



INSTALLATION INSTRUCTIONS

**Upgrade Front Intercooler
2001 – Early 2006 Chevrolet / GMC Duramax**

P/N 2 - 486





READ THIS FIRST: Study these instructions completely before proceeding. Engine and / or turbocharger damage may occur if any component within these instructions is improperly installed. Turbonetics, Inc or any of its distributors cannot be held responsible for damages as a result of negligent or improper installation. This complete turbocharger system can be installed using common tools and automotive procedures, but installer must have a thorough knowledge of automotive engine operation and feel comfortable working on the vehicle. If in doubt, contact Turbonetics' technical support staff at 805-581-0333, between the hours of 8:00AM and 5:00PM PST, Monday through Friday.

Remove the heat exchanger from its carton and inspect for any obvious physical damage. All kit components are thoroughly inspected and carefully packaged prior to shipment from the factory. If any shipping damage is evident, contact your supplier and request that they process a claim with the shipper involved. Be sure to review the parts list on to verify that you have all necessary system components to proceed. If any components in the parts list are missing, contact Turbonetics' customer service staff.

The information contained in this publication was accurate and in effect at the time the publication was approved for printing and is subject to change without notice or liability. Turbonetics reserves the right to revise the information presented herein or to discontinue the production of parts described at any time.

SAFETY REQUIREMENTS: It is recommended to follow these precautions.

- Always wear safety glasses & gloves.
- Turn the ignition switch to the OFF position & disconnect the batteries.
- Always use properly rated jack stands when lifting and working under the vehicle.
- Prevent unexpected vehicle movement by using wheel chocks and/or parking brake.
- Operate the vehicle only in well ventilated areas.
- Do not smoke or use flammable items near or around the vehicle's fuel system.
- Keep hands, clothing and other objects away from moving parts when engine is running.

SUPPLIES: It is recommended to have the following items before beginning installation.

- GM factory service manual, for your model year
- A large table or bench, and plenty of adjacent available workspace
- Standard selection of automotive tools, primarily metric sizes
- A/C system discharging and charging components

PARTS LIST:

<i>Part Number</i>	<i>Description</i>	<i>Quantity</i>
5-389	Duramax Intercooler	1
21726	Bracket, Fan Shroud – Lower	3
21728	Bracket, Radiator Secure	2
30576-15	Bolt, M8 – 1.25 x 15 mm, Hex Hd.	2
30589	Washer, Flat, 5/16" or M8	2
30593	Washer, Lock, 5/16" or M8	2
31173	Polyurethane Foam, Adhesive Bk	3.5'
31174	Washer, Flat, M6	4
31175	Screw, Self Tap, #10 x 3/4	10
31177	M6 – 1.0 x 45 mm, Hex Hd.	4
21415	Badge, Polydome – Jelly Top	2
30687	License Frame – Spearco	2
60169	Instructions	1



INSTALLATION:

Removal

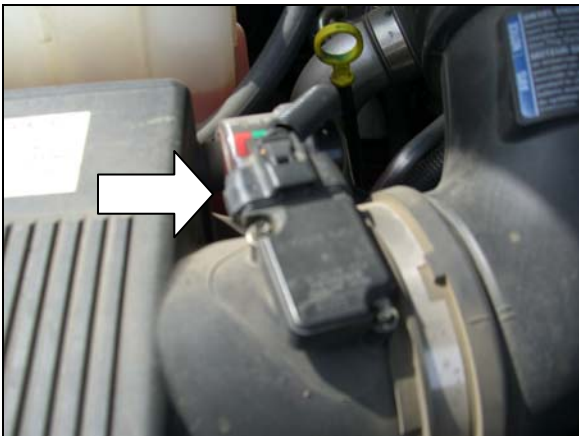
1. Evacuate the A/C system. Consult a GM service manual for the correct procedure.
2. Using an 8 mm socket loosen the hose clamp holding the air intake arm to the intake manifold. SEE FIGURE 1

FIGURE 1



3. Unplug the MAF sensor from the wiring harness. The MAF sensor is located on the outlet of the air box. SEE FIGURE 2

FIGURE 2





4. Pull the plastic intake arm off the intake manifold. Pull up on the air box to free it from the rubber grommets in the metal air box support. Remove the air box and intake arm from the engine bay. SEE FIGURE 3 & FIGURE 4

FIGURE 3

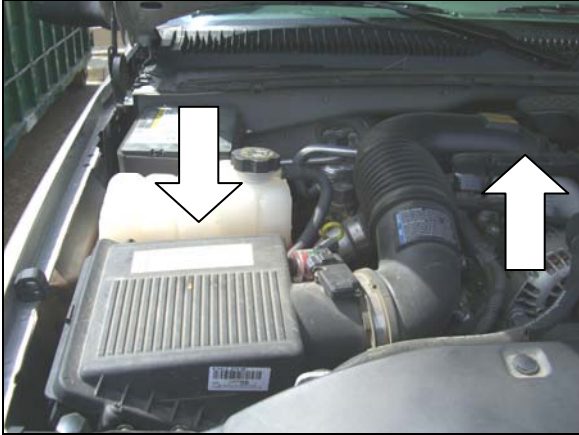


FIGURE 4



5. Using a 10 mm socket remove the 5 bolts securing the metal air box support tray. SEE FIGURE 5 & FIGURE 6

FIGURE 5



FIGURE 6





6. Using a flat heat screw driver remove the 7 plastic fasteners securing the plastic protective covering. The covering stretches between the front grill and the upper cross-member. Remove the cover. SEE FIGURE 7 & FIGURE 8

FIGURE 7

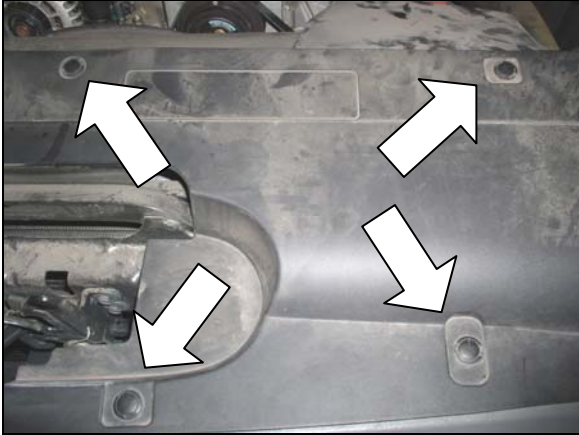


FIGURE 8



7. Remove the front grill by carefully pulling it away from the truck. It should pop out. Trucks of years 2001-2002 will need to remove 4 ¼ turn fasteners and 1 10 mm bolt by the hood latch before the grill will come off. SEE FIGURE 9

FIGURE 9



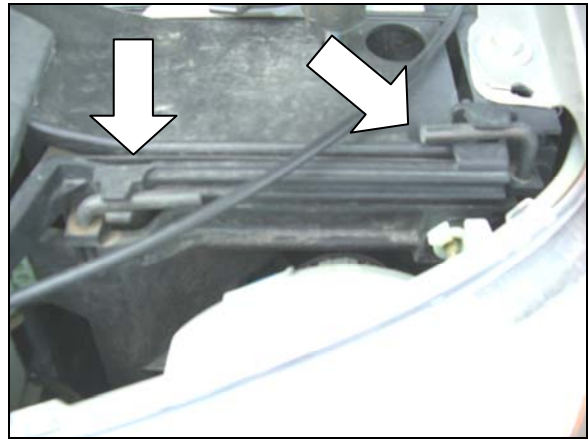


8. Remove the metal pin(s) securing the driver side headlight. The pictures show the multiple headlight configurations offered on the Duramax trucks. SEE FIGURE 10 & FIGURE 11

FIGURE 10

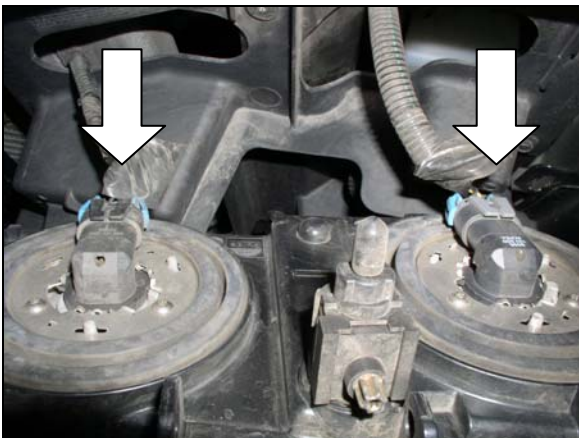


FIGURE 11



9. Disconnect the two headlight bulbs. The plugs are located on the back of the headlight assembly. Remove the headlight assembly. SEE FIGURE 12

FIGURE 12





10. Remove the bulbs from the lower light assembly by twisting their bases. Remove the lower light assembly. It should pop free. SEE FIGURE 13

FIGURE 13



11. Repeat removal steps 8 - 10 for the passenger side. SEE FIGURE 14

FIGURE 14





12. Remove the metal clips from the plastic covering on either side of the intercooler. The clips are located near the lower cross-member. Do this on both the driver and passenger sides. SEE FIGURE 15 & FIGURE 16

FIGURE 15

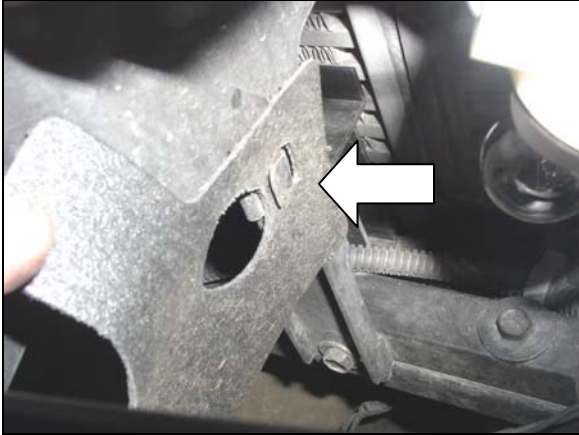
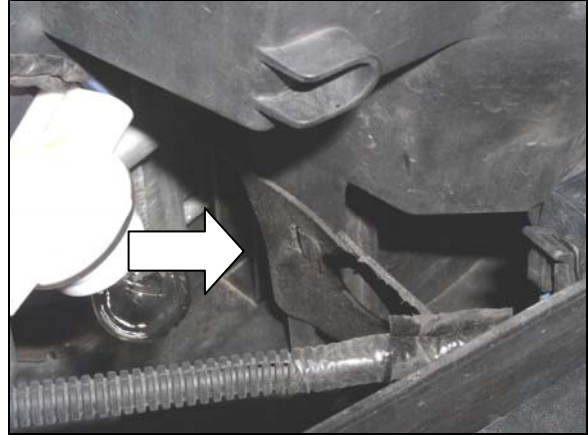


FIGURE 16



13. Separate the plastic liner that runs behind the front bumper from the plastic covering by the lower edge of the intercooler. The tab on the liner pops out of a hole on the cover. Do this on both the driver and passenger sides. SEE FIGURE 17 & FIGURE 18

FIGURE 17

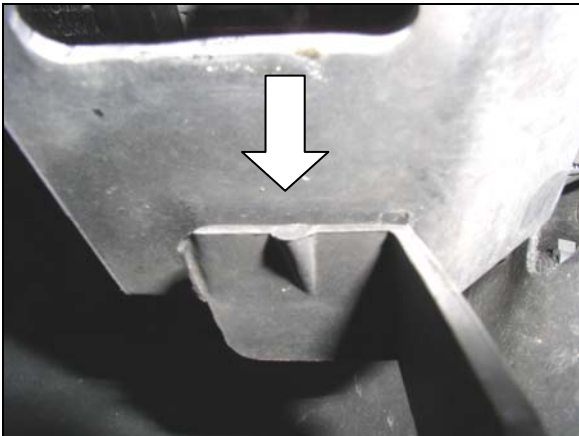
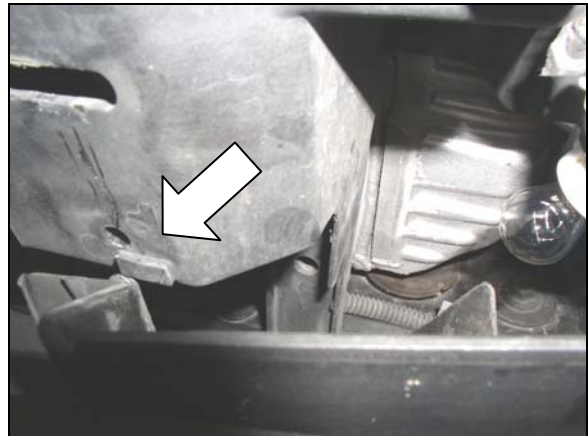


FIGURE 18





14. Using a 10mm socket remove the 6 bolts holding the plastic driver side lighting assembly mount in place. 2 bolts are located in the middle of the mount's lower section. 1 bolt is located at the top right corner of the intercooler. 1 bolt is located on the outside edge between the upper and lower portion of the mount. 1 bolt is located on the lower right corner of the mount, behind the bumper. 1 bolt is located on the lower left corner of the mount near the lower corner of the intercooler. SEE FIGURE 19, FIGURE 20, FIGURE 21, FIGURE 22 & FIGURE 23

FIGURE 19

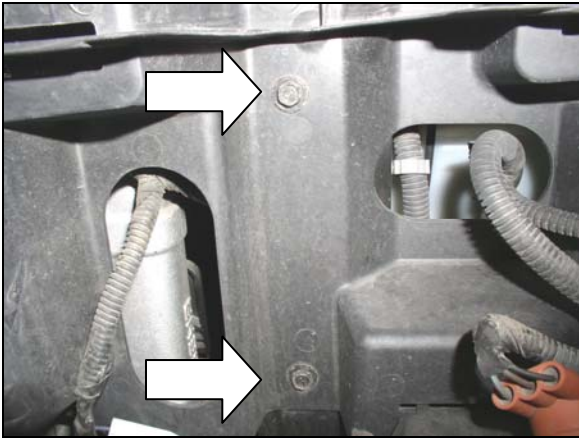


FIGURE 20

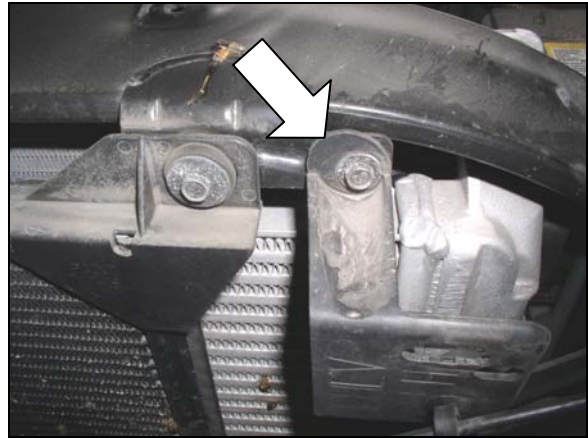


FIGURE 21

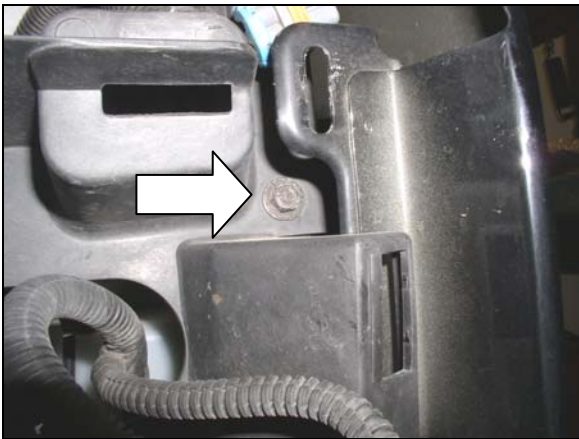


FIGURE 22

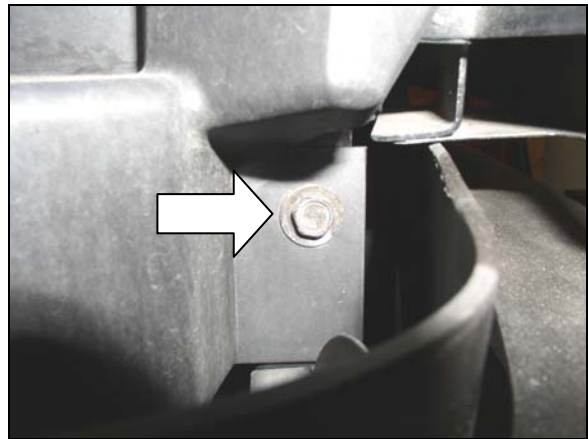
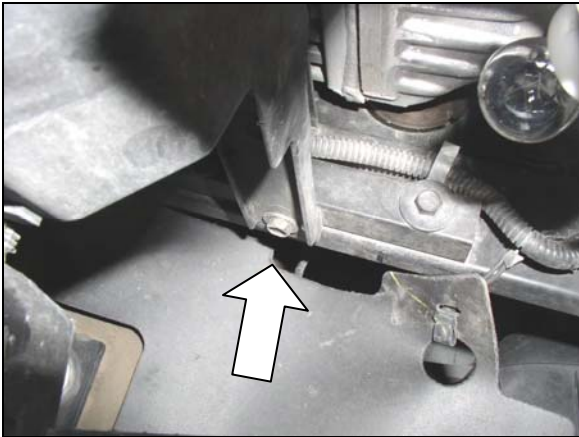
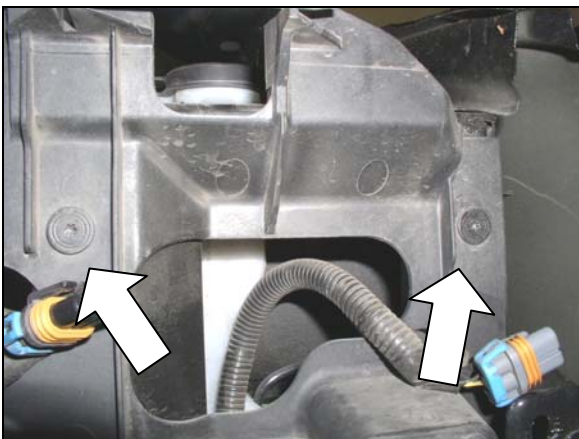


FIGURE 23



15. Remove the 2 T25 Torx bolts from the plastic headlight mount. The Torx bolts are found on the upper portion of the mount, in the area originally occupied by the headlight. SEE FIGURE 24

FIGURE 24



16. Remove the hood latch cable from the plastic holder on the lighting assembly mount. SEE FIGURE 25

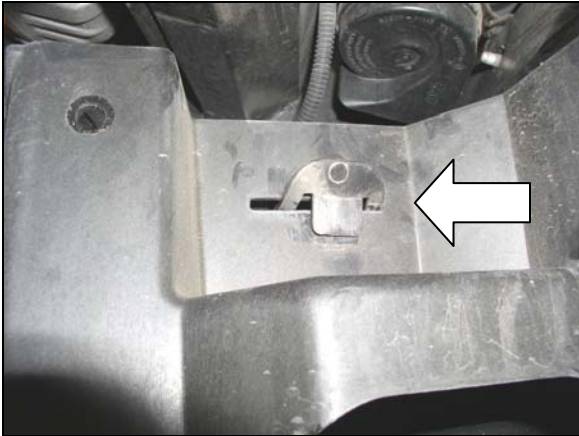
FIGURE 25





17. Unhook the plastic bumper tab from the bottom of the lighting assembly mount. SEE FIGURE 26

FIGURE 26



18. Remove the all of the plastic lighting assembly mount from the driver side. SEE FIGURE 27

FIGURE 27



19. Repeat removal steps 14 - 18 for the passenger side. SEE FIGURE 28

FIGURE 28



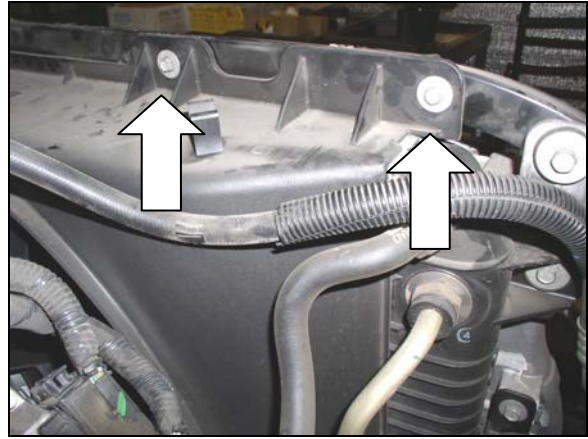


20. Using a 10 mm socket remove the 4 bolts securing the upper portion of the radiator shroud to the cross-member. The bolts are located on the backside of the shroud. SEE FIGURE 29 & FIGURE 30

FIGURE 29



FIGURE 30



21. Slide the TCM computer up out of its seat. Set the computer on top of the radiator hose so that it is out of the way. The TCM computer is located on the driver side portion of the radiator shroud. SEE FIGURE 31

FIGURE 31





22. Using a flat head screw driver remove the plastic fasteners from both sides of the radiator shroud. There are 2 fasteners located on each side of the shroud at the lower corners. SEE FIGURE 32 & FIGURE 33

FIGURE 32

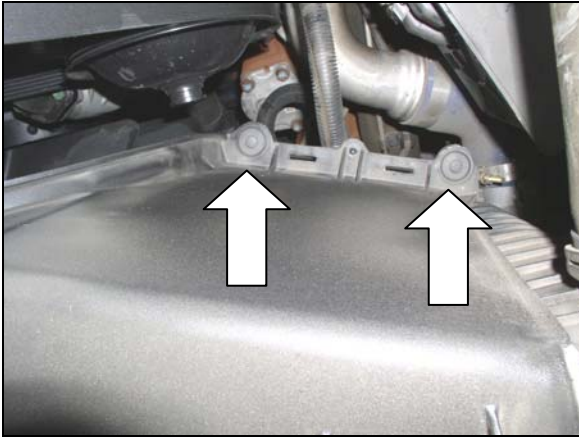
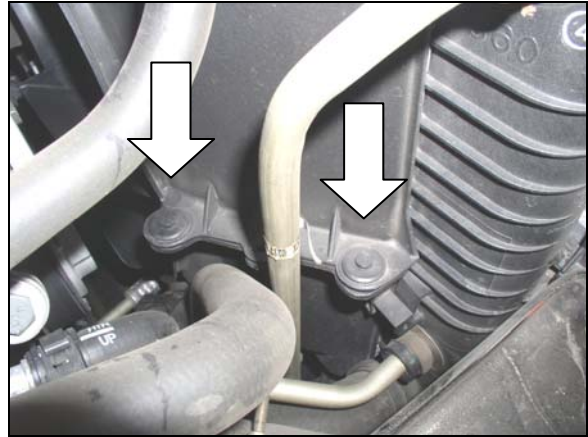
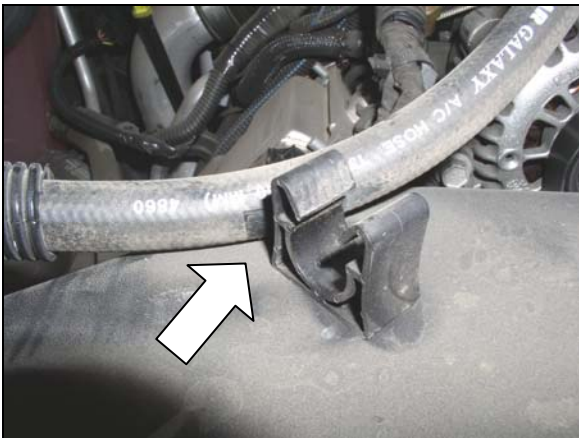


FIGURE 33



23. Remove the A/C hose from the plastic clamp on passenger side of the radiator shroud. SEE FIGURE 34

FIGURE 34



24. Remove the upper portion of the radiator fan shroud from the engine bay. SEE FIGURE 35

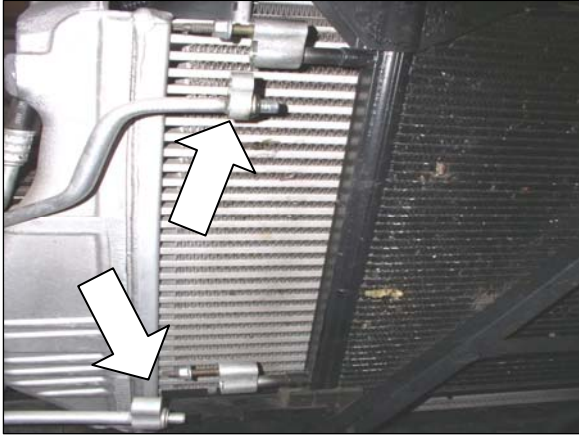
FIGURE 35





25. Using a 13 mm socket remove the upper and lower A/C condenser connections. The connections are located on the passenger side of the A/C condenser. SEE FIGURE 36

FIGURE 36



26. Using a 10 mm socket remove both of the upper A/C condenser mounting bolts. There is 1 bolt at each upper corner of the condenser. SEE FIGURE 37 & FIGURE 38

FIGURE 37



FIGURE 38





27. Using a 10 mm wrench remove the 2 bolts that secure the hood latch/transmission cooler brace to the upper cross-member. SEE FIGURE 39 & FIGURE 40

FIGURE 39

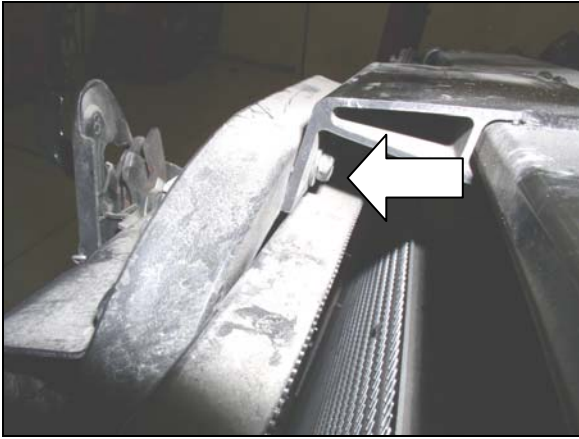
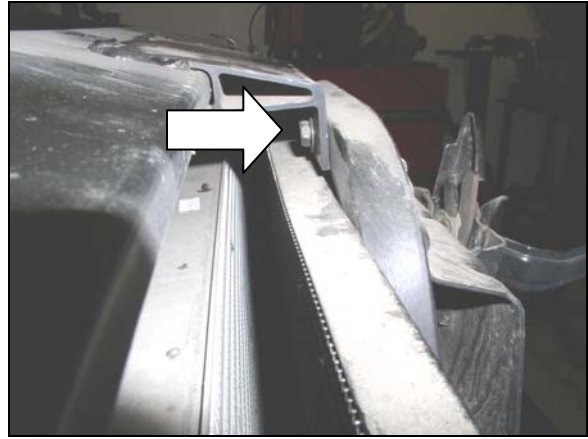


FIGURE 40



28. Free the plastic transmission cooler lines from the plastic clips located just behind the bumper towards the passenger side of the A/C condenser. SEE FIGURE 41

FIGURE 41





29. Using a 10 mm socket remove the 4 bolts securing the transmission cooler brace to the lower cross-support beam. There are 2 bolts on the passenger side and 2 on the driver side of the A/C condenser. SEE FIGURE 42 & FIGURE 43

FIGURE 42

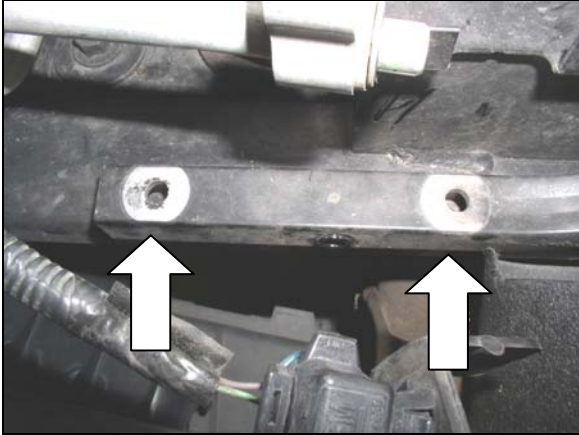
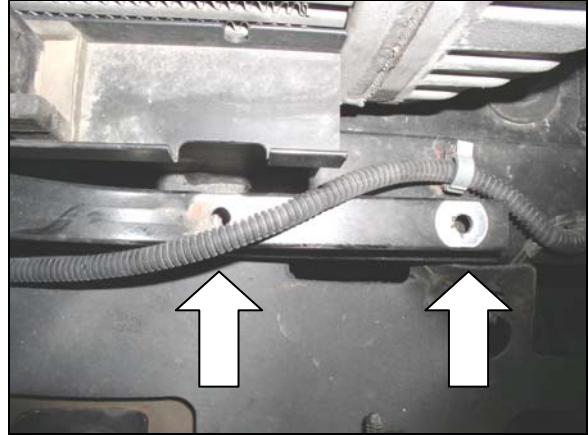


FIGURE 43



30. Bring the support brace with the transmission cooler and hood latch forward. Remove the A/C condenser. SEE FIGURE 44 & FIGURE 45

FIGURE 44



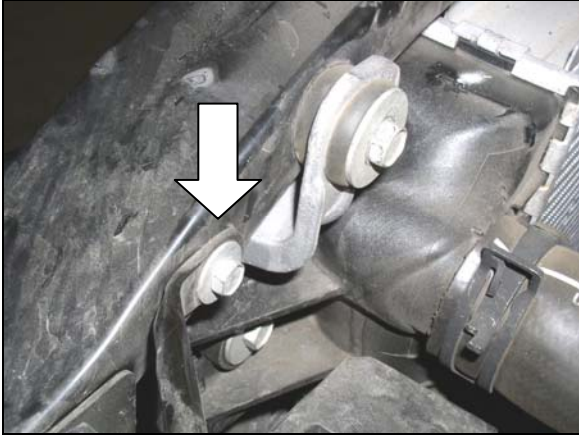
FIGURE 45





31. Using a 10 mm socket remove the bolt holding the small support bar to the driver side of the upper cross-member. The support bar extends to the cross-member from the side of the engine bay directly above the battery. SEE FIGURE 46

FIGURE 46



32. Using a 13 mm socket remove the 2 bolts securing the factory intercooler to the upper cross-member. There is one bolt on each side of the intercooler. The bolts are on the backside of the cross-member. SEE FIGURE 47 & FIGURE 48

FIGURE 47

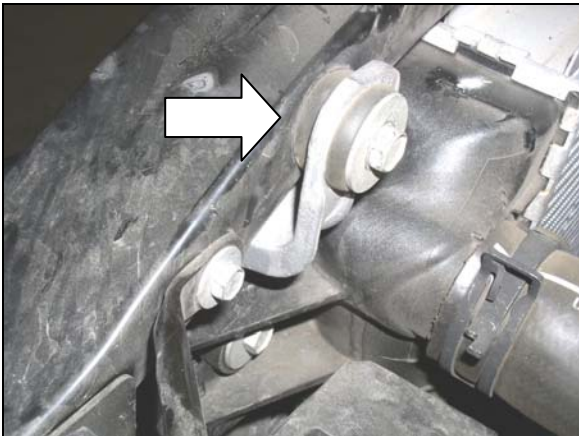
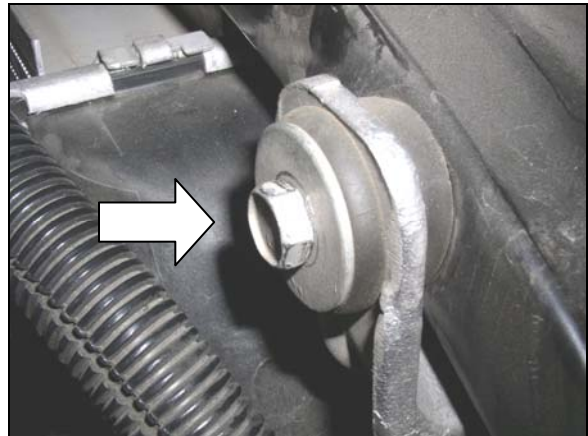


FIGURE 48





33. Using a 10 mm socket remove the 6 bolts holding the upper cross-member in place. There are 3 bolts at each end of the cross-member. SEE FIGURE 49 & FIGURE 50

FIGURE 49

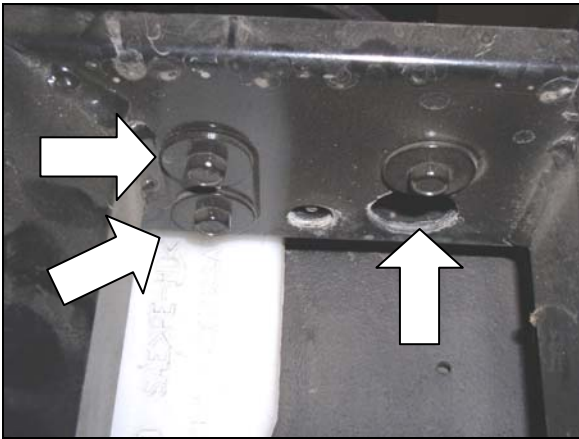
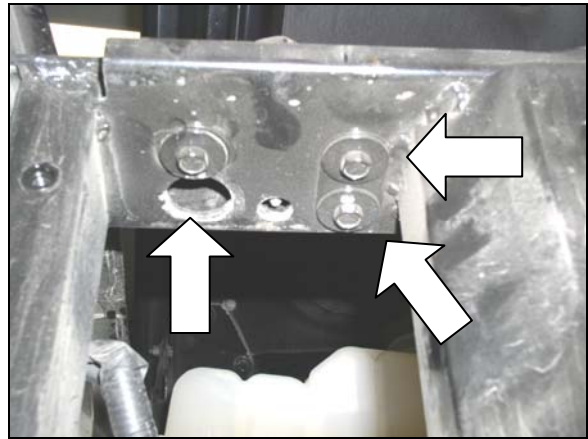


FIGURE 50



34. Remove the upper cross-member. SEE FIGURE 51

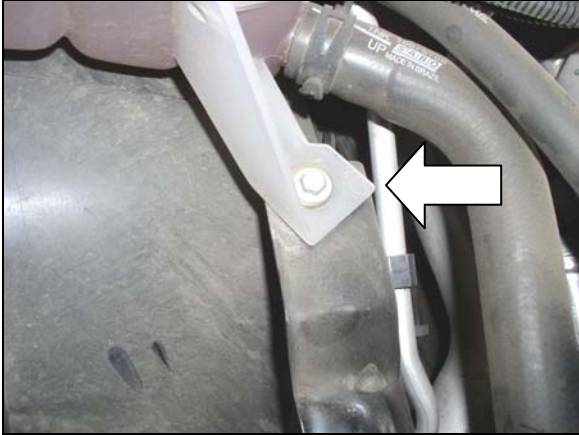
FIGURE 51





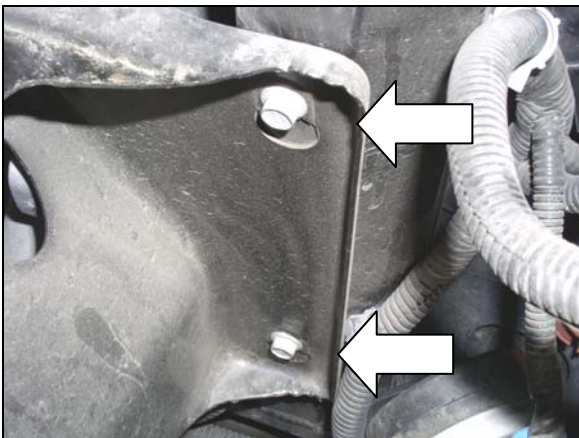
35. Using a 10 mm socket remove the bolt securing the coolant reservoir to the metal air box support tray bracket in the engine bay. The bolt is located near the outlet at the bottom of the coolant reservoir. SEE FIGURE 52

FIGURE 52



36. Using a 10 mm socket loosen the 2 bolts holding the metal bracket to the backside of the passenger side frame support structure. SEE FIGURE 53

FIGURE 53





37. Free the A/C line from the plastic clip on the front side of the metal bracket. SEE FIGURE 54

FIGURE 54



38. Remove the metal bracket from the engine bay. SEE FIGURE 55

FIGURE 55

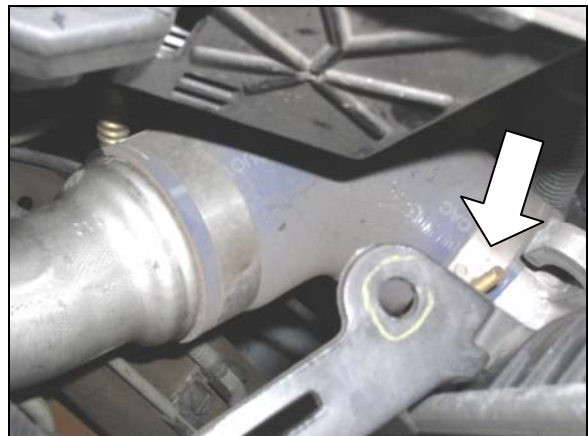


39. Using an 11 mm deep socket loosen the hose clamps and remove the couplers from the passenger and driver side of the intercooler. SEE FIGURE 56 & FIGURE 57

FIGURE 56



FIGURE 57





40. Using a 13 mm socket remove the 4 bolts holding the radiator to the intercooler. There are 2 bolts located on each side of the intercooler. SEE FIGURE 58 & FIGURE 59

FIGURE 58

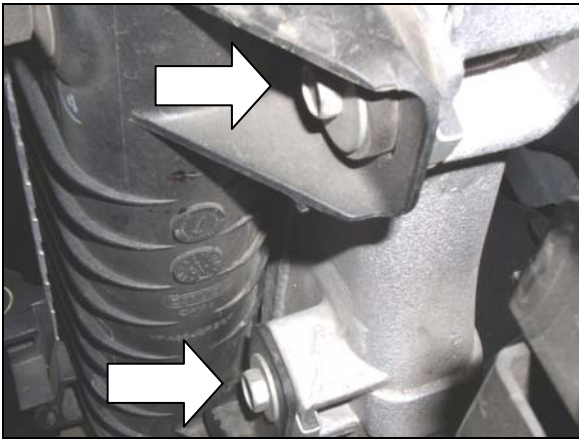
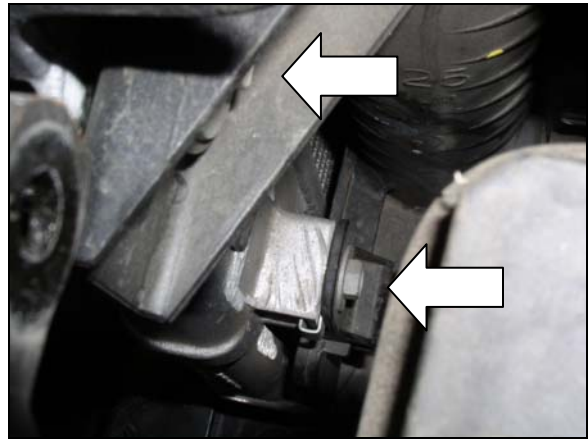


FIGURE 59



41. Lift the radiator out of the brackets on the intercooler. SEE FIGURE 60 & FIGURE 61

FIGURE 60



FIGURE 61



42. Remove the intercooler from the engine bay. SEE FIGURE 62

FIGURE 62





43. Pull the 2 rubber grommets off the bottom of the factory intercooler. SEE FIGURE 63

FIGURE 63



44. Pull the 2 rubber pads off the radiator support brackets on the factory intercooler. SEE FIGURE 64

FIGURE 64



45. Pull the 2 rubber bushings with the metal retainers out of the top brackets of the factory intercooler. SEE FIGURE 65

FIGURE 65





Install

1. Place the 2 rubber pads from the factory intercooler onto the 2 U-shaped brackets on the Spearco intercooler. SEE FIGURE 66 & FIGURE 67

FIGURE 66

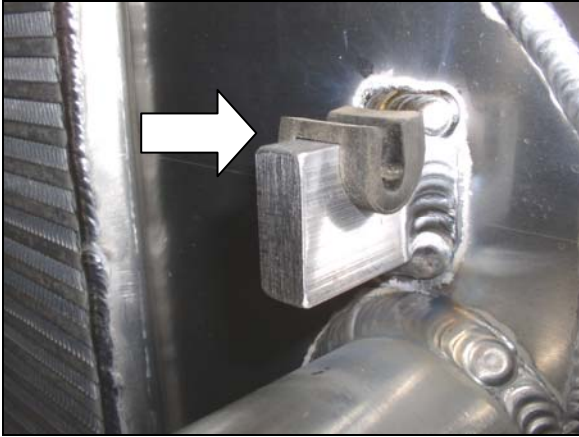
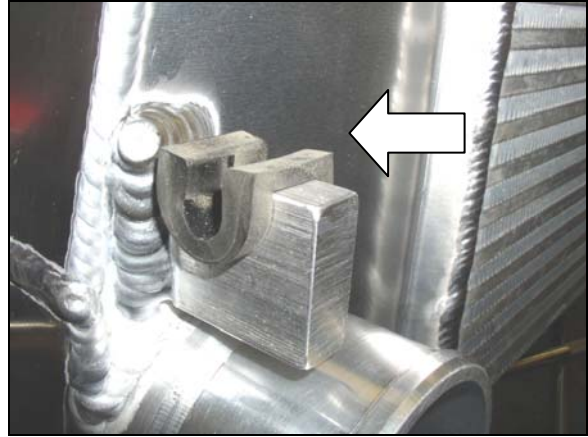


FIGURE 67



2. Slide the 2 rubber bushings with the metal retainers into the slotted upper brackets on the Spearco intercooler. SEE FIGURE 68 & FIGURE 69

FIGURE 68

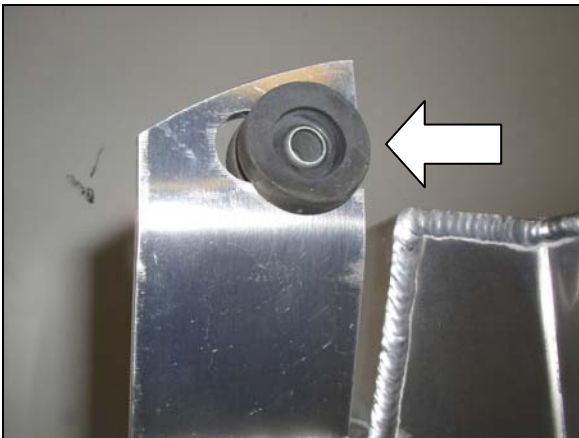
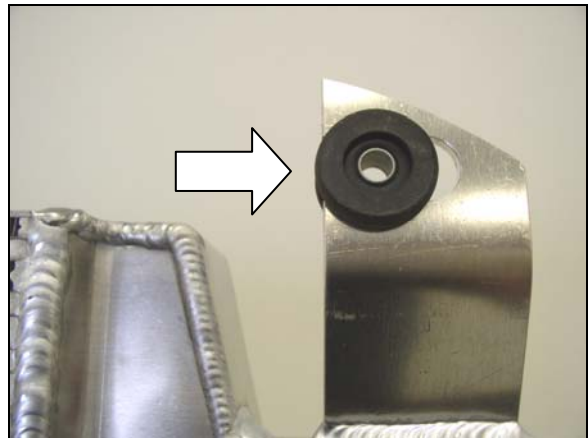


FIGURE 69





3. Set the 2 lower intercooler grommets into the holes in the lower cross-member just underneath the ends of the radiator. SEE FIGURE 70 & FIGURE 71

FIGURE 70

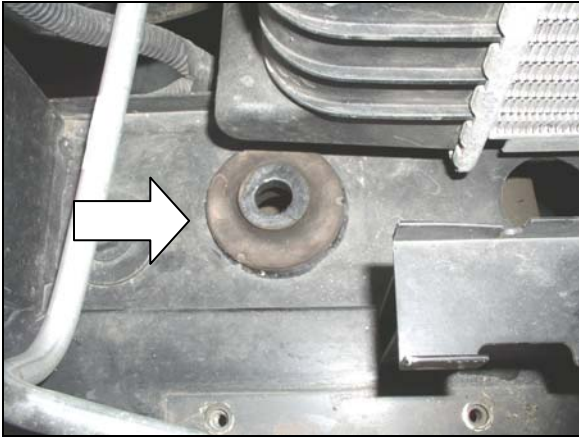
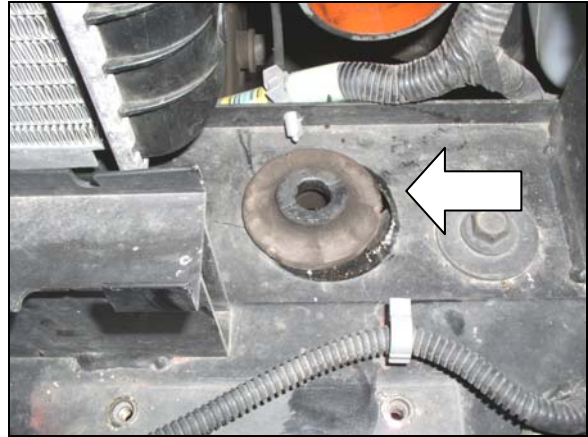
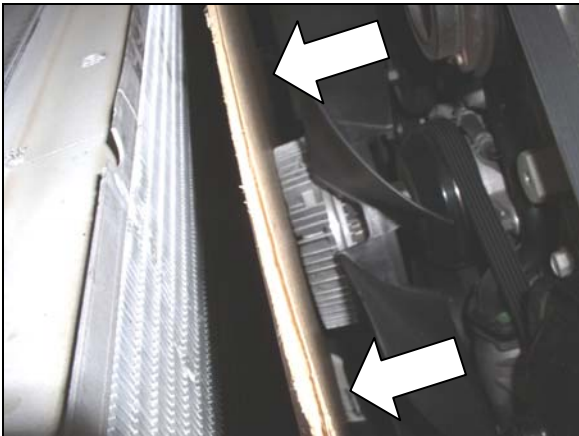


FIGURE 71



4. Set a big piece of cardboard between the fan and the radiator to protect the radiator fins from damage during intercooler installation. The intercooler box is a good source of cardboard. SEE FIGURE 72

FIGURE 72



5. Insert the Spearco intercooler in front of the radiator. SEE FIGURE 73

FIGURE 73





6. Secure the radiator to the Spearco intercooler with the factory bolts. The radiator sits on the brackets with the rubber pads. The upper side tabs on the radiator mate to the side brackets on the Spearco intercooler. SEE FIGURE 74 & FIGURE 75

FIGURE 74

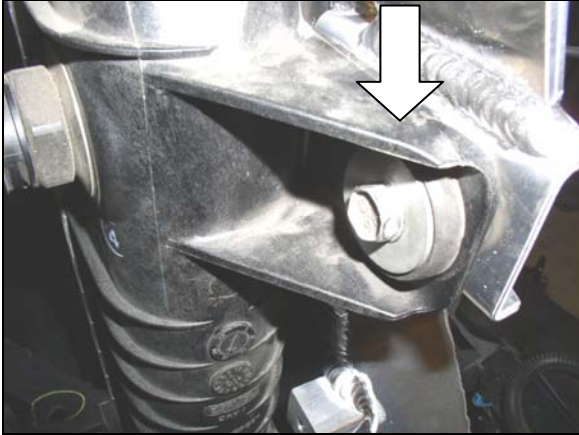
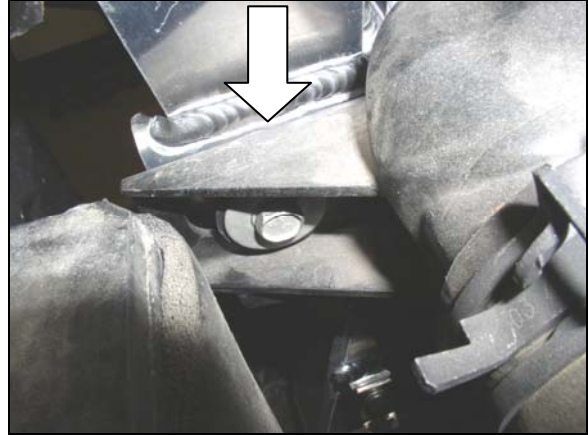


FIGURE 75



7. Using a 13 mm socket secure the 2 included 2" long 90° metal brackets (P/N 21798) to the square bosses on the Spearco intercooler. Secure with the 2 included M8 – 1.25 x 15 mm bolts (P/N 30576-15), 2 M8 flat washers (P/N 30589) and 2 M8 lock washers (P/N 30593). The brackets should be positioned so that they push down on the radiator. SEE FIGURE 76 & FIGURE 77

FIGURE 76

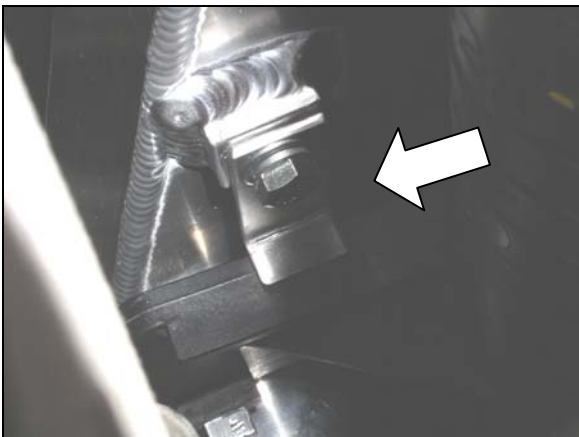
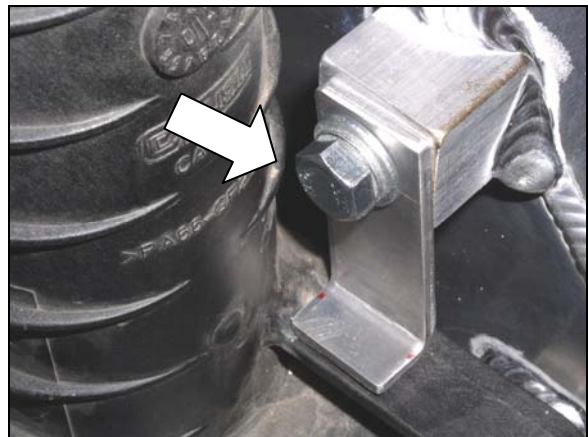


FIGURE 77



8. Install the upper cross-member back in place. Use the 6 factory bolts to secure. Each end requires three bolts. Tighten with a 10 mm socket.



9. Using a 13 mm socket and the 2 factory bolts secure the top Spearco intercooler brackets to the upper cross-member. SEE FIGURE 78 & FIGURE 79

FIGURE 78

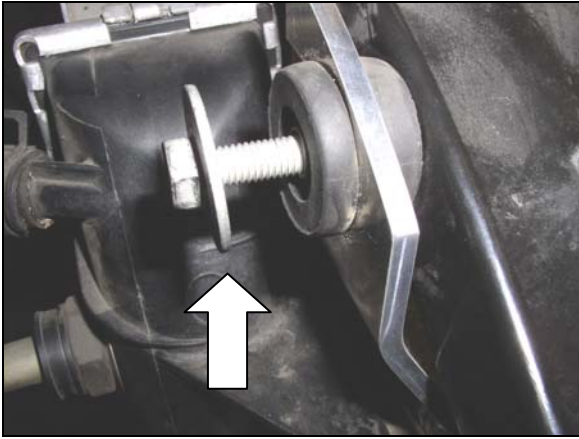
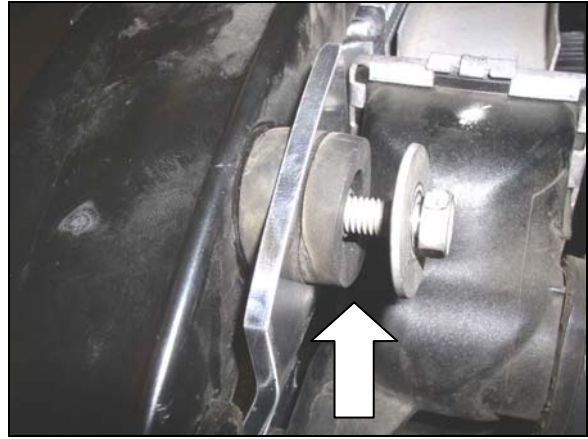
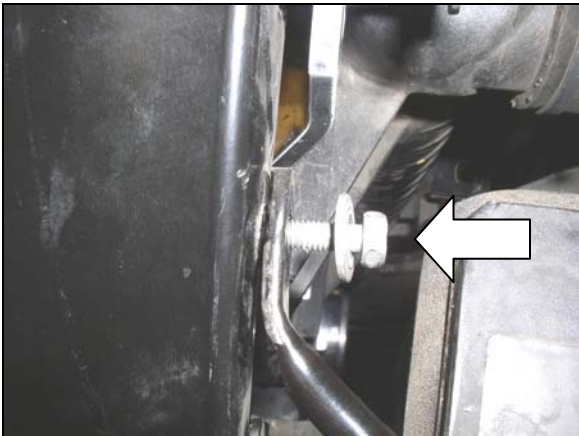


FIGURE 79



10. Using a 13 mm socket and the factory hardware reattach the support bar to the upper-cross member. The support bar extends from the driver side of the engine bay to the cross-member and goes over the battery. SEE FIGURE 80

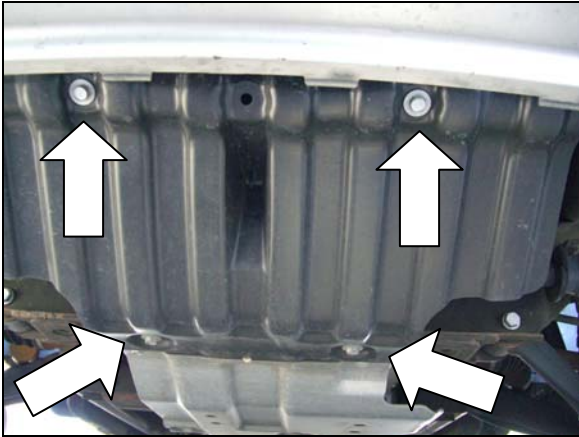
FIGURE 80





11. Using a 15 mm socket remove the 4 bolts securing the skid plate underneath the front of the truck. SEE FIGURE 81

FIGURE 81



12. Using 6 of the included #10 x 3/4" long self tapping screws (P/N 31175) and a 5/16" socket attach the 3 new lower fan shroud mounts (P/N 21726). The mounts attach to the bottom of the lower cross-member. The long ends of the mounts rest on the bottom of the cross-member while the shorter ends fold over the edge. Orient the mounts as show in the following figures. It may be necessary to drill pilot holes to help start the self tapping screws. The mounts are intended to hold the bottom portion of the radiator fan shroud against the bottom of the radiator. SEE FIGURE 82 - FIGURE 86

FIGURE 82

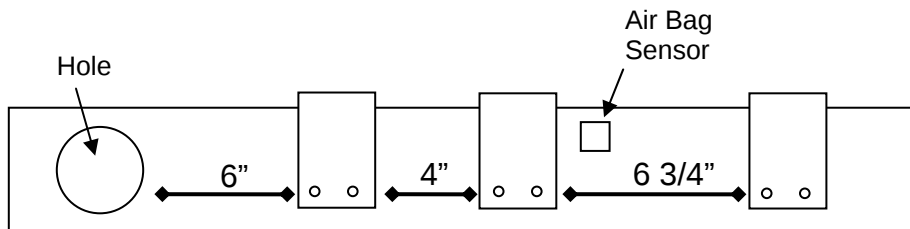


FIGURE 83



FIGURE 84





FIGURE 85



FIGURE 86



13. Attach the boost tubes to the new intercooler inlet and outlet. SEE FIGURE 87 & FIGURE 88

FIGURE 87

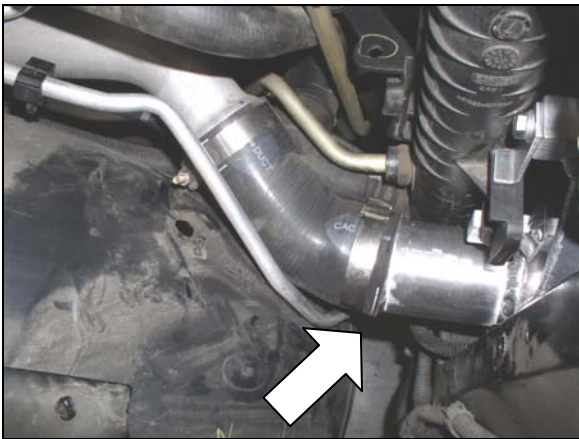


FIGURE 88



14. Reinstall the skid plate using the factory hardware.
15. Carefully bend the edges of the lower A/C condenser support brace away from the fins of the intercooler. SEE FIGURE 89 & FIGURE 90

FIGURE 89

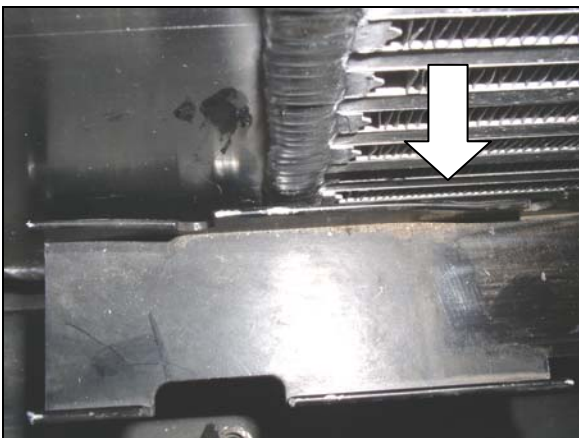
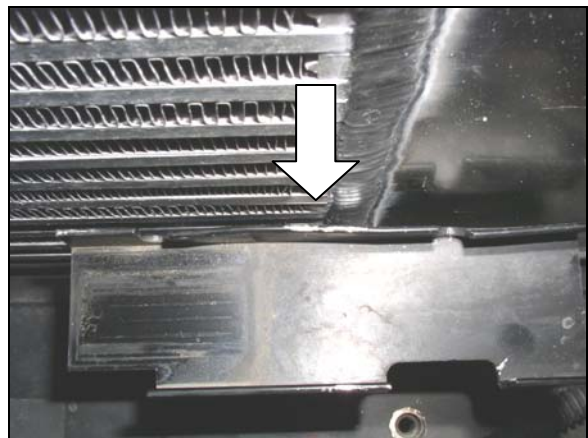


FIGURE 90





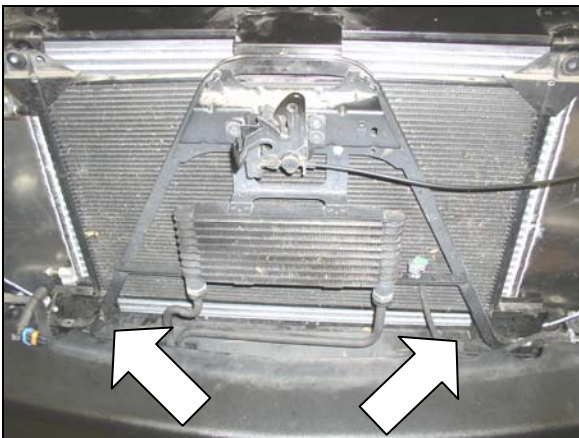
16. Using the factory hardware bolt up the top of the hood latch/transmission cooler brace to the upper cross-member. SEE FIGURE 91

FIGURE 91



17. Set the A/C condenser in place. Temporarily leave out the rubber pads from the lower support brace. SEE FIGURE 92

FIGURE 92





18. Once the A/C condenser is properly aligned between the two lower support beams insert the rubber pads under the bottom edges of the condenser. SEE FIGURE 93 & FIGURE 94

FIGURE 93

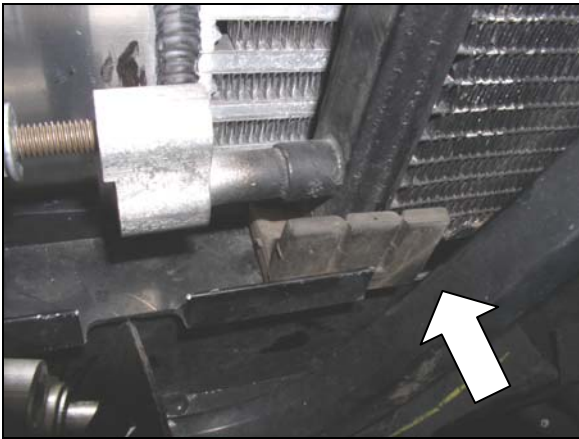
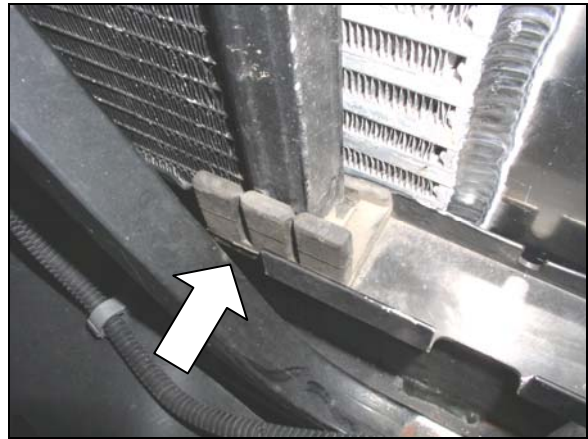


FIGURE 94



19. Using a 10 mm socket bolt the A/C condenser to the upper cross-member using the factory hardware. SEE FIGURE 95 & FIGURE 96

FIGURE 95

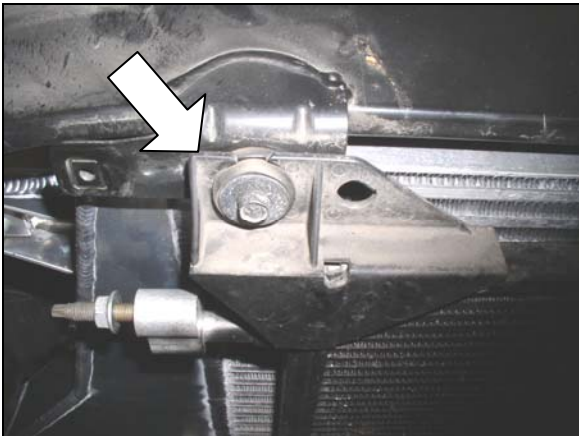
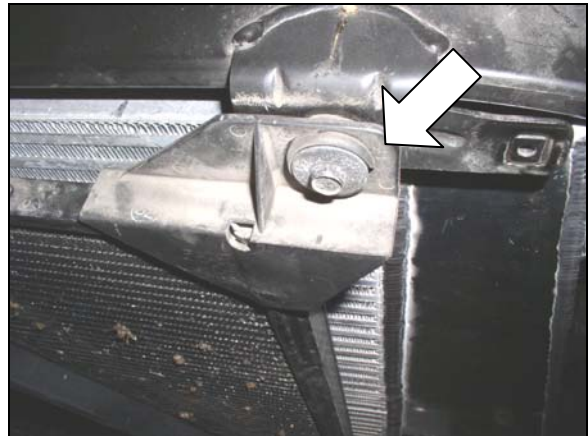


FIGURE 96



20. Using a 13 mm deep socket reattach the A/C lines to the condenser. SEE FIGURE 97 & FIGURE 98

FIGURE 97

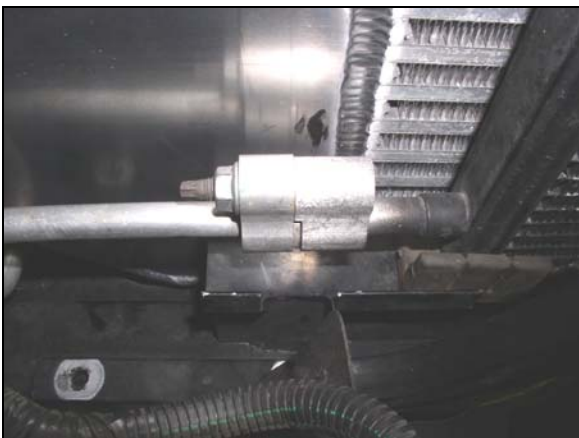
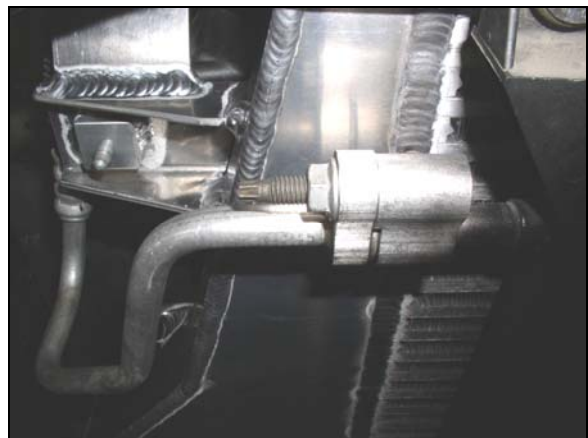


FIGURE 98





21. Using a 10 mm socket and the 4 factory bolts secure the bottom of the hood latch/transmission cooler brace.
22. Insert the upper portion of the radiator fan shroud into the engine bay.
23. Slide the TCM computer back into its stock position.
24. Re-secure the sides of the radiator fan shroud with the factory plastic pins. Be sure that the bottom portion of the shroud slides between the installed mounts and the radiator. SEE FIGURE 99 & FIGURE 100

FIGURE 99

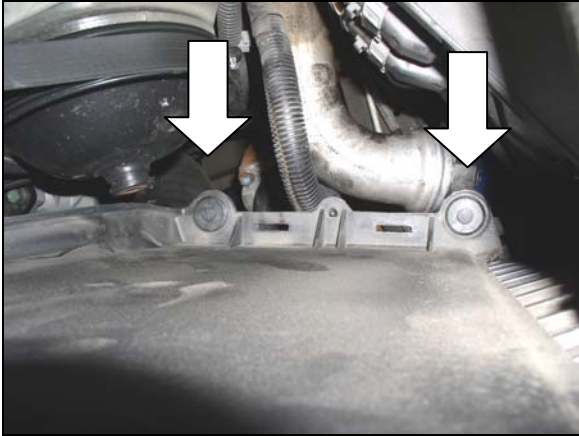
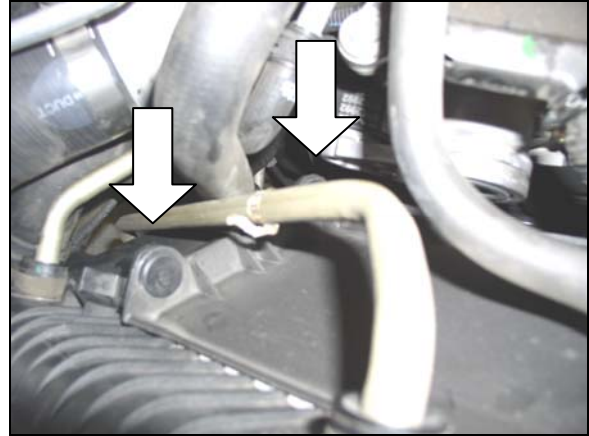


FIGURE 100



25. Re-install the air box support tray and bracket, air box and intake arm. Follow the removal steps in reverse order for installation.
26. Re-install the plastic cover over the front of the engine bay. Use the factory plastic tabs to secure.
27. Install the 1" foam spacer (P/N 31173) between the backside of the upper cross-member and the radiator fan shroud. Use 4 M6 – 1.0 x 45 mm bolts (P/N 31177) and 4 M6 flat washers (P/N 31174) to secure the top of the radiator fan shroud and the foam spacer to the upper cross-member. SEE FIGURE 101 & FIGURE 102

FIGURE 101



FIGURE 102



25. Re-install the lighting assembly mounts, headlights, and grill. Follow the steps used to disassemble the components in reverse order for reinstallation.
26. Recharge the A/C system. Consult a GM service manual for the correct procedure.



FINAL CHECKLIST

- Review these instructions to make sure that all fasteners, clamps connections have been installed correctly.
- Check that all hose routings are free of any kinks or near any hot or abrasive surfaces that may cause wear over time. Adjust or reroute as necessary to provide adequate slack for engine movement.

“NO FAULT / NO HASSLE” WARRANTY PROGRAM

TURBONETICS will repair or replace, at our expense, any new TURBONETICS / Spearco products that fail, including products used in racing or competition applications, for a period of one year from the original date of purchase. All turbocharger and cartridge assemblies have a factory installed inline oil filtration device. This filter device must remain in place if any warranty is to be considered under the No-Fault / No-Hassle program. Electrical components that fail due to misuse are not covered under the No-Fault / No-Hassle Warranty Program.

Warranty is limited to TURBONETICS products and does not include progressive or subsequential damage and does not cover removal or installation labor or associated parts. No warranty is made for any other claims for special, indirect or consequential damages including but not limited to component removal or installation equipment downtime, prospective profits or other economic loss.

Warranty will not be granted for recurring damage, malfunction, or failure due to improper installation, misuse, unauthorized repair or alterations, or externally induced physical damage.

Warranty is non-transferable and must be processed via the original purchaser from TURBONETICS.

Remanufactured units, performance upgraded units, and O.E.M. replacement units are covered by a 90-day warranty or the O.E. warranty period.

TURBONETICS highly recommends that the installation of mechanical or electrical parts be performed by trained professionals. Improperly installed products may lead to unsafe and unreliable conditions.

RETURN POLICY:

Only unused and complete merchandise may be accepted for return subject to inspection and acceptance by TURBONETICS. No goods will be accepted without prior return authorization from TURBONETICS. Call for approval and RGA (Returned Goods Authorization) tracking number. No returns will be accepted without an RGA tracking number. No returns will be accepted after ninety (90) days from the original shipping date from TURBONETICS unless approved. All approved returns are subject to a 15% restocking charge – NO EXCEPTIONS. The original invoice must accompany the return. Accepted warehouse / distributor and open account returns will be issued credit only.

RETURNED GOODS AUTHORIZATION TRACKING NUMBER:

TURBONETICS will only accept product returns, repair orders / upgrades, and warranty requests that have been approved and are returned with a corresponding RGA (Returned Goods Authorization) tracking number.

Contact TURBONETICS for approval and the RGA number. Write the RGA number clearly on the outside of the package and include it inside the package. This is very important in allowing us to properly identify and process your request. Failure to comply with this requirement will result in the delay of processing or the product being returned to you.