JK V8 HEMI BUILDER KIT

5.7L, 6.4L VVT HEMI

2012+ JK- SWB, LWB

INSTALLATION GUIDE

AEV30231AA
Last Updated: 04/24/14

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PLEASE READ BEFORE YOU START

TO GUARANTEE A QUALITY INSTALLATION, WE RECOMMEND READING THESE INSTRUCTIONS THOROUGHLY BEFORE BEGINNING ANY WORK. THESE INSTRUCTIONS ASSUME A CERTAIN AMOUNT OF MECHANICAL ABILITY AND ARE NOT WRITTEN NOR INTENDED FOR SOMEONE NOT FAMILIAR WITH AUTO REPAIR.

PLEASE NOTE THAT THIS KIT HAS NOT BEEN TESTED TO COMPLY WITH FMVSS STANDARDS AND MUST NOT BE INSTALLED IN ANY NEW VEHICLE PRIOR TO DELIVERY TO THE END USER.

WHILE ALL CORRECT EMISSIONS EQUIPMENT IS DESIGNED TO BE INSTALLED WITH THIS KIT, THIS KIT MAY STILL NOT BE LEGAL FOR ON-ROAD USE IN ALL STATES OR COUNTRIES AND AS SUCH IS CURRENTLY INTENDED FOR OFF-ROAD USE ONLY. IT IS THE USERS RESPONSIBILITY TO COMPLY WITH ALL REGULATIONS.

AEV DOES NOT RECOMMEND ANY MODIFICATIONS TO HEMI ENGINES OR TRANSMISSIONS. TECH SUPPORT CAN NOT BE PROVIDED FOR ANY CONVERSIONS USING AFTERMARKET PERFORMANCE PARTS INCLUDING BUT NOT LIMITED TO CAMSHAFTS, HEADS, EXHAUST MANIFOLDS, AFTERMARKET EXHAUSTS, INTAKES, THROTTLE BODIES, PERFORMANCE ECU CALIBRATIONS, STROKER KITS, SUPERCHARGERS, TURBOCHARGERS, SHIFT KITS OR ANY OTHER NON PRODUCTION ITEM.

I. OVERVIEW

Congratulations on purchasing your AEV JK V8 HEMI Builder Kit. These instructions have been written for shops or DIY individuals with advanced mechanical ability and welding experience. AEV also assumes that this kit will be installed in a shop environment with access to professional shop equipment. Please obtain a Factory Service Manual for your model year Jeep Wrangler. Factory service manuals are available from any Chrysler dealership.

In addition to the AEV JK V8 HEMI Builder Kit, you will also need to purchase all of the Chrysler parts as indicated on the Bill of Materials to complete this conversion. The Bill of Materials can be found on our website and is based on using a current model year 5.7L or 6.4L engine. If you are using any engine other than the current model year, some components listed on the Bill of Materials may vary. Using the wrong part can cause serious damage to other components. Please contact AEV to ensure that you have the correct Bill of Materials for your specific model year engine. AEV strongly recommends obtaining all of the parts listed on the Bill of Materials BEFORE you begin the installation process.

PLEASE NOTE: If you are installing a 6.4L HEMI V8 it is required to use only premium fuel. AEV recommends running one tank of premium through the system PRIOR TO beginning the conversion process.

II. VEHICLE DISASSEMBLY

1. Discharge AC system.
2. Disconnect battery and remove.
3. Remove plastic engine cover.
4. Disconnect and remove air intake tube and air box.
5. Disconnect and remove purge solenoid from the battery tray.
6. Unplug the 34-way connector from the battery tray, then remove the harness from the battery tray and loosen at the fire wall (fig. 1)

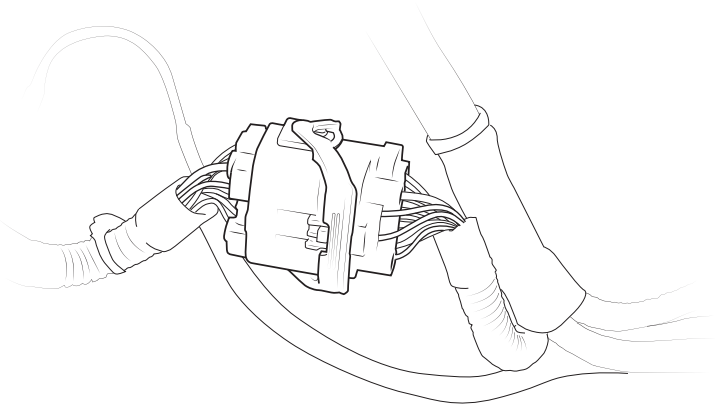


Figure 1

7. Remove the battery harness from the TIPM, battery tray, and fender.
8. Disconnect the power steering reservoir from behind the headlamp and discard the mounting bracket.
9. Remove the battery tray from the Jeep. Be sure to remove the bolt on the bottom first (fig 2).

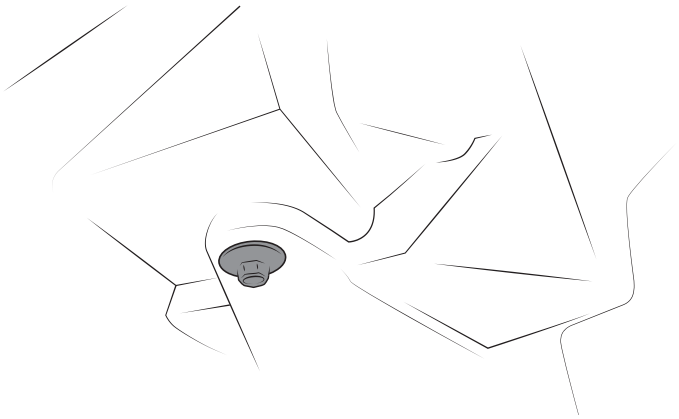


Figure 2

10. Disconnect the ground located on the passenger side of the fire wall (fig 3.)
11. Unplug the 34-way connector located under and behind the passenger side headlamp.
12. Disconnect and remove the ECM (computer).
13. Disconnect AC lines from the compressor.
14. Remove vacuum lines from the brake booster.
15. Separate the vacuum line to vacuum pump next to the AC line (near grill), then remove the fir trees from the line to separate it from the area next to the radiator (fig 4).

Figure 3

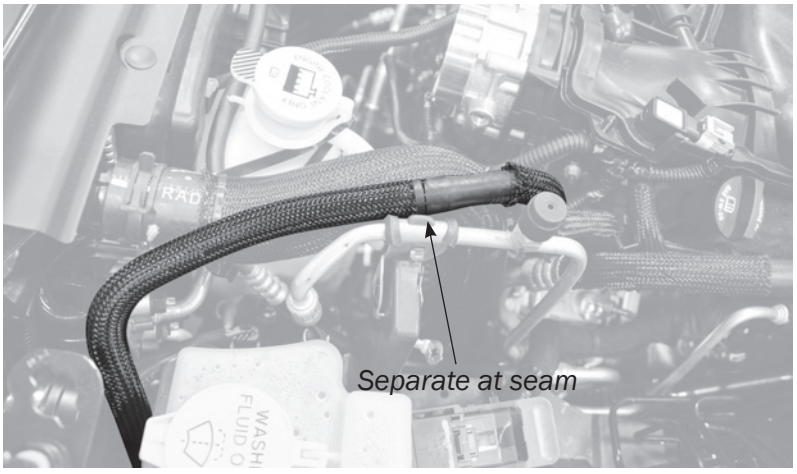


Figure 4

16. Disconnect the steering shaft at the fire wall. **WARNING**: Steering wheel contains a clock spring. DO NOT ROTATE steering wheel after steering shaft is disconnected. We find it convenient to use zip ties to prevent steering wheel rotation.

17. Remove the four (4) brake lines shaded in Figure 5.

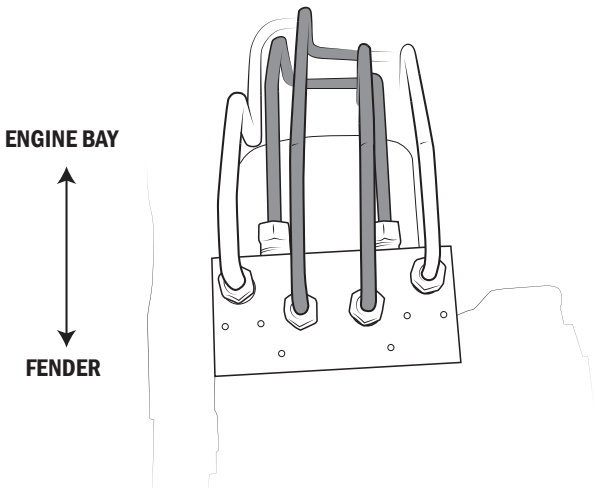


Figure 5

Although it is not required, we recommend using a two post hoist to remove the body from the vehicle. The JK Wrangler was designed by Chrysler to have the body and chassis built as two complete assemblies which are then mated together on the assembly line. Because of this, the removal of the body from the chassis requires less than two hours. The procedure is outlined in these instructions.

18. Remove factory plastic air dam from under the front bumper if it still remains on the vehicle.

19. Disconnect and drain transmission oil cooler lines from the factory transmission cooler located behind the driver's side inner fender. A special tool is recommended, refer to factory service manual.

20. Drain coolant from the engine and radiator.

21. Remove the upper control arm lower heat shield bolts (fig 6).

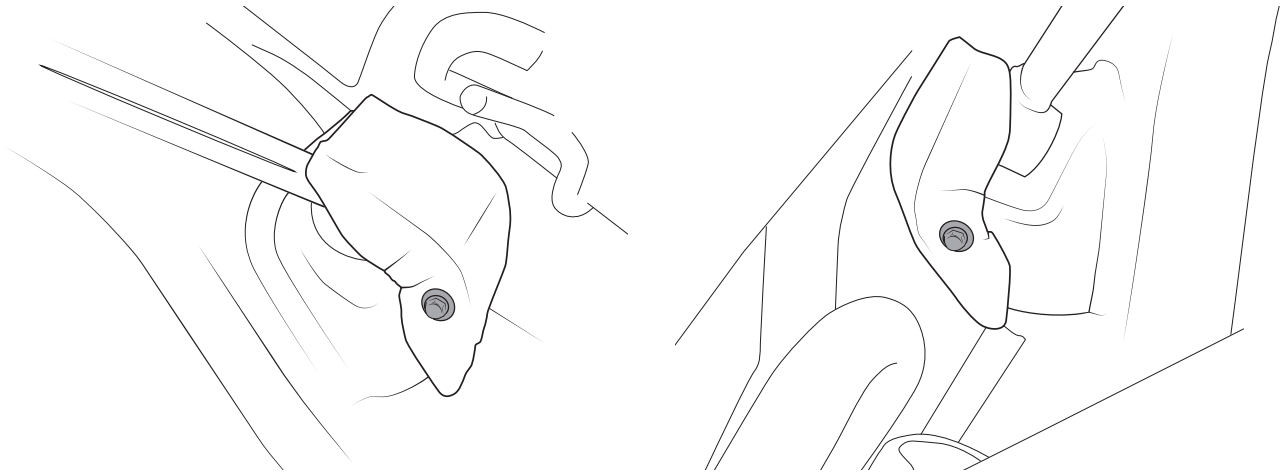


Figure 6

22. Remove the transmission and transfer case skid plates (fig 7).

23. Remove the three (3) transmission mount nuts (fig 7).

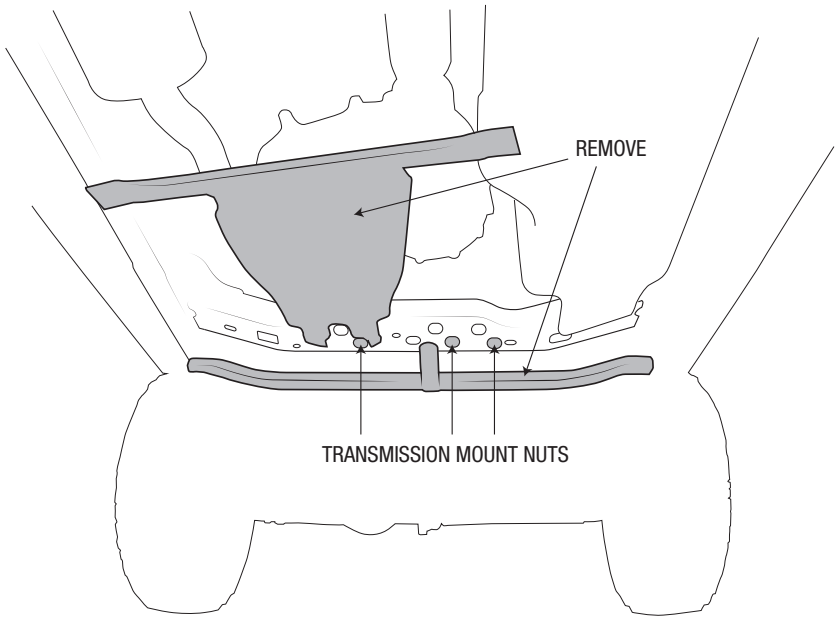


Figure 7

24. Remove the front and rear drive shafts. Make sure to mark these before removal to ensure proper orientation and balance later (fig 8).

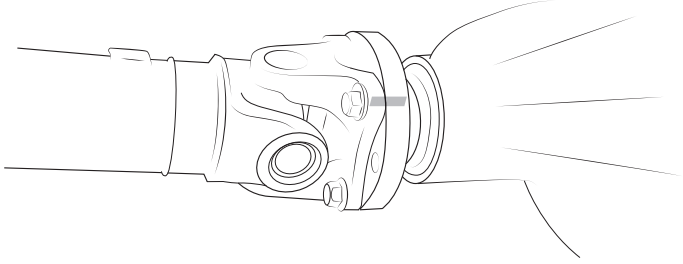


Figure 8

25. Disconnect shift linkage and 4WD linkage at the transmission and transfer case (refer to factory service manual).

26. Disconnect the fuel filler, charcoal canister, and fuel filler vent (fig 9).

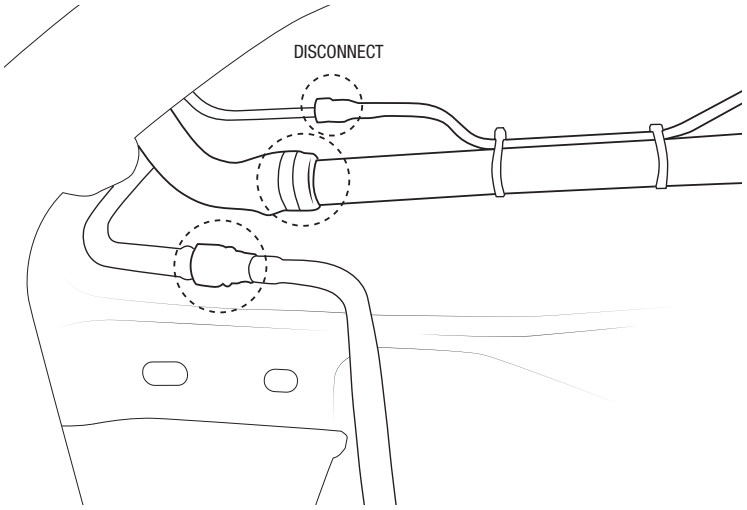


Figure 9

27. Disconnect the parking brake cables at the axle.

28. Remove the axle vent from the passenger side inner fender.

29. Remove the trailer harness from the frame only (if equipped).

30. Remove all body mount bolts and nuts. There are 10 body mount bolts on a 4-door JK Wrangler and 8 body mount bolts on a 2-door JK Wrangler.

Lower the jeep back to the ground.

31. Disconnect and remove heater core lines and coolant hoses from the front of the engine and radiator.

At this point you are ready to lift the body off of the chassis. Place the hoist arms at a suitable location on the body. Double check your work, making sure nothing was overlooked or missed. SLOWLY raise the body off the chassis, paying special attention to all lines and wiring so as not to damage or snag anything.

32. Carefully push the chassis out from underneath the body (space permitting).

33. Remove the power train from the chassis. You will need to disconnect the fuel lines (SAVE the BLUE CLIP from the evap/return line next to the transmission, it will need to be relocated to the AEV supplied line later), power steering, and exhaust.

SAVE THESE ITEMS

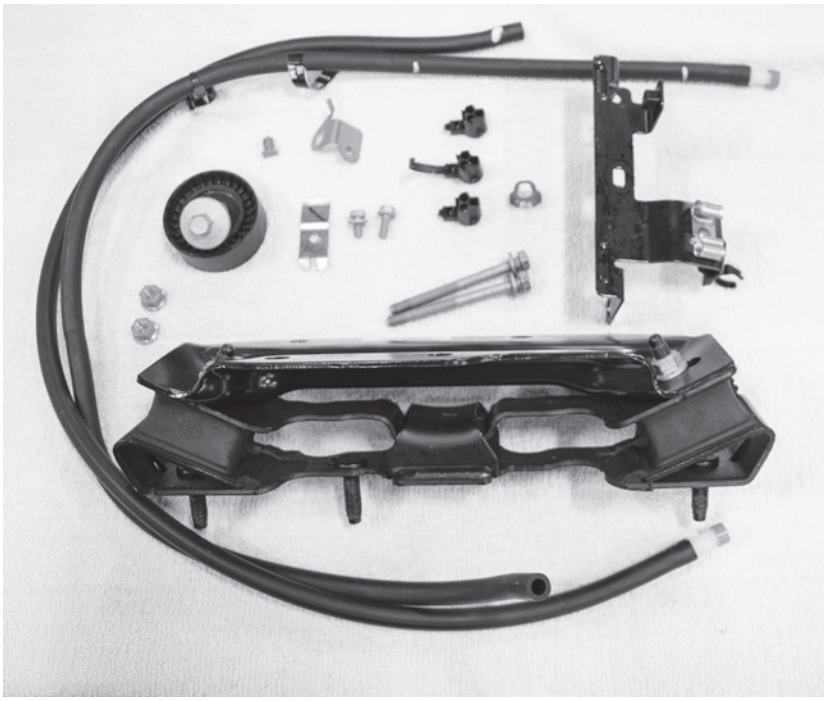
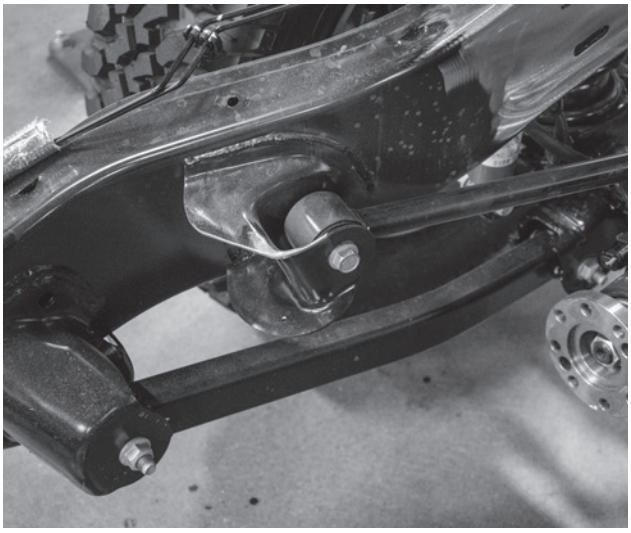


Figure 10

III. CHASSIS PREPARATION

1. Remove the top bolt from the upper control arm heat shields.
2. Begin frame prep. Cut off motor mounts. Trim upper control arm mounts as shown (fig 11). **WARNING!:** Cover open fuel lines and fuel filler hose before cutting, grinding, or welding.



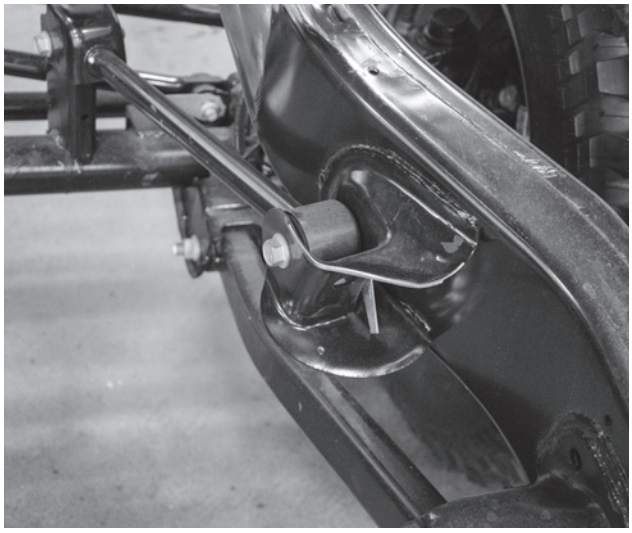


Figure 11

3. Weld on AEV supplied Engine mounts (fig 12).

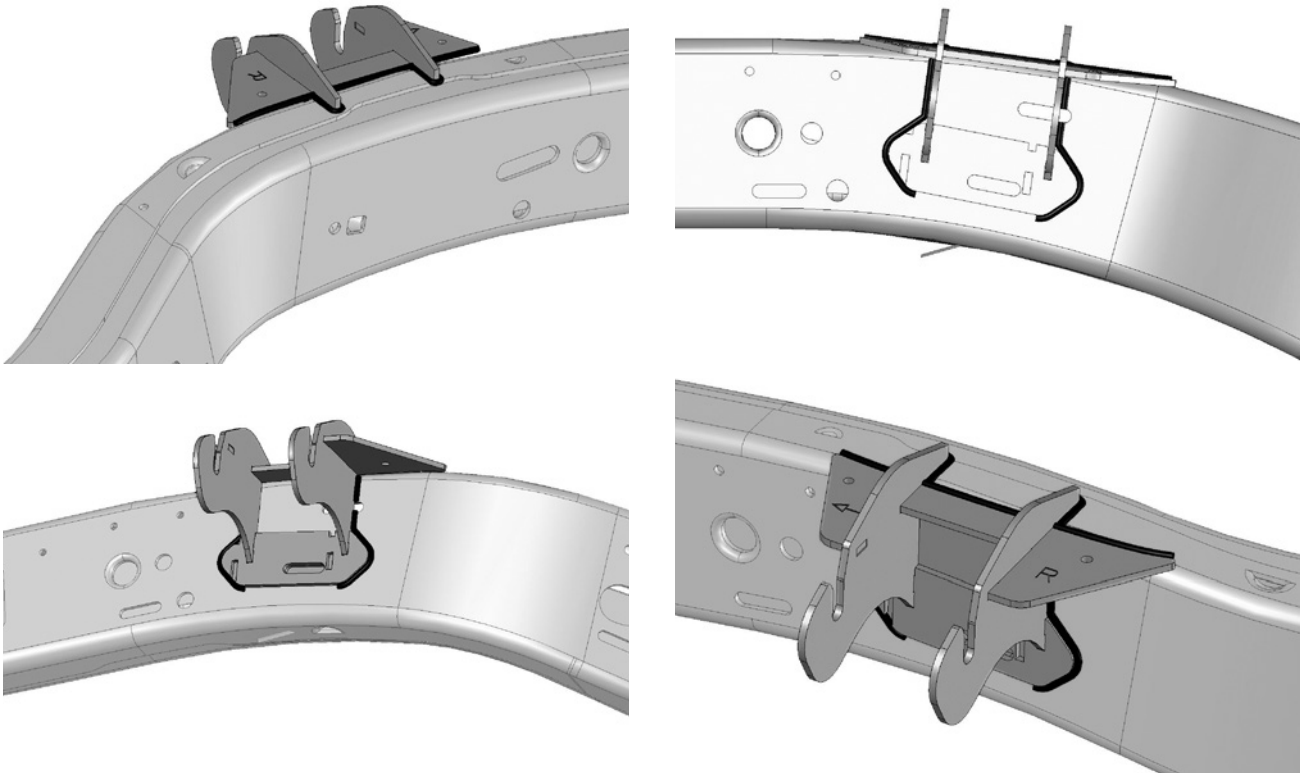


Figure 12

4. Paint frame, covering up any bare metal that was exposed after grinding/welding (follow proper paint procedure).
5. Remove and discard the vacuum pump located at the front of the frame, but SAVE the hose for later use.

ORIGINAL ENGINE TEAR DOWN PROCEDURE

6. Remove the vent tubes from the transfer case, transmission, and SAVE for later use (fig 10).
7. Remove the idler pulley from the 3.6L and the short bolt from the idler pulley, and SAVE for later use (fig 10).
8. Remove the starter, alternator, and AC compressor, and SAVE all hardware as most will be re-used.
9. Remove the torque convertor bolts accessed through the starter hole (6 bolts total).

10. Remove small dust shield on the passenger side (fig 13).

11. Remove the transmission from the engine.

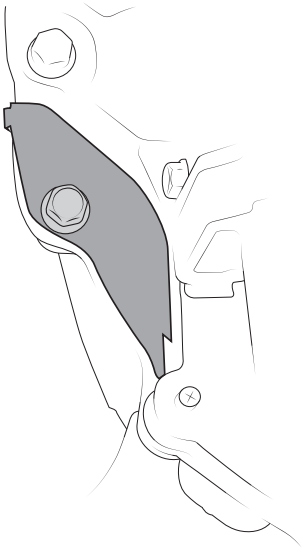


Figure 13

IV. NEW ENGINE PREPARATION AND ASSEMBLY

1. In this step you will change the torque converter and converter housing on the transmission to the parts listed in the Bill of Materials (BOM). Refer to the factory service manual for proper procedure and torque values. Failure to follow proper procedures and torque values may cause transmission damage.

   If you are unfamiliar with the processes and procedures for disassembling and re-assembling an automatic transmission, we recommend having a qualified transmission technician perform these steps.

   Improper torque converter depth may cause damage to the transmission.

   DO NOT draw sub-assemblies together with bolts. All components should be completely seated before installing bolts.

2. Reinstall transmission mount using the new hardware and spacers provided in the JK Hemi Mount W/ A580, and torque to 40 ft/lbs (fig 14).

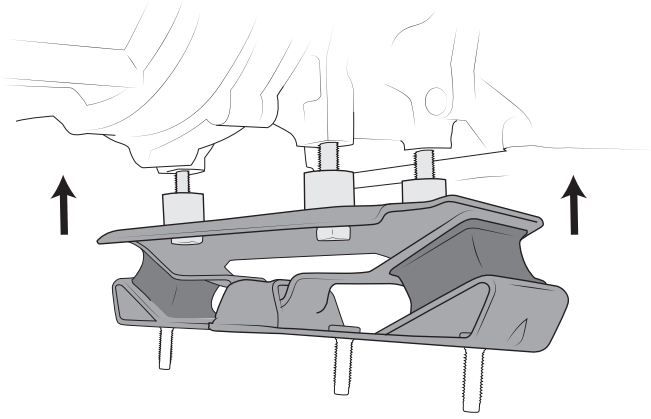


Figure 14

3. Locate the plug to the throttle body. This will need to be tested on the new Hemi throttle body. If it does not fit, you will need to remove the plug from the AEV harness, and the Hemi harness so that you can wire in the correct plug into the AEV harness. We recommend removing at least 8 inches of wiring with the plug. Refer to the factory service manual for the correct pin out.

4. Remove the wiring harness that came with the new engine.

5. Remove the intake manifold on a 6.4L (refer to the factory service manual). The engine block will need to be modified as shown in Figure 15. Verify by "dry-fitting" the AEV intake manifold to check for clearance before final installation. Once clearance has been verified, change the water pump (sourced from 2011 and newer engines) and install AEV intake manifold.

    a. This intake must be used in conjunction with an AEV PCM that has been programmed to take full advantage of the long and short runners.

    b. Use the 6.4L throttle body only

    c. There are ten (10) seals on the bottom of the manifold, one (1) between the intake manifold actuator and intake, and one (1) between the throttle body and intake. Be sure all seals are properly installed.

    d. Torque manifold bolts to 9 ft/lbs in the exact order shown in Figure 16.

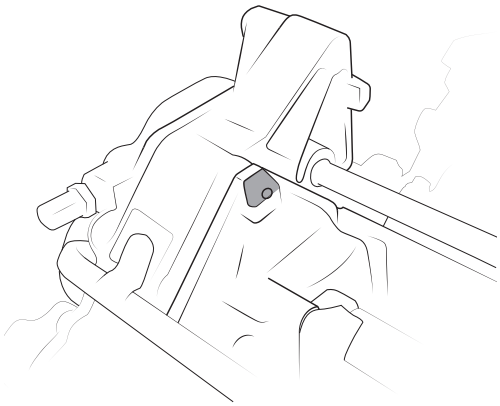


Figure 15

Front	
7	8
3	4
1	2
5	6
9	10
Rear	

Figure 16

6. Install ground strap head to head (fig 17).

Figure 17

7. Change the crank pulley (torque to 129 ft/lbs), water pump (torque to 18 ft/lbs).

8. 6.4L ENGINE ONLY– Change the steel water pump hose neck.

9. 6.4L ENGINE ONLY– Remove the factory installed oil cooler and discard. Install the oil filter re-locator (torque to 9 ft/lbs).

10. Swap out the oil pan and oil pickup assembly with the parts listed on the Bill of Materials. Make sure to reference your factory service manual regarding the “torque to yield” main bearing cap bolt and ALWAYS use a new bolt.

11. Install transmission to engine (make sure the intermediate plate is installed). AEV recommends using Blue Loctite. Torque the bell housing bolts to 35 ft/lbs for the four (4) 3/8” bolts, and 50 ft/lbs for the two (2) 7/16” bolts. Install the torque convertor bolts, using Blue Loctite and torque to 31 ft/lbs.

12. Install structural dust cover (fig 18). Torque to 40 ft/lbs.

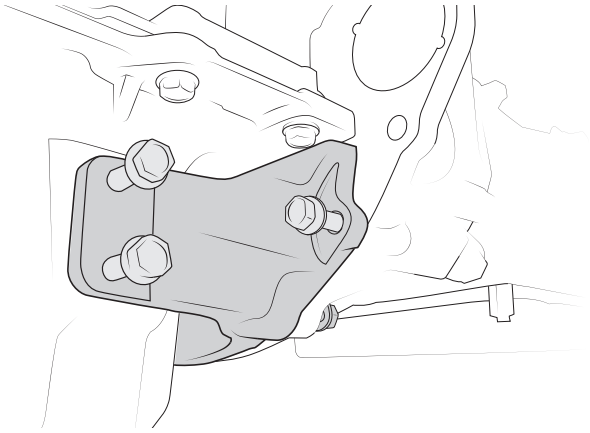


Figure 18

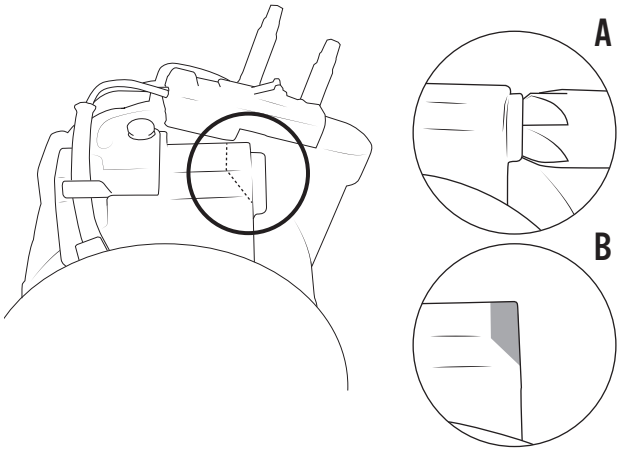
13. Modify AC Compressor using the following steps.

    a. Using a 7/8” countersink bit, drill out the factory hole.

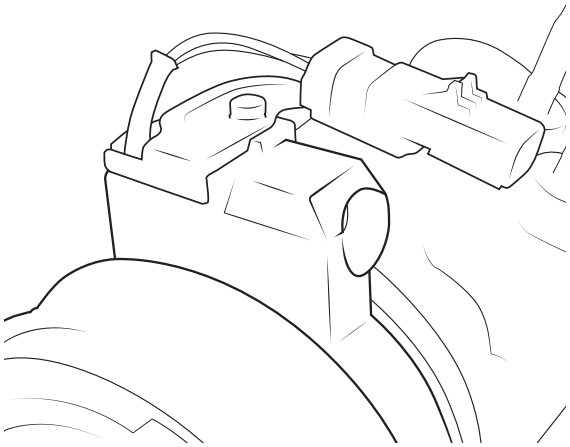
    b. Use a grinder to bevel the corner of the mounting point, removing the shaded portion as shown.

    c. Grind the raised portion of housing flush.

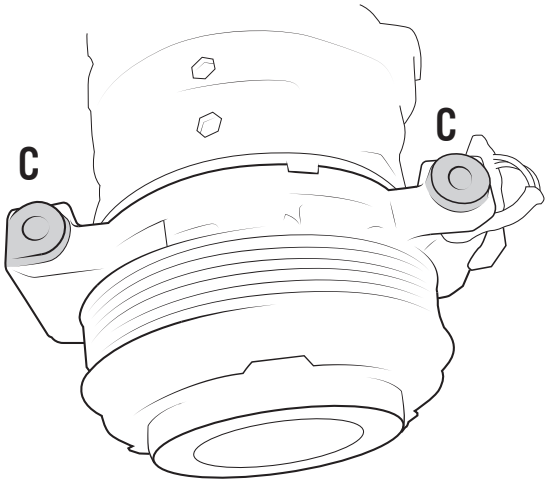
    d. When mounting the A/C compressor to the engine block, use the supplied flat head bolt with anti-seize in the upper mounting hole, a factory bolt in the lower, and a factory bolt in the rear with the supplied spacer between the compressor and engine block.



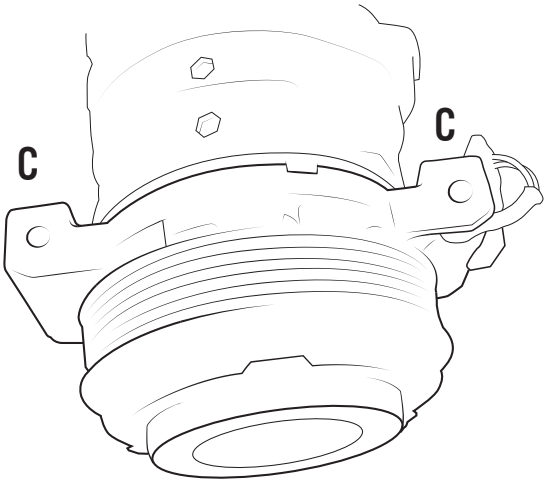
Before



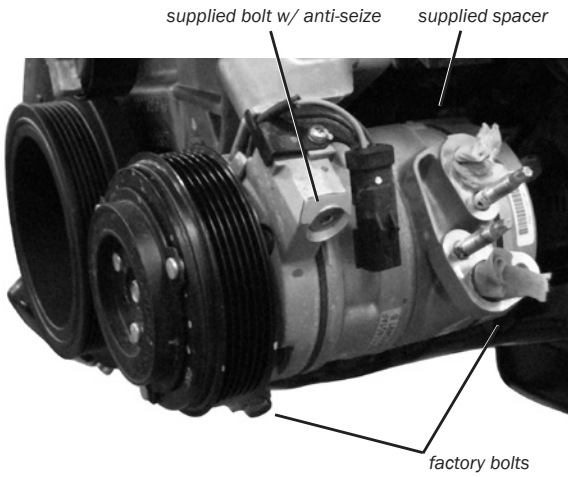
After



Before

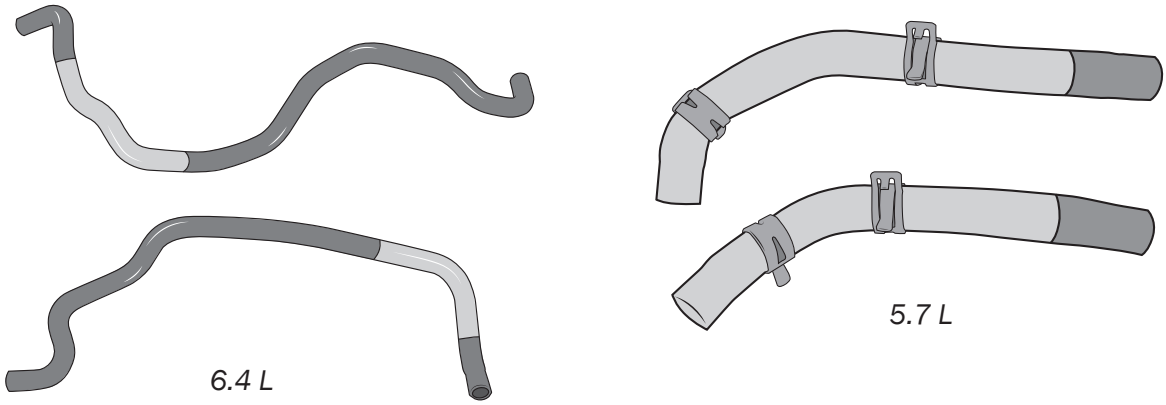


After



14. Install the starter (torque to 40 ft/lbs), modified A/C compressor (torque to 18 ft/lbs), and the engine idler pulley (torque to 40 ft/lbs).

15. Cut and install the heater core hoses, re-using the factory hose clamps. 5.7L engines will re-use the original 3.6L heater core hoses, 6.4L engines use 3.8L heater core hoses listed on the bill of materials (fig 19).



Cut and save lighter portion

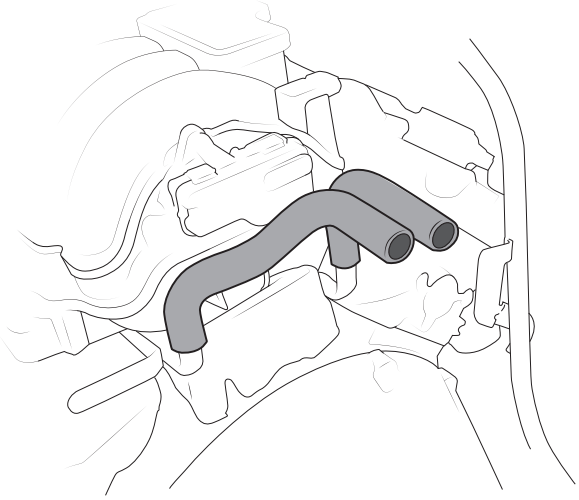


Figure 19

16. Cut, prep, paint, and install transmission dip stick bracket (fig 20).

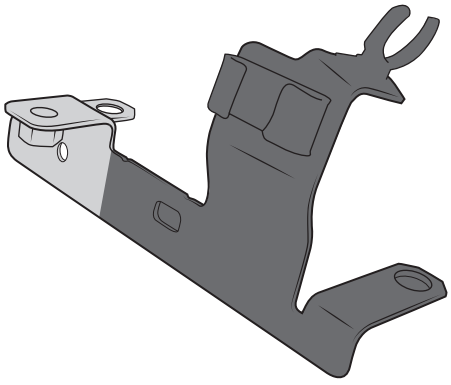


Figure 20: Cut and save lighter portion

17. Install battery harness as shown (fig 21).

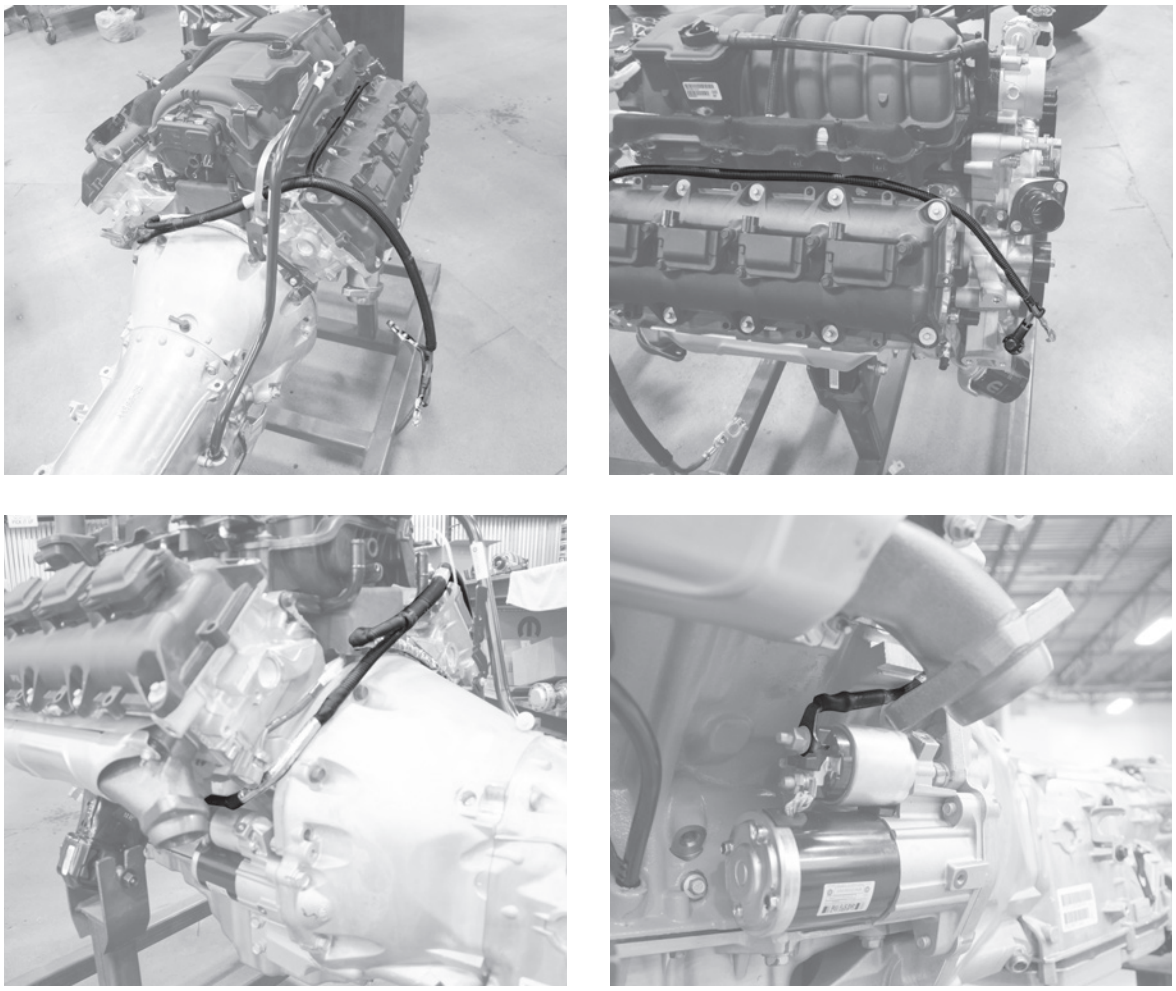


Figure 21

18. Install AEV power train harness. Refer to photo group A.

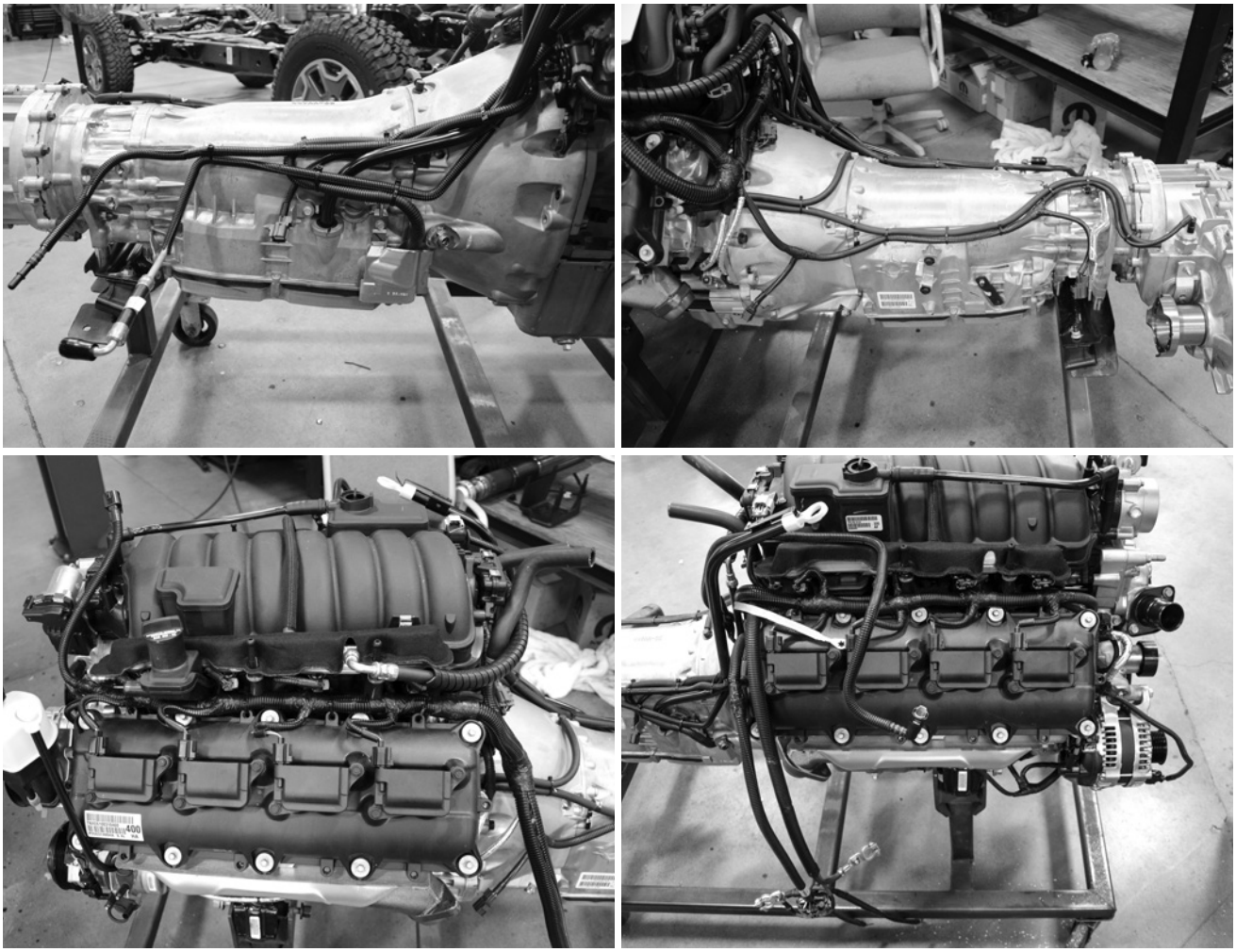


Photo Group A

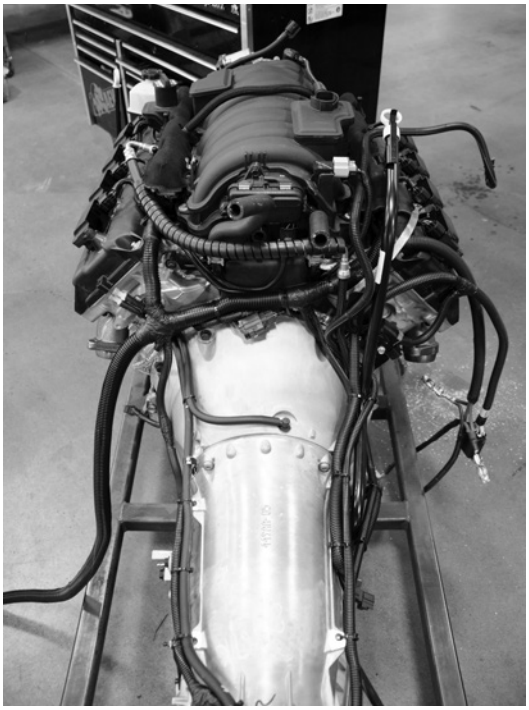


Photo Group A cont.

19. If the upper alternator mounting hole is not a pass through hole, you will need to drill it open. We recommend starting with a 13/64”, then a 21/64”, and finally ending with a 13/32” drill bit (fig 22).

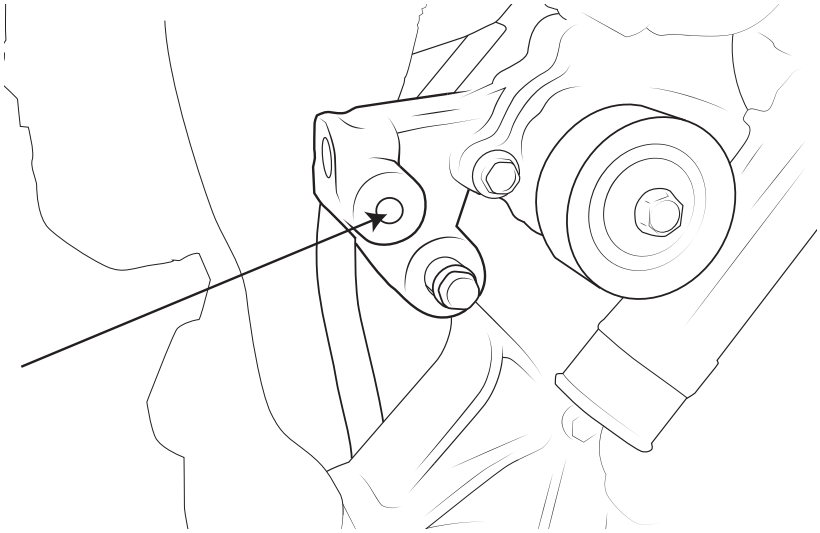


Figure 22: Drill out upper alternator mounting hole.

20. Install AEV supplied fuel lines. Refer back to photo group A.

21. Install alternator and alternator sheild making sure wiring is routed behind. Refer to photo group A. Torque to 40 ft/lbs. You will use the dipstick bolt from the 3.6L engine for the alternator sheild.

22. Install AEV supplied AC hoses onto power train. Refer to photo group A.

23. Install lower radiator hose using the supplied AEV spring clamps (fig 23). DO NOT use over-the-counter hose clamps.

24. Install the serpentine belt (fig 23).

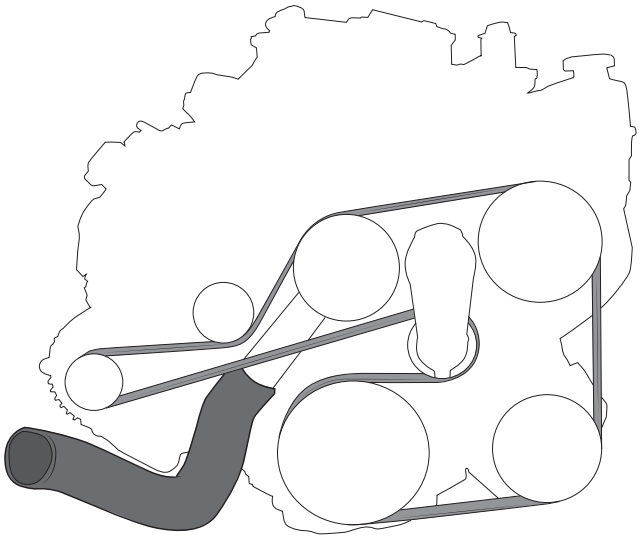


Figure 23

25. Modify brake booster as shown (fig 24) and install with fresh cut end to engine.

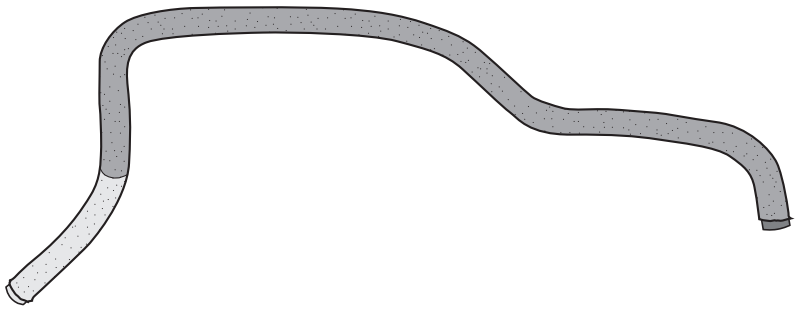


Figure 24: Remove highlighted portion

BACK TO CHASSIS

26. Install new power train into chassis.
27. Modify the power steering return line to accept the supplied gear to cooler return line (fig 25) and then install on the steering gear (fig 26).
28. Install the supplied power steering pressure line (fig 26).

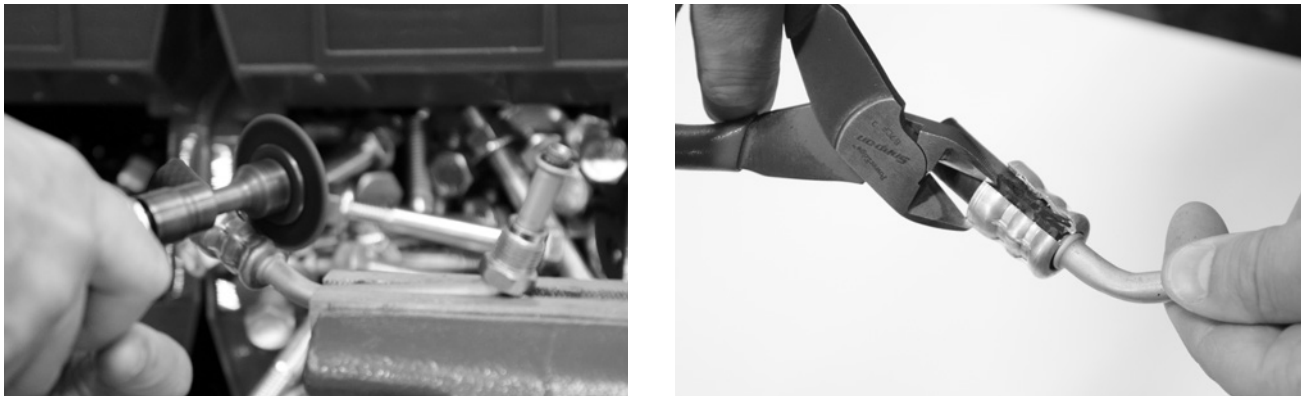


Figure 25: Modifying power steering return line

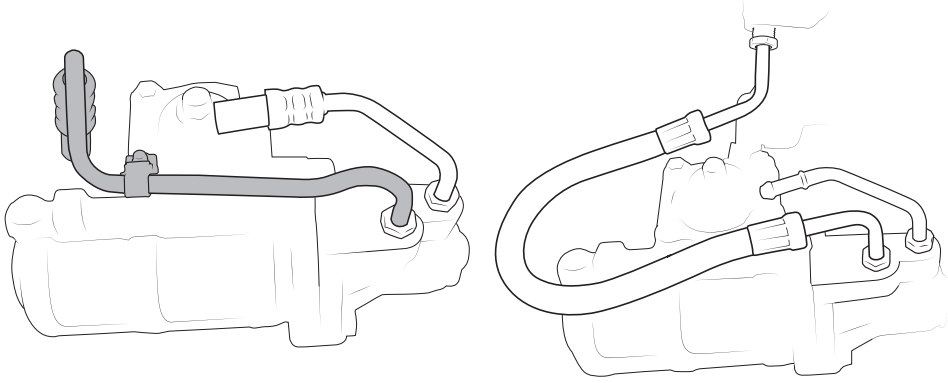
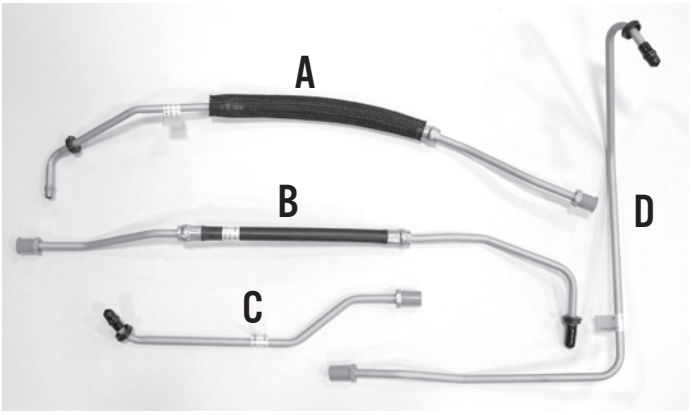


Figure 26: Before and After.

29. Remove the block from the factory transmission lines.
30. Assemble the AEV supplied transmission oil cooler lines to the block (fig 27).



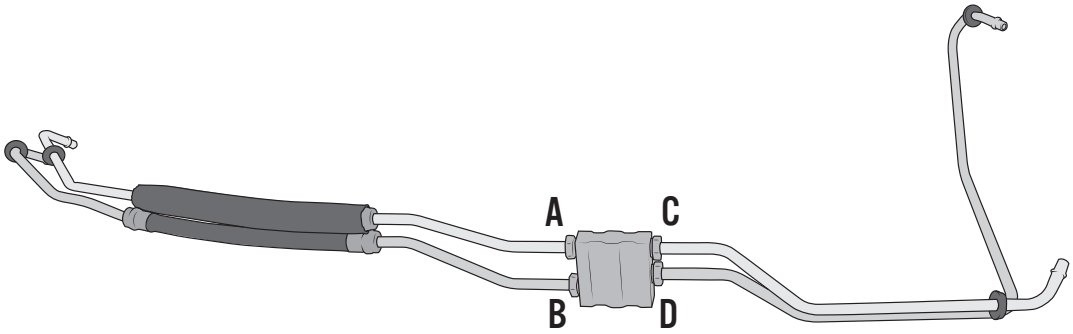


Figure 27

31. Install the new transmission oil cooler line assembly to the power train (fig 28).

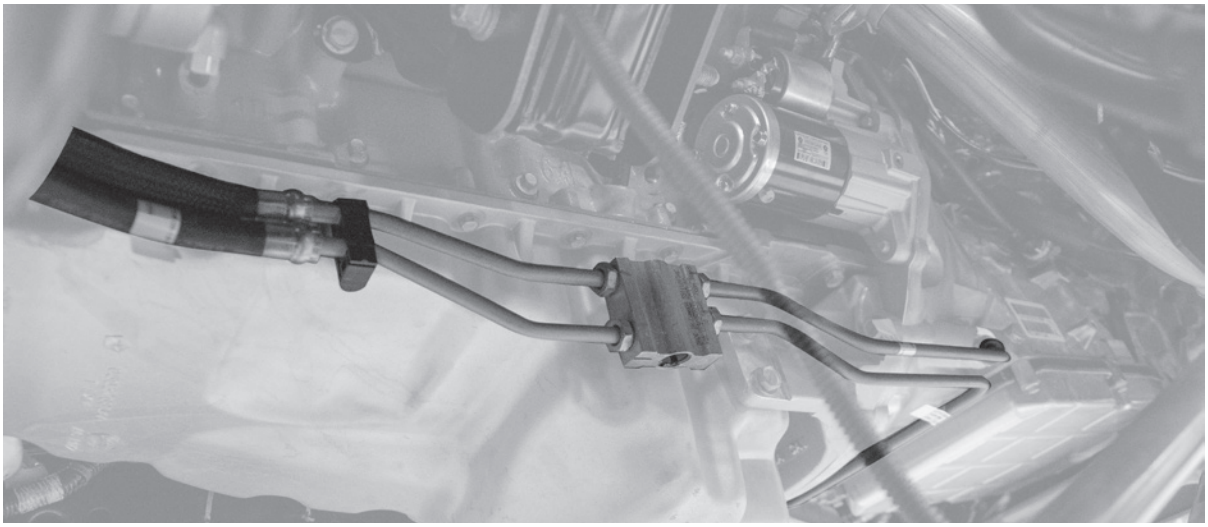


Figure 28

32. Connect the fuel lines (you will need the blue clip you saved earlier).

33. Install AEV supplied exhaust system. Refer to photo group B.

PLEASE NOTE: The supplied AEV exhaust system is designed to fit both the 5.7L and 6.4L engine in a stock application. BOTH the 5.7L and 6.4L engines will require the use of the 5.7L exhaust manifolds, gaskets, and bolts that are listed in the Bill of Materials. The routing has been configured assuming a stock suspension and bumpers. The use of aftermarket suspensions, bumpers or other components may require modifications to the exhaust system or other components. We find it easiest to start from the rear of the chassis. DO NOT tighten the exhaust at this time. Refer to photo group B.

a. Install the cross member hanger (fig 29).

b. Install the supplied isolators onto the frame (fig 30).

c. Install the exhaust system (photo group B).

d. Shorten one of the down tube to manifold bolts by 3/4” to use in upper mounting location.

e. DO NOT TIGHTEN EXHAUST AT THIS TIME

f. Install 02 sensors

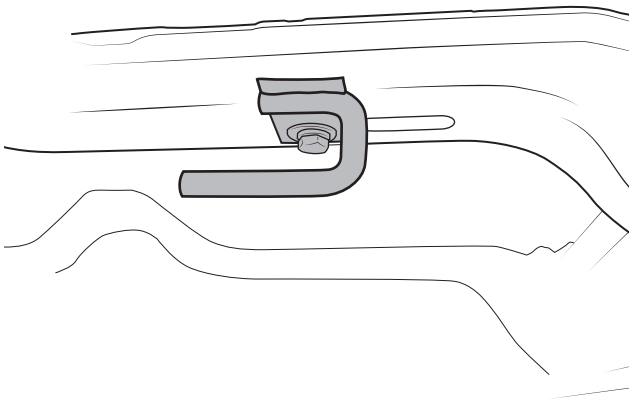


Figure 29

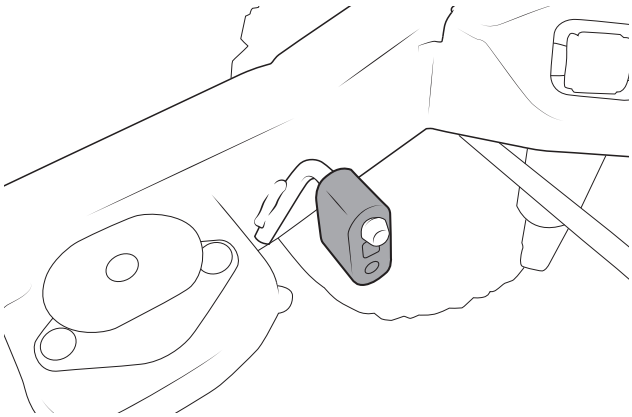
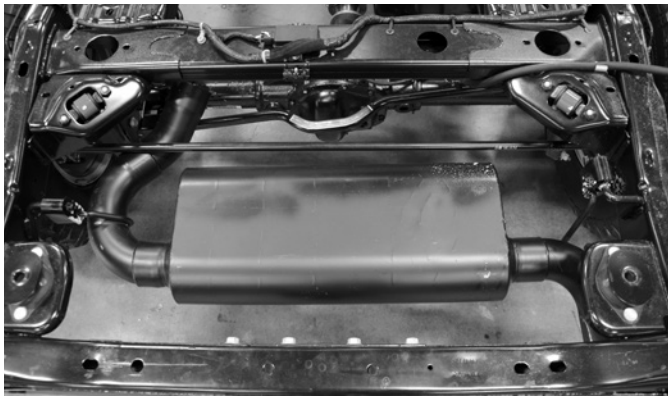
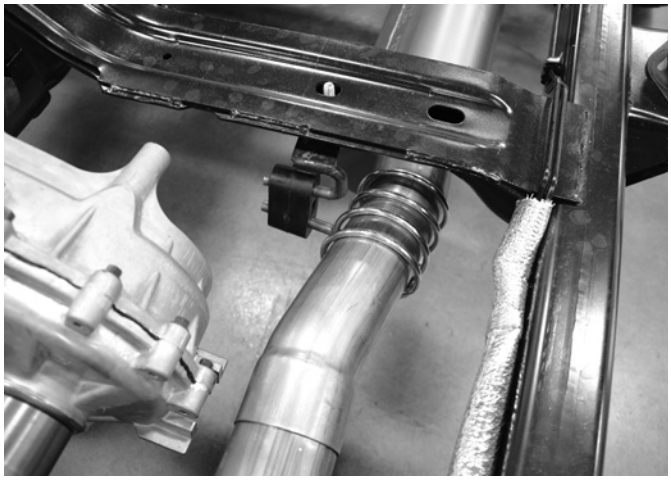


Figure 30





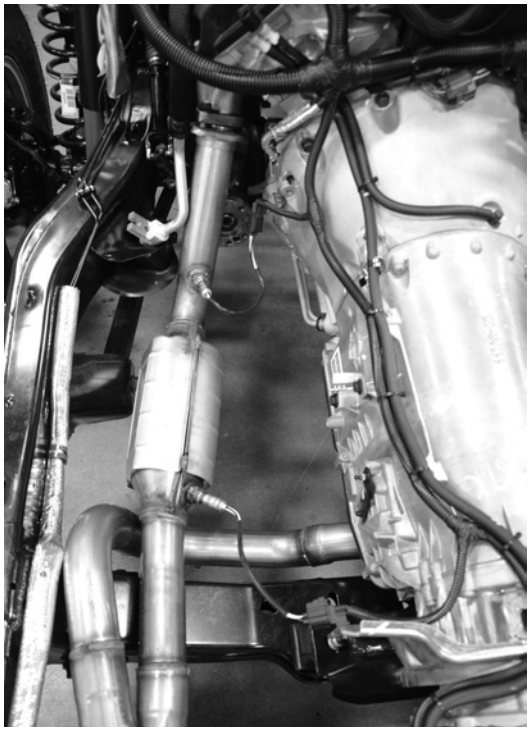



Photo Group B

V. ENGINE BAY PREPARATIONS

1. Remove the factory coolant bottle.
2. Remove fan assembly
3. Remove AC lines. Save the pressure switch and O-Ring for later use.
4. Remove the cooling module.
5. Strip the cooling module. Everything will be reused except the radiator.
6. Install the supplied power steering cooler. Use the AEV supplied spring clamps NOT the hose clamps provided with the cooler (fig 31).

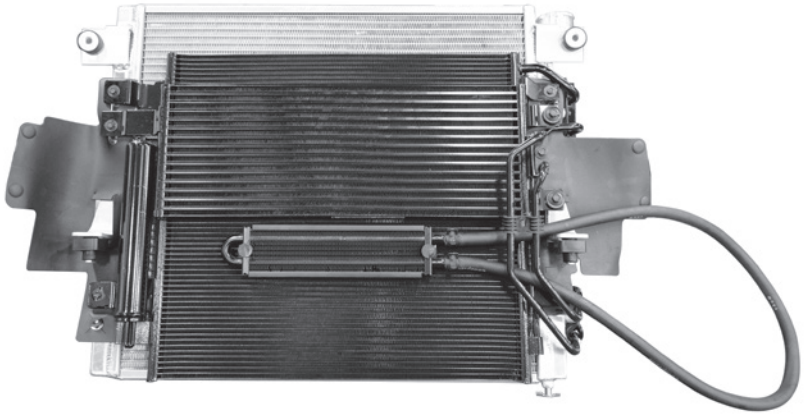


Figure 31

7. Install the AC condenser/transmission oil cooler/steering cooler assembly onto the supplied AEV Hemi radiator using the factory hardware and supplied p-clips, and petcock (fig 32).

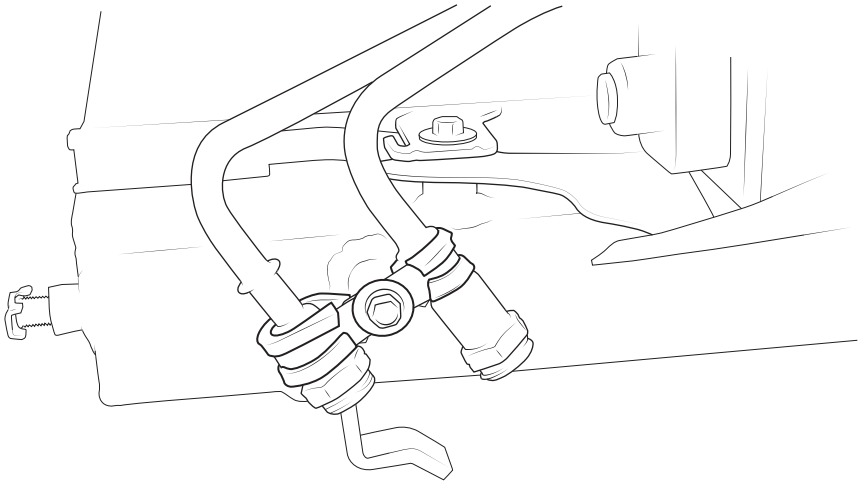


Figure 32

8. Modify the factory fan shroud for coolant bottle and lower radiator hose clearance as shown in Figure 33.

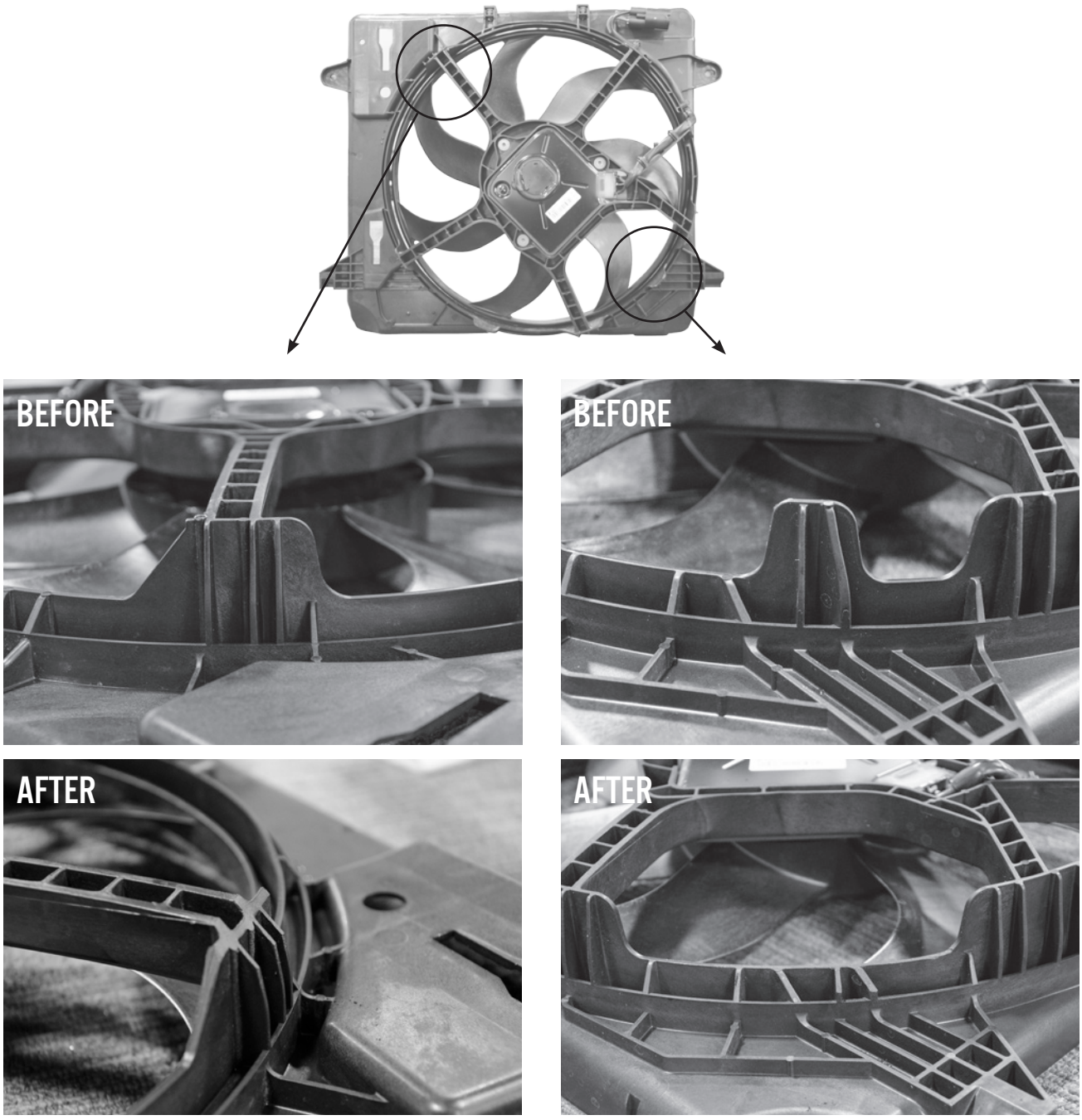


Figure 33: Modify fan shroud

9. Install the cooling module back into the body. Notice the positioning of steering cooler lines shown in Figure 34..

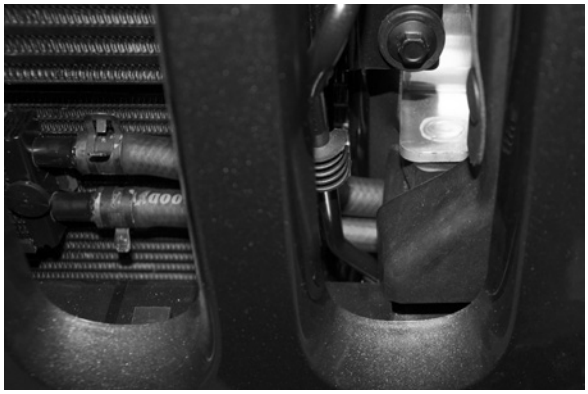


Figure 34

10. Install the fan assembly onto the back of the radiator using the factory hardware.

11. Trim and install the upper radiator shroud. Also remove the factory decal on the upper shroud and install the supplied AEV decal (fig 35).

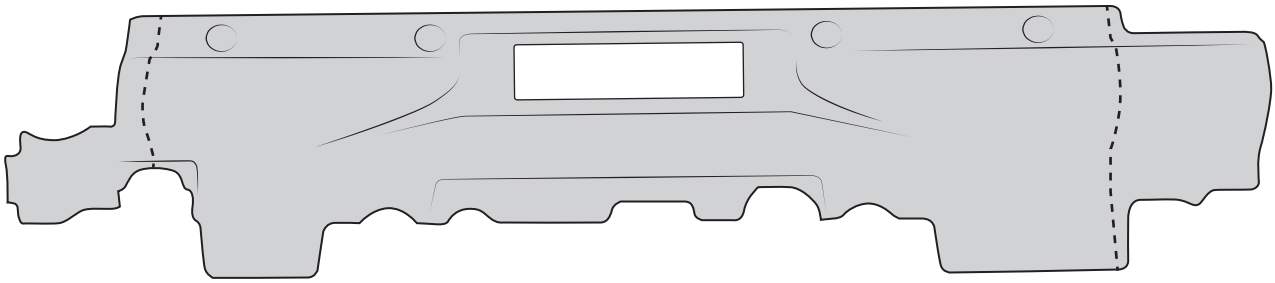


Figure 35

12. Modify wiring at fire wall as shown (fig 36).

Figure 36

13. Modify and install steering relocation kit (photo group C).

    a. From the engine side of the vehicle, remove the upper intermediate shaft. BE SURE THAT THE STEERING WHEEL IS SECURED TO PREVENT ROTATION. This will ensure that the clock spring is not damaged.

    b. From the engine side of the fire wall, mark a cut line as shown. You will need to open the hole in the fire wall up approximately 9/16” at the arc’s maximum.

    c. Using a die grinder or similar tool, cut the crescent shape to enlarge the hole. Use touch up paint on the edge to prevent corrosion.

    d. Install the AEV steering wheel relocation bracket to the intermediate shaft bearing. Install the intermediate bearing and AEV Bracket assembly onto the engine side of the fire wall using a small bead of black silicone to seal the plate to the fire wall. Now install the intermediate shaft into the intermediate bearing. Because the AEV bracket is installed on the engine side of the fire wall, you will need to trim the mounting studs a small amount.

    e. Check the entire assembly for clearance to the vacuum booster, there should be approximately 1/8” of clearance.

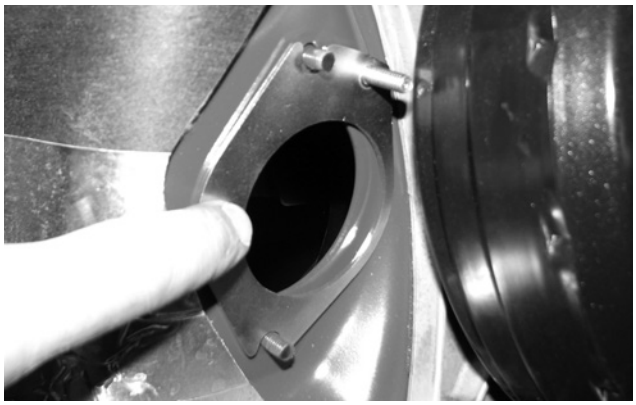


Photo Group C

14. Remove horn and horn bracket located on inner fender next to the brake booster. Modify the bracket as shown in Figure 37 to relocate horn.

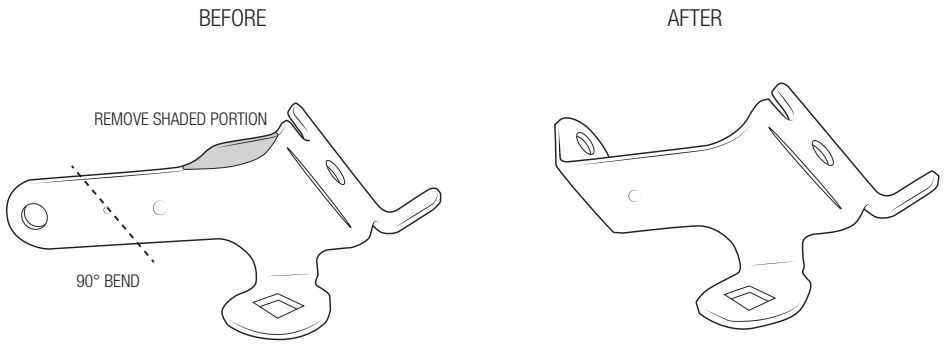


Figure 37

VI. BODY RE-INSTALLATION

1. Lower the body back onto the chassis. Pay special attention to all lines and wiring so as not to damage or pinch anything.
2. Install and reconnect everything in the engine bay.
3. Attach the heater core lines at the fire wall.
4. Connect the lower radiator hose at the radiator.
5. Reconnect brake lines.
6. Connect brake booster.
7. Route the wiring harness to the PCM/Computer.
8. Connect the ground to the stud located next to the brake booster on the inner fender.
9. Install the horn bracket and the AEV supplied HVAC to condenser line at the original horn bracket location (fig 38).

Figure 38

10. Reconnect the steering linkage.
11. Cut the hose and then install the hoses for the power steering lines (fig 39).

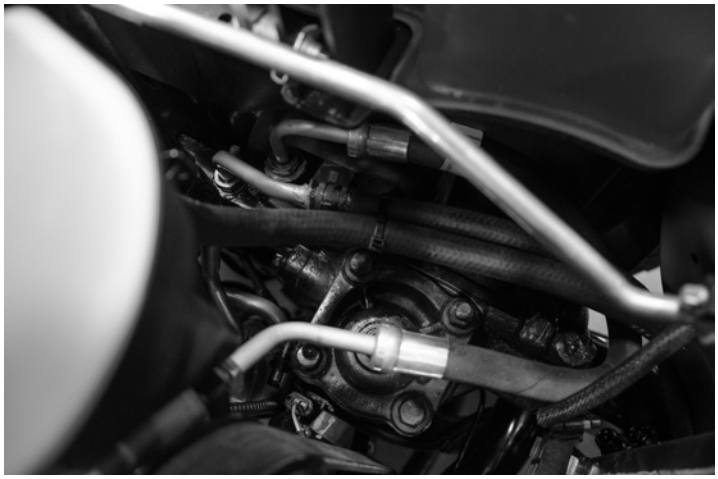


Figure 39

12. Connect the remaining AC lines at the fire wall (fig 40).

Figure 40

13. Connect the AC lines at condenser (fig 41).

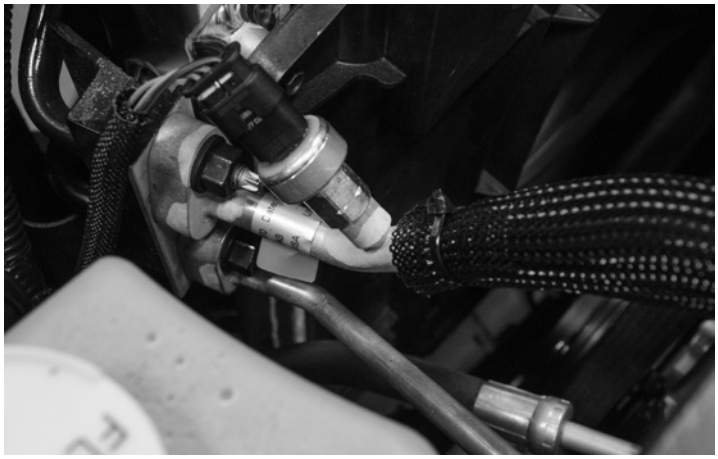


Figure 41

14. Trim and connect upper radiator hose using the AEV supplied spring clamp (fig 42).

Figure 42

15. Pre-install provided M6 u-nuts into the AEV supplied battery tray.
16. Connect 34-way connector at fire wall under the battery tray location.
17. Install the battery tray.
18. Install the head to fire wall ground strap.
19. Install the seal onto the AEV air box and install air box into the Jeep.
20. Plug in the fan.
21. Install the TIPM tray.
22. Install battery.
23. Connect the battery harness LEAVE THE NEGATIVE BATTERY CABLE OFF (fig 43).

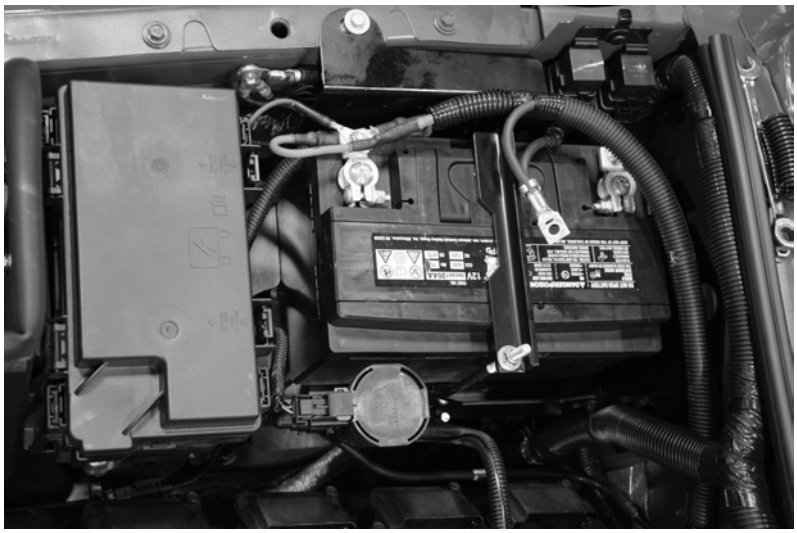


Figure 43

24. Install the purge solenoid.

25. Connect power wire to the TIPM and attach the TIPM to the TIPM bracket.

26. Modify and install the air intake tube as shown (fig 44).

    a. DO NOT use the throttle body screws that come with the 6.4L engine. ONLY use the screws supplied with the AEV intake. FAILURE TO USE THE CORRECT SCREWS WILL BREAK THE INTAKE MANIFOLD AND VOID YOUR AEV WARRANTY.

    b. 6.4L engines ONLY—use a 2–3" section of heater core hose to connect the crank vent tube to the engine.

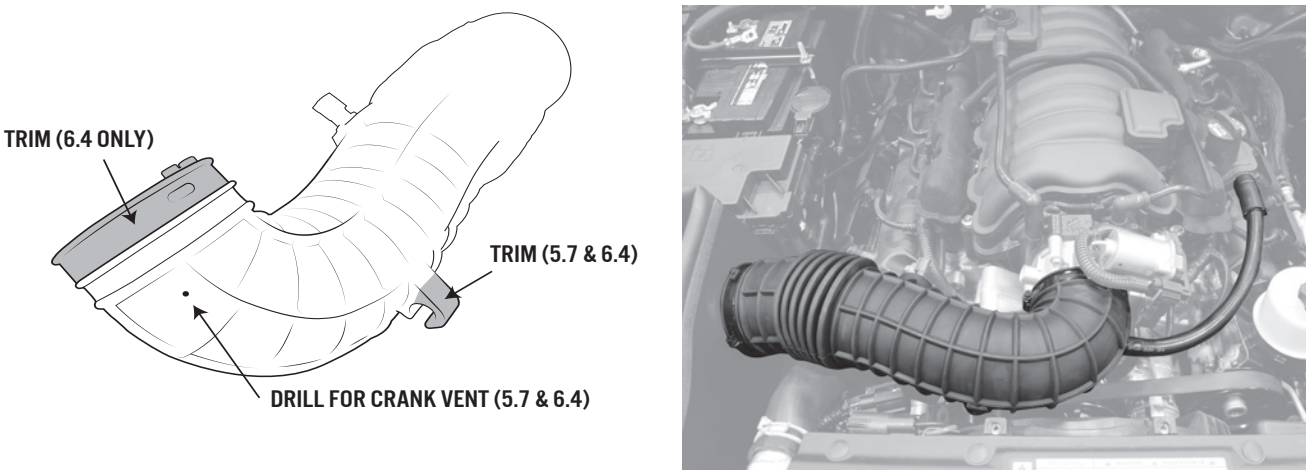


Figure 44

27. Pre-assemble AEV coolant bottle and install. Will need to re-use the original coolant bottle tube and cap from the factory coolant bottle. Use only MOPAR Coolant for your model year Jeep. DO NOT mix coolant from different model years. Other brands may harm the seals or cause cooling problems.

28. Trim and install engine cover. 5.7L HEMI V8 conversions can utilize either a Grand Cherokee or Commander engine cover—however, it will need to be modified prior to installation using the template provided at the end of these instructions. For 6.4L HEMI V8 conversions, you can utilize the Grand Cherokee engine covers, but the driver's side will require modification.

    For 6.4L HEMI V8 engines, please remove the highlighted portion as shown in figure 45. For 5.7L HEMI V8 engines, please use the template on the last page.

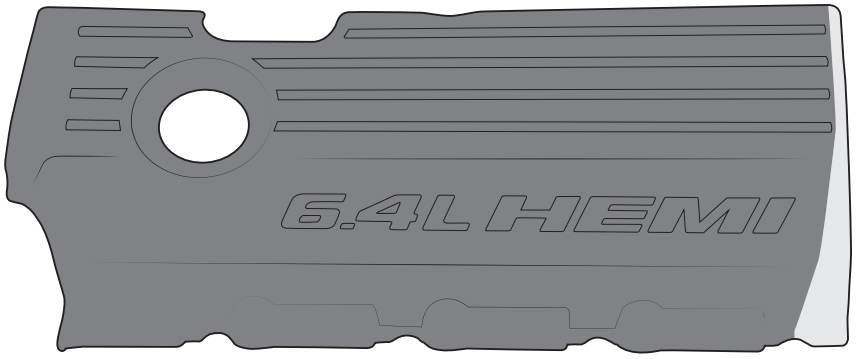


Figure 45: remove highlighted portion

REPOSITION HOIST TO UNDER CHASSIS AND RAISE JEEP FOR UNDERSIDE ACCESS

29. Reposition the hoist under the chassis and raise the vehicle for underside access.
30. Reinstall all body mount hardware and torque to factory specifications (refer to factory service manual).
31. Reinstall shifter linkage (refer to factory service manual).
32. Reinstall drive shafts (refer to factory service manual).
33. Reconnect fuel filler and NVLD charcoal canister (refer to factory service manual).
34. Reconnect parking brake cables (refer to factory service manual).
35. Connect transmission oil cooler lines to transmission cooler. (fig 46).

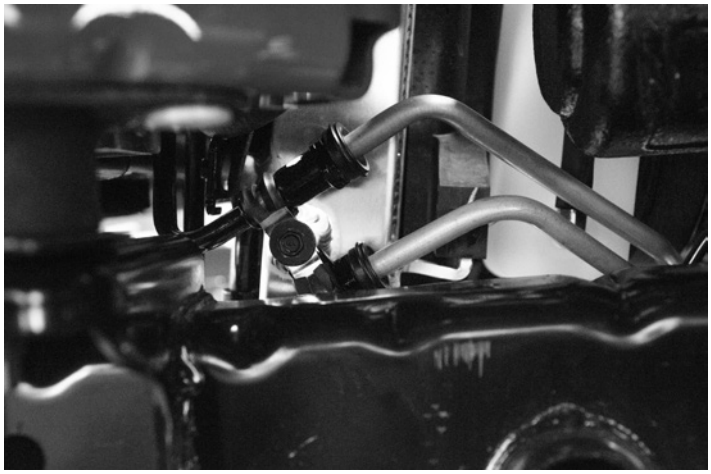


Figure 46

36. Install and tighten transmission mount bolts (refer to factory service manual).
37. Reinstall skid plates (refer to factory service manual).
38. Make sure that the exhaust system has clearance around everything front to back then tighten from the front to the back. We would also recommend welding each joint (with stainless wire) to prevent the exhaust from shifting.

39. Install Universal Speed Control Module.

    a. Release steering wheel adjustment arm to free the lower steering wheel trim panel

    b. Remove the knee panel located under the steering column (fig 47).

    c. Remove the three T-20 Torx head screws from the lower steering wheel trim panel (fig 48)

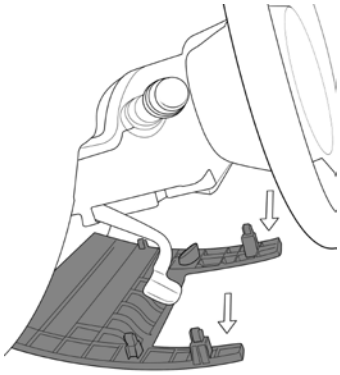


Figure 47

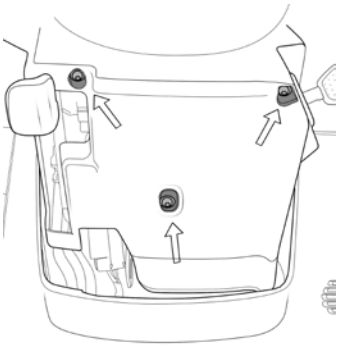


Figure 48

    d. Remove the six wire connector from clock spring. It should look like A, trim the top of A to look like B (fig 49).

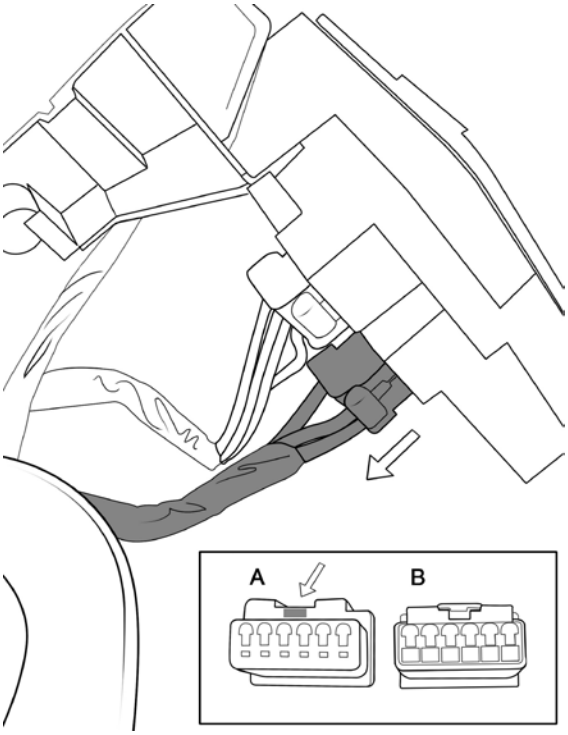


Figure 49

e. Route long side of module wiring harness through instrument panel (fig 50)

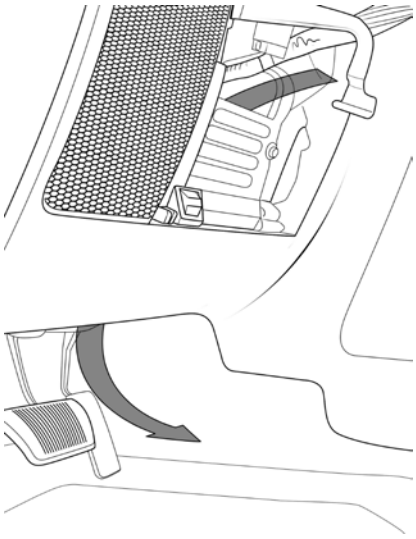


Figure 50

f. Plug in the AEV harness as shown (fig 51).

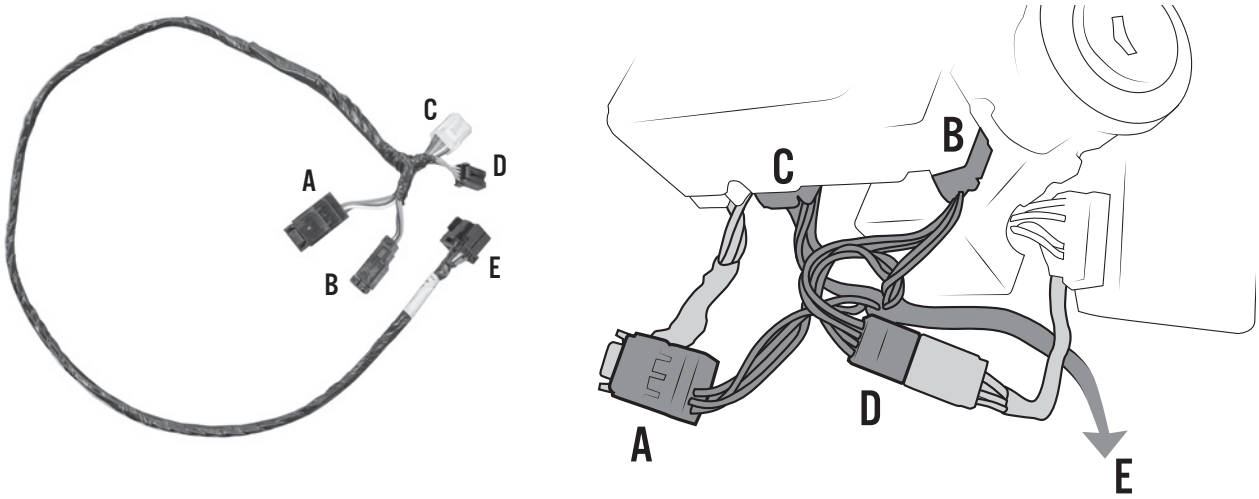


Figure 51

g. Remove both 10mm ground nuts from the lower driver side inner body located next to floor pedals. Connect routed through module harness to module (connector E). Reinstall both 10mm ground nuts.(fig 52).

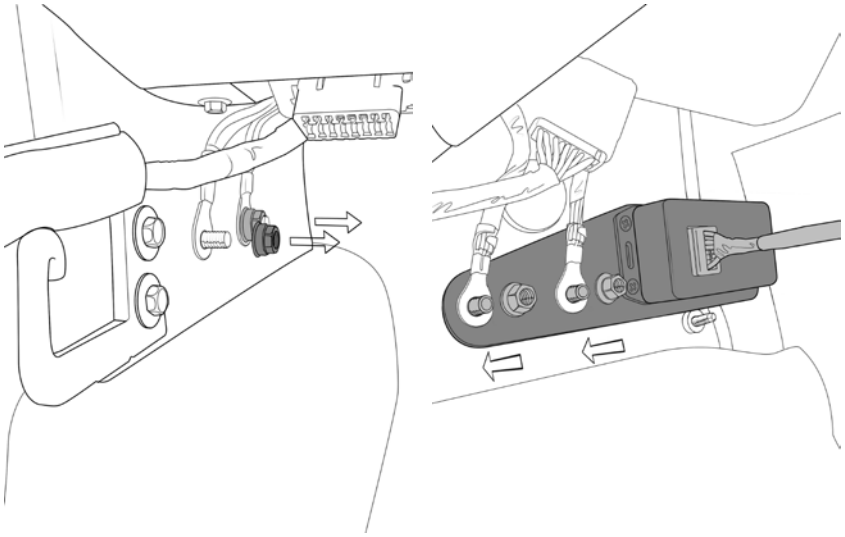


Figure 52

h. Reinstall all trim panels.

i. Position the V8 Decals as shown.

PLEASE NOTE: The new position of the V8 motor on top of and in front of the front axle causes approximately 430 lbs of weight to be shifted to the front axle and suspension. Stock springs will see approximately 1" of drop. Aftermarket springs will vary depending on the manufacturer of the springs.

VII. NEW ENGINE START-UP PROCEDURE

1. Double check all connections, wiring, mechanical fittings and fasteners.

2. Fill all fluids. Refer to factory service manual for proper fluids for your model year Jeep. Engine oil cap will specify viscosity and type. Use dip sticks to verify proper fill levels. Check to ensure transmission, coolant, brake, and power steering fluids are all filled. Use only MOPAR +4 Transmission Fluid in the transmission.

   DO NOT FORGET TO BLEED YOUR BRAKES. Follow proper brake bleeding procedures as outlined in your service manual.

3. Connect the battery.

4. Once all fluid levels and connections have been checked AND double-checked, you may now start your engine. Once the engine is running, check for any possible fluid leaks under the vehicle. If any leaks are detected, shut engine off and locate and correct the leak before restarting.

5. The engine will run very rough for the first couple minutes. AEV recommends letting the engine come up to operating temperature before shutting it off.

6. During engine cool-down, re-check all fluid levels. AEV recommends at least 2 cooling cycles before programming the throttle tolerance. This will allow cooling system to purge any air and give you a chance to triple-check all of your work.

VIII. PROCAL MODULE PROGRAMMING.

Please refer to the User Guide and Quick Reference Guide that came with your ProCal for correct programming procedure.

THROTTLE TOLERANCE PROGRAMMING

This mode allows the user to program throttle tolerance and effectively pair a PCM and pedal. When a new PCM or pedal has been installed, the previous values stored in the PCM may not match the specific tolerance of the pedal and need to be reprogrammed

Notes: This mode requires simultaneous inputs from a user on the throttle pedal as well as the multifunction light stalk. When programming, follow the steps in a deliberate, but not rushed manner.

The entire process should take approximately 3–4 seconds. If the process is completed either too fast or too slow, the pairing will fail.

Procedure: Set the DIP switches as shown below. With the engine off and ignition on, plug the module into the OBD port and follow the steps below:

1. When the module is ready, the Electronic Throttle (ETC) Indicator (a lightning bolt surrounded by two vertical lines) will flash on the dash.

2. To start the pedal routine, pull the headlight stalk back into the “Highbeam Flash” position, then release the headlight stalk allowing it to fall back into the “Highbeam Off” position. The routine has now started.

3. Press and hold the pedal all the way to the floor.

4. Move the headlight stalk forward to the “Highbeam On” position.

5. Release the pedal completely.

6. Move the headlight stalk back to the ”Highbeam Off” position.

7. The routine is now completed.

8. Turn the ignition OFF, wait, then start the engine. Test the pedal and verify that it is functioning properly. If not, repeat steps 2–8.

AXLE RATIO PROGRAMMING

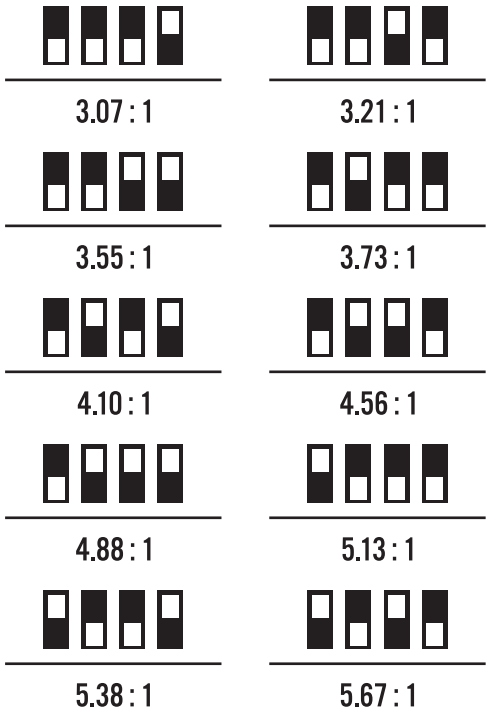
Using the ProCal Module to program axle ratio once your new HEMI engine is installed requires a special mode. Programming axle ratio is required after completeing your HEMI conversion even if you did not change your axle gear ratio. There is no performance increase by adjusting this value to anything besides what the vehicle has physically installed. Failure to program the axle gear ratio or programming the incorrect ratio will cause some vehicles to go into “Limp-In” mode.

1. Set the first 3 DIP switches as shown.

2. Set switches 4 and 5 as shown.

5.7 L | 6.4 L

3. Set the remaining switches based on the chart. Once all the dip switches are set, please refer to the User Guide that came with your ProCal Module for the proper programming procedure.



3.07 : 1 | 3.21 : 1

3.55 : 1 | 3.73 : 1

4.10 : 1 | 4.56 : 1

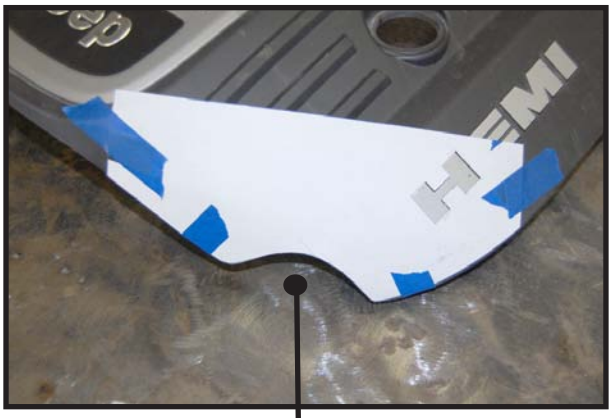
4.88 : 1 | 5.13 : 1

5.38 : 1 | 5.67 : 1

TIRE SIZE PROGRAMMING

You may now use the ProCal Module to program your tire size. Please use the Quick Reference Guide and User Guide that came with your ProCal Module for the proper programming procedure.

FIG 2

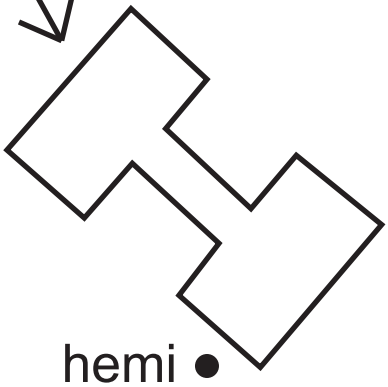


Remove this section of plastic

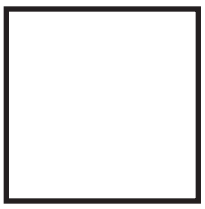
hemi cover edge

* Retain this side of the paper to align with shape of hemi cover edge / hemi badging “H”.

cut along these lines



hemi badging “H”



1in

1in