MAGNA Charger

H2

RADIX

Intercooled Supercharger System for 6.0L V8

Welcome. . . to the Magna Charger family of supercharger systems. You have made an important decision and we commend your choice. We're confident you'll be happy with the ease of installation and the outright performance improvement of this bolt-on Magna Charger kit.

Our parent company, Magnuson Products, is the exclusive aftermarket supplier for all Eaton superchargers; therefore our products are built to OEM standards for function and durability.

Your kit has been thoroughly tested and carries California Air Resources Board EO # (N/A at this time)

Installation is as simple and time sensitive as we could make it. We are as close as your telephone. We encourage you to get comfortable with the task ahead by reviewing the instructions and tools needed.

We appreciate the business and would like to hear from you regarding your experience with the Magna Charger supercharger system.

Magna Charger
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Ventura, CA 93003

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INSTALLATION MANUAL

Magna Charger
GM 6.0 liter
2003 H2

We encourage you to read this manual thoroughly before you begin work, for a few reasons:

A quick parts check to make certain your kit is complete (See shipper parts list in this manual). If you discover shipping damage or shortage, please call our office immediately.

Take a look at exactly what you are going to need in terms of tools, time, and experience.

Review our limited warranty with care.

Make sure to have 91 or higher octane fuel in the tank.

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!

Tools Required

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

Important

Our Magna Charger kits are designed for stock engines, with stock components, in good mechanical condition only. Installation on worn or damaged engines is not recommended and may result in engine failure, for which we naturally can't be responsible . Magna Charger is not responsible for the engine or consequential damages.

Aftermarket engine re-calibration devices that modify fuel and spark curve (i.e.. programmers) are not recommended and may cause engine damage or failure. If you have any questions, call us!

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, and of course, no smoking.

Magna Charger strongly recommends the following:

- ☑ Clean your engine compartment before starting any engine disassembly.
- ☑ You must have a clean fuel filter - check and replace as needed before installation.
- ☑ You must have a clean air filter - check and replace or clean as needed before installation.
- ☑ Stock spark plugs and stock plug gap is recommended.
- ☑ Start with and use only 91 octane fuel or higher.

Drive belt is a Gates #K061120

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

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

- Wear eye protection at all times.
- Do not work on a hot engine.
- Be careful around fuel - use shop towels to catch any spills and dispose of towels properly.
- Keep sparks and flames away from your work area - remember fuel is highly flammable.

01. With a 8mm wrench disconnect the (-) negative battery cable. Make sure the cable is far enough away from the battery that it does not accidentally touch the battery and make connection during the installation. (Wrap negative cable connector with electrical tape)

02. With a cool engine remove the radiator cap. **(Do not remove the cap if the engine is still hot!)**

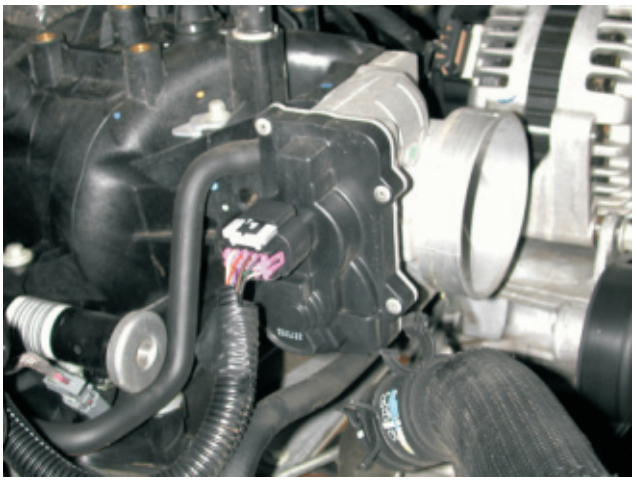
03. Open radiator petcock and drain coolant into a clean drain pan. Save coolant for re-use in a later step.

04. Depending on year and model, remove the plastic sight shield bolt or bolts, using a 8mm or 10mm socket wrench.

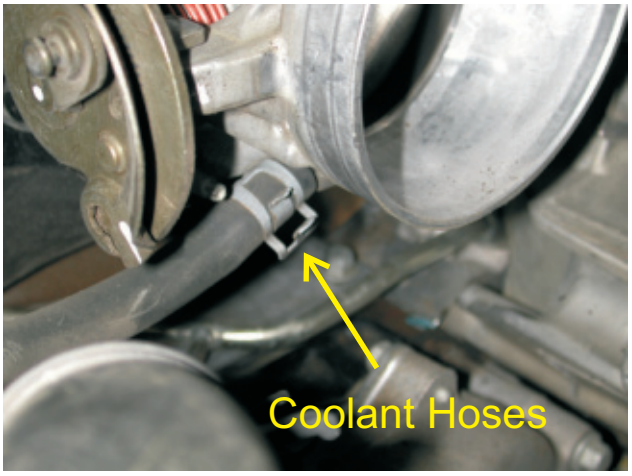
05. Lift plastic sight shield from top of engine and remove.

07. Remove the duct assembly by lifting out.

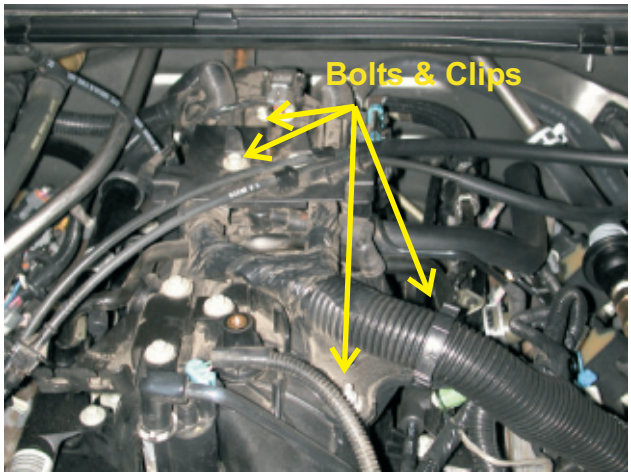
06. Using a flat head screwdriver, loosen the two large hose clamps holding the air cleaner duct assembly.



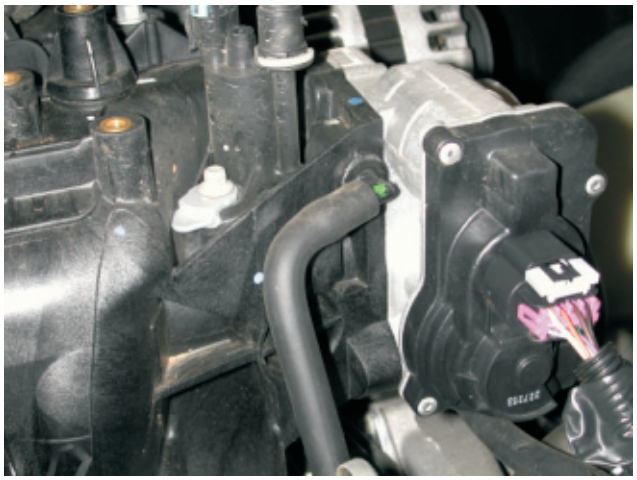
08. Remove the throttle control cables from the throttle body assembly. On these vehicles simply disconnect the electrical connectors on the throttle body.



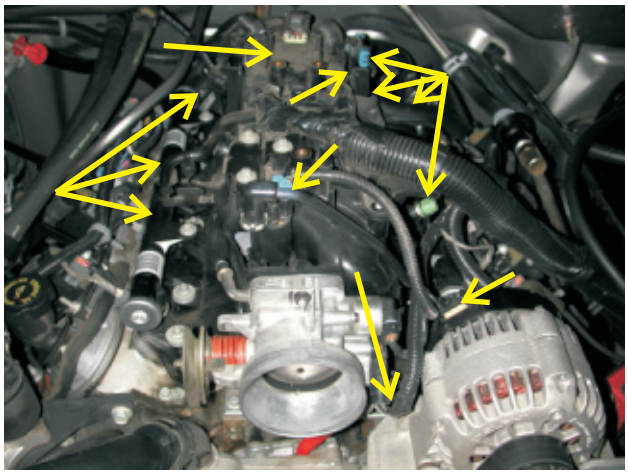
09. Using a long pair of pliers, remove the coolant hoses from the bottom of the throttle body



11. Open the large electrical harness retainer clip, then using a 10mm socket wrench remove the bolts holding the plastic wire harness retainer to the intake manifold.



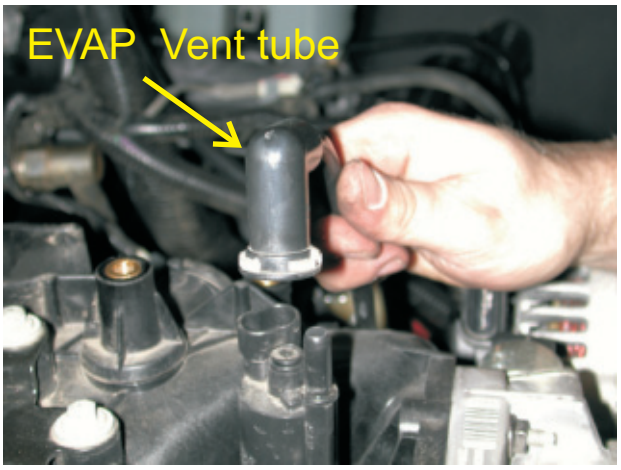
10. Remove the (PCV) vent hose from the intake manifold.



12. Disconnect the following electrical connectors. (8) fuel injectors, Idle air control (IAC), Throttle position sensor (TPS), Manifold absolute pressure sensor (MAP), Evaporative emission canister purge solenoid (EVAP), alternator and knock sensor.

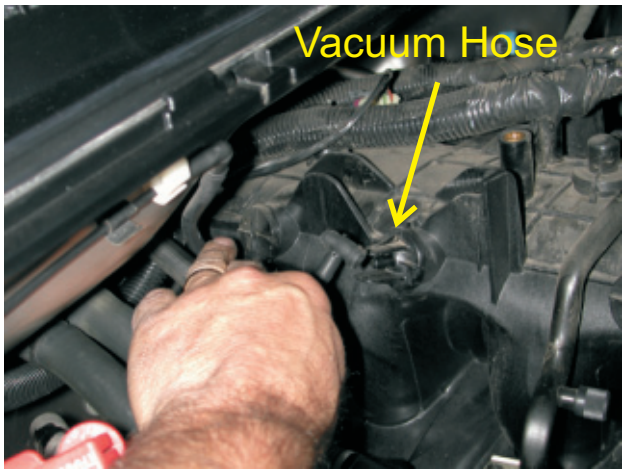
13. Lift the electrical harness from the top of the engine and set off to the side.

15. Using 10mm wrench, remove & swing hood latch assembly to the drivers side for removal and installation clearance.



14. Disconnect the (EVAP) vent tube from the solenoid by squeezing the retainer, then release the tube from the solenoid. Follow the same procedure on the other end of the (EVAP) vent tube and remove the tube from the vehicle. This assembly will be reinstalled.

16. Remove the positive crankcase vacuum hose (PCV) from the intake manifold.

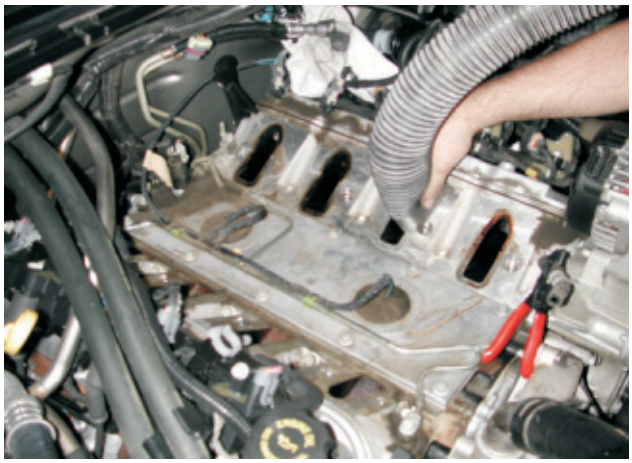


17. Disconnect the small vacuum hose from the rear passenger side of the intake manifold, if so equipped.

19. Using a 8mm socket wrench remove the ten intake manifold bolts.

18. With the fuel line disconnect tool (included in kit), remove the fuel lines from the fuel rail. Be careful, the system may be under pressure. Use shop rag under the connections to catch any fuel spills. Stay away from sparks and flames. (Remember fuel is highly flammable.)

20. Carefully remove the intake manifold assembly and set aside.



21. Using a vacuum cleaner, remove any dirt or debris from the intake port area. Be careful not to get any dirt in the intake ports.

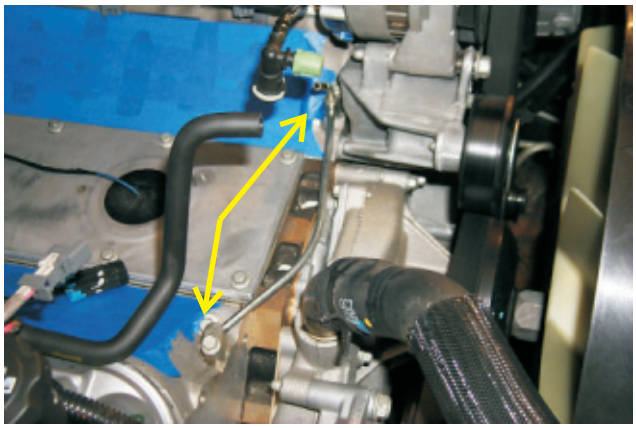
23. Remove the small plastic clips from the knock sensor electrical harness and set aside. The intake manifold will not clear if this step is missed.

22. Cover the intake ports with tape or clean rags to keep dirt and objects from entering the engine. (Remember, be clean).

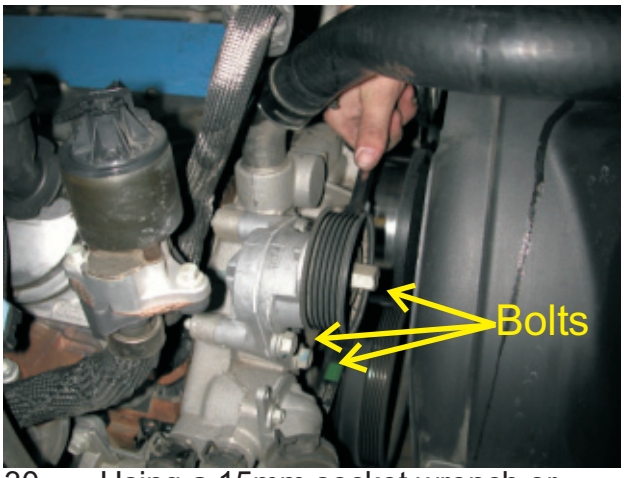
24. Using a 15mm wrench, remove the steel bracket from the rear of the drivers side cylinder head.

25. Using a 10mm socket wrench, remove the two vent pipe bolts.

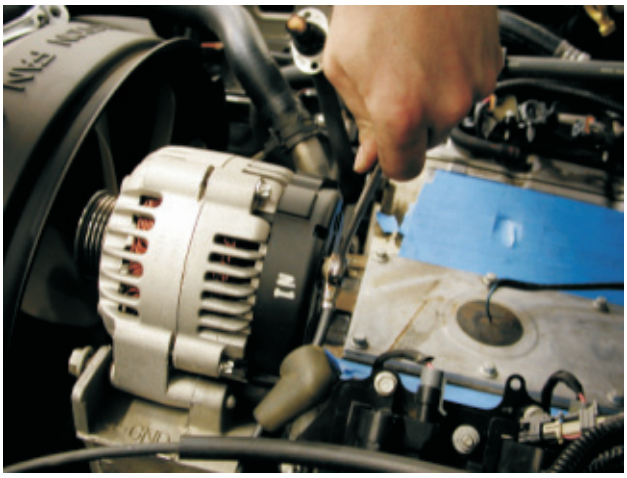
27 Using a 15mm tensioner wrench remove the stock serpentine belt from the vehicle. The belt will not be reused.



26. Remove the vent pipe assembly. (Make sure that the o-ring gaskets did not stick to the cylinder heads, if so remove them).



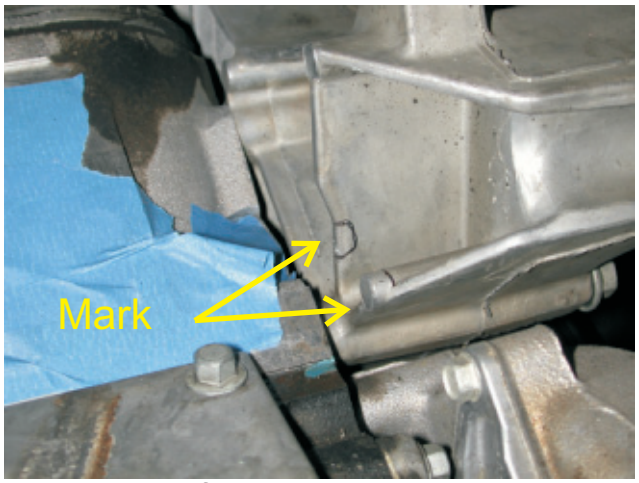
30. Using a 15mm socket wrench or standard wrench remove the three bolts holding the factory belt tensioner to the bracket and remove the tensioner. (Put tensioner and bolts aside for later use.)



29. Be sure battery has been disconnected (step 1). Using a box wrench disconnect the battery positive terminal from the back of the alternator.

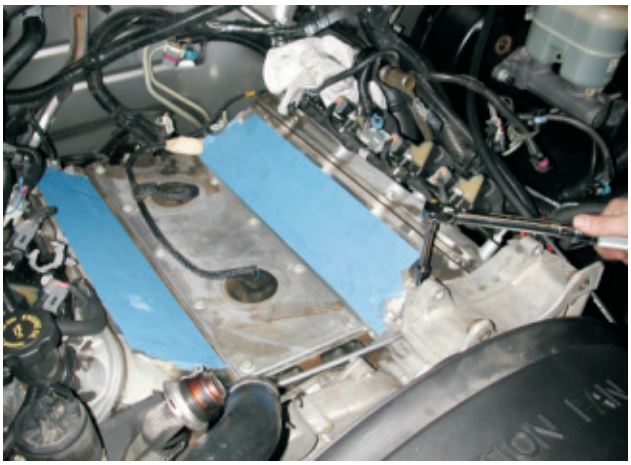
31. Take the new supplied coolant vent pipe and test fit to the front of the cylinder heads. Check for clearance between the pipe and the alternator bracket as shown.

30. With a 15mm socket wrench remove the two bolts holding the alternator to the alternator bracket. Remove the alternator.

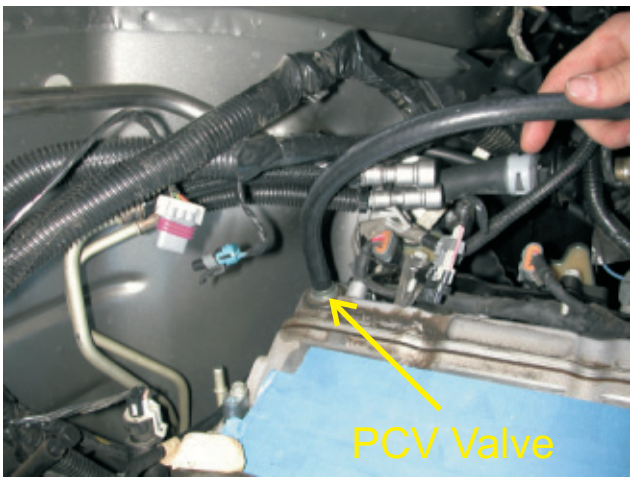


32. Use a felt tip marker and mark the alternator bracket were the coolant vent pipe hits as shown.

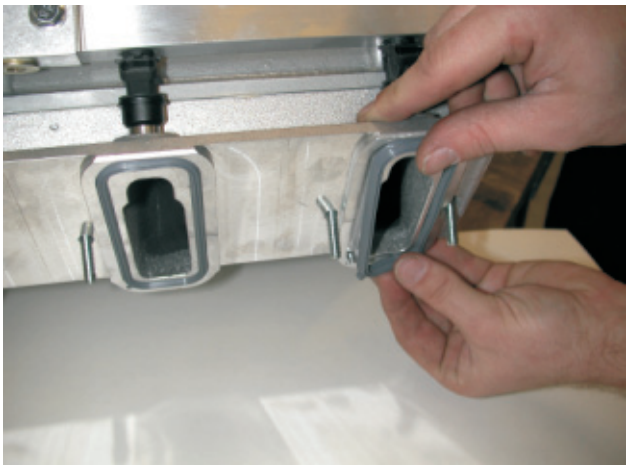
33. Using a die grinder, grind the marks made in step 32. Once the clearance is ground out, check the coolant vent pipe once again and make sure that the vent pipe does not touch the alternator bracket.



34. Using the stock bolts removed in step 25, install the new supplied front coolant vent pipe and rear block off blocks. (Late model vehicles already have the rear blocks installed). Torque the bolts with a torque wrench and a 10mm socket to 106lb in.(Make sure that the O-Ring seals are installed correctly).



35. Using the new supplied 16” x 3/8” (PCV) vacuum hose, connect one end to the (PCV) valve as shown, and lay the other end of the hose off to the drivers side out of the way.(To be connected in a later step).

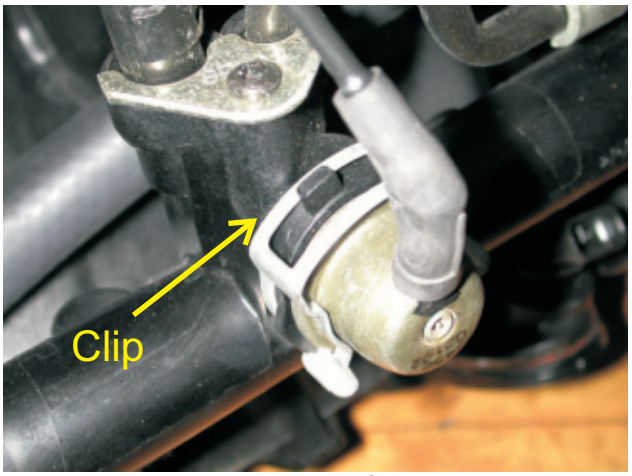


36. Remove the protective tape from the supercharger and install the new supplied intake manifold gaskets (8) as shown (Note make sure that the tab on the gaskets line up with the tab notch in the manifold).

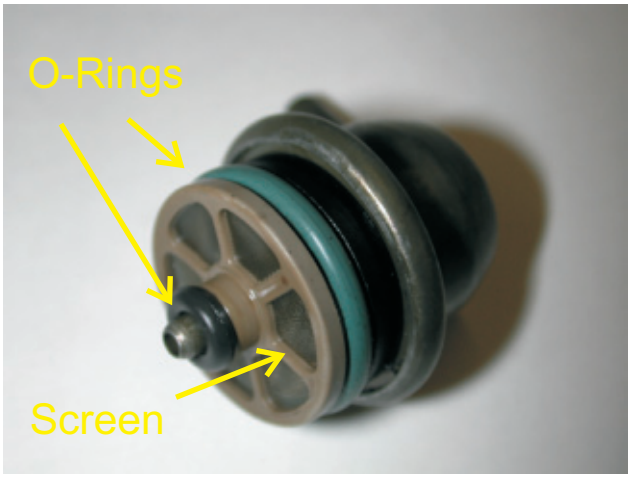
37. Remove the stock (MAP) sensor from the stock intake manifold, by pulling back on the two tabs and lifting the sensor out. (Make sure that the orange (MAP) sensor seal does not get damaged as it will be reused).

39. Using a 4mm Allen wrench, install the (MAP) sensor retaining clip with the provided 6mm button head screw as shown.

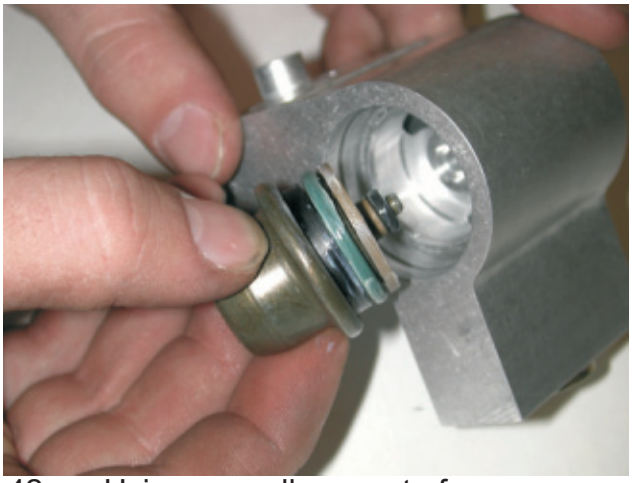
38. Put some lubricant on the (MAP) sensor seal and press the (MAP) sensor into the provided hole in the supercharger manifold as shown.



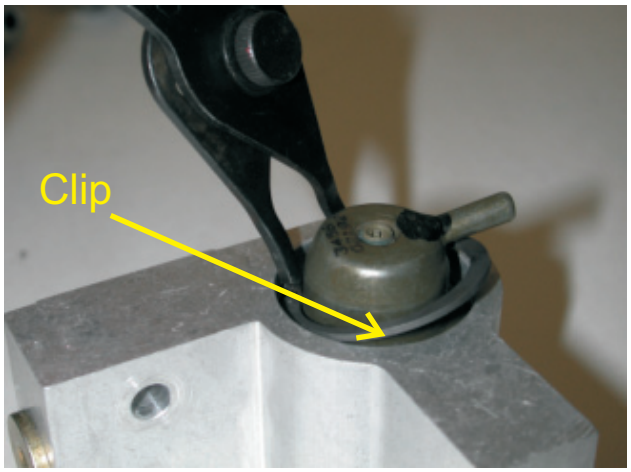
40. Remove the stock fuel pressure regulator from the stock fuel rail by disconnecting the vacuum hose, pulling off the spring loaded clip and pulling the regulator out. (Be careful not to drop or lose any of the small O-rings on the regulator).



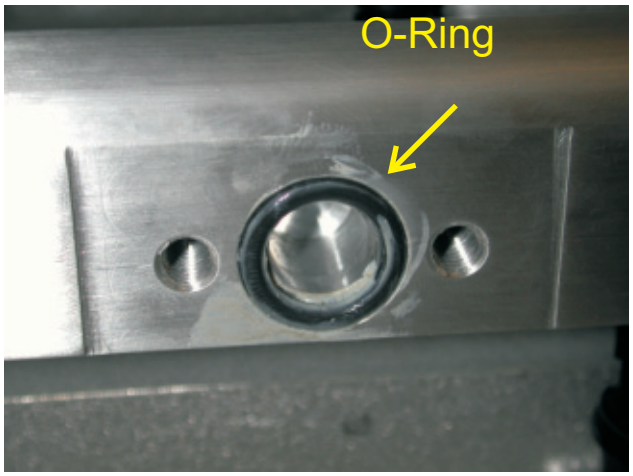
41. Make sure that the two O-rings and the screen filter is complete as shown.



42. Using a small amount of grease or oil lubricate the two O-rings on the fuel pressure regulator and push it into the new supplied fuel manifold as shown.

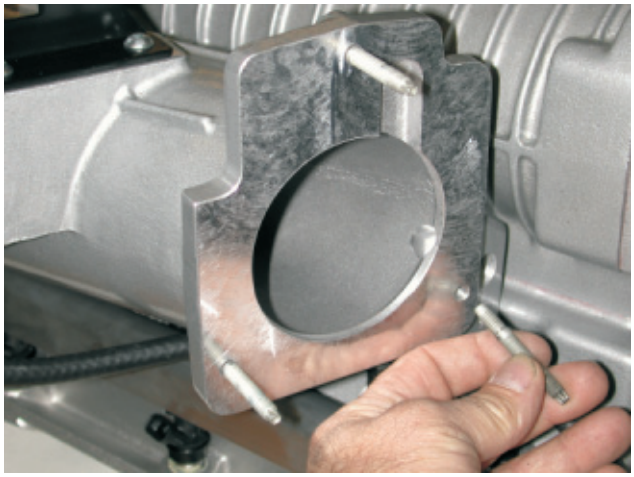


43. Using a pair of C-clip pliers install the new supplied C-clip into the fuel manifold as shown. (Make sure that the clip seats into the machined groove in the manifold).

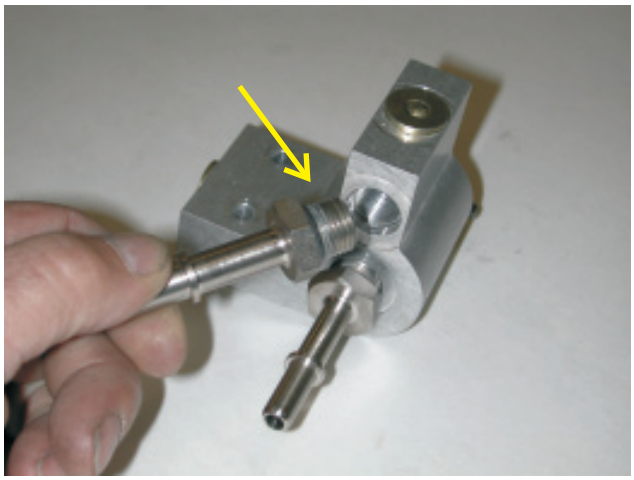


61. Apply a small amount of grease to the new supplied fuel manifold O-ring and set in the machined recessed area on the new drivers side fuel rail as shown.

45. Install the assembled fuel manifold to the drivers side fuel rail using the two new supplied 6mm bolts. Using a 10mm socket wrench torque the bolts to 98/100 in/lbs. (Be careful not to pinch the O-ring).



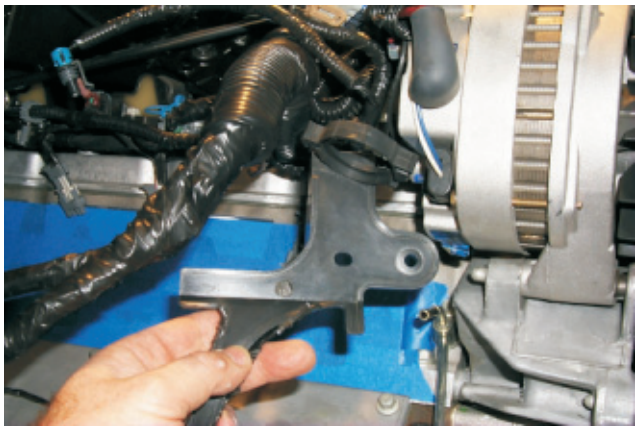
47. Using a 10mm socket wrench remove the stock throttle body from the stock intake manifold, also using a #5 inverted torx socket remove the three factory studs from the stock intake manifold.



46. Install the new supplied fuel fitting to the fuel manifold as shown. Make sure the fittings have the o-rings installed. Be sure the large diameter fitting goes to the outside, small diameter fitting goes on the inside. If these are installed backwards the vehicle will not start.

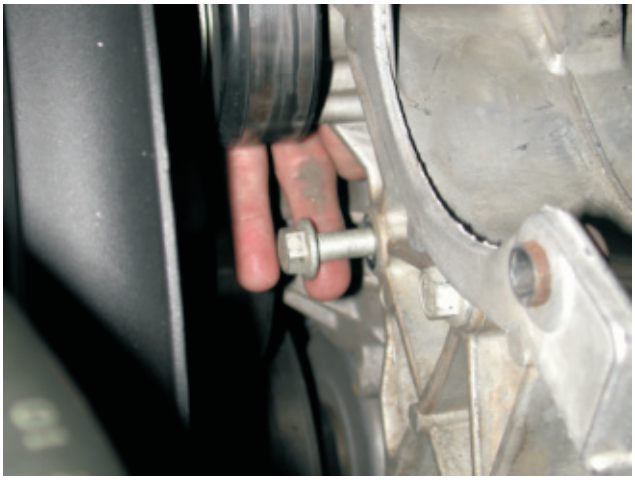
48. Using supplied gasket, mount throttle body using OE hardware.

49. Connect 5/32” hose from manifold top to O.E. regulator port.

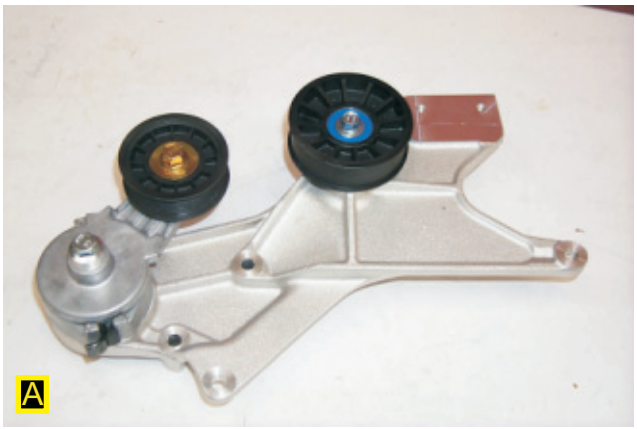


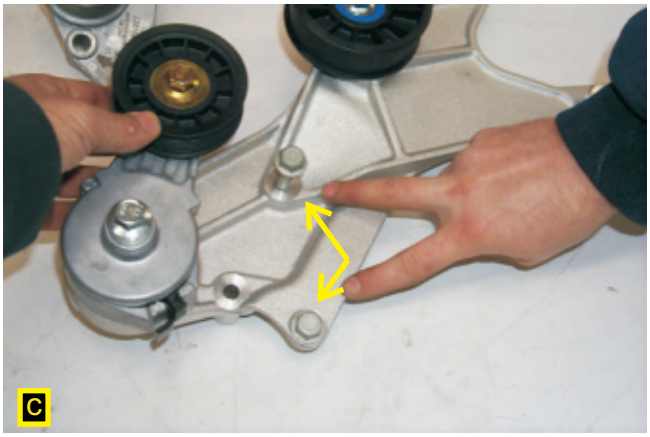
51. Carefully cut out & remove cable guide/mount that was mounted on top of intake.

50. Remove Evap. solenoid from stock manifold, lubricate o-ring, mount on front of new intake manifold.



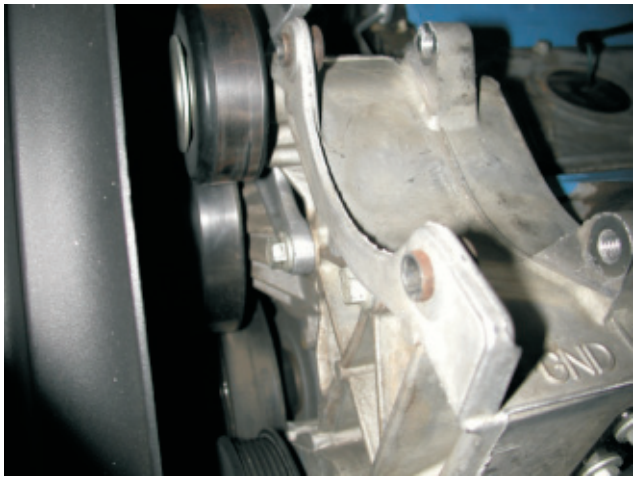
52. Remove 10mm bolt directly below alternator and below factory idler.



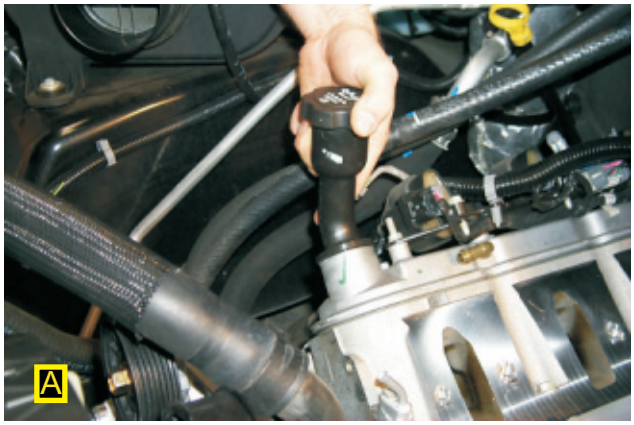


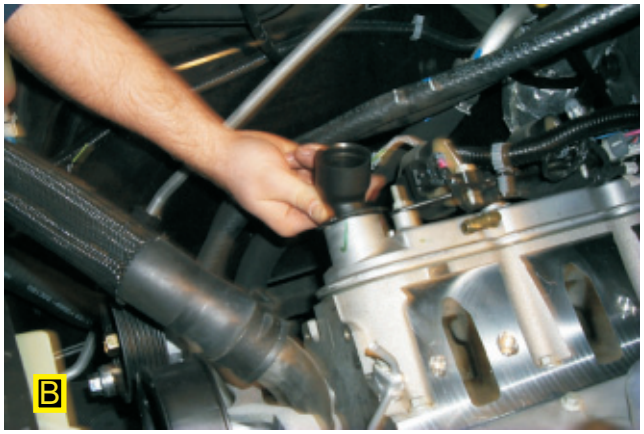
53. After removing OE tensioner, reuse the 2 fasteners shown in photo B in holes shown in photo C.

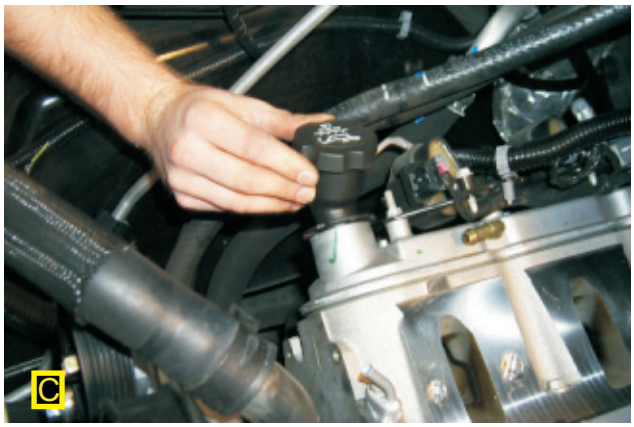
54. Install new tensioner with new bracket support assembly, where old tensioner was removed.



55. Torque all fasteners to 40 ft/lbs.







56. Carefully remove and replace the oil fill neck with the shorter supplied assembly, and replace fill cap. In some cases, you will need to remove the valve cover to release this tube. After removing fill tube, reinstall valve cover.

57. Spray a thin coat of silicone or similar product to assist seating of the manifold seals.

58. Using an assistant, carefully lower manifold assembly into place.

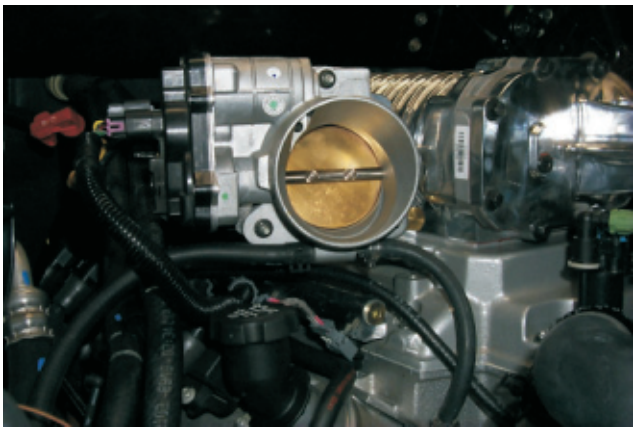
59. Remove ten flex-loom pieces, allowing manifold fasteners to drop into place. Hand thread all fasteners.

61. Route fuel lines around manifold for smooth routing.

60. Torque all ten fasteners in a criss-cross fashion to 89 in/lbs.

62. Re-attach fuel lines making sure they are secured.

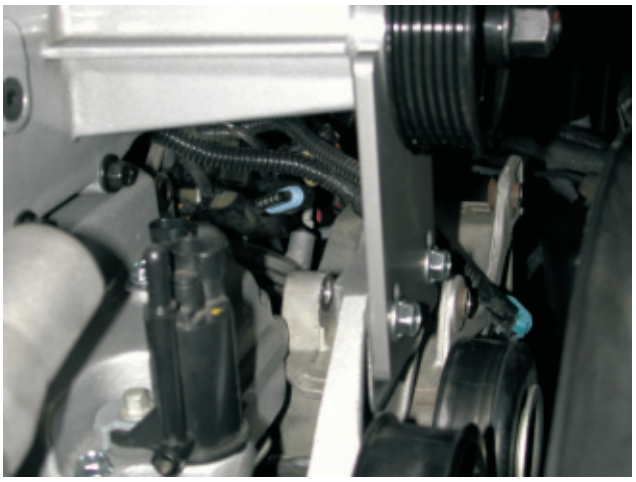
63. Re-attach injector plugs and other related sensors.



65. Connect throttle body coolant hose from radiator.

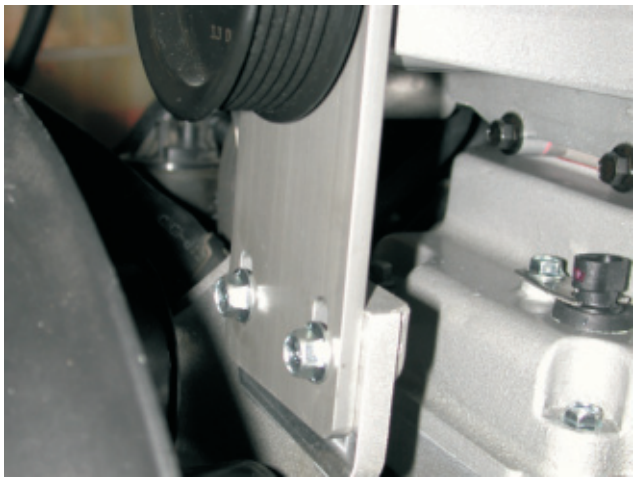
64. Connect throttle body to cylinder head manifold coolant hose.

66. Route evap tube along fuel rail on drivers side. Re-connect to fitting on back of engine, route under supercharger nose.

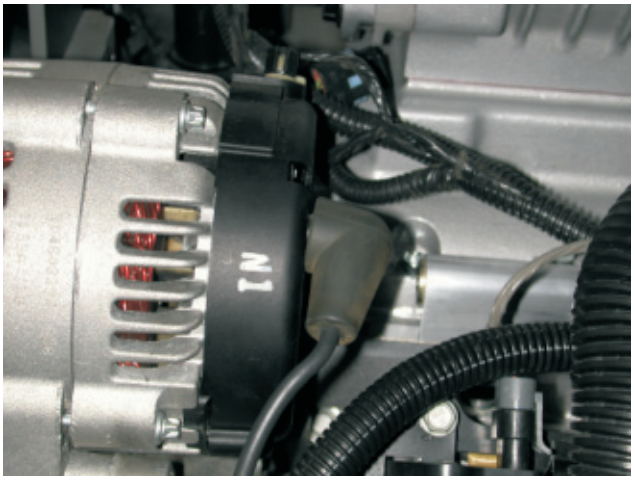


67. Route evap under supercharger nose drive and connect. (Note: Nose drive support is shown in picture above, but is not to be installed until step 68)

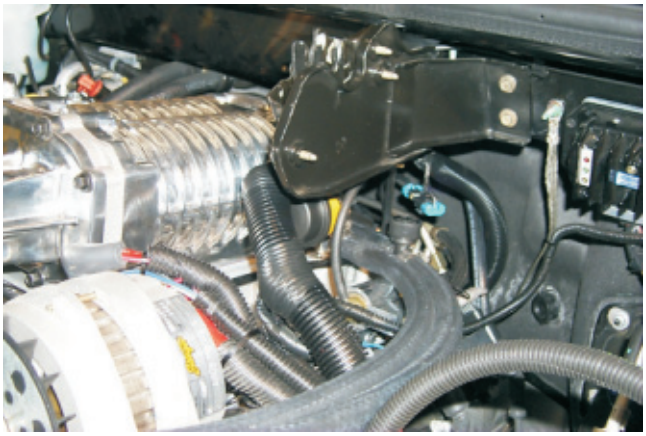
69. Remount alternator using OE hardware.



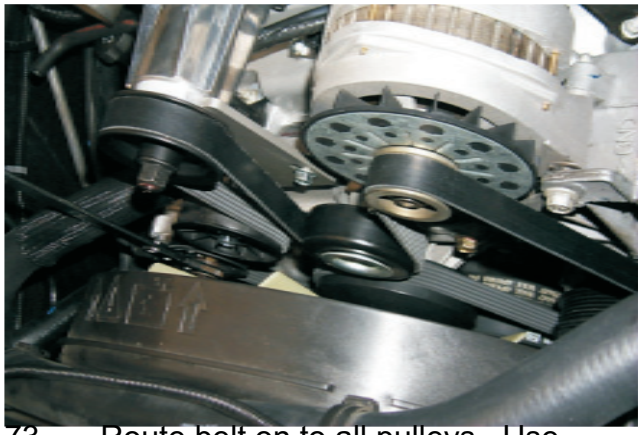
68. Attach supercharger nose drive support.



70. Re-attach all electrical connections.



71. Re-attach hood latch assembly to firewall using OE fasteners.



73. Route belt on to all pulleys. Use 15mm tensioner or breaker bar to release tensioner. See new belt routing diagram provided.
(Drive belt is a Gates #K061120)

72. Apply the belt routing and vacuum diagram over the existing belt route label.

74. Install/plug-in throttle control cable and check all connections for kinks or binding.

75. Locate MAF cable, pull back flex loom approximately 8 inches. Separate the tan & black wires from this harness.

76. Cut the tan & black wires approximately 7” from the MAF connector. Butt splice the IAT harness and route the IAT plug to the front of the intake, plug into the IAT sensor. Cover up wire with flex loom. Plug in MAF connector.

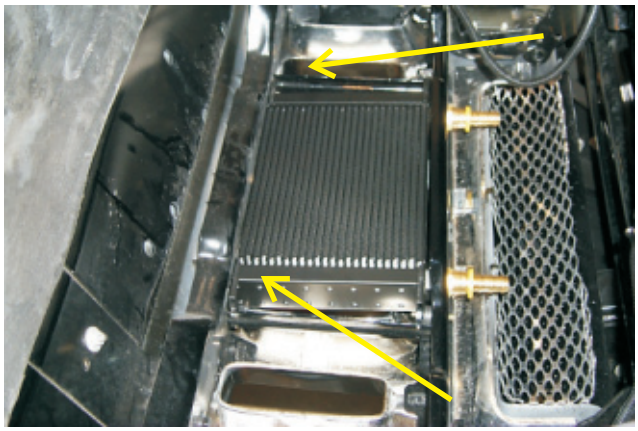
77. Install and clamp supplied bellows and air inlet tube on the MAF and throttle body.

78. Route passenger side PCV hose to supplied 3/8” barb, shorten hose if needed for smooth routing.

79. Check all connections, vacuum routing, fuel hoses and wires for proper placement.

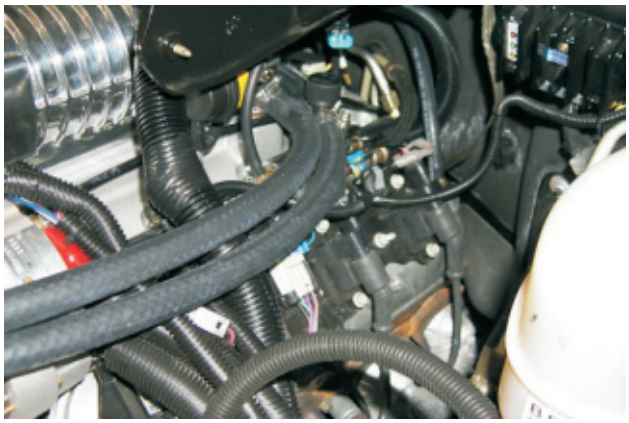
80. Using supplied pattern, cut out heat exchanger layout. Tape in place in grill support. Drill 2 outer holes using 1/4” diameter bit. Using 1-1/2” hole saw, drill 2 places. De-burr holes.

81. Attach fittings and vibration mounts to heat exchanger.



82. Using hardware supplied, mount heat exchanger. Attach self tapping screws in upper holes to steady this assembly.

83. Carefully bend trans cooler line to clear reservoir on fan shroud.

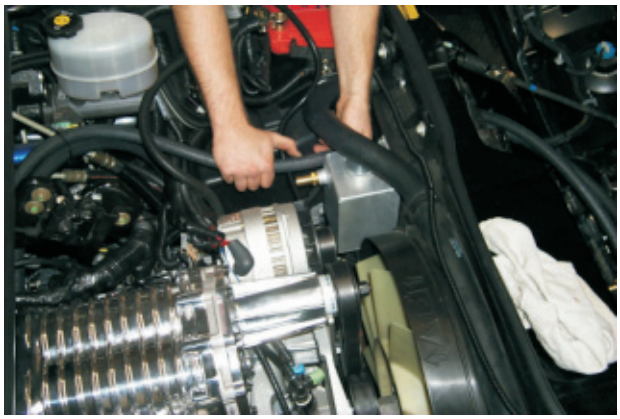


84. Route coolant lines along engine towards driver side radiator bulkhead. Route drivers side intercooler hose through radiator bulkhead, out through rectangular hole in front of the radiator.

85. Plug in pump wiring assembly and check all clamps.

86. Test fit the pump and reservoir assembly for clearance.

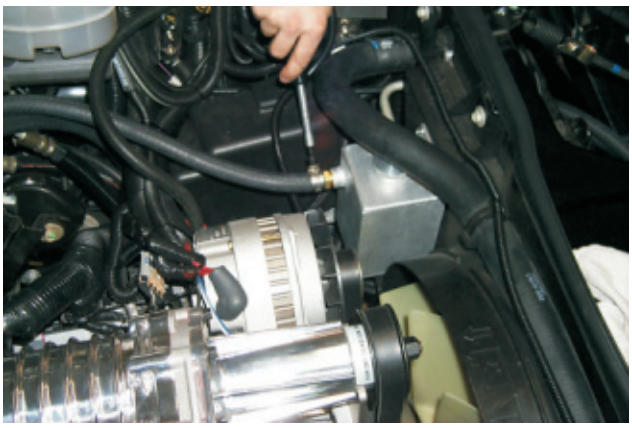
88. Cut passenger side intercooler return hose.



87. Hold reservoir in place. Measure hose coming from passenger side and mark for cutting.

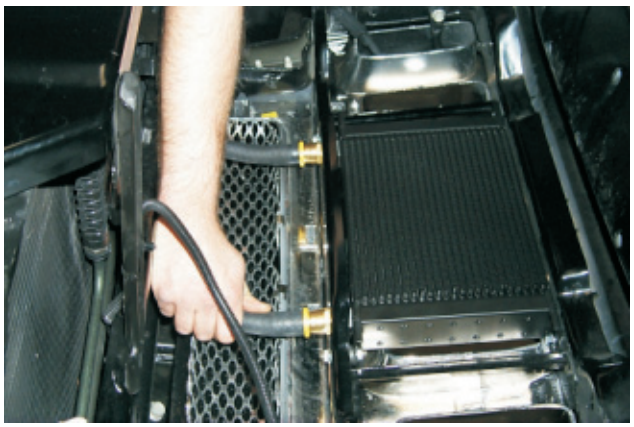
89. Using hose remaining from step 88, mount and clamp on pump discharge.

90. Carefully route the pump discharge hose through the radiator bulkhead. Guide through front rectangular radiator vent hole. Mount reservoir using 2 self tapping screws provided.



92. Attach return hose, tighten clamp. Route wire harness back towards fuse center.

91. Install reservoir “T” bleed on passenger side intercooler hose, (which returns to reservoir), approximately 18” from manifold. This will be used to assist in bleeding the intercooler system.

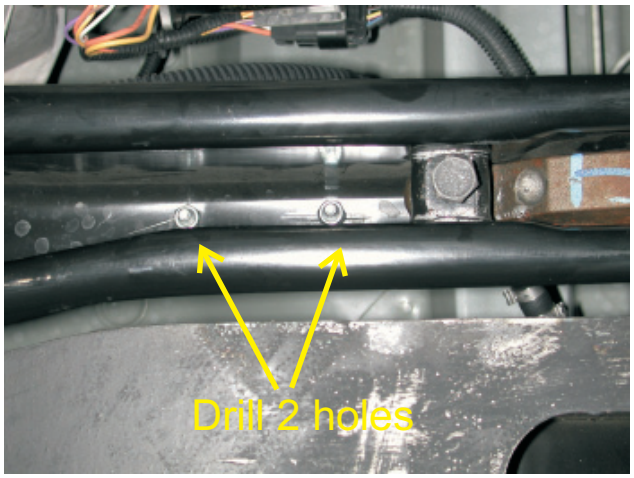


93. Trim and install hoses on heat exchanger. No clamps are needed. Check closure of hood for kinking or binding of coolant hoses.

94. Lift vehicle in the air using a automotive lift or you can also use a floor jack and jack stands.

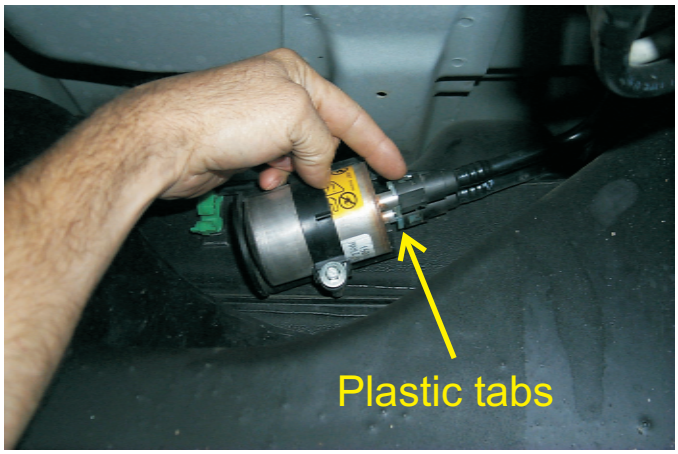
(Caution do not work under the vehicle without using safety stands, the vehicle could fall and cause serious injury

95. Using a 15mm socket wrench remove the aluminum rock / skid guard. Set this aside for reinstallation later.



96. Locate the center cross member as shown, using a 21/64 drill bit drill two holes 2 ¾ inches apart from each other in the top of the cross member 1 inch out from the torsion bar adjusting bolt as shown.

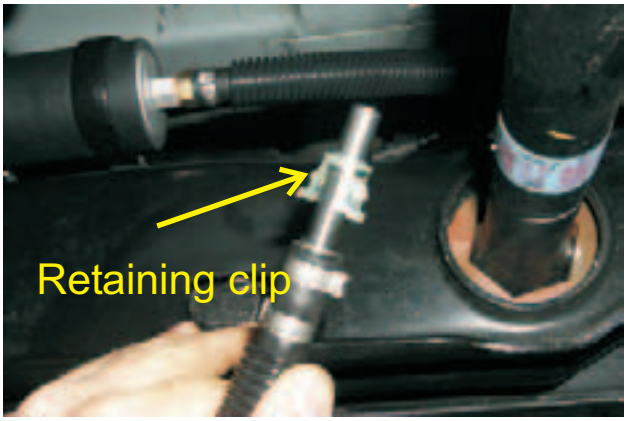
97. Drill holes by drilling strait up in between the cross member as shown (Caution wear safety glasses).



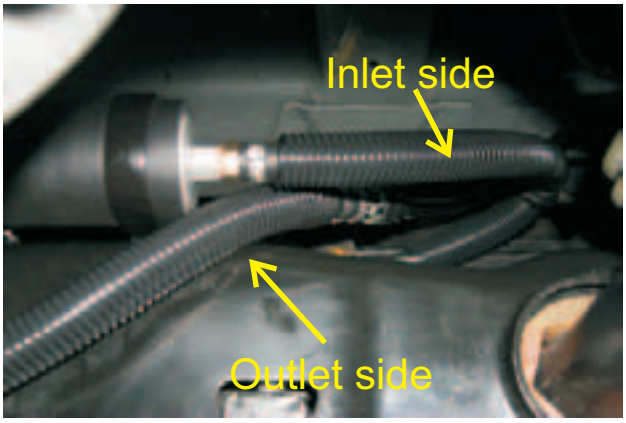
98. Locate the fuel filter above the cross member on the drivers side of the vehicle. Disconnect the fuel line on the filter as show by squeezing the two white plastic tabs together and pulling the line off. This is the line that goes to the front of the vehicle.

(Caution fuel system could be under pressure, loosen the gas cap first and wrap a rag around the fuel line for safety.) (Wear safety glasses).

99. Remove the plastic clip from the fuel filter. Use a small pocket screwdriver or pick to aid in the removal.
(Do not damage the clip it will be reused in a future step).



100. Using the supplied clamps, 8mm bolts, and nylock nuts, fasten the fuel pump assembly to the top of the cross member as shown with the electrical connectors facing the passenger side of the vehicle. Install the small plastic retaining clip removed in step 6 to the new fuel line as shown. (Make sure the connector snaps on tight).



101. Push the inlet side pump hose on to the fuel filter, making sure that it locks into place (Pull on it to make sure it does not come off). Also push the outlet side hose into the fuel line that goes to the front of the vehicle. (Make sure you check this one to by pulling on it too).

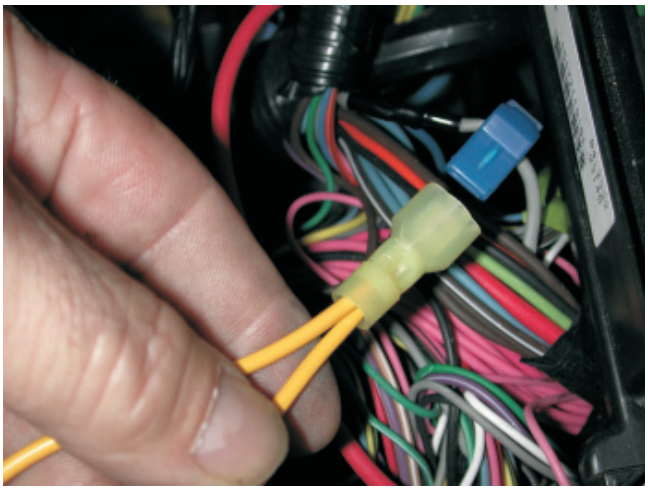
102. Using a 13mm socket wrench remove the four bolts holding the left side hood stop bracket to the chassis.

104. Pull back on the two tabs holding the relay centers main cover off.

103. Firmly grasp the relay centers cover and lift off.

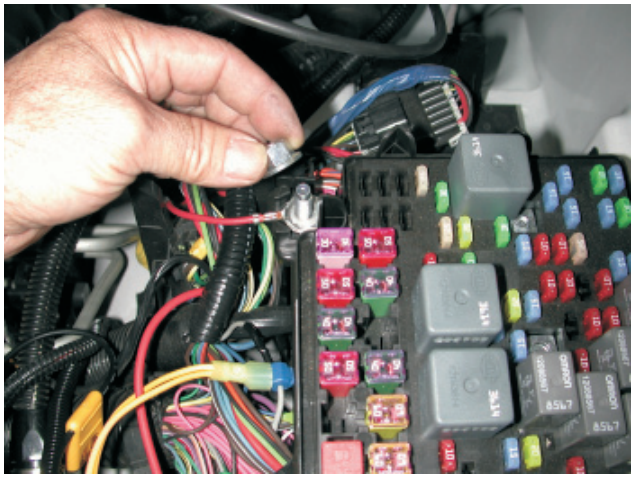
105. Lift the cover off and set aside for reinstallation later.

106. Locate the gray fuel pump wire in the harness that goes from the relay center down the frame towards the fuel pump. Using a pair of small pliers squeeze the blue scotch lock connector onto the wire as shown. Use a 12 volt automotive test light to make sure you have the right wire, the light will lite for 3 seconds and then go out when you turn the key on.

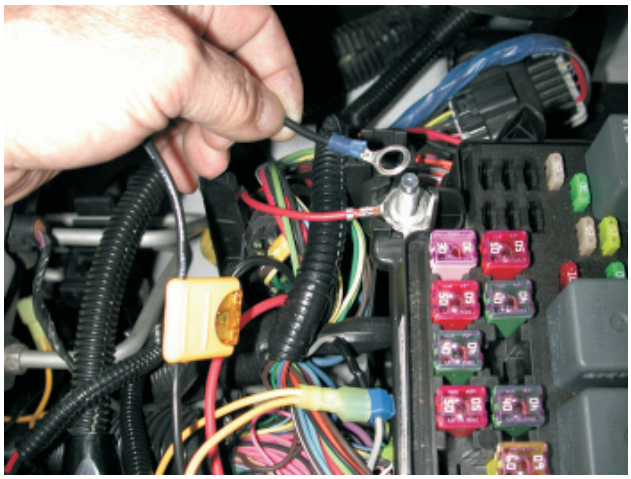


107. Plug the end of the yellow wire coming from the supplied fuel pump relay to the scotch lock connector installed in the last step.

Note. Detailed Wiring diagram can be found in the back of this instruction manual.

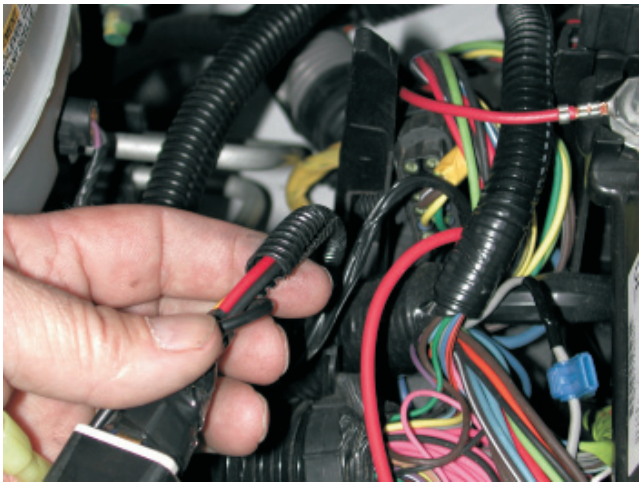


108. Using a 13mm socket wrench remove the positive terminal nut from the lug. (Caution make sure the battery is disconnected.

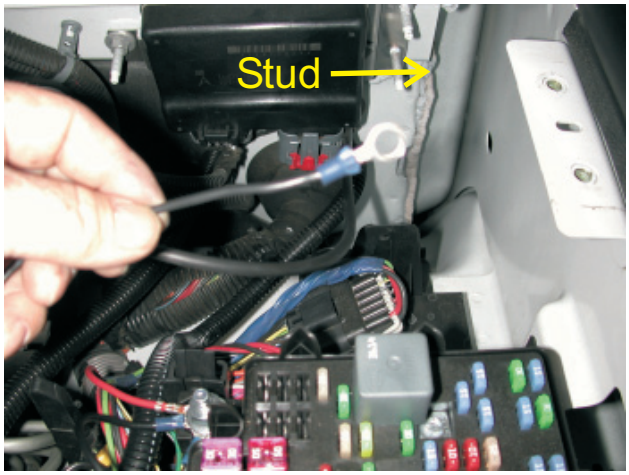


109. Install the positive terminal from the supplied fuel pump relay to the positive lug as shown. (This is the wire with the fuse holder in it).

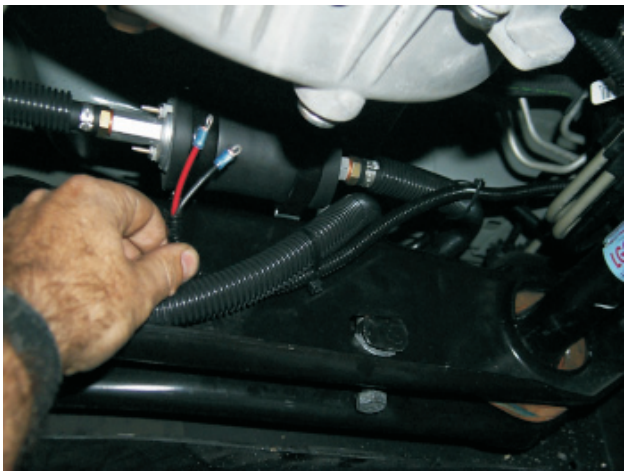
110. Using a 10mm socket wrench, remove the nut off the stud in the left rear corner of the firewall as shown.



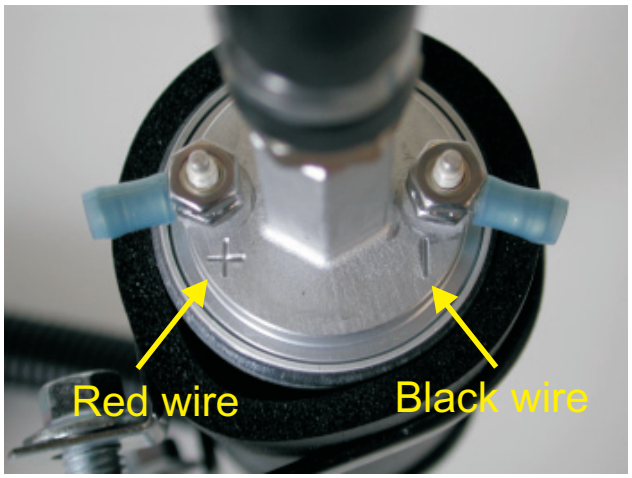
112. Take the remaining two large wires, red and black and run them down along the frame underneath frame to the fuel pump. Use the supplied tie wraps to secure the wires and split loom to the truck. (Be careful not tie the wires any place were they could get damaged by heat or rubbing on something).



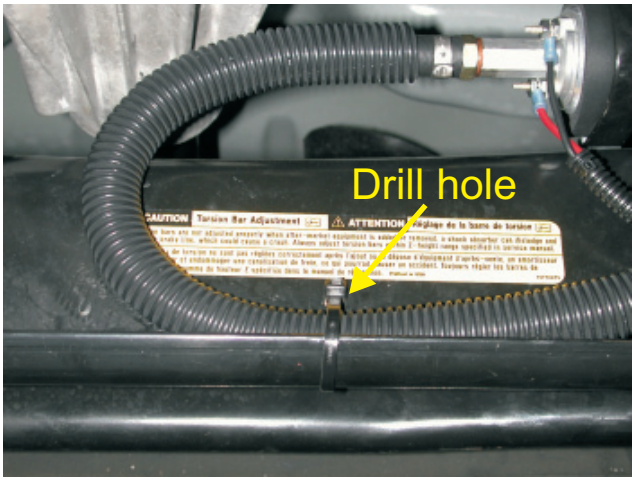
111. Take the ground lead from the supplied fuel pump relay and install it on the ground stud. Reinstall the nut removed in last step.



113. After running the new supplied fuel pump wires down to the fuel pump, cut the wires to length and crimp on the new supplied wire ends to the wires. (The terminal ends are on the fuel pump).



114. The fuel pump wiring must be hooked up correctly to work, the red Positive wire goes to the “+” post on the pump and the black negative wire goes to the “-” post on the pump.
(Double check your installation before moving on.)



116. Set the fuel pump hose into the lip of the cross member, drill a small hole in the cross member just above the hose. Using one of the supplied tie wraps, secure the hose as shown.

115. Place the wires on the pump, install the nuts, and tighten. (Do not over tighten the nuts and break the studs).

117. This is what the fuel system will look like after it is installed. Double check everything and make sure that the hoses and wires will not rub on any thing. Also make sure that they are not close to the exhaust.

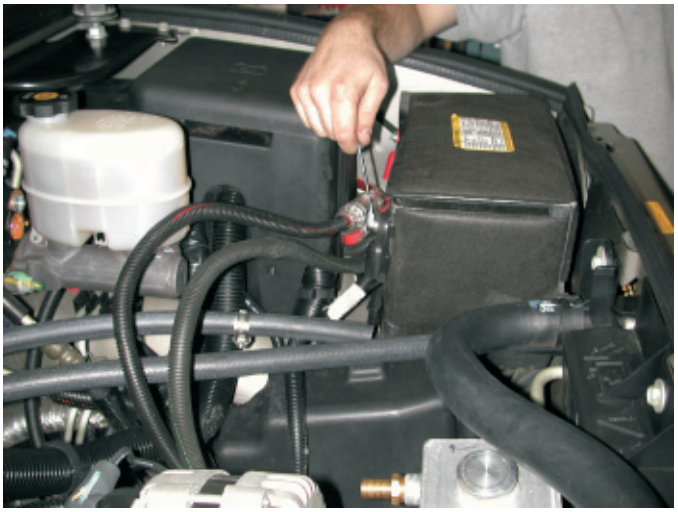
118. Using a 15mm socket wrench reinstall the rock / skid plate to the chassis.

120. Reinstall the relay center cover. (Be careful not to pinch any wires).

119. A picture of how it should look after it is finished.

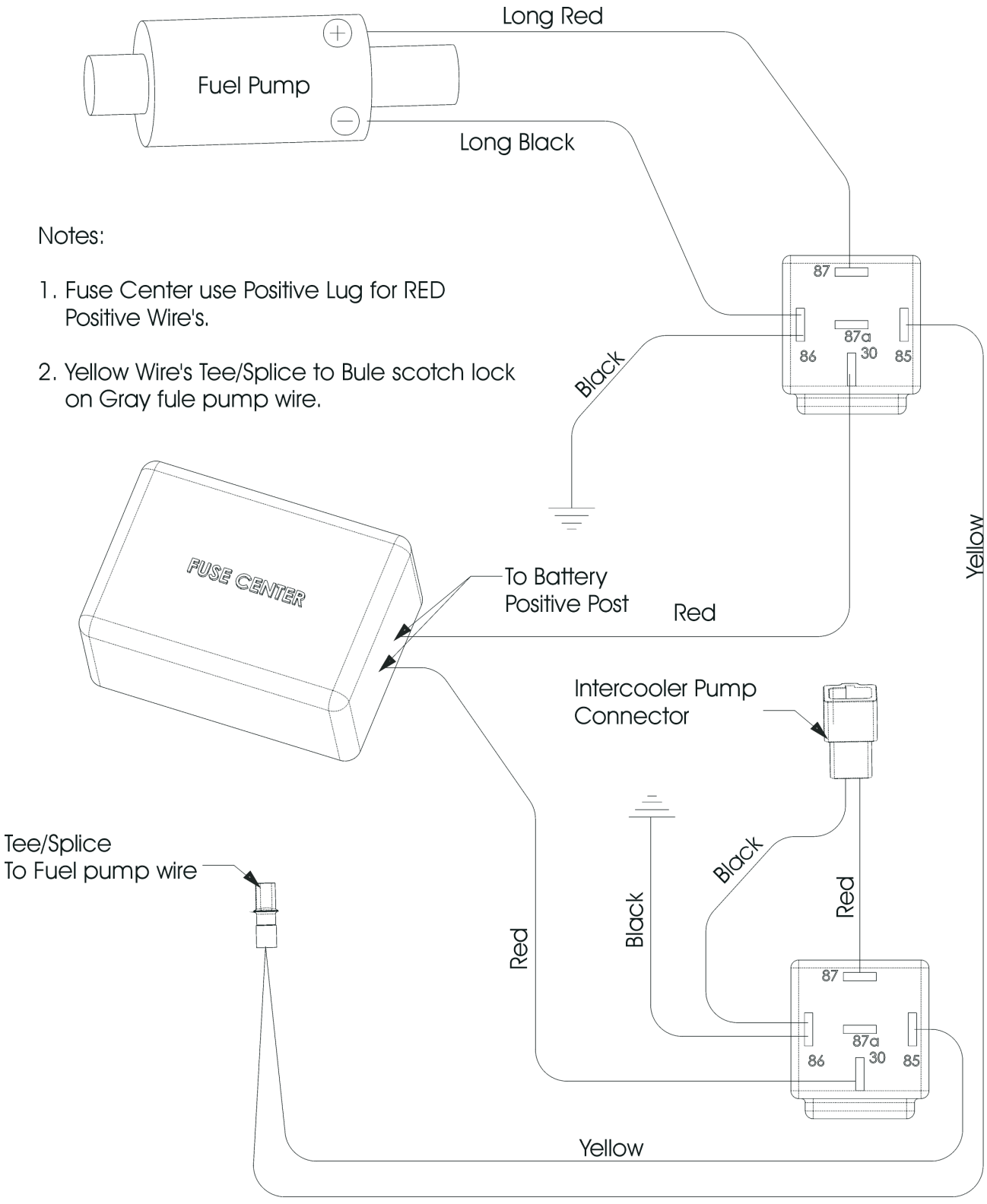
121. Reinstall the fuse / relay cover by aligning it up and pushing down on it.

122. Reinstall the hood stop bracket



123. Reconnect the battery.

124. Refill radiator start engine and fill intercooler system with a 50/50 mixture of coolant and water. Let run for 5-10 minutes. Bleed system at T and at reservoir. Check system periodically for fluid level.
*Note: reservoir types may vary between models.


Long Red
Fuel Pump
Long Black
Notes:
1. Fuse Center use Positive Lug for RED Positive Wire's.
2. Yellow Wire's Tee/Splice to Bule scotch lock on Gray fule pump wire.
87
87a
86
30
85
Black
FUSE CENTER
To Battery Positive Post
Red
Yellow
Intercooler Pump Connector
Tee/Splice To Fuel pump wire
Red
Black
Black
Red
87
87a
86
30
85
Yellow

126. Vehicle Programing Instructions For the Micro Tuner

IMPORTANT! To ensure trouble-free programming of your vehicle's computer:
***Make sure the vehicle's battery is sufficiently charged.**
***Turn off all accessories & close doors to prevent unnecessary drain on the battery.**
***Do not attempt to program your vehicle while a battery charger is connected.**
***Improper battery voltage will result in failure of the programming process.**
***Do not disconnect the cable or turn off the ignition during programming.**
***Apply emergency brake to disable daytime running lights.**

A. Connect the supplied cable to the 9-pin connector at the top of the handheld unit. Use the thumbscrews to secure the cable to connector.

B. Connect the other end to your ALDL connector located under the dash near the steering column. Make sure this connection is seated all the way in and that it is secure. You do not want this cable coming out of the connector during programming.

***DO NOT DISTURB THE CABLE OR TURN THE IGNITION OFF DURING THIS TIME! IF THE PROGRAMMING IS DISRUPTED YOUR COMPUTER WILL NOT START OR RUN YOUR VEHICLE!**

C. Turn the ignition key to the on or run position <u>but do not start the vehicle.</u>

D. To begin programming your vehicle, you must press the YES button.

E. You only need to press the YES button once to start the programming cycle. The programming process only takes about a minute.

F. The handheld unit will inform you that the programming process has completed and to turn the ignition off and disconnect the cable. <u>Only at this time should the ignition be turned off</u>

In the event that the vehicle needs to be returned to its original calibration, follow the directions as described above. The handheld unit will prompt you that you have already modified the vehicle's computer. Select YES to return you vehicle's computer back to the stock calibration. Wait for the handheld to finish, then disconnect cable as described above.

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

128. Test drive vehicle for the first few miles under normal driving conditions, listen for any noises, vibrations, engine missfire or anything that does not seem normal. The supercharger does have a slight whining noise under boost conditions, which is normal. Check & bleed intercooler reservoir as needed.

129. After the initial test drive gradually work the vehicle to wide open throttle runs, listen for any engine detonation (Pinging), If engine detonation is present let up on the throttle immediately. Most detonation causes are low octane gasoline still in the tank. If you have questions about your vehicles performance, please check with your installation facility or call Magna Charger at (805) 289-0044, Monday through Friday, 8am to 5pm.

Please enjoy your “Magna Charged” performance responsibly.

Ventura, CA (November 21, 2002) Magna Charger, manufacturer of superchargers and supercharger systems for foreign and domestic vehicles, was presented the prestigious award at the annual Specialty Equipment Market Association Show (SEMA) in Las Vegas, Nevada.

Sponsored by General Motors Corporation, the 2002 SEMA Design Award for the “Most Innovative Product” was awarded to Magna Charger and recognized by the all-star team of judges for their outstanding and innovative design achievement. The criteria used by the judges included innovation, technical achievement, quality and workmanship.

The award was presented for the Radix® Intercooled supercharger system, designed for the Chevrolet, GMC and Cadillac, 4.8L, 5.3L and 6.0L General Motors Trucks and SUV's including the new H2.