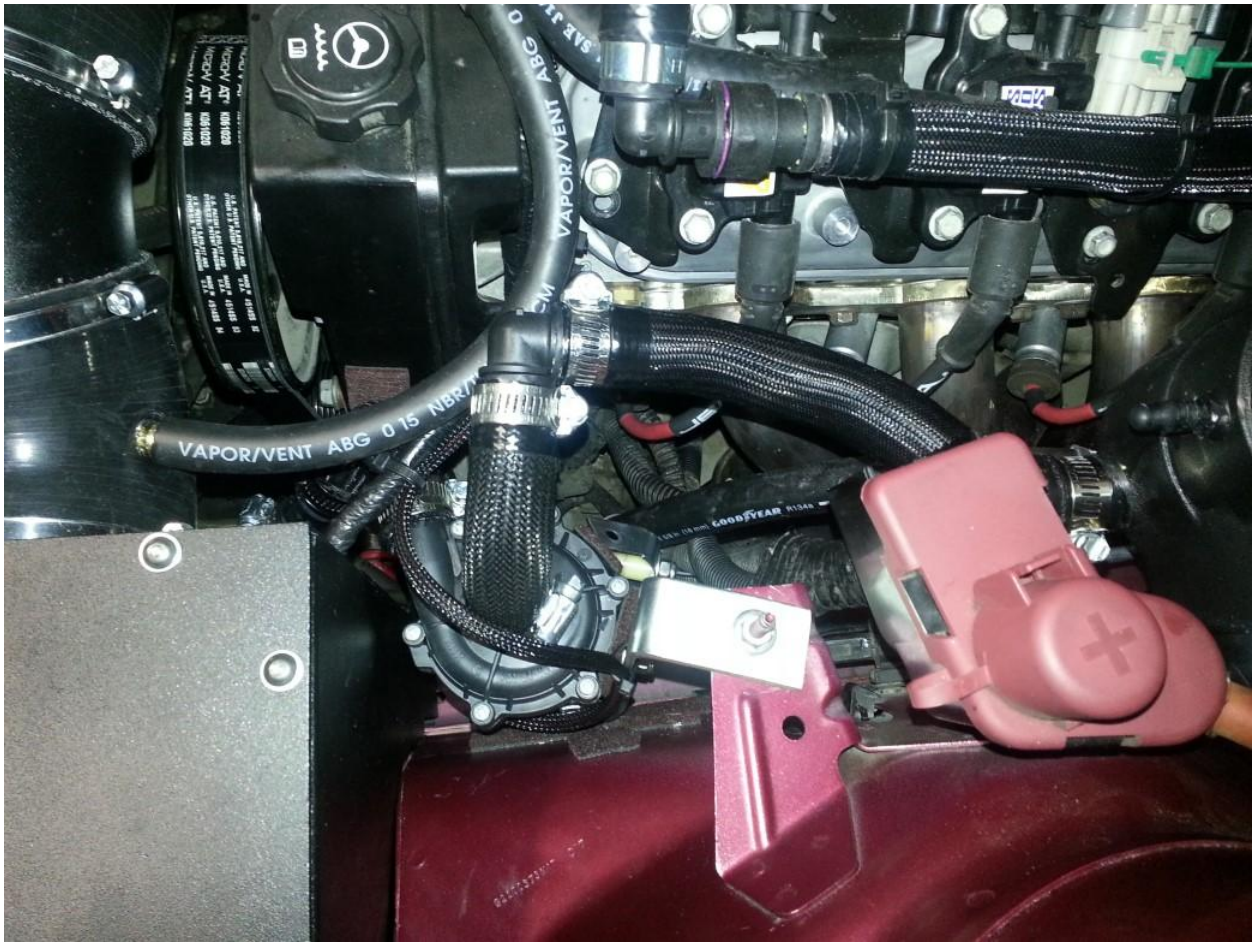
☐ With the reservoir installed, route the hoses from the intercooler to the reservoir:


DOT 3

☐ Route hoses to the passenger side:

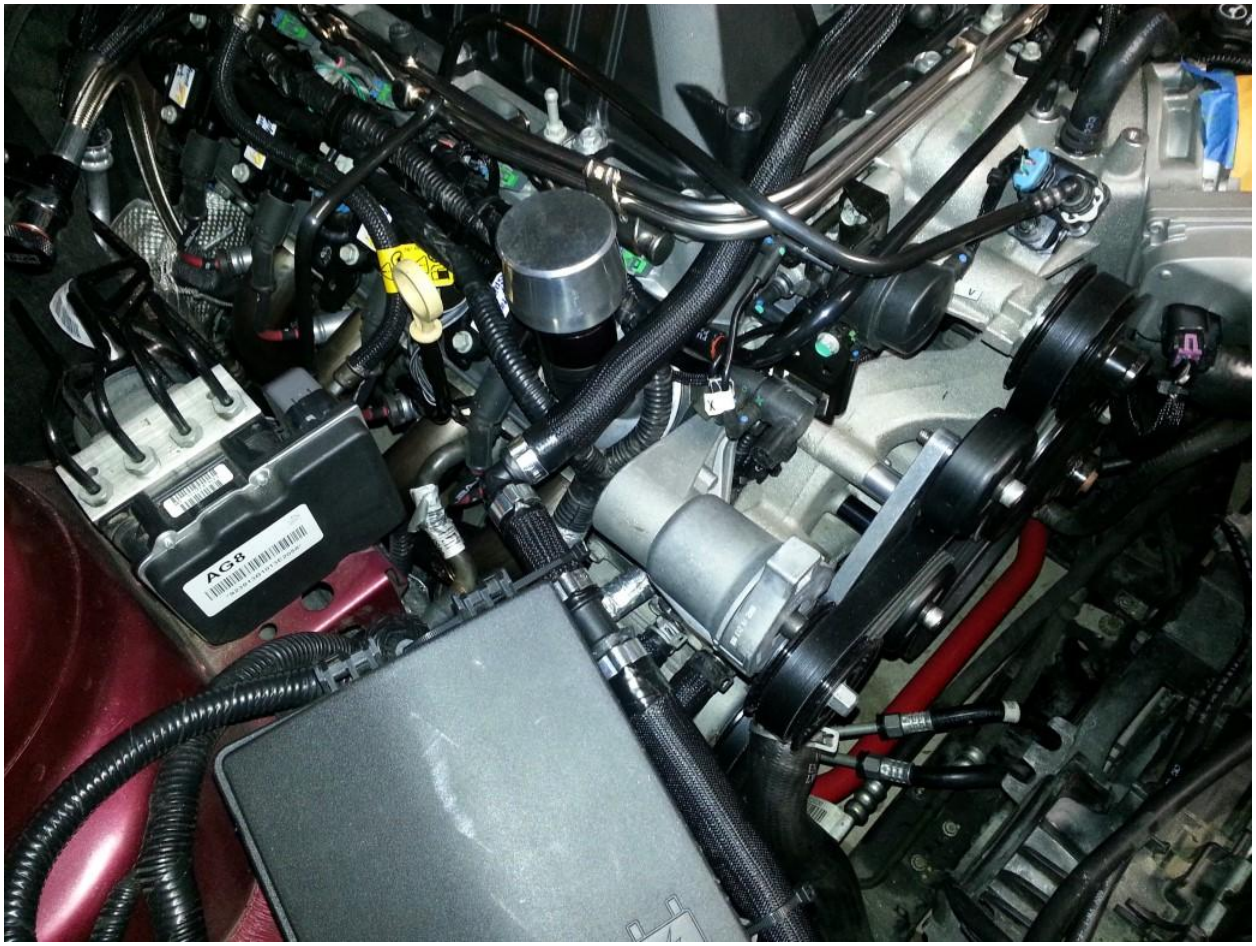
☐ Route hose from reservoir to pump:

(one example):



Route hose to upper opening of heat exchanger:


AG8



Tighten all hose clamps. Fill reservoir with 50/50 Dexcool. It will be necessary to ‘milk’ the lines to get the fluid through.

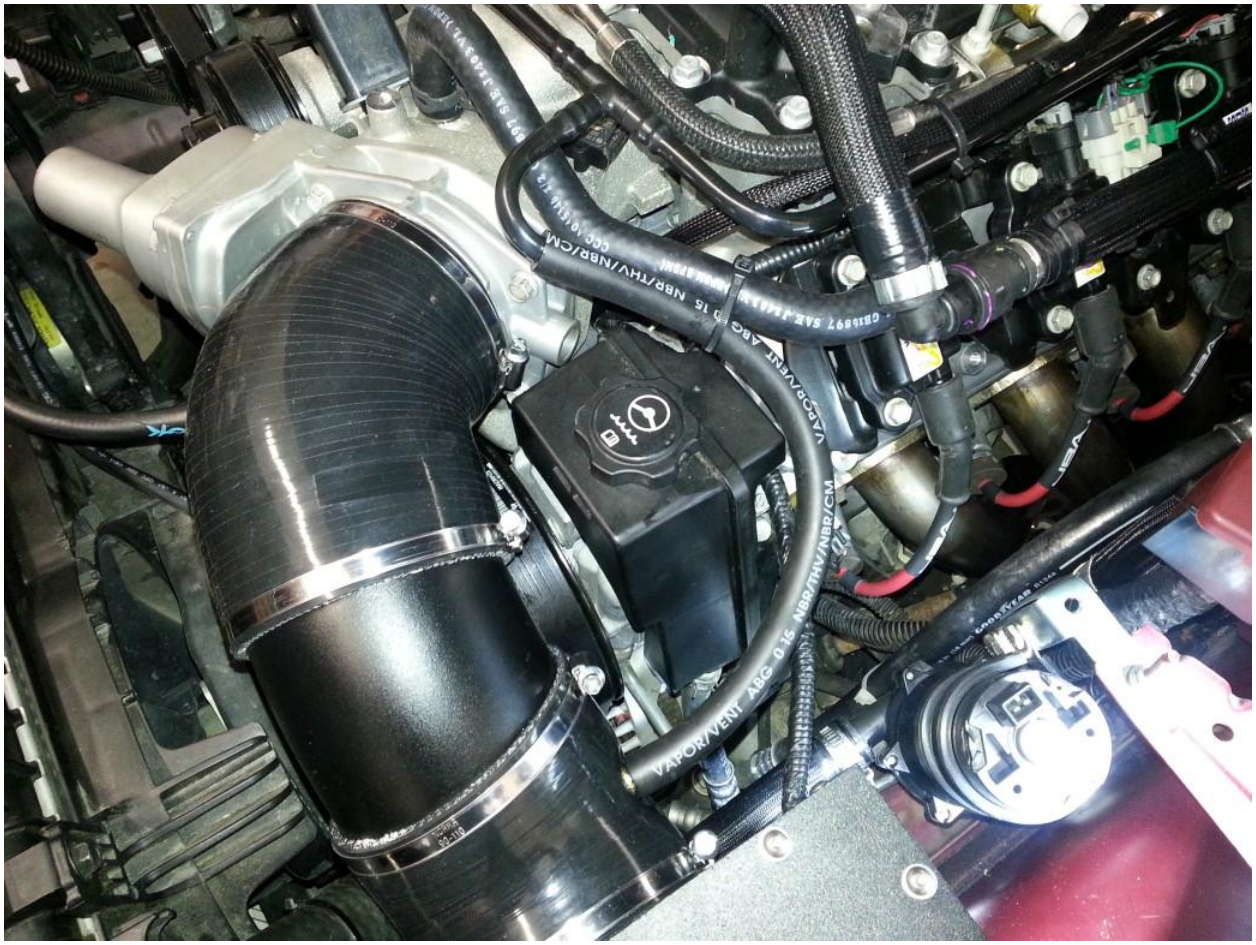
NOTE: Since the battery is not hooked up yet, you won’t be able to ‘cycle’ the pump. AFTER the battery is re-installed and you’ve uploaded to custom tune, you can turn the ‘key’ to on (don’t start) this will run the pump and allow you to continue to milk and fill the reservoir until you verify fluid is circulating – the fluid will be really moving once the pump is primed.

☐ Install the radiator, radiator hoses, transmission lines, and fans. Connect the fans and then fill the radiator with 50/50 Dexcool (**you will need to run several cycles to circulate the air out of the system – this means running the heater, letting the engine cool, fill radiator, then repeat until all air is out of the system**):

☐ Install the PCV line from the valley cover to the super charger lower manifold:

Verify all wires are clear of obstructions and all vacuum lines and PCV lines are hooked up:

☐ Install your CAI of choice. **NOTE you will need to add a line to account for the PCV line shown below**:



☐ Now is the time to review and verify all vacuum lines, connectors, fuel lines, belts, spark plugs and wires, coil packs, and hoses are connected. Verify NO leaks. It is best to re-install the front wheels, place the car on the ground, and use tire blocks before starting.

☐ Reinstall the battery. Close the gas cap. You will now upload your custom tune per tuner's instructions.

☐ This is the moment of truth, start your car. Take ALL safety precautions and verify NO leaks and no noises (you will need to look under the hood while the engine is running to confirm).

☐ Once you've cycle the engine (run until hot, cold refilled the intercooler reservoir and radiator), AND you've confirmed no leaks, you can re-assembly the front bumper.

Before taking your car for its first drive, remember to review all previous steps for their completion.

Above all:

ENJOY your new ADM LSA Supercharger!