

HAMBURGER'S **SUPERCHARGERS**™



2012-2018 Jeep Wrangler JK 3.6L Supercharger System Installation Manual

Important Notes:

- If you have any questions or concerns with this kit please call: 732-240-3696
- The use of **MINIMUM** 91 Octane Fuel is mandatory.
- The use of fuel additives is not recommended. There is a possibility that these chemicals can damage your engine and cause drivability issues with your vehicle.

BEFORE BEGINNING INSTALLATION SEND THE ECM BACK TO HAMBURGERS SUPERCHARGERS USING THE INCLUDED SHIPPING LABEL AND BOX. THIS WILL ALLOW TIME FOR HAMBURGERS SUPERCHARGERS TO GET THE ECM BACK TO YOU ASAP.

NOTE: IF YOU PURCHASED A “TUNER KIT” THERE IS NO NEED TO REMOVE THE ECU.

WARNING: Hamburgers Superchargers Inc. recommends allowing the vehicle to cool (not running) for two hours before beginning installation.

WARNING: To avoid the chance of electrical shock or damage to your vehicle’s electrical system, disconnect both the negative and positive battery leads (in that order) at the battery.

FUEL SYSTEM PRESSURE RELEASE

WARNING:

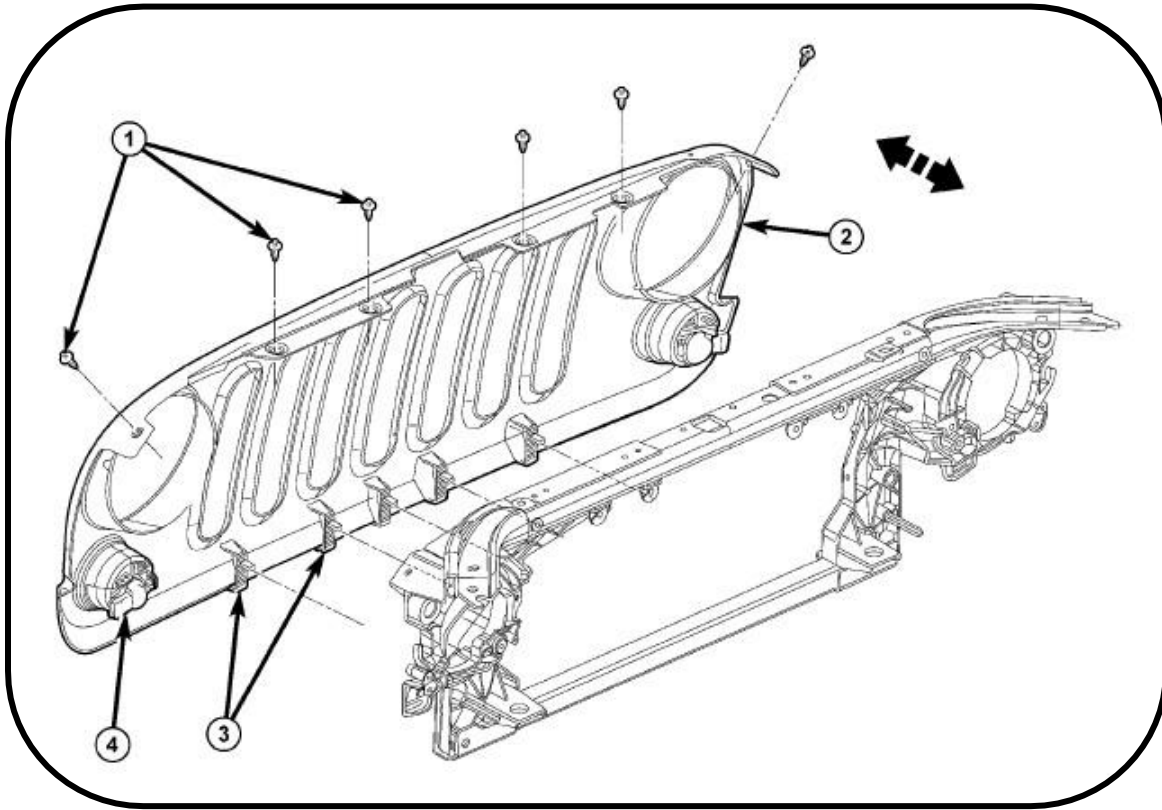
The fuel system is under constant high pressure even with engine off. Until the fuel pressure has been properly released from the system, do not attempt to open the fuel system. Do not smoke or use open flames/sparks when servicing the fuel system. Wear protective clothing and eye protection. Make sure the area in which the vehicle is being serviced is in a well ventilated area and free of flames/sparks. Failure to comply may result in serious or fatal injury.

DISASSEMBLY

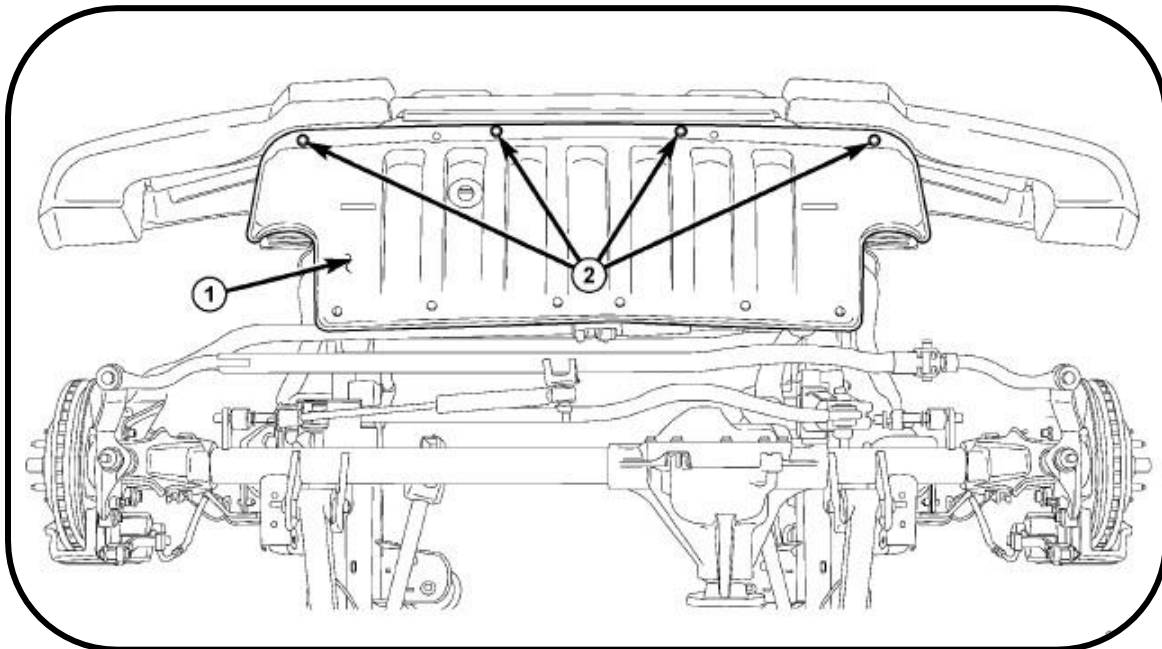
1. Remove the fuel pump relay from the power distribution center (PDC). The relay location label can be found on the underside of the PDC cover.
2. Start and run the engine until it stalls.
3. Attempt restarting engine until it will no longer run.
4. Turn ignition to the OFF position.
5. Return fuel pump relay to the Power Distribution Center (PDC).
6. Disconnect the negative battery terminal cable from the battery.
7. Remove the 2 connectors from the ECM and the 3 bolts that hold the ECM to the bracket.
Pack the ECM in the pre paid box to send back to Hamburgers Superchargers Inc.



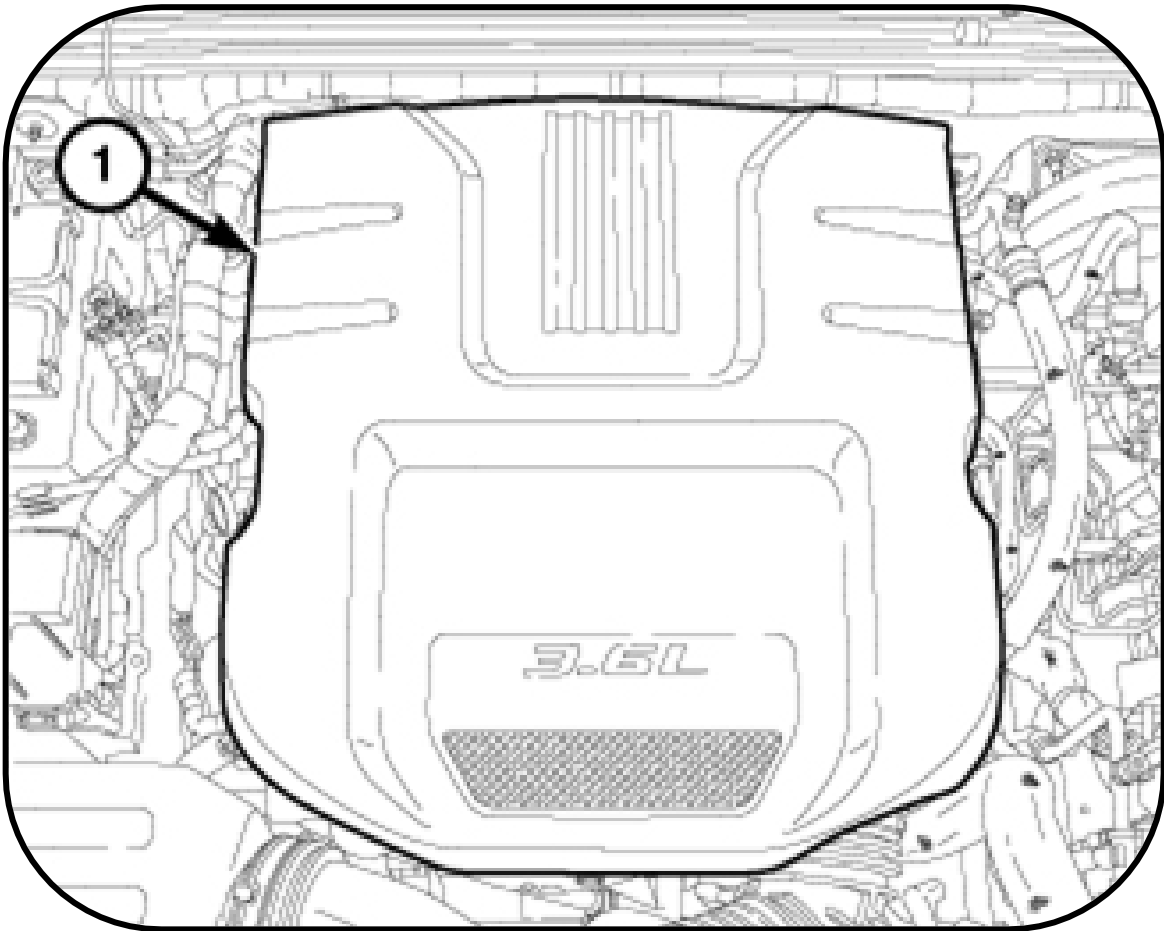
8. Remove the front grill (2) by removing the push pin retainers along the top of the grill (1). Then pull the bottom of the grill outwards to release the retaining clips (3). Once out disconnect the turn signal connectors (4).



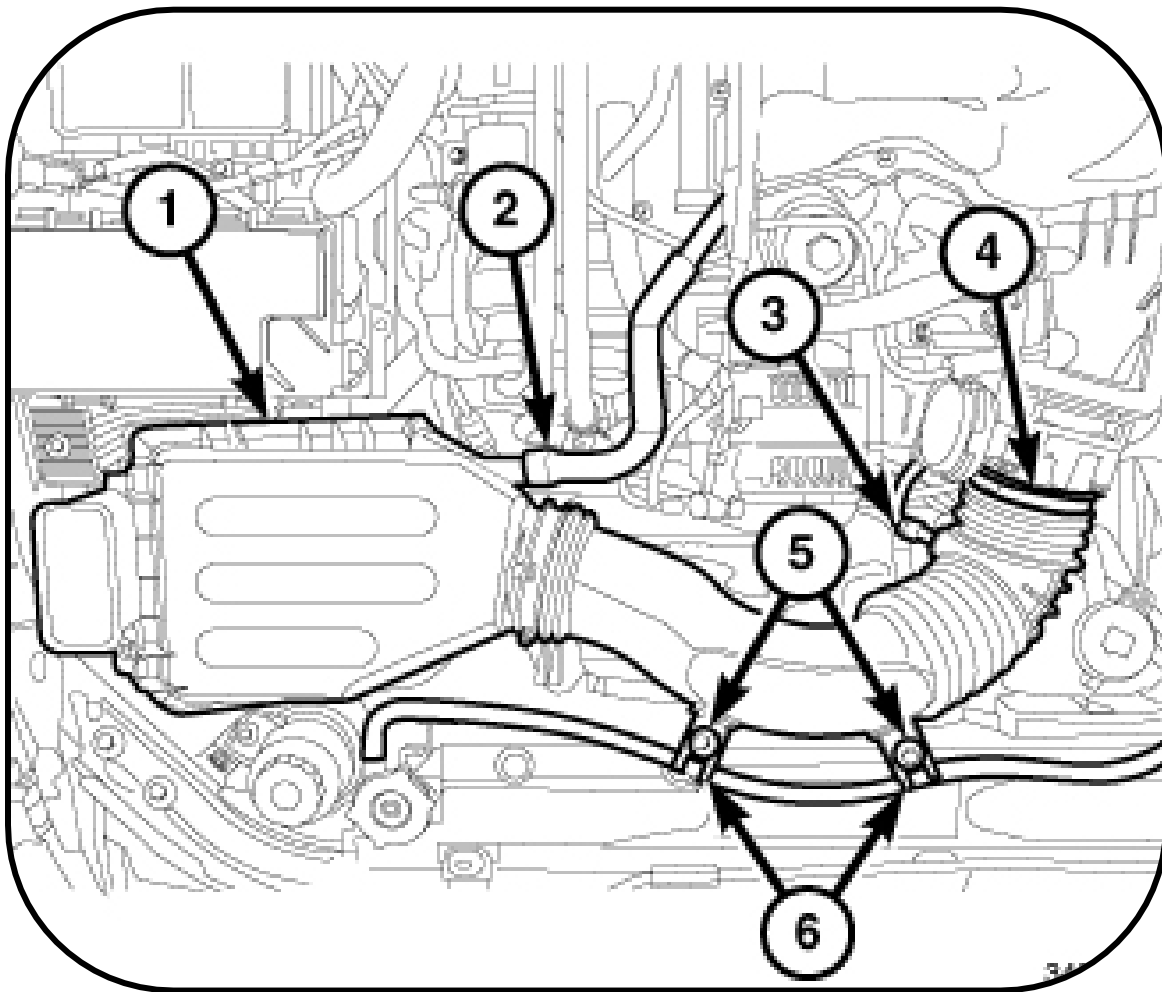
9. Remove the lower shroud.



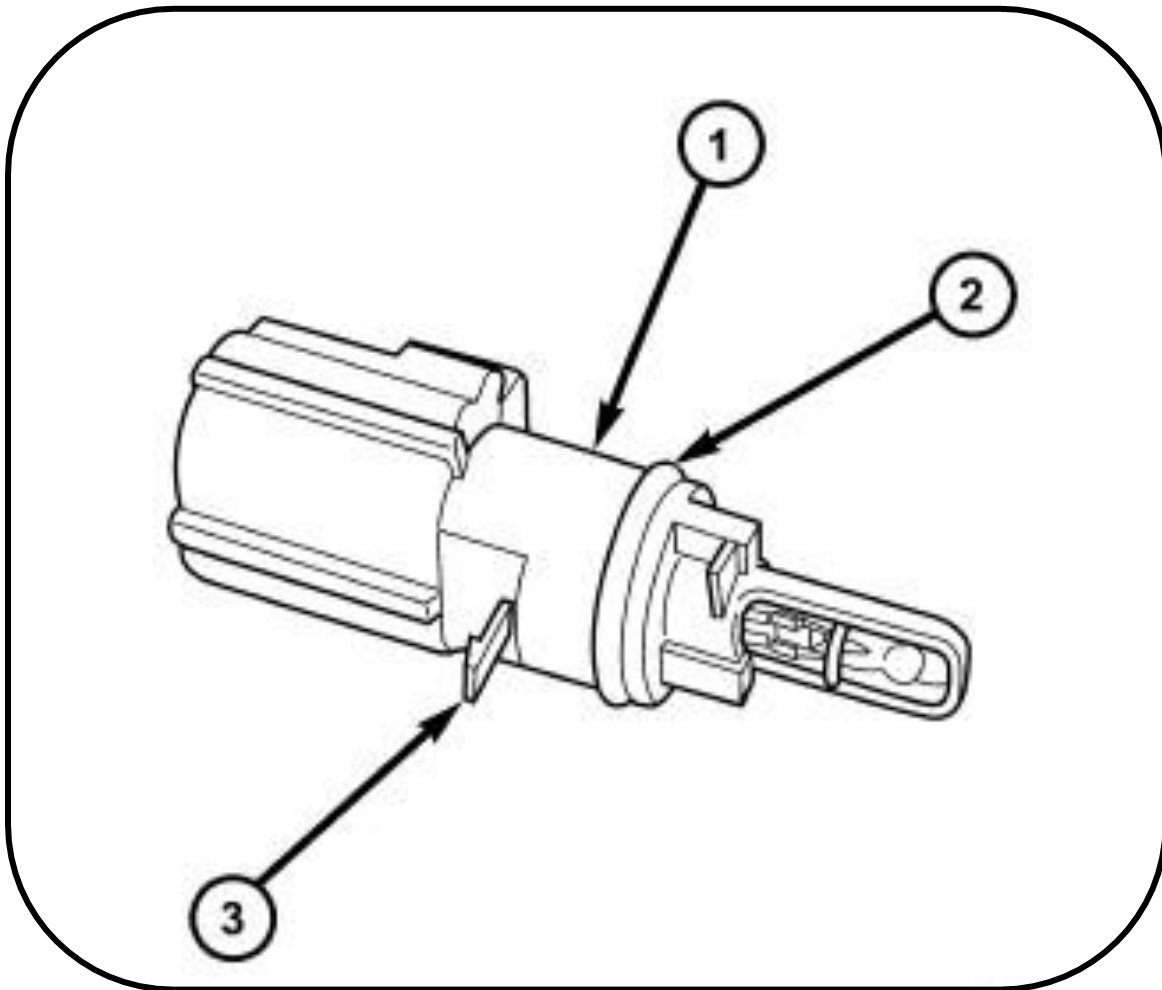
10. Remove the engine cover (1). Store in a safe place as it will be modified and re-installed later.



11. Disconnect the electrical connector (3) from the Inlet Air Temperature (IAT) sensor.
12. Loosen the clamp (4) at the throttle body.
13. Disconnect the fresh air makeup hose (2) from the air cleaner body.
14. Disengage the coolant hose from the two retainers (6).
15. Remove the two bolts (5) from the air inlet hose.
16. Disengage the air inlet hose from the throttle body and pull the air cleaner assembly (1) straight up off of the three locating pins.



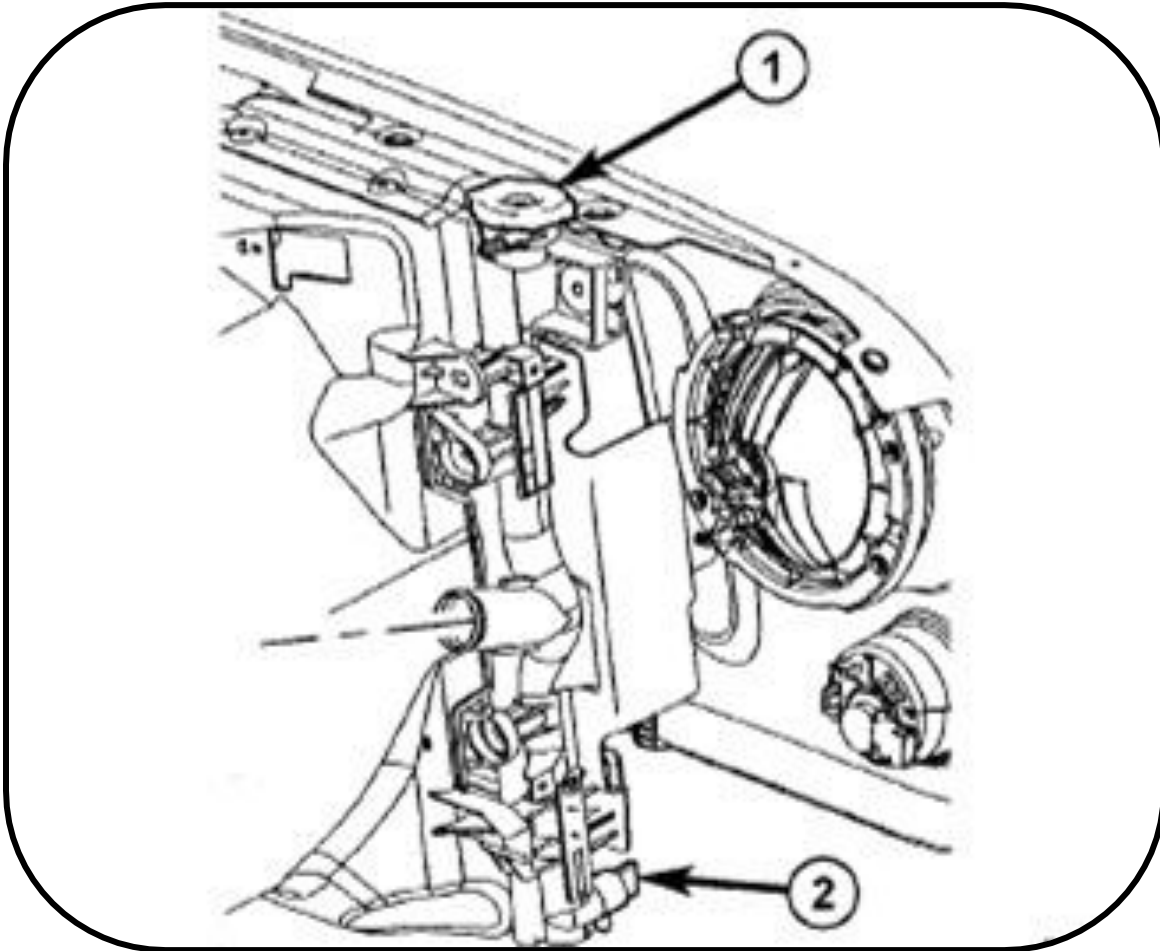
17. Gently lift the small plastic release tab (3), rotate the sensor about 1/4 turn counter-clockwise and remove the sensor from the inlet air hose.
18. The IAT sensor O-ring (2) can be reused. Put the sensor in a safe place as it will be re-used later in the new intercooler tube.



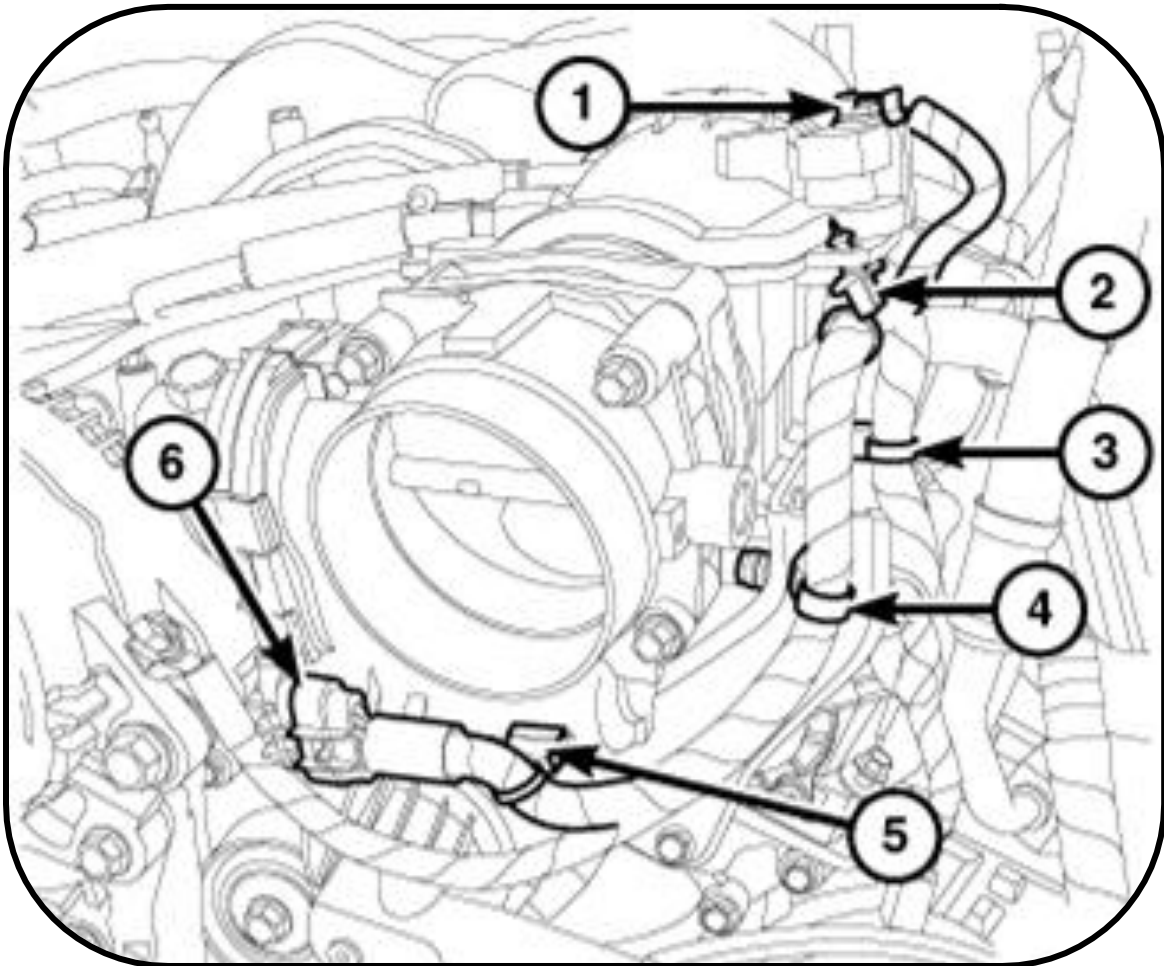
19. Remove radiator cap (1) from radiator.

20. Raise and support vehicle.

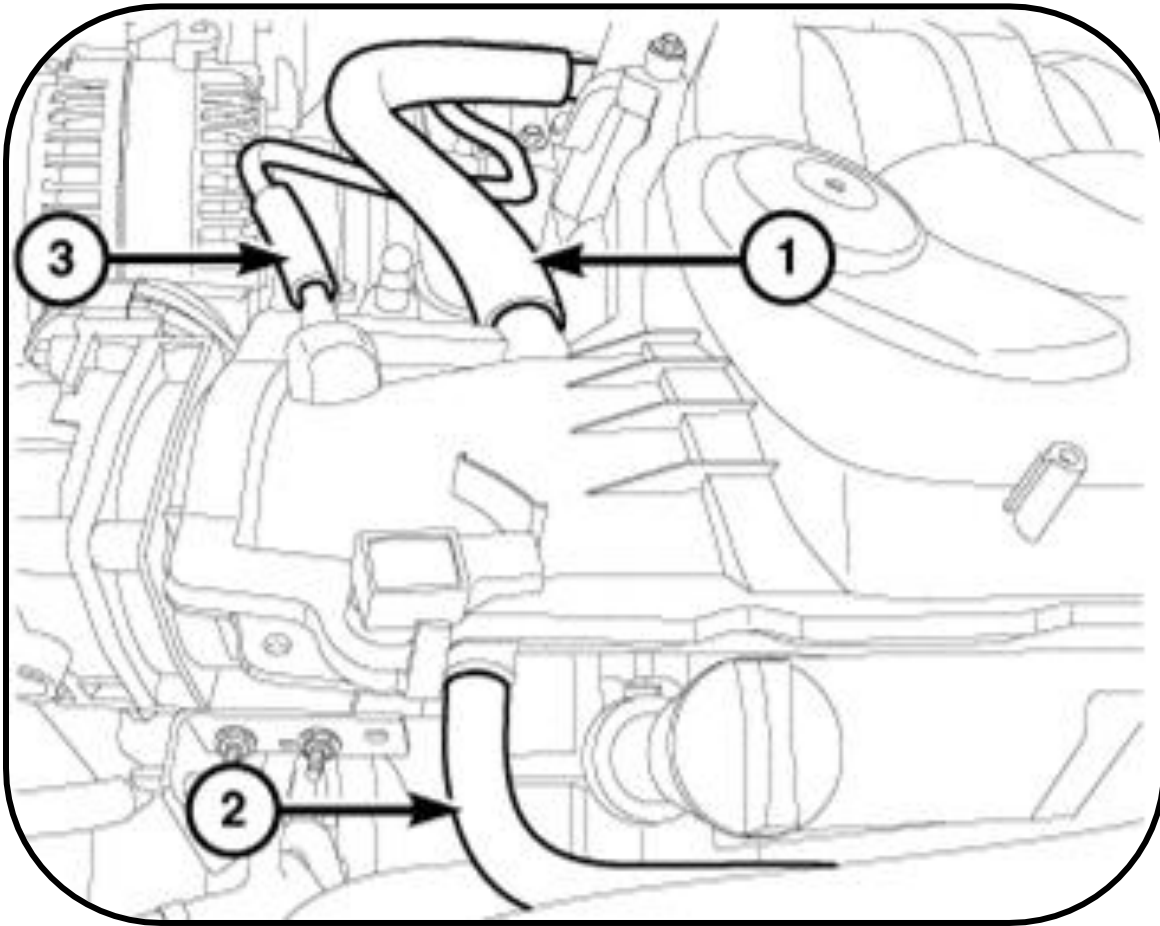
21. Attach one end of a hose to the radiator drain. Put the other end into a clean container. Open drain and drain coolant from radiator.



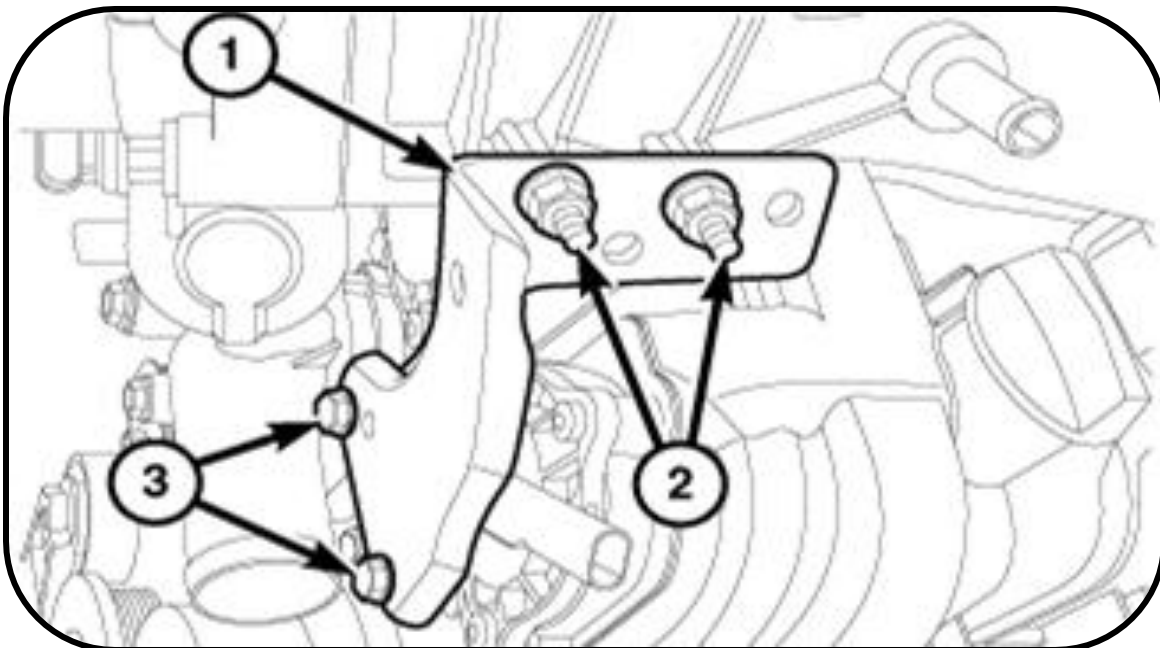
22. Next remove the intake manifold and change the injectors to the new supplied high flow injectors.
23. Disconnect the electrical connectors from the Manifold Absolute Pressure (MAP) sensor (1) and the Electronic Throttle Control (ETC) (6).
24. Disengage the ETC harness from the clip (5) on the throttle body.
25. Disengage the wire harness retainer (2) from the upper intake manifold.
26. Disengage the wire harness retainers (3 and 4) from the left front upper intake manifold support bracket and reposition the wire harness.



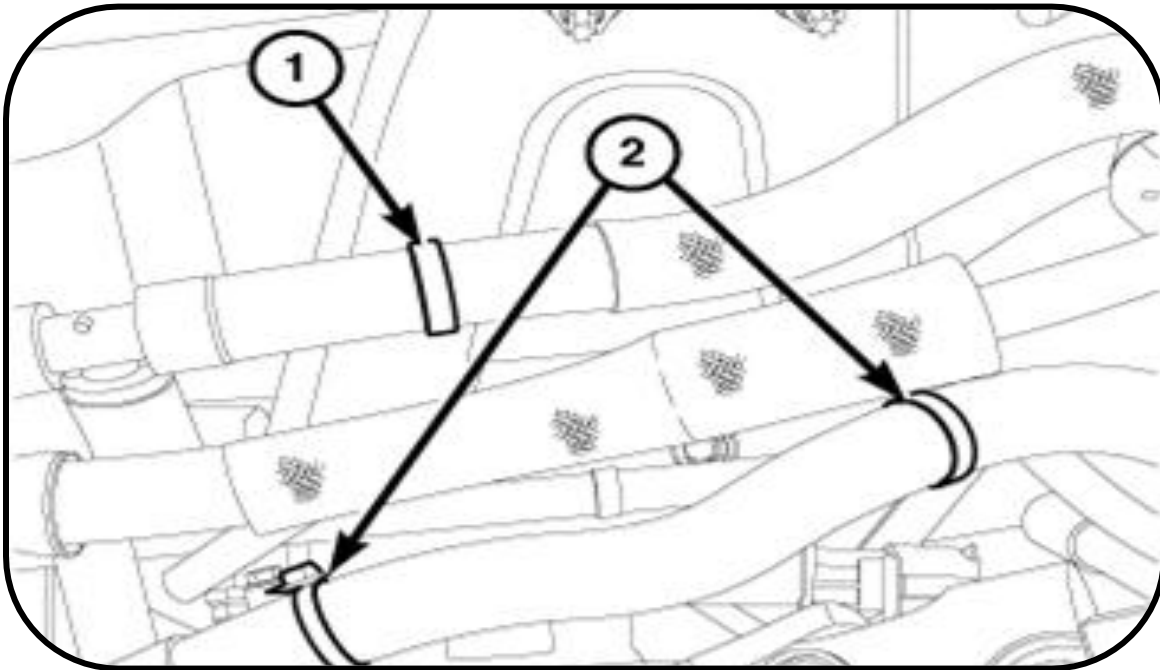
27. Disconnect the following hoses from the upper intake manifold; PCV (1), brake booster (2), vapor purge (3).



28. Remove two nuts (2), two bolts (3) and the left front upper intake manifold support bracket (1).

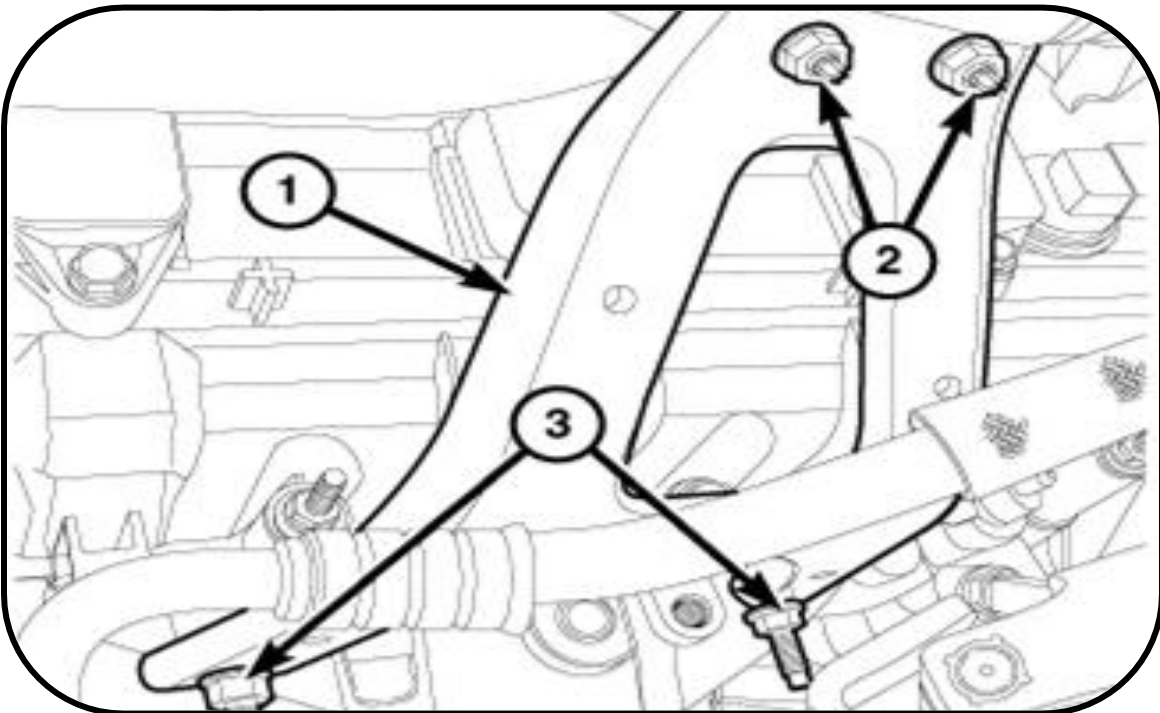


29. Disengage the brake booster hose retainer (1) from the left rear upper intake manifold support bracket. Also disengage the wire harness retainers (2) from the left rear upper intake manifold support bracket and reposition the wire harness.

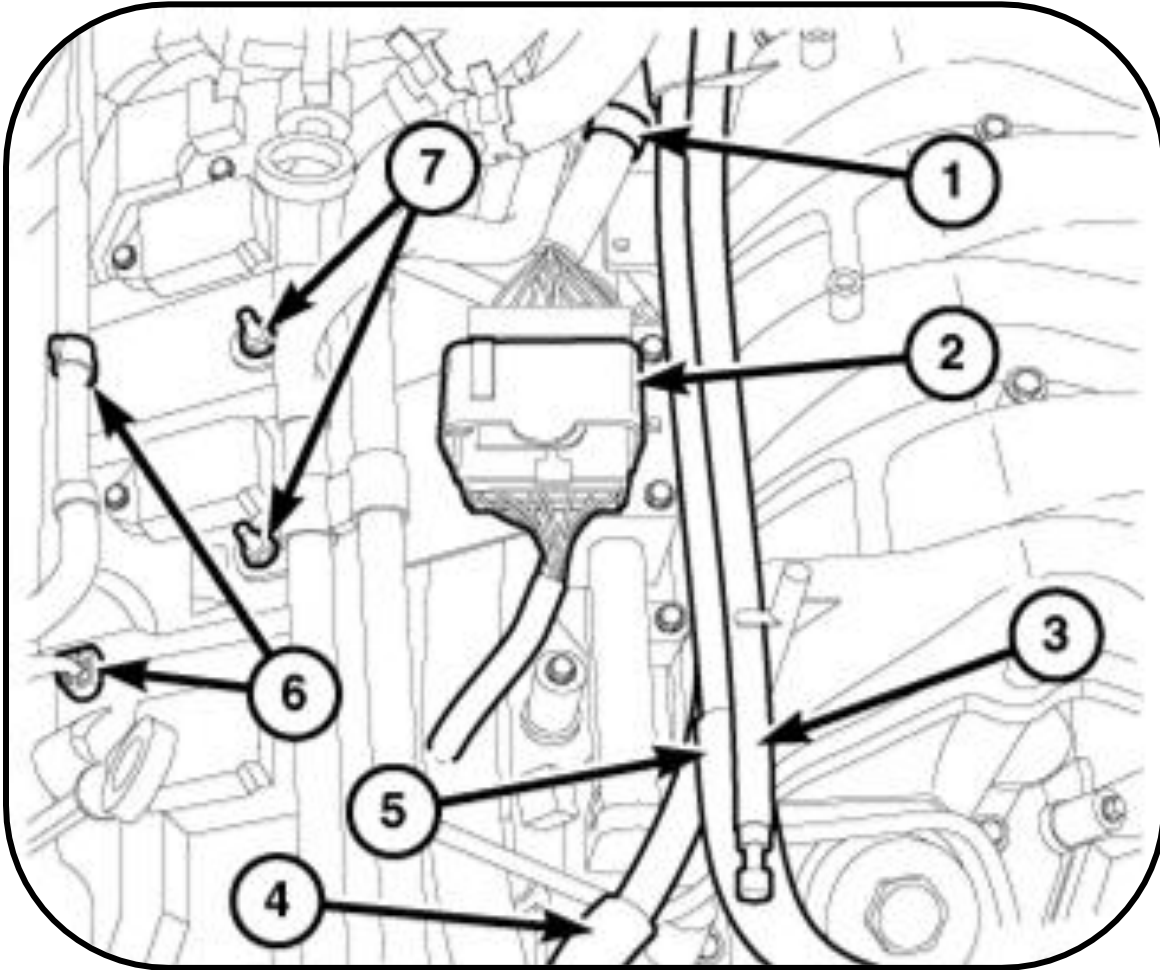


30. Remove two nuts (2) from the left rear upper intake manifold support bracket (1).

31. Loosen two bolts (3) and reposition the left rear upper intake manifold support bracket (1) away from the upper intake manifold. Note: this should be done through the DS wheel well.

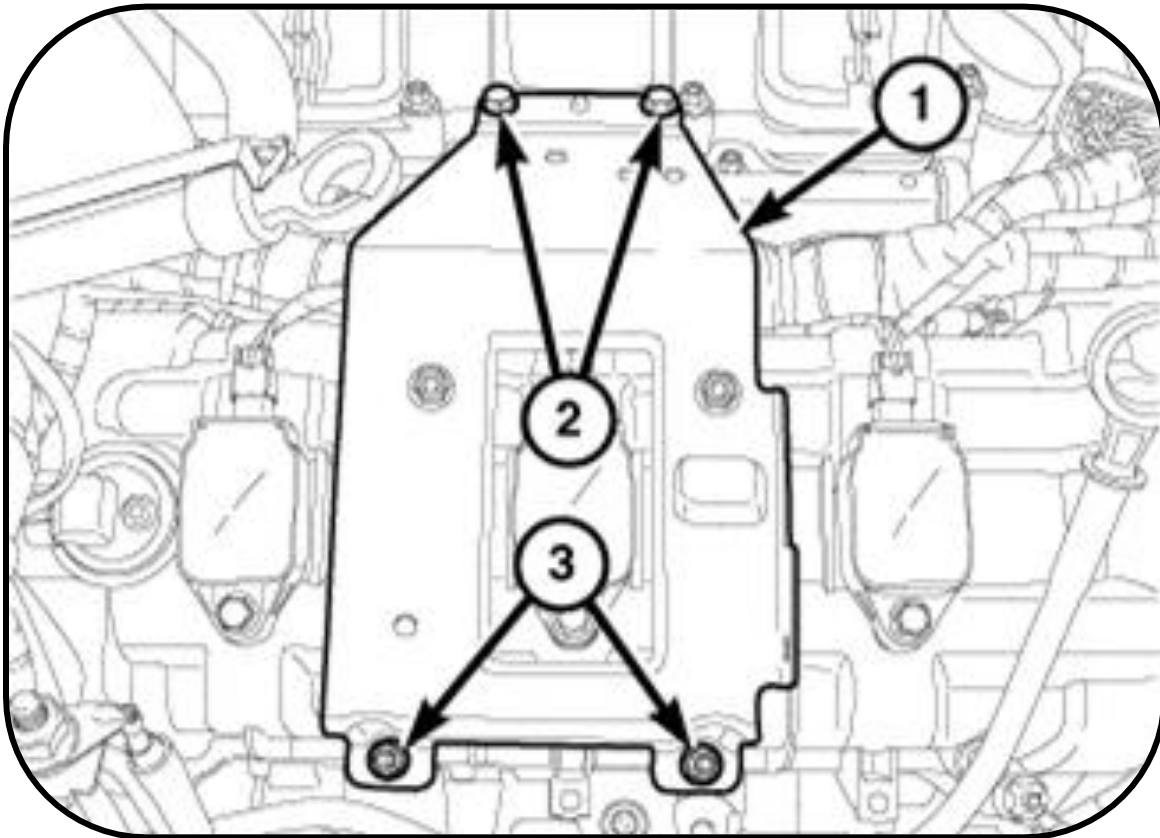


32. Disengage the wire harness retainer (1) from the upper intake manifold.
33. Disengage the wire harness connector retainer (2) from the right upper intake manifold support bracket.
34. Disengage and reposition the following hoses from the upper intake manifold; transfer case vent (3), fresh air makeup (4), PCV (5).
35. Disengage two purge tube retainers (6) from the right upper intake manifold support bracket.
36. Remove two nuts (7) and reposition the heater core coolant tube assembly.

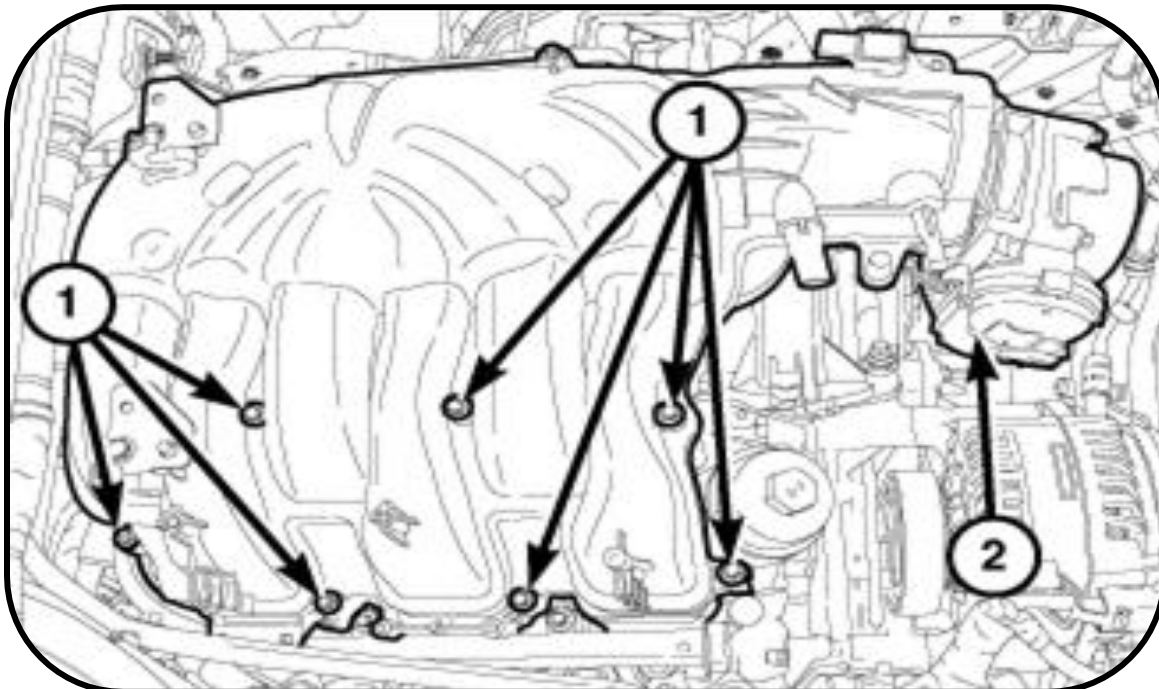


37. Remove two bolts (2) from the right upper intake manifold support bracket (1).

38. Remove two nuts (3) and reposition the right upper intake manifold support bracket (1). Note: This step should be done through the PS wheel well.

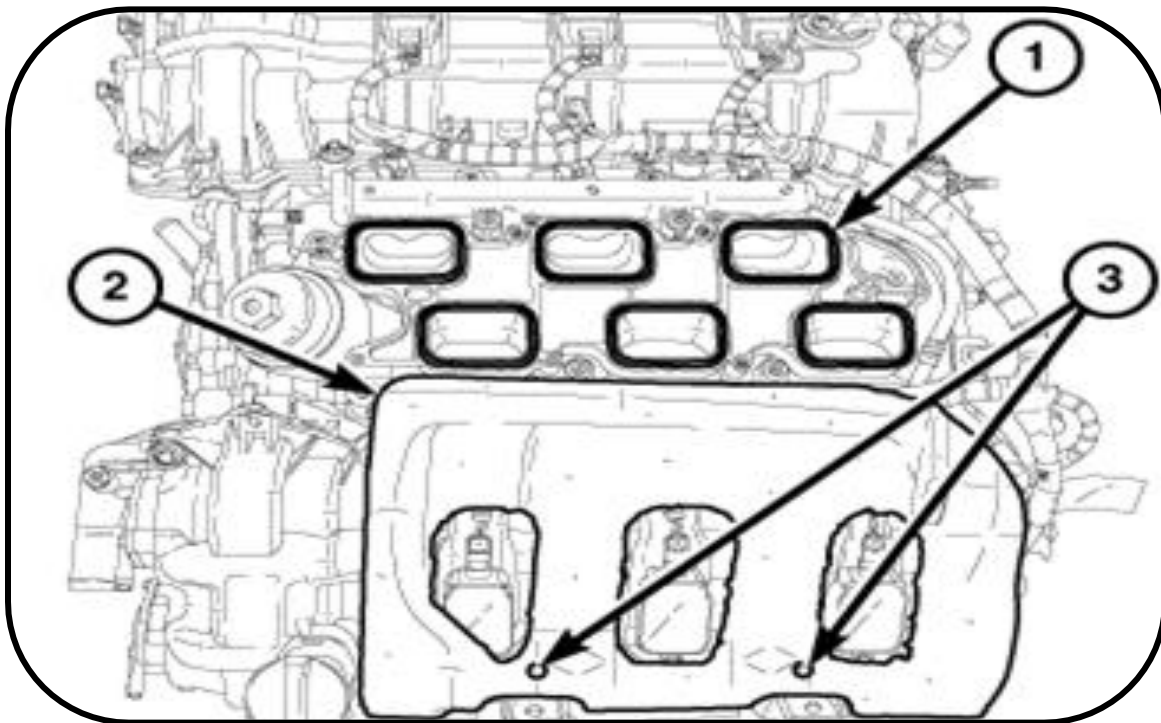


39. Remove seven upper intake manifold bolts (1) and remove the upper intake manifold (2).



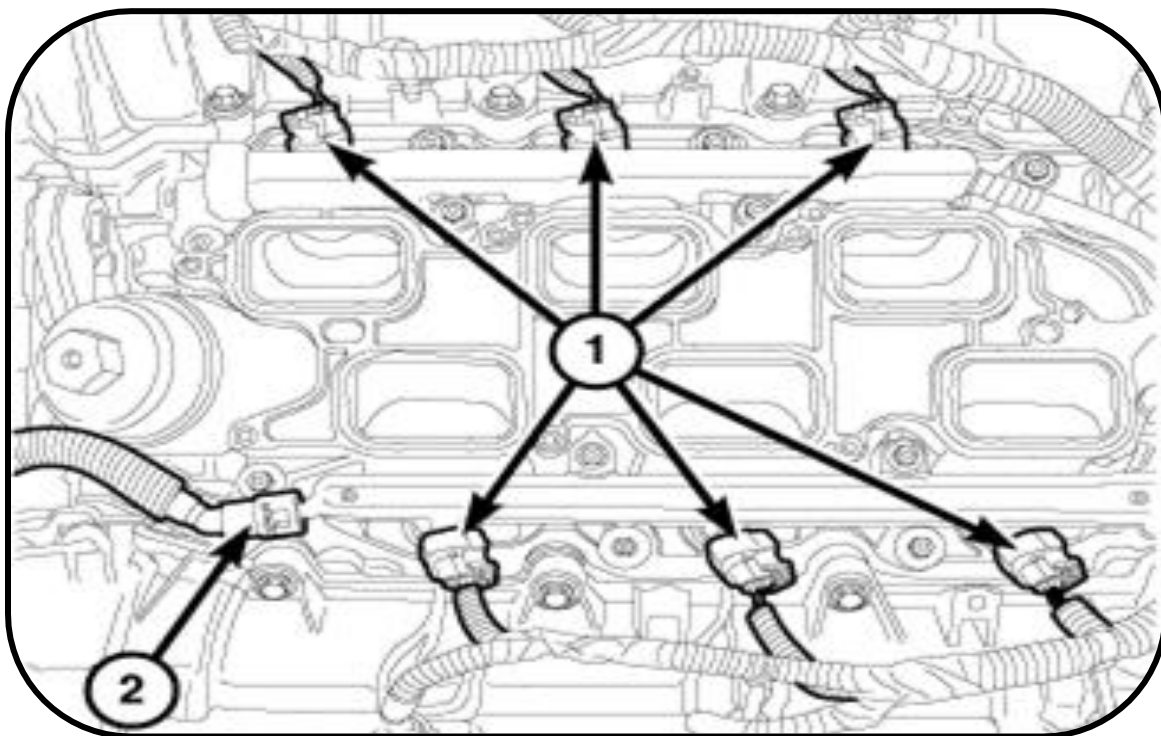
40. Cover the open intake ports to prevent debris from entering the engine.

41. Remove the insulator (2) from the LH cylinder head cover.



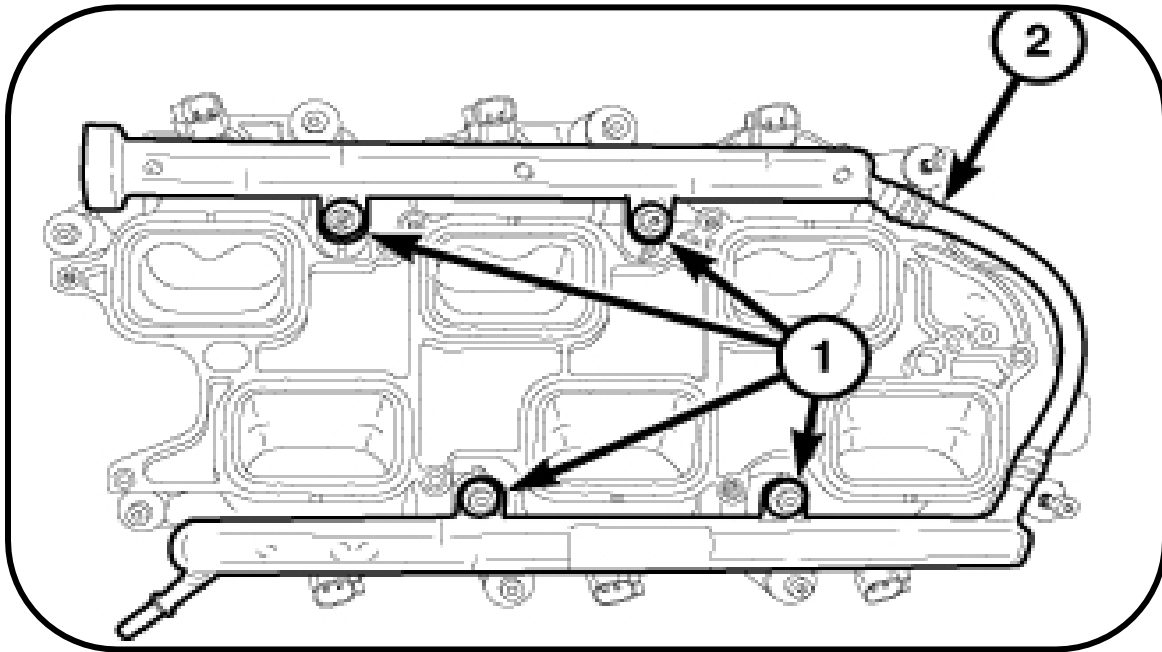
42. Disconnect the fuel injector electrical connectors (1).

43. Disconnect the fuel supply hose (2) from the fuel rail.



44. Remove the four bolts (1) from the fuel rail (2).

45. Lift the fuel rail and the fuel injectors from the lower intake manifold.



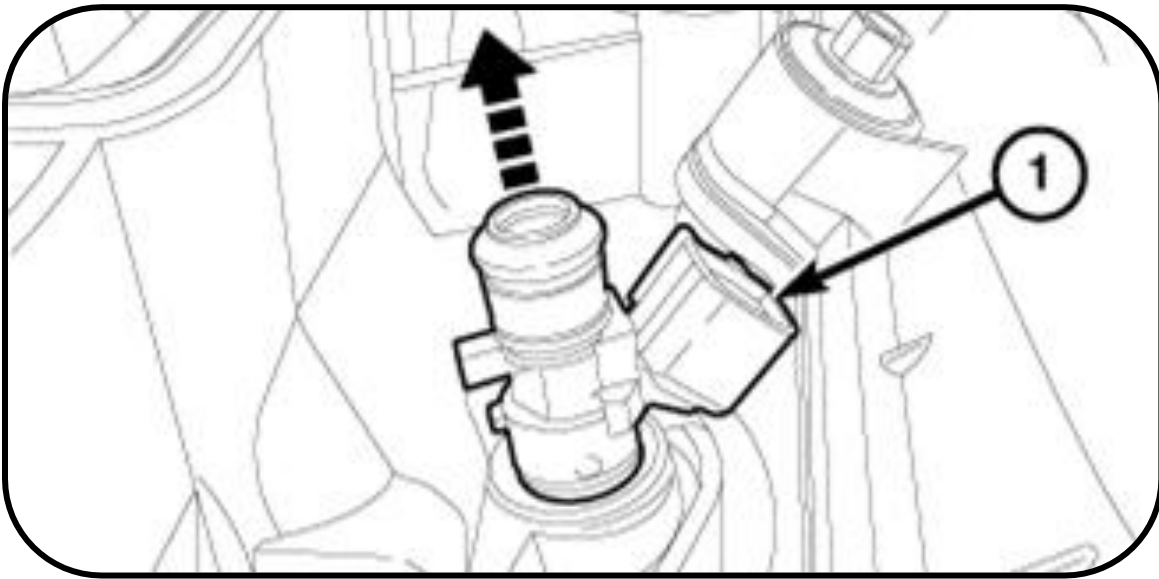
CAUTION:

The left and right fuel rails are replaced as an assembly. Do not attempt to separate the rail halves at the connector tube. Due to the design of this tube, it does not use any clamps. Never attempt to install a clamping device of any kind on the tube. When removing the fuel rail assembly for any reason, be careful not to bend or kink the tube.

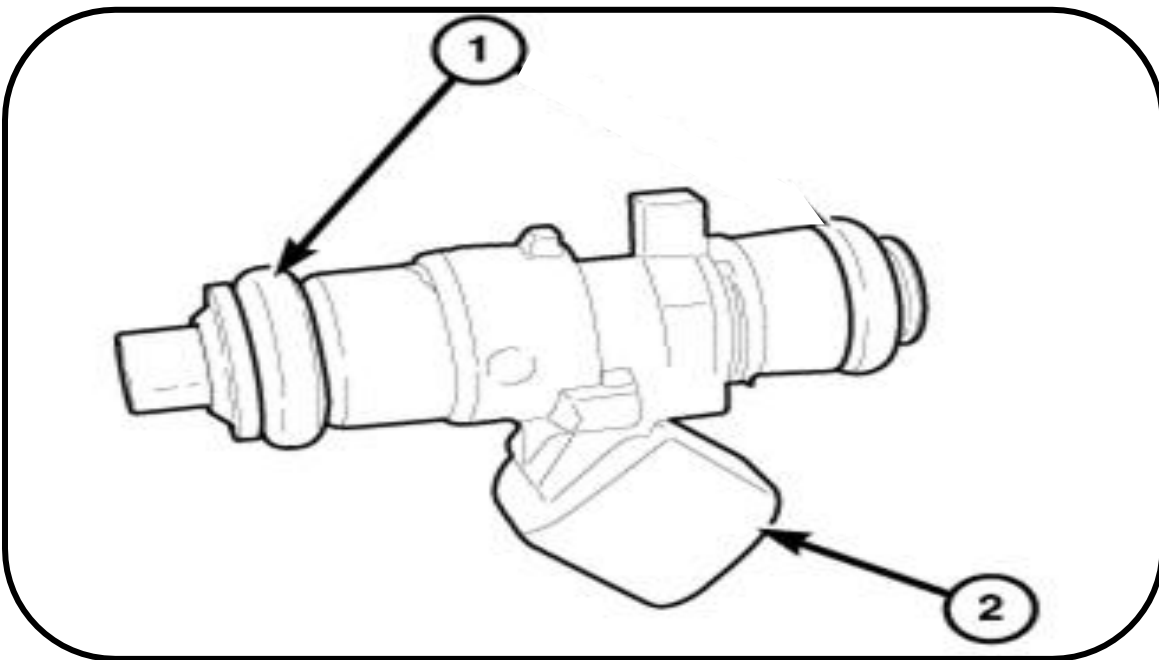
CAUTION:

When removing the fuel rail from the lower intake manifold, one or more fuel injectors may remain in the intake manifold resulting in residual fuel spilling onto the engine from the fuel rail.

46. Remove any remaining fuel injectors (1) from the lower intake manifold.



47. Remove the lower o-rings (1) of the NEW injectors and replace with the supplied red o-rings.

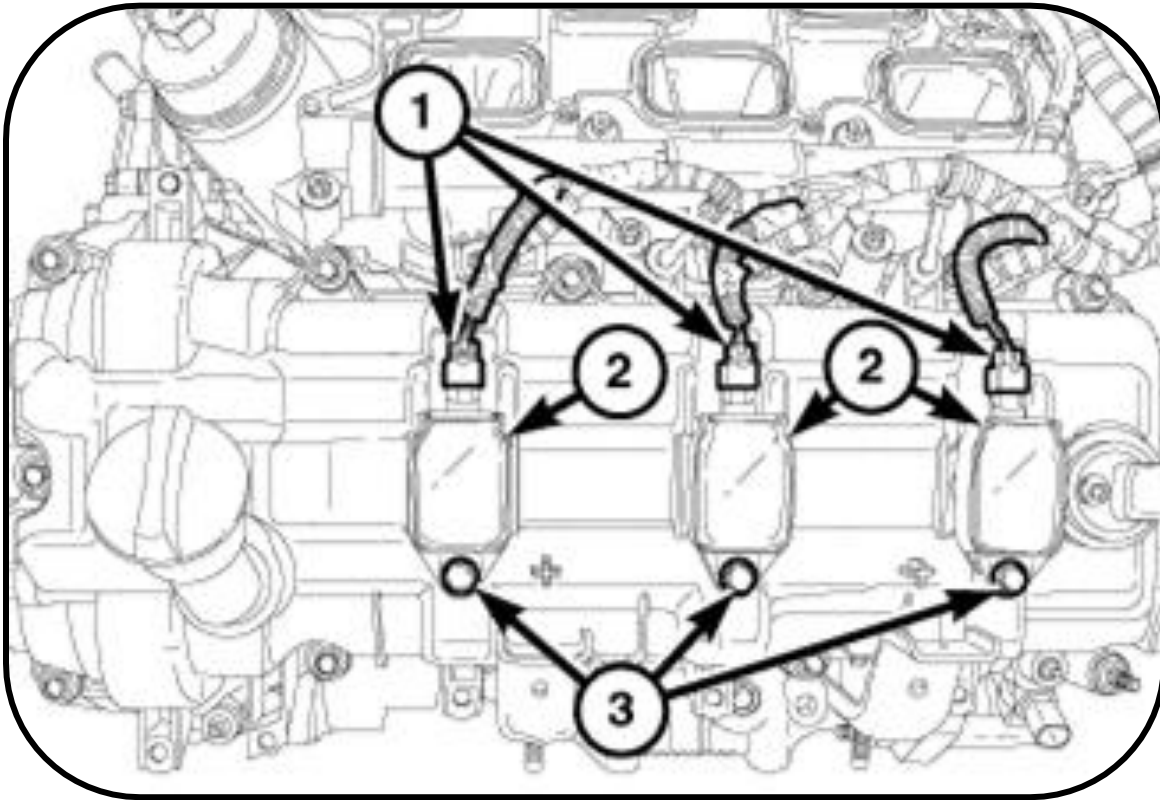


48. Apply a small amount of grease to the o-rings of the supplied injectors. Insert the injectors into the fuel rail and push down until they are fully seated. Make sure the injector connector is facing away from the center of the engine

49. Align the fuel rail with the manifold and push the rail down until the injectors are seated into the manifold. The fuel rail mounting holes will sit flush with the lower intake manifold.

50. Reinstall the Torx screws that hold down the fuel rails.

51. At this point it is a good time to replace the factory spark plugs with the supplied colder heat range plugs. Disconnect the coil electrical connectors (1), remove the coil mounting bolts (3) and remove the coils (2). Use a spark plugs socket to remove and replace the spark plug and then replace the coils. Repeat for both banks.

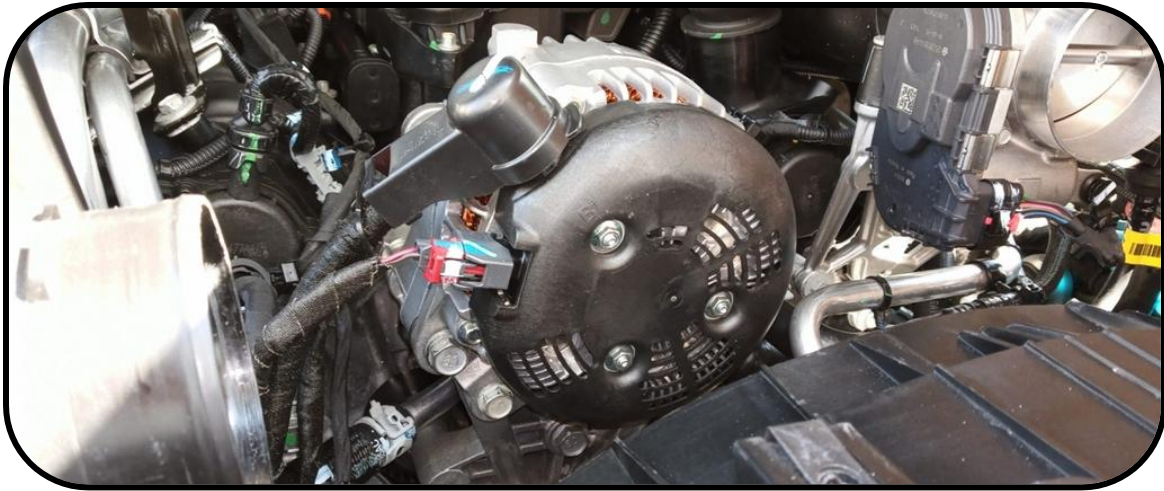


52. Reinstall the intake manifold by reversing the procedure described above. *NOTE: When reconnecting the vapor purge hose use two of the provided SAE04 clamps on the intake manifold connection.*

53. Remove the Manifold Air Pressure (MAP) sensor from the upper intake manifold and replace with the new sensor and harness provided. On the smaller end of the MAP adaptor harness, it is possible to install the connector upside down so **ensure that your connectors looks like the below when snapped together.**



54. Remove the stock accessory belt by using a ½” drive breaker bar on the tensioner. Push the breaker bar towards the driver’s side. Once the tensioner is compressed, remove the belt.
55. Remove the positive power cable from the alternator and unclip the connector from the alternator. Note: Ensure the battery is disconnected before doing this step.
56. Remove the bolts holding the alternator to the engine. There are four bolts total. See photo below. These bolts will NOT be reused.
57. Next remove the alternator bracket from the front of the engine, this will not be reused.



58. Remove the engine coolant reservoir.

59. The radiator hose that enters the block needs to have 3.50" cut off the end, see photo below.

Cut the hose with a hose cutter then re-install back onto the nipple making sure the hose clamp is in place.

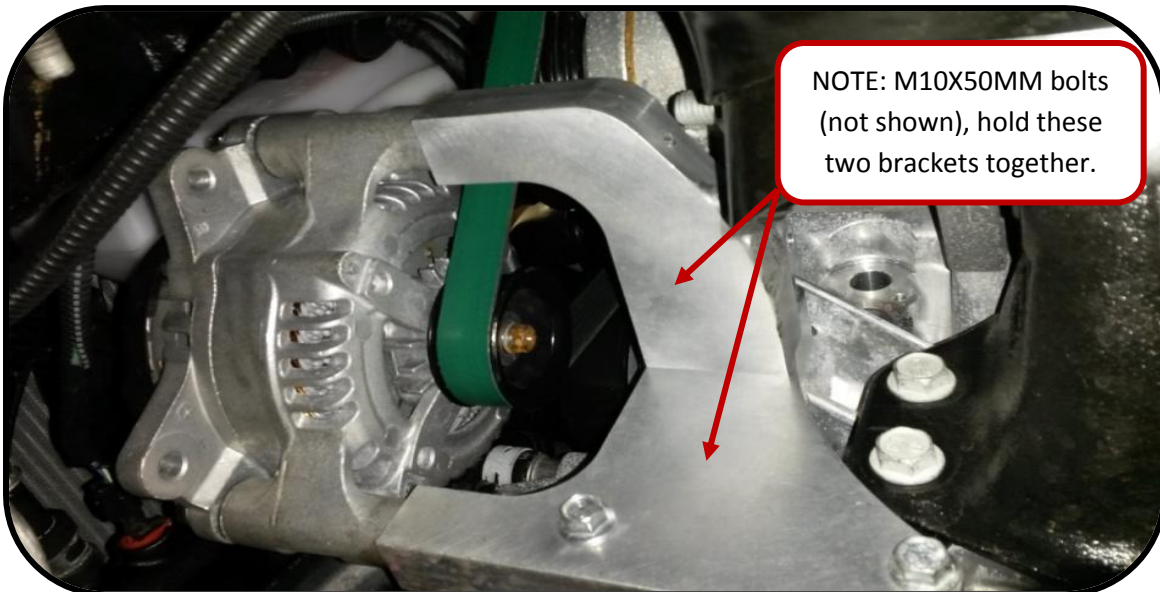


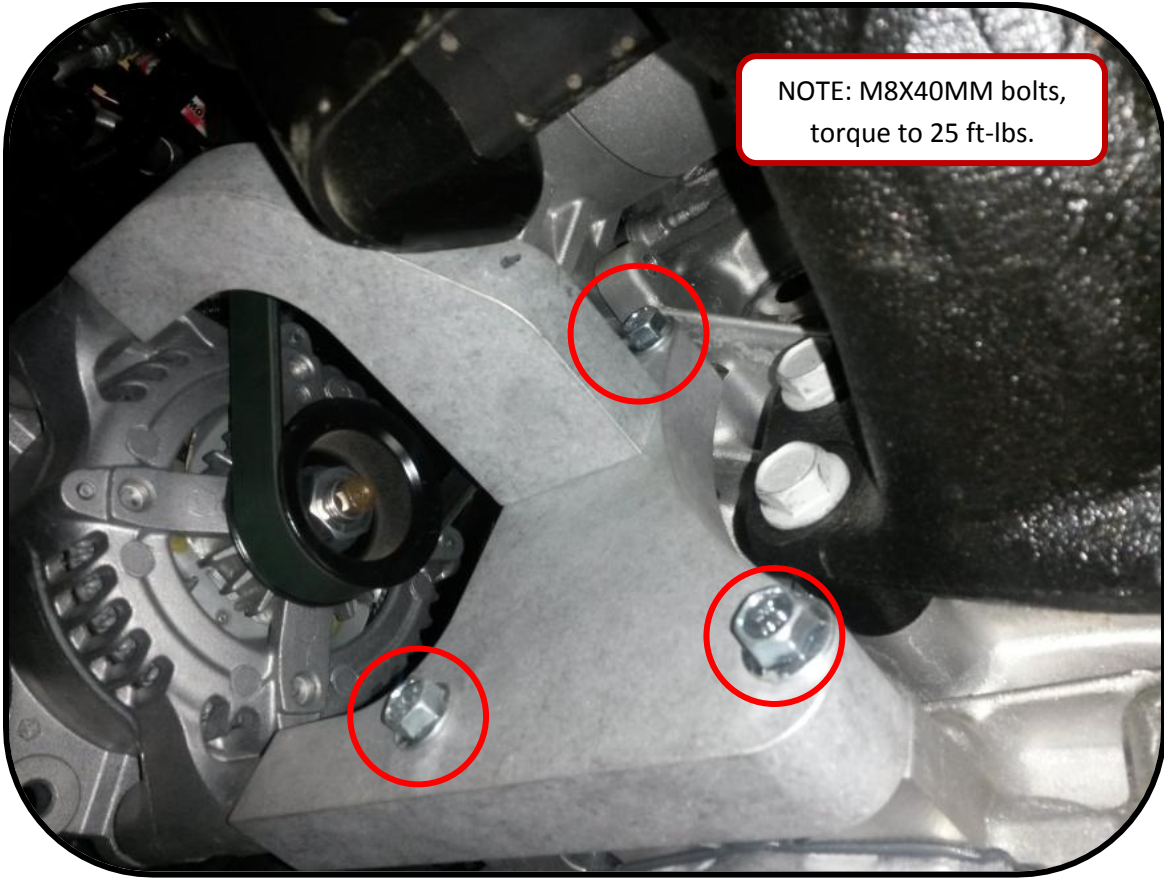
ASSEMBLY

1. Start by relocating the alternator to the bottom driver side of the engine shown below. Utilize the provided alternator bracket and hardware. See next page for details on installation of the new alternator bracket.



2. Preassemble the new alternator bracket set as shown in the pictures below using the two supplied M10x50MM bolts; torque these bolts to 40 ft-lbs.
3. Install the new alternator bracket. There are four M8x40MM bolts that hold the bracket to the engine. Torque all four bolts to 25 ft-lbs. Depending on your JK model year the not all of the bolts will be used but at least three will be.

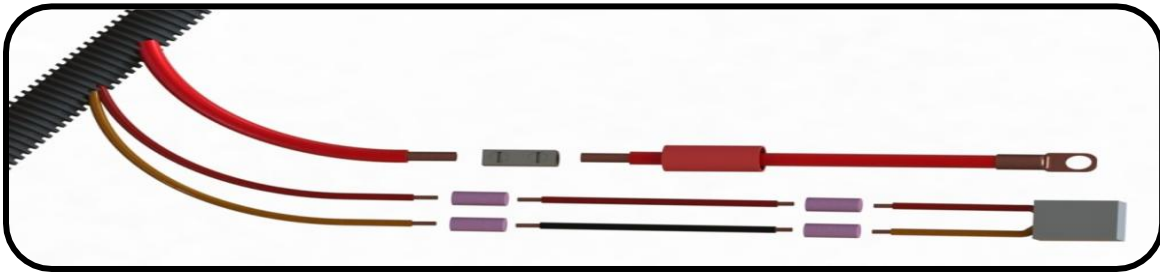




4. Install the alternator in the new position as shown. Torque the two supplied M10x110MM bolts that hold the alternator to the new bracket to 40 ft-lbs.

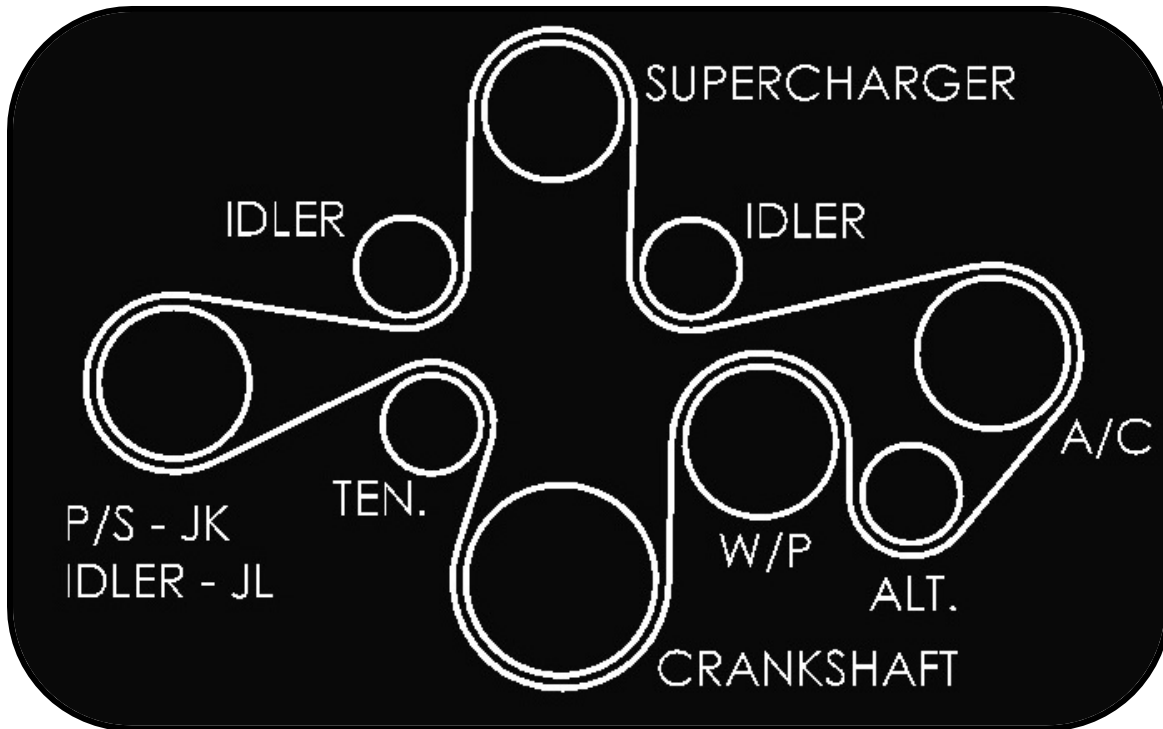


5. The alternator power wire and two control wires need to be extended to reach the new location of the alternator. First cut the factory alternator power wire and 2 control wires (with connector on end) 4" down from the T-Junction. Next strip the end of the wire cut above and insert the end into the supplied wire lug and tighten the set screw as shown below. Into the other end of the lug insert the supplied 3' alternator power extension wire, BE SURE to first slide the supplied heavy duty adhesive lined red heat shrink onto the extension first. Tighten the set screw on the other end of the lug that now holds the extension wire with ring tongue terminal on the end. Using a heat gun and supplied red heat shrink, seal the lug and wire creating a watertight sealed joint as shown below. *The butt connectors supplied for the control wires are heat shrink solder connectors and do not need to be crimped but heated with a heat gun to melt the solder. To ease this process they can be **lightly** crimped to hold the wire as long as the outer plastic is not broken. Once completed set the wires aside, these can be connected once the supercharger is installed in the following steps.*

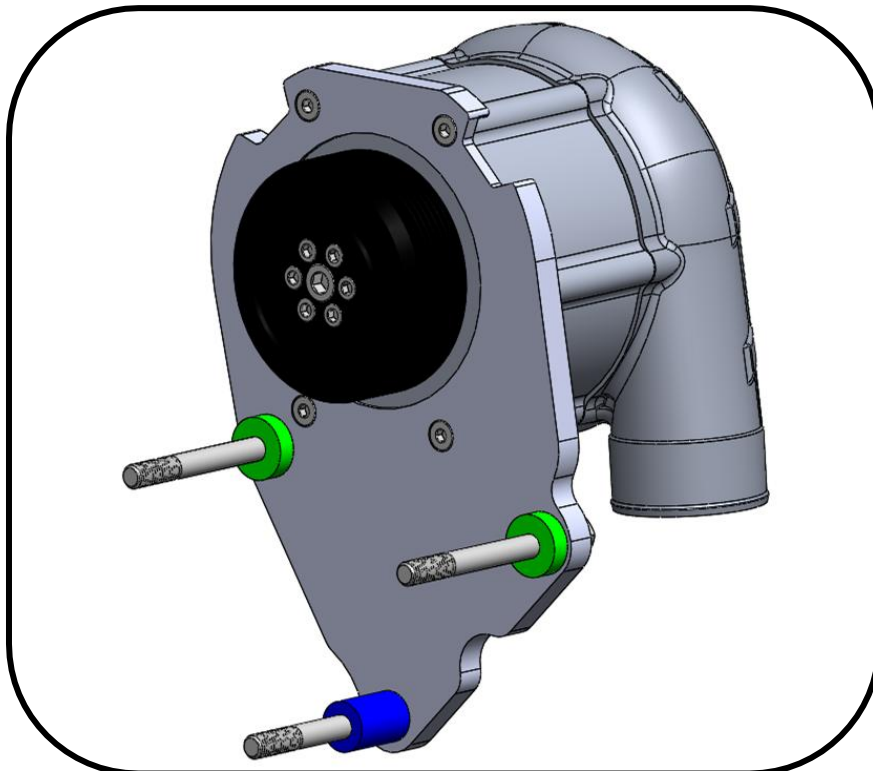


6. Preinstall the supplied 100" long belt and position it as shown below. Refer to the belt routing diagram for proper routing.

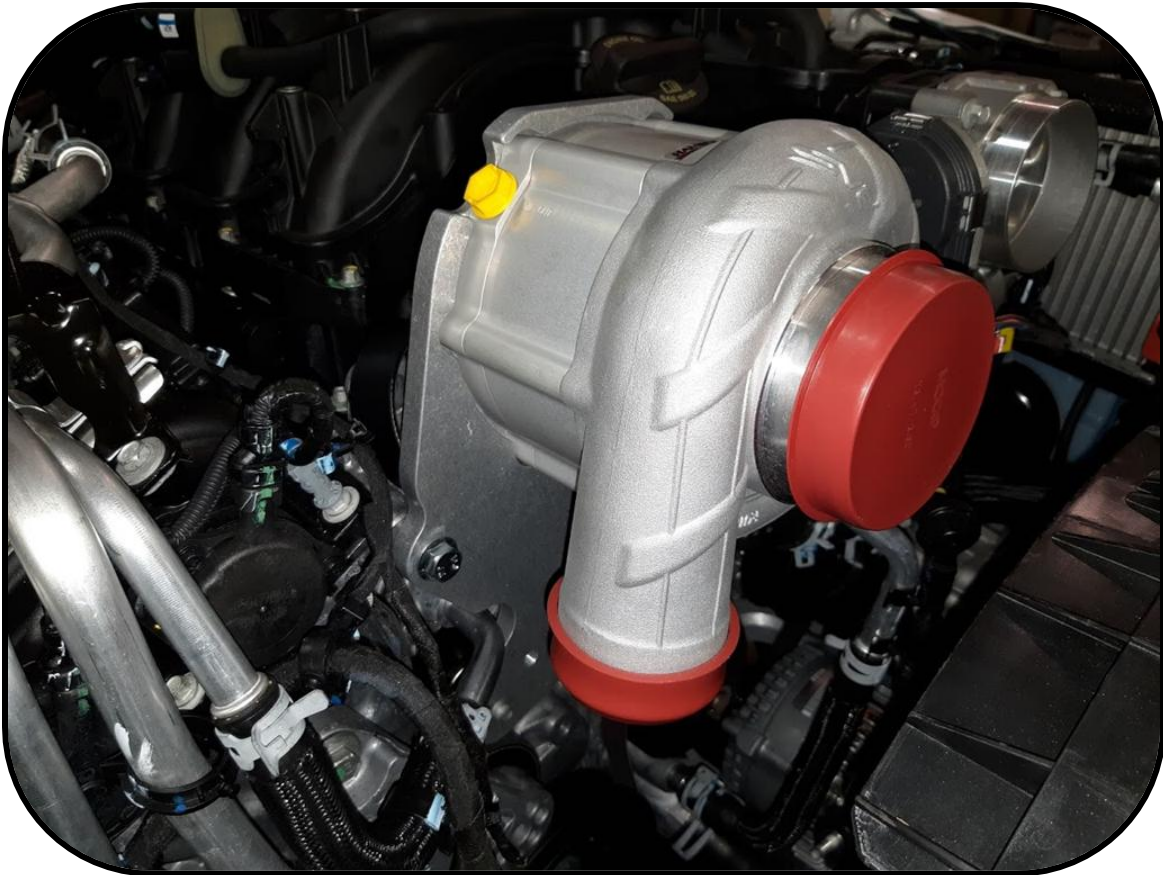




7. Preinstall the supplied plate hardware (M10X100MM) and spacers before mounting the supercharger to the plate, two of the three spacers are the same; the single longer spacer (blue) is used on the lowest bolt as shown below. These must be installed before the supercharger is mounted to the plate. Mount the supercharger to the plate as shown and torque the socket head bolts to 132in-lbs.



8. Install the assembly on the engine and torque all three bolts to 40ft-lbs.



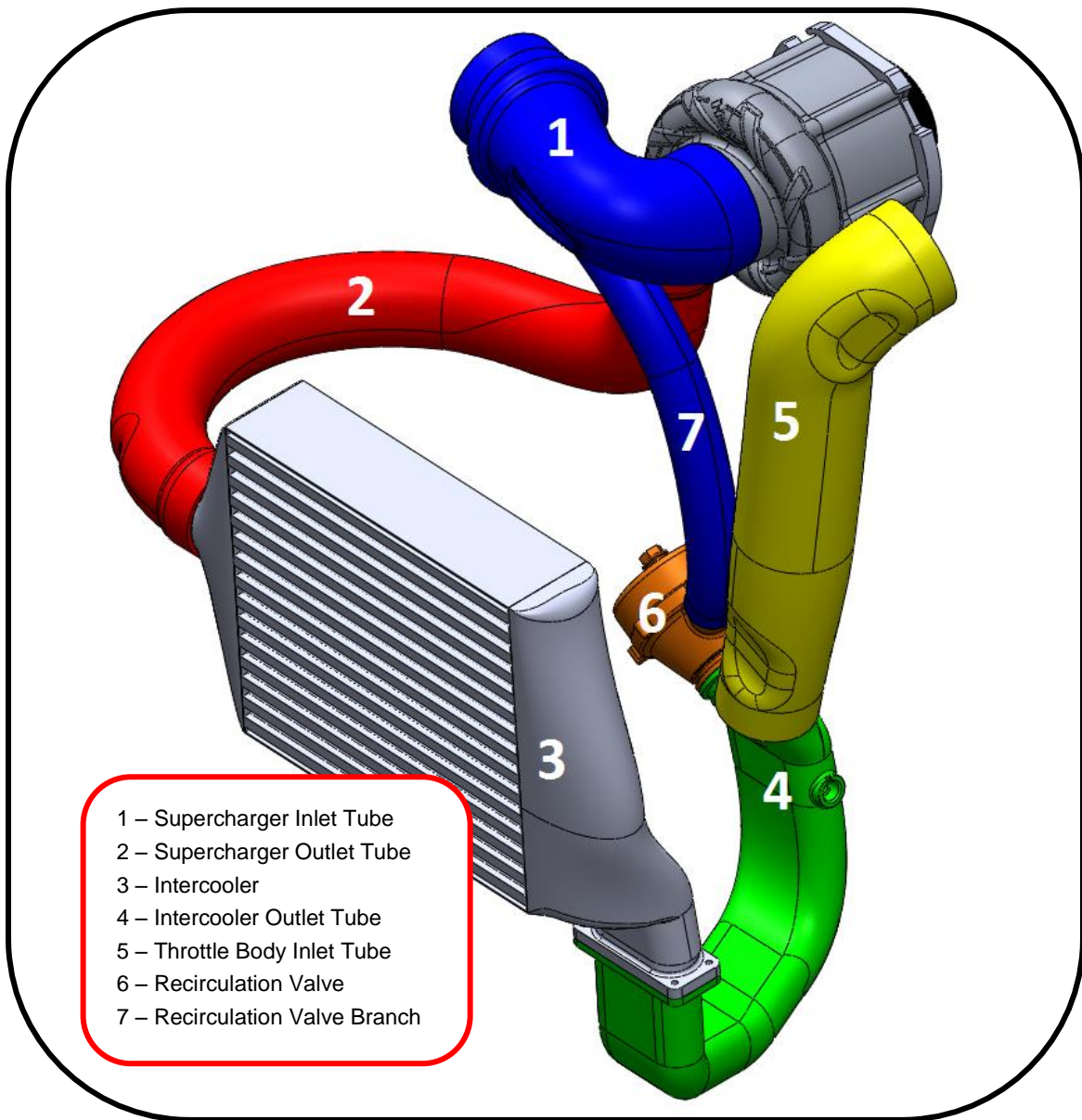
9. The location of the coolant reservoir needs to be lifted slightly using the included brackets. To use the new brackets the plastic slots in the shroud may need to be modified slightly. Using a die grinder open up the slots so that the new brackets can slide into place. Once the new brackets are in place the bottle can be mounted in the new brackets and the stock push pins can be used to secure the top bracket. Top Bracket (LEFT) & Bottom Bracket (RIGHT)



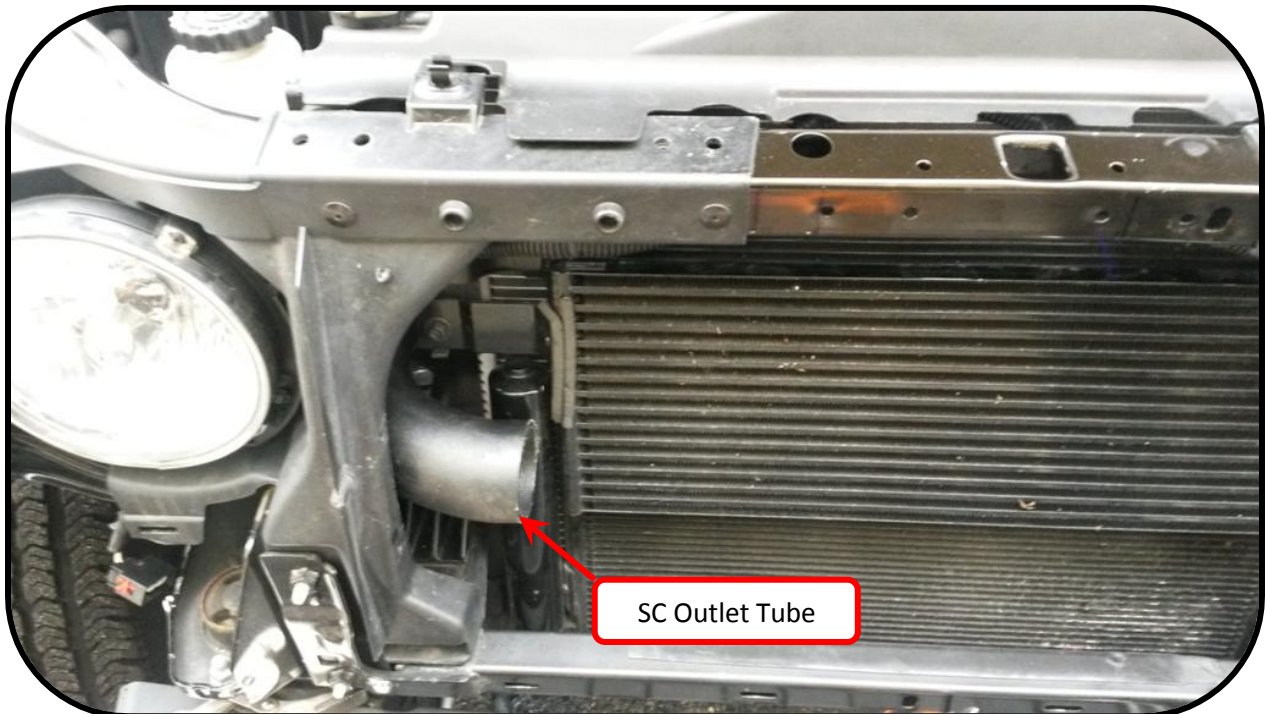
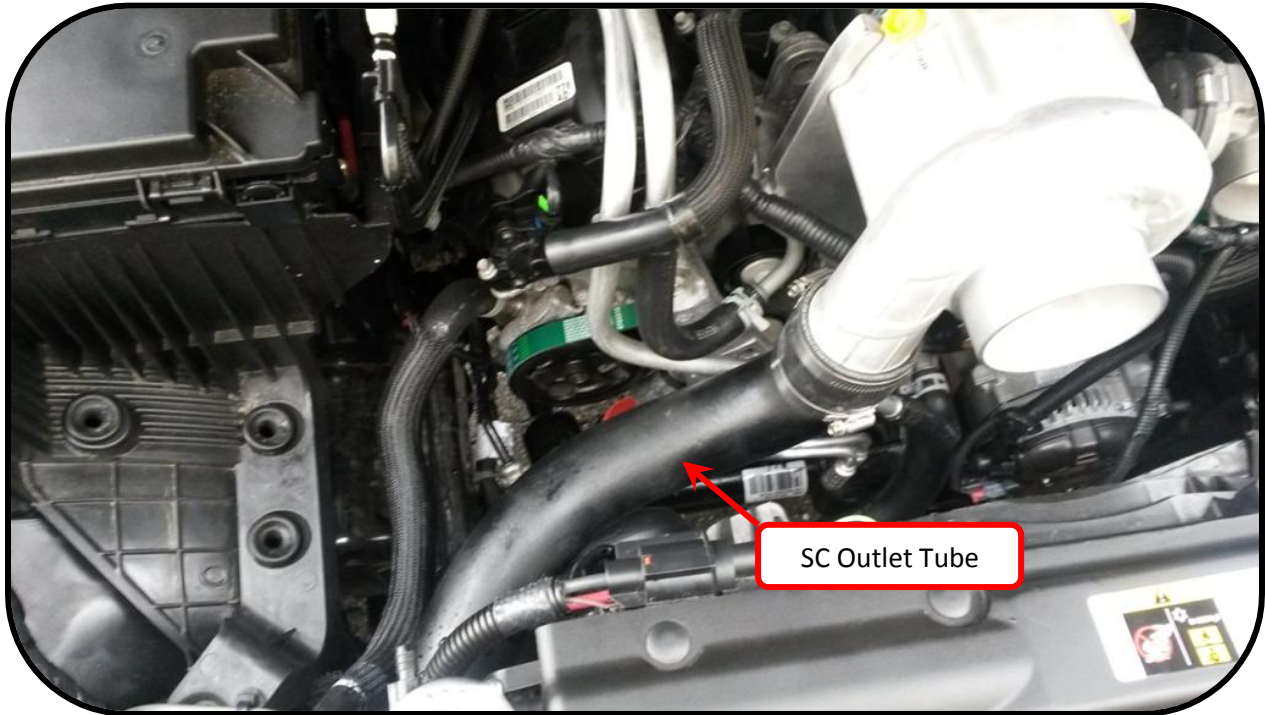


10. Included are two black plastic spacers which are used to space the radiator closer to the engine. Remove the two M6 bolts securing the radiator to the radiator support and install the spacers in front of the radiator mount bushings. Reinstall the original radiator bolts with the new spacers.

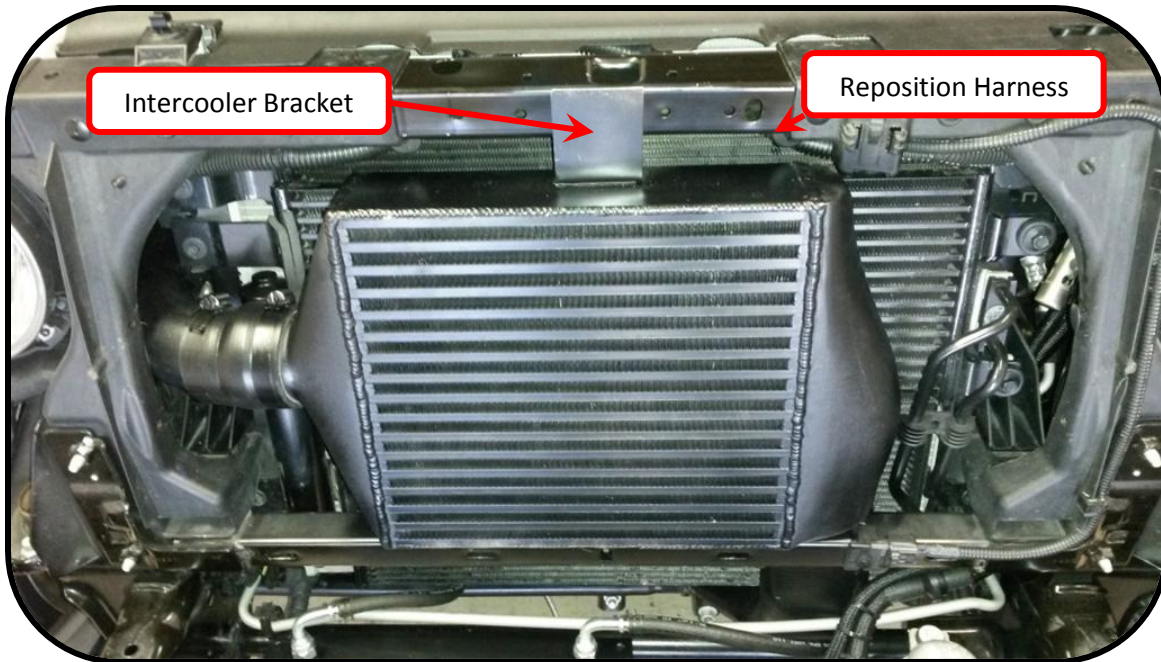
11. Utilize the figure below to aid in the following steps.



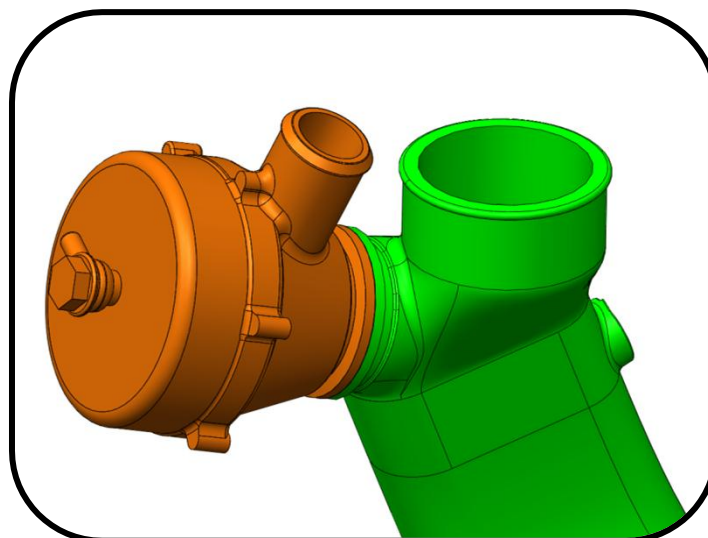
12. Next install the Supercharger Outlet Tube (2) as shown below. Utilize the included SAE40 worm drive clamp to secure the tube to the supercharger. It may be necessary to remove or cut the factory air baffling around the radiator support. It also may be necessary to reposition the lower radiator hose spring clamp on the radiator if it is contacting the charge tube.



13. Next position the Intercooler (3) as shown below. Install the supplied adhesive backed rubber strip on the bottom of the intercooler and reposition the electrical harness. The top bracket shown below is separate from the intercooler and is installed with double sided tape. **Install this bracket on the intercooler after the inlet and outlet tubes are in place and secured.** Use the one of the SAE44 worm drive clamps to secure the Supercharger Outlet Tube to the Intercooler.



14. Preinstall the Recirculation Valve (6) onto the Intercooler Outlet Tube (4) with the outlet (of the Recirculation Valve) facing the same direction as the Intercooler Outlet Pipe. Utilize the supplied o-ring and v-band clamp to install the Recirculation Valve onto the pipe. Install the supplied banjo bolt and barbed fitting with the provided washers onto the Recirculation Valve and torque to 15 ft-lbs.



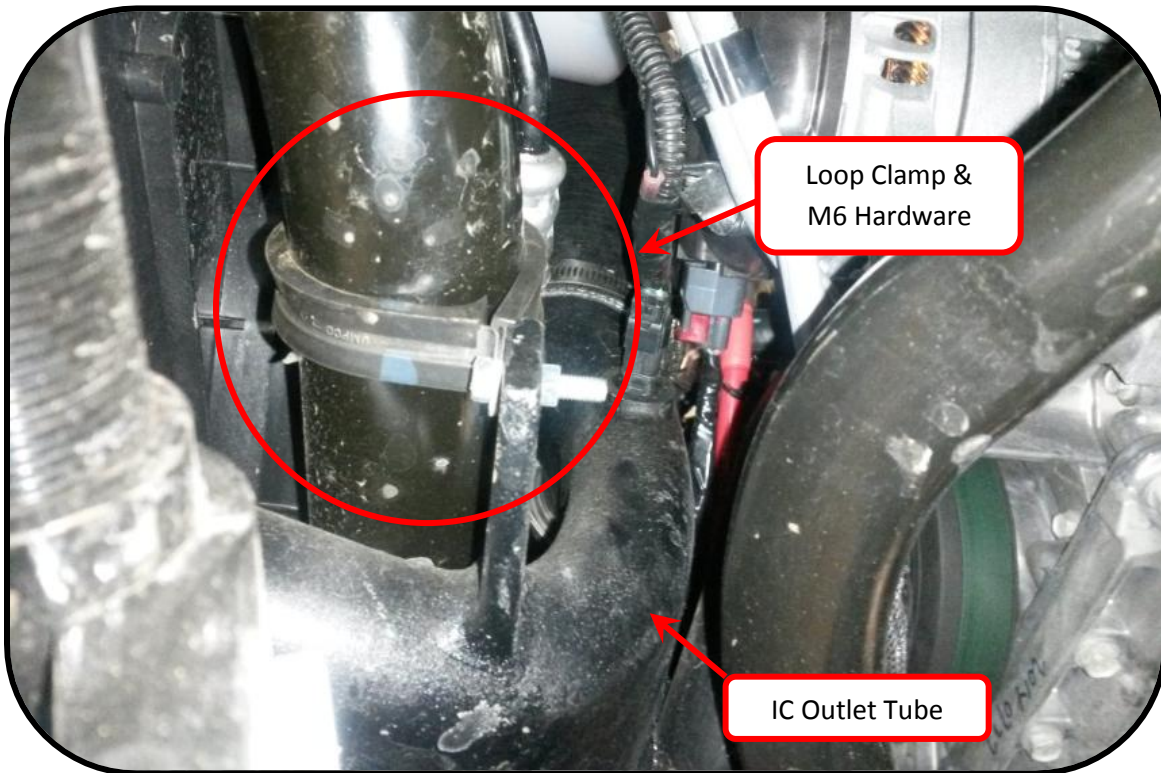
15. You will need to reposition the stock IAT o-ring upwards and install the new supplied IAT o-ring in its place. See photos below. Once done install the IAT into the Intercooler Outlet Tube.

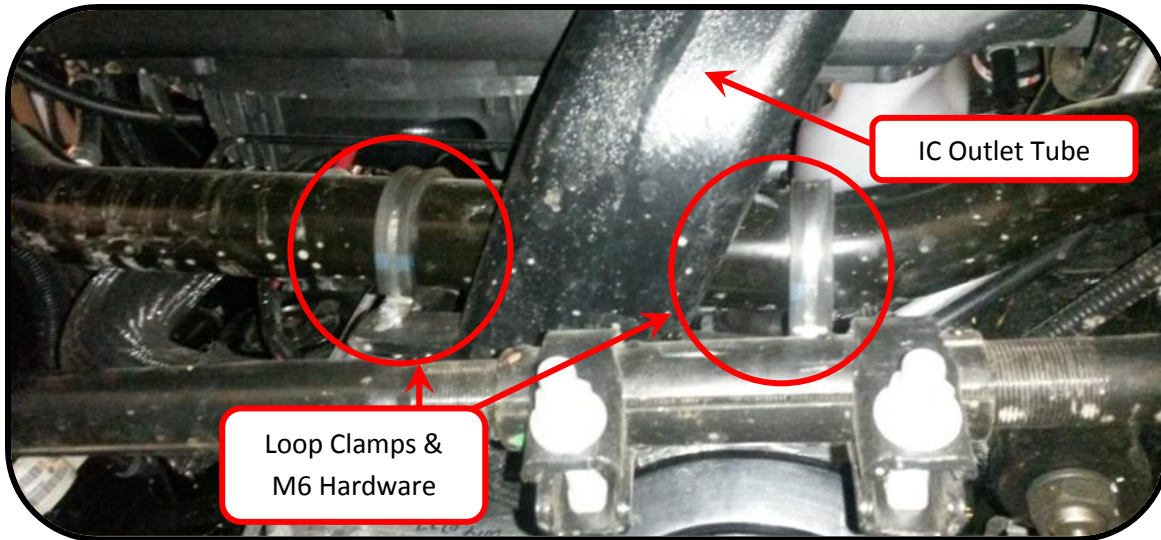


16. In order to install the Intercooler Outlet Tube the sway bar must be dropped from its mounted position. Simply remove the 4 bolts holding the sway bar to the frame and swing the sway bar down. The intercooler outlet pipe can then be positioned. Use the supplied gasket and four M6 flanged bolts to bolt the IC Outlet Tube to the Intercooler. Torque the four bolts to 7 ft-lbs.

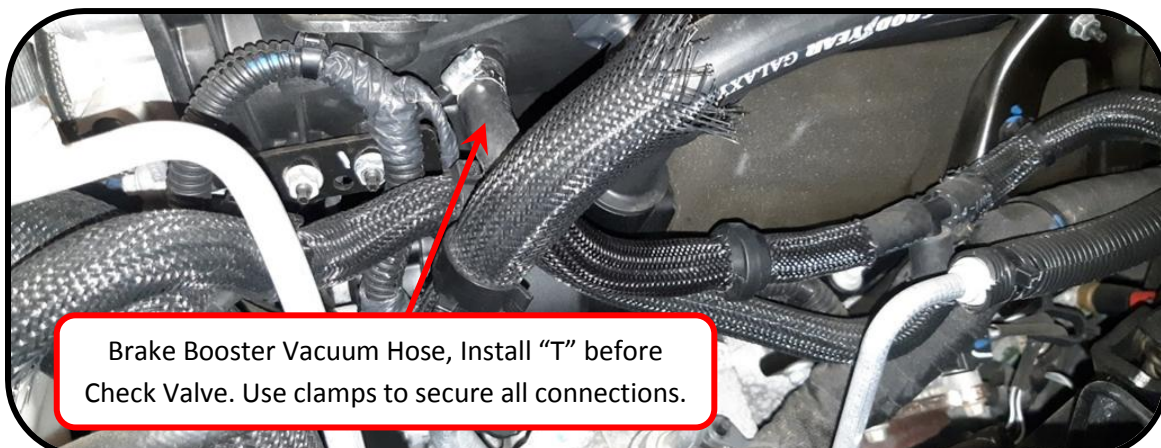


17. Use the provided loop clamps and M6 hardware to secure the Intercooler Outlet Tube to the cross frame member as shown below.

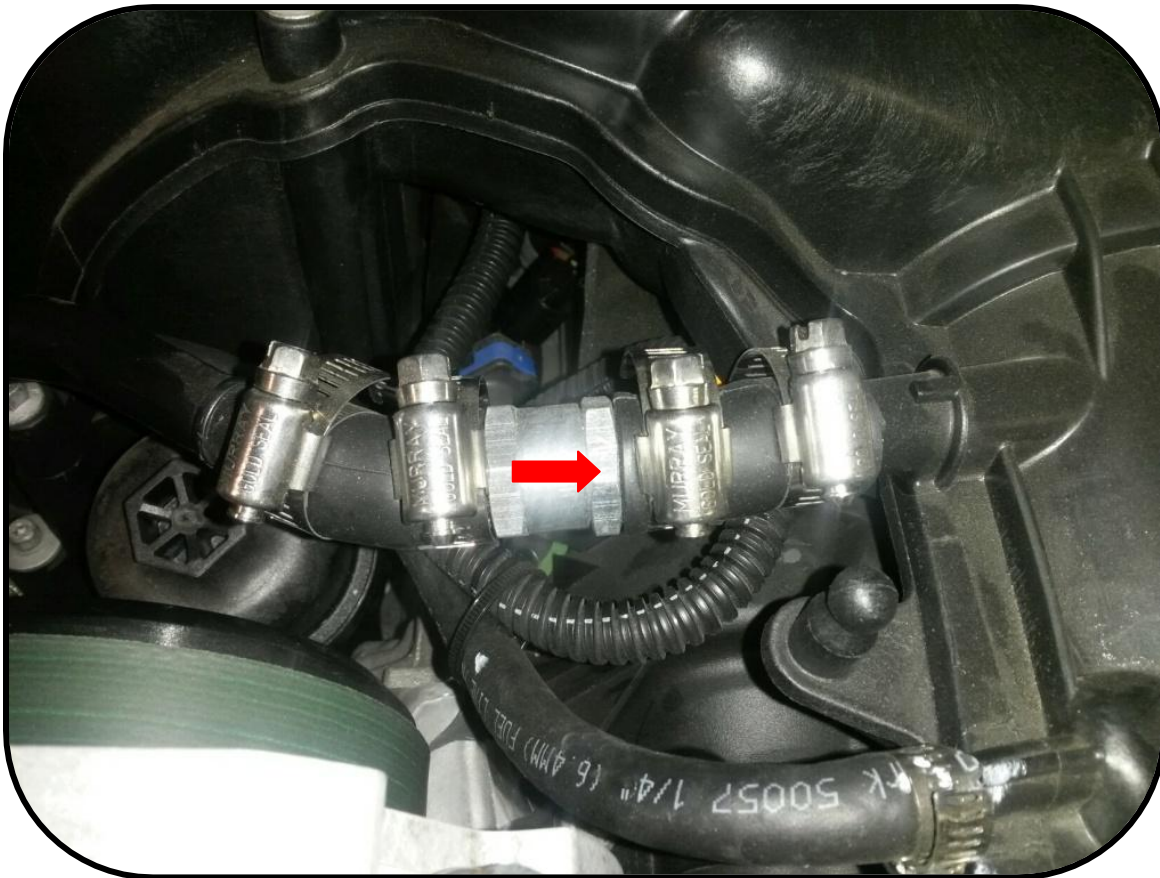




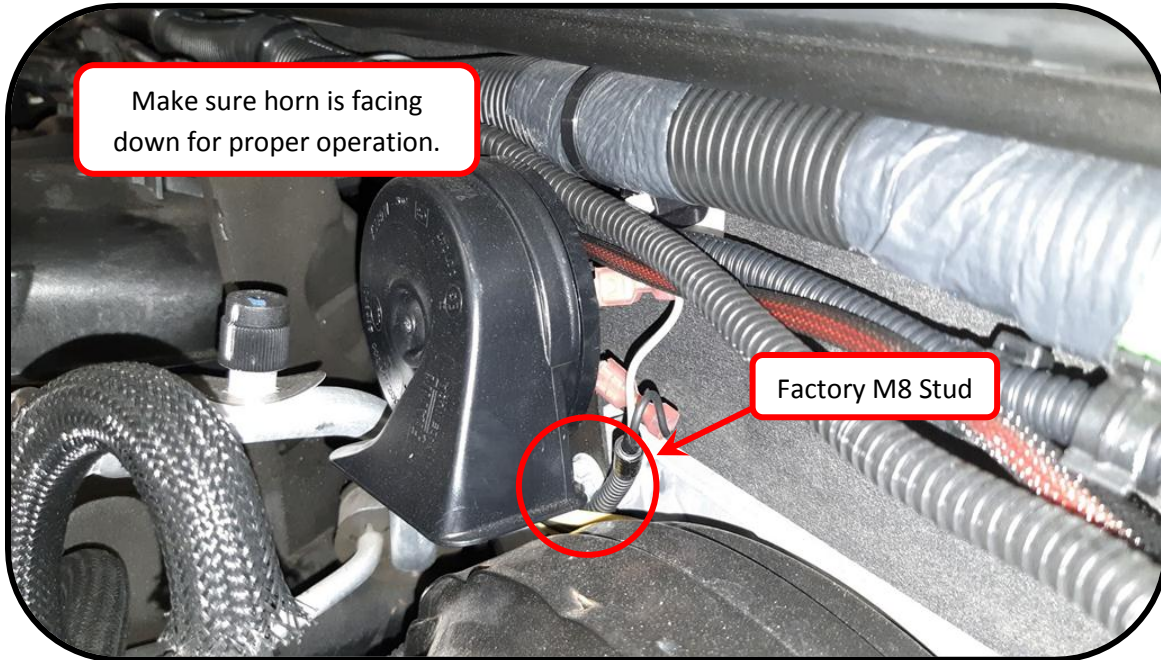
18. Re-Install the 4 sway bar bolts. Torque to 60 ft-lbs.
19. With the Intercooler Outlet Tube secured the Intercooler bracket can now be installed.
20. The IAT connector will need to be extended to reach the new location of the IAT Sensor. Use the included 16" long 2 stranded 18 AWG wire and four solder butt connectors. *The butt connectors supplied for the control wires are heat shrink solder connectors and do not need to be crimped but heated with a heat gun to melt the solder. To ease this process they can be **lightly** crimped to hold the wire as long as the outer plastic is not broken.*
21. Next install the Throttle Body Inlet Tube (5). Utilize the remaining SAE44 worm drive clamp to secure the Throttle Body Inlet Tube to the Intercooler Outlet Tube. Use the supplied 3.5" T-Bolt clamp to secure the Throttle Body Inlet Tube to the Throttle Body.
22. Next install the vacuum line for the Recirculation Valve (6). Utilize the 1/4"x24" vacuum hose and the 3/8"x3/8"x1/4" "T". Install the "T" in the brake booster vacuum hose and secure both sides of the "T", the connection at the intake manifold, the connection at the check valve, and both ends of the 1/4" vacuum hose using the SAE04 worm drive clamps. Install the provided "Pill" in the 1/4" Recirculation Valve Hose.



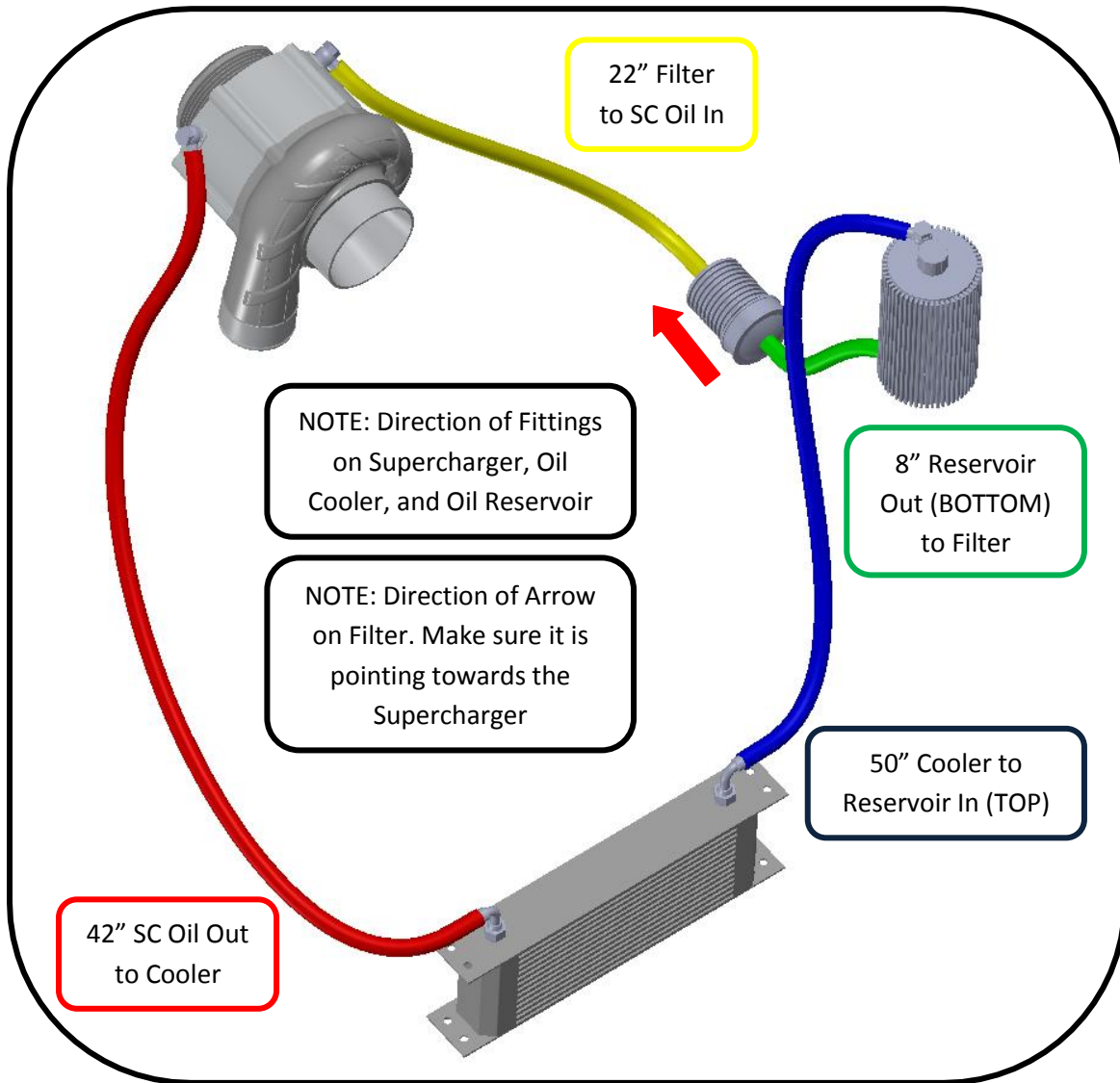
23. Next install the supplied check valve for the crankcase breather hose to the manifold. The aluminum check valve has a small arrow on one end. Make sure that the arrow is pointing to the intake manifold when installing. Use the supplied 5/8" ID x 2" Long hoses and assemble as shown below. Replace the hard line for the purge valve with one of the two 24" - 1/4" ID hoses.



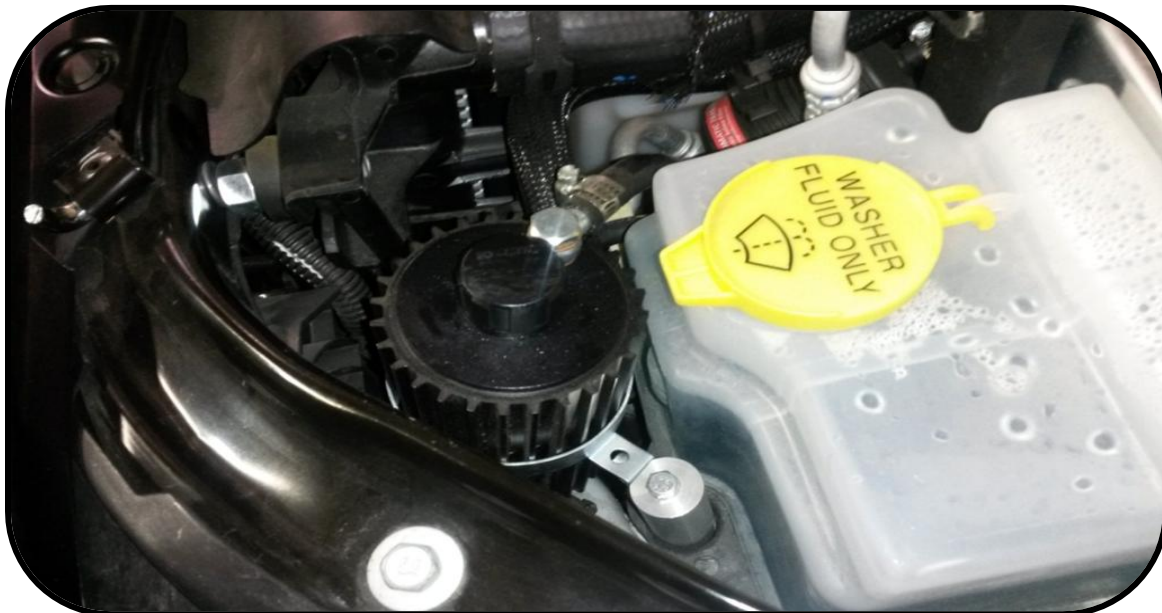
24. The horn needs to be relocated. The stock bracket is used but the mounting hole needs to be drilled out for the M8 stud it will be mounted on. The M8 stud that the horn will be relocated to is located on the firewall driver side just next to the brake booster. Drill the bracket to a 10mm hole and use the included M8 flanged nut to install as shown below. To connect the horn back to the stock jeep harness; utilize the extension harness provided.



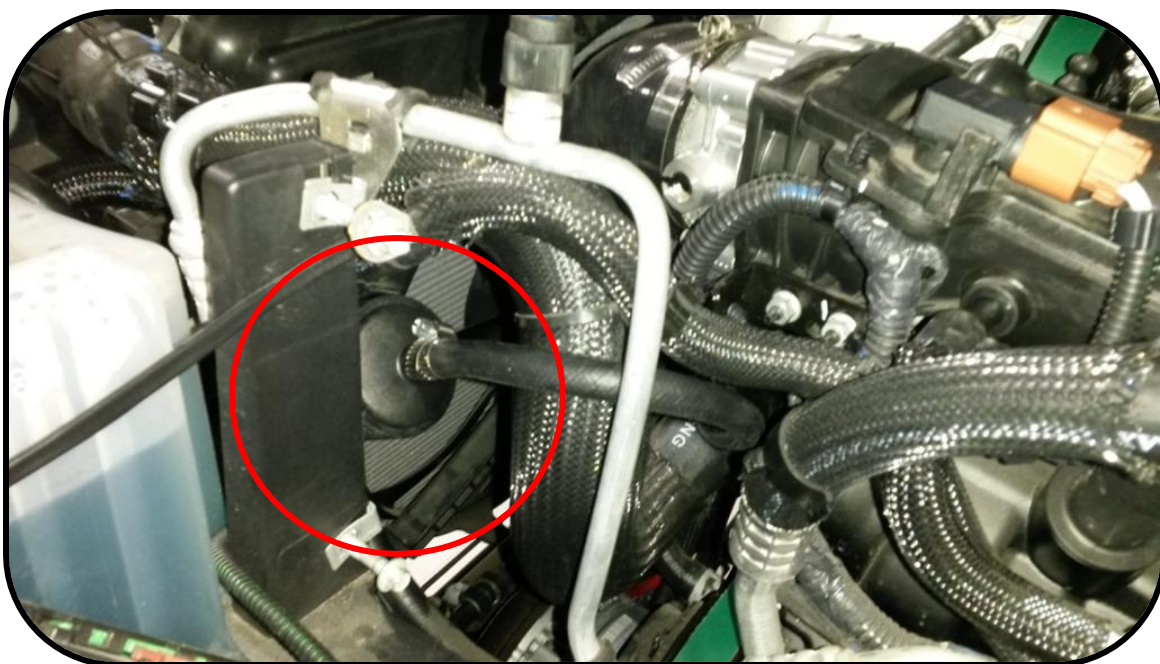
25. Next mount and plumb the oil loop for the supercharger. Use the diagram below for assistance.



26. The oil reservoir will mount where the front horn was. Use the included aluminum reservoir mount to secure the reservoir as shown in the photos below. The oil reservoir, reservoir to filter hose (8"), oil filter, and filter to supercharger oil inlet hose (22") need to be pre-assembled as shown below. Preinstall the oil fittings using the supplied banjo bolts, banjo bolt barbed fittings and two copper crush washers for each fitting. Note the approximate orientation of the fittings as shown below. The banjo bolts must be torqued to 15 ft-lbs.
27. In order to mount the oil reservoir you have to remove the bolt securing the washer fluid reservoir as shown below. This bolt will not be reused. Utilize the metal loop clamp, aluminum standoff, and the provided M6 hardware to secure the oil reservoir as shown.



28. The oil filter is not hard mounted but tucked away as shown below. Make sure the arrow of the oil filter flow is plumbed so that the outlet hose from the oil filter points toward the supercharger inlet nipple.



29. Next assemble the supercharger oil cooler. First install the supplied 90° oil cooler fittings; use a drop of oil on the threads to ease installation. The fittings should face towards the outsides of the oil cooler. Tighten until the fittings begin to turn, then hold the fitting in the approximate position and tighten the nut another half turn. Upon start up you will need to check these fittings for leaks, if any leaks exist tighten until the leak stops.



30. Next mount the oil cooler to the rear side of the front frame cross member, see photos. First install the 90° brackets to the bottom of the oil cooler using the supplied M6 hardware. Locate the cooler 5" in from the passenger side of the frame, see photo below. Then use the supplied self tapping sheet metal screws to mount to the frame cross member as shown.





NOTE: It is likely that you will encounter an aftermarket front bumper, winch, and/or modified front suspension components affecting this section of the install. If this is the case it is likely that the oil cooler will not mount as shown. This is why we included the electric cooling fans, shroud, and two sets of brackets (90° and 45°) in the kit. The fans are not necessary on a factory equipped JK if you follow the instructions in this manual. However if relocating the oil cooler it may be necessary to put it in an area where there will be no airflow across the front, hence the use of fans. See our website or YouTube channel for the tech tips on relocating this oil cooler. If using the fans preassemble the module as shown below.

31. Install the two electric cooling fans onto the shroud using the pan head plastic screws, as shown.



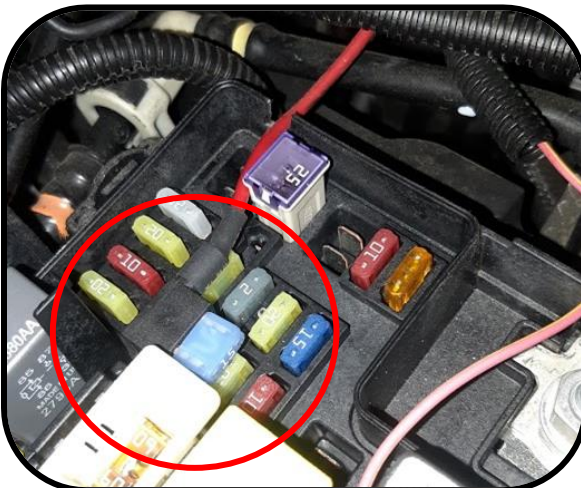
32. Install the fan shroud onto the oil cooler using the supplied M6 hardware, as shown.



33. With the oil cooler and fan assembly mounted you can use the supplied wiring harness to power the fans.

34. Run the harness through the engine bay from the fans to the under hood fuse box. The fuse tap on the harness will be installed in fuse location M8 or M9 (heated seats). Cut a small notch in the side of the box to pass the wire through. Make sure you put the 20A yellow fuse on the bottom of the fuse tap, and the blue 15A on top. On the same end of the harness is the ground lug which will be installed on the passenger side inner fender ground lugs. See photos.

NOTE: Depending on how your particular JL/JT was ordered, you may have to use another fuse location (other than M8/M9). The best way to find a good fuse location is to use a test light and find a circuit that is switch on in the run position and off in the accessory and off key positions.



35. Next the stock air box bottom needs to be modified for clearance. The bottom of the box needs to be cut open as shown below. Use a pneumatic cutoff wheel or similar tool to open the bottom of the box as shown below.



36. Once the stock box has been modified it can be reinstalled into the vehicle.

37. Next install the Supercharger Inlet Tube (1). Utilize the supplied SAE60 worm drive clamps to secure to the Supercharger and the Air Cleaner Assembly. Secure the Recirculation Valve Branch (7) to the Recirculation Valve (6) using the SAE24 worm drive clamp, it may be necessary to adjust the orientation of the Recirculation Valve for this.



38. Reinstall the front grille.

39. The lower front shroud needs to be cut to provide airflow to the oil cooler. Do this before re-installing on the jeep. Using a cutoff wheel cut a slot in the lower shroud as shown below. 2.5" Wide X 10" Long.



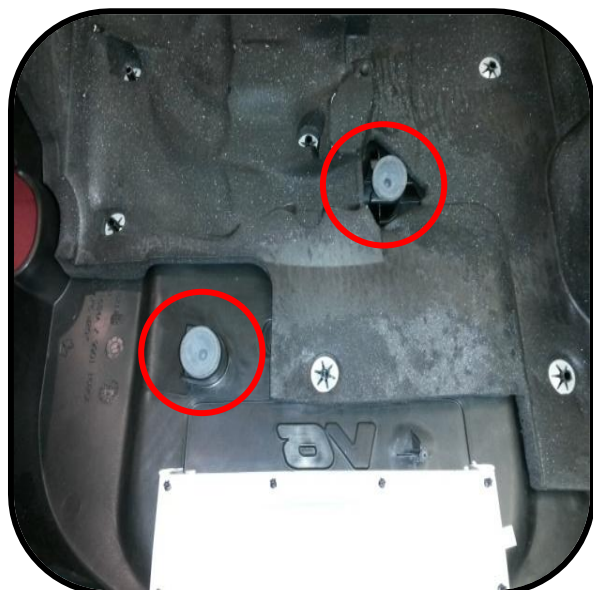
40. Re-install the lower shroud to the jeep.

41. Re-Install the tuned PCM that was returned to you from Hamburgers Superchargers Inc.

42. Fill the engine coolant.

43. Fill the SC oil loop: **You will use 3/4 to 7/8 of the bottle of oil included in this kit. See procedure below.**

44. The engine cover needs to be modified to be used. The 2 rubber feet on the underside of the cover also need to be changed out to the new rubber feet provided. See photos below.



45. Install the supplied Octane sticker onto the gas cap. Install the supplied Belt Routing Sticker and supplied E.O. Sticker under the hood. Install the red DLC cover to prevent accidental re-flashing.

Initial start up after Oil Change/Oil Fill

To ensure proper traction fluid circulation and adequate lubrication, it is important to prime the oil system before the engine is started for the first time and after the oil change/oil fill.

1. Carefully fill the oil canister with traction fluid without exceeding the maximum mark on the dip stick. The oil level is measured with the thread of the dip stick cap fully engaged
2. The banjo bolt at the oil line attached to the supercharger inlet marked “oil inlet” should be loosened a couple of turns allowing air to escape the system
3. **Carefully** apply pressurized air to the oil filler hole at the top of the canister. **Do not pressurize the system to more than 10psi.** Use a rag or a sponge as a seal between the air gun and the canister
4. When oil appears at the “oil inlet” with no signs of air, tighten the banjo bolt and the system is primed
5. Carefully top up the oil canister to the maximum mark on the dip stick
6. Turn on the engine and rev it to 2000-3000 rpm and make sure the oil starts flowing by visual inspection, looking into the oil canister. Do not rev the engine more than specified as this can cause damage to the supercharger. **MAKE SURE THE RESERVOIR DOES NOT EMPTY DURING THIS STEP OR AIR WILL BE INTRODUCED INTO THE SYSTEM AND DAMAGE WILL OCCUR. IF IT DOES START TO EMPTY POUR MORE FLUID IN. UTILIZE AT LEAST ¾ OF THE SUPPLIED BOTTLE OF FLUID TO PRIME AND FILL THE SYSTEM.**
7. Let the engine idle for 5 minutes while checking the oil system for leaks.
8. The supercharger traction oil and filter **MUST** be changed every 2 years or 24,000 miles, whichever occurs first or you **WILL VOID YOUR WARRANTY** and failure is likely to occur.
9. Check the oil level periodically using the correct procedure

<i>Hamburgers Superchargers Part Number</i>	<i>Description</i>	<i>QTY Required</i>
906822102	Supercharger Oil (1L)	1
210326512	Magnetic Oil Filter	1

Note: Instructional Video available for this step on our YouTube Channel, our Website, and the supplied USB flash drive.

The installation is now complete.