C6 Supercharger Installation instructions

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A&A CORVETTE C6 SUPERCHARGER SYSTEM

INSTALLATION INSTRUCTIONS

GETTING STARTED

Proper installation of this supercharger kit requires general automotive mechanic knowledge and experience. Please browse through each step of this instruction manual prior to beginning the installation to determine if you should refer the job to a professional installer/technician. Please contact A&A Corvette if you need assistance.

Keep in mind that many of these steps do not necessarily need to be completed in the order they are shown in this manual.

- Raise the car on a suitable lift or jack stands. While not completely necessary, it will be easier with the wheels removed.

- Disconnect the battery.

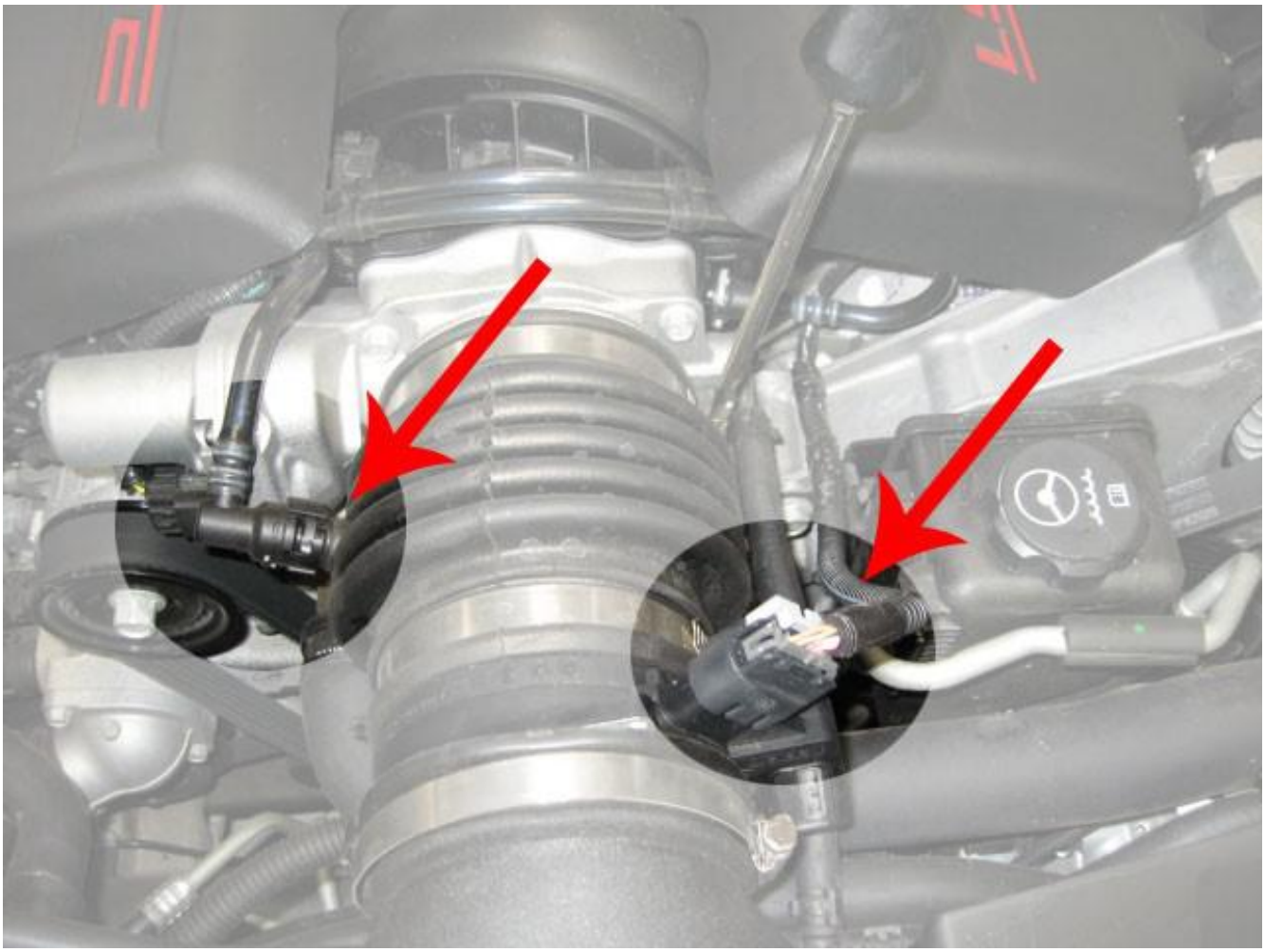
- Remove plastic ignition coil covers

- Remove factory spark plugs. Gap the provided TR6 plugs to .035” and install with anti- seize on the threads.

NOTE: The car will require PCM reprogramming after the installation. The car may be driven AT LIGHT THROTTLE ONLY with the stock injectors prior to tuning in order to check for leaks, belt alignment or even to drive it to the tuning shop. Any application of too much throttle will throw the car into “reduced power” mode. You will have pull over, shut the car off for 10 seconds and restart in order to proceed.

We can provide a base tune that will make the car drivable but we still recommend professional dyno tuning to verify the settings so you can get the most out of your car.

- Loosen hose clamp at the throttle body to intake tube. Disconnect the Mass Air Flow Sensor (MAF) connector by removing gray lock , push tab in and pull gently. Remove the valve cover breather hose by using a flat screwdriver and pushing the gray tab into the connector. Pry up on the tabs located on the air bridge until released. Remove complete air filter assembly.



(VALVE COVER BREATHER HOSE, MAF CONNECTOR AND AIR FILTER ASSY REMOVED)

- Remove 4 (10mm) bolts holding plastic upper radiator hold down.

(TOP RADIATOR COVER)

- Remove the large plastic radiator shroud that seals the radiator and AC condenser area in front of the radiator. This panel slopes down at an angle from the top of the radiator down to the bottom of the bumper.
- **REMOVE THE FRONT FASCIA (The installation may be performed without removing the fascia but it is MUCH easier to remove it)**

- Remove the front wheels.

- Remove (4) 7mm screws from the top of the fascia.

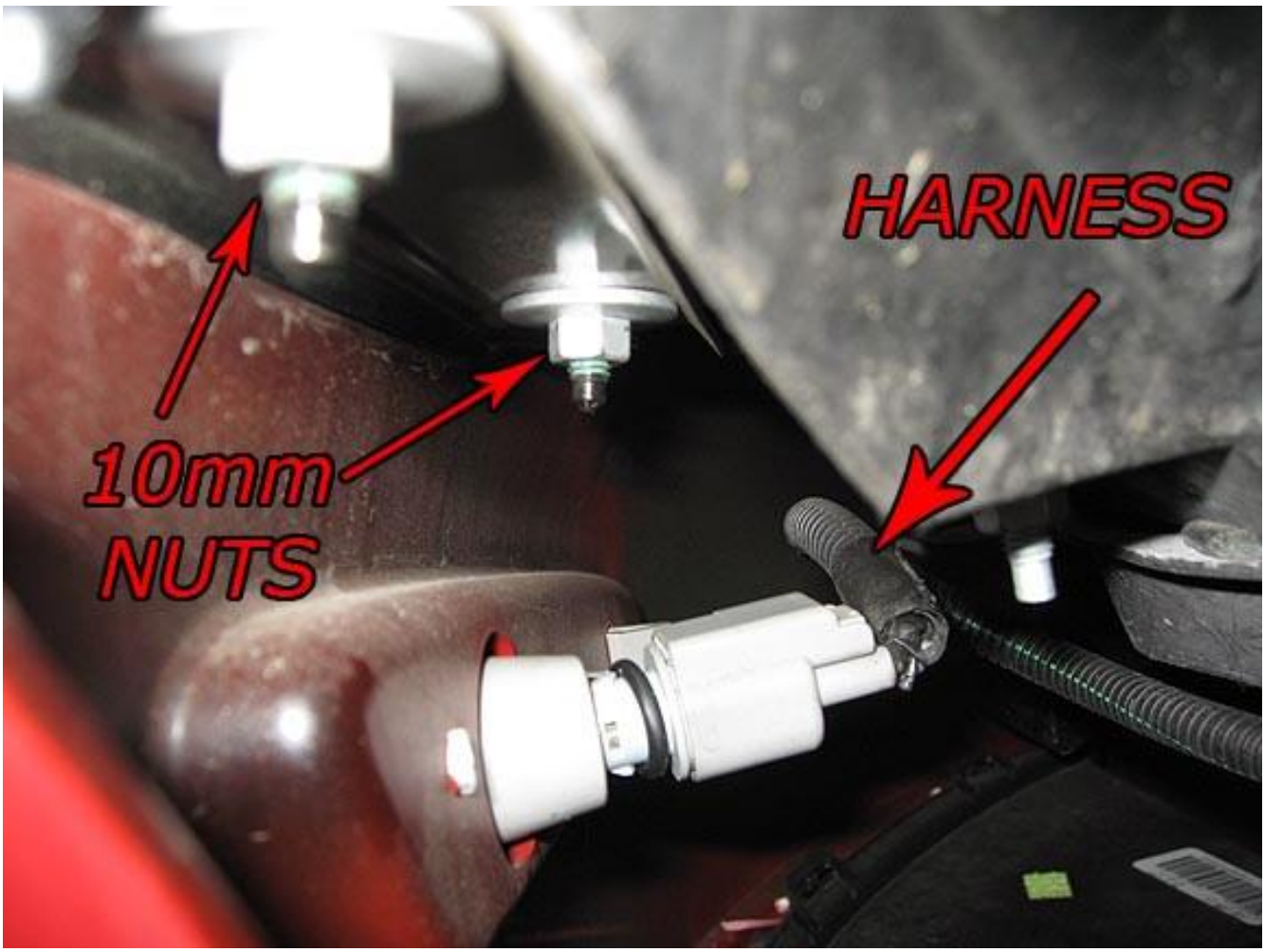
(REMOVE THESE FOUR 7mm SCREWS)

- Remove FIVE T-15 screws on wheel well (some models use (5) plastic push pins).

(REMOVE THESE 5 SCREWS OR PLASTIC PUSH PINS)

- Pull back wheel well and unplug side marker light by twisting and pulling the harness.

- Remove the (2) 10mm nuts.

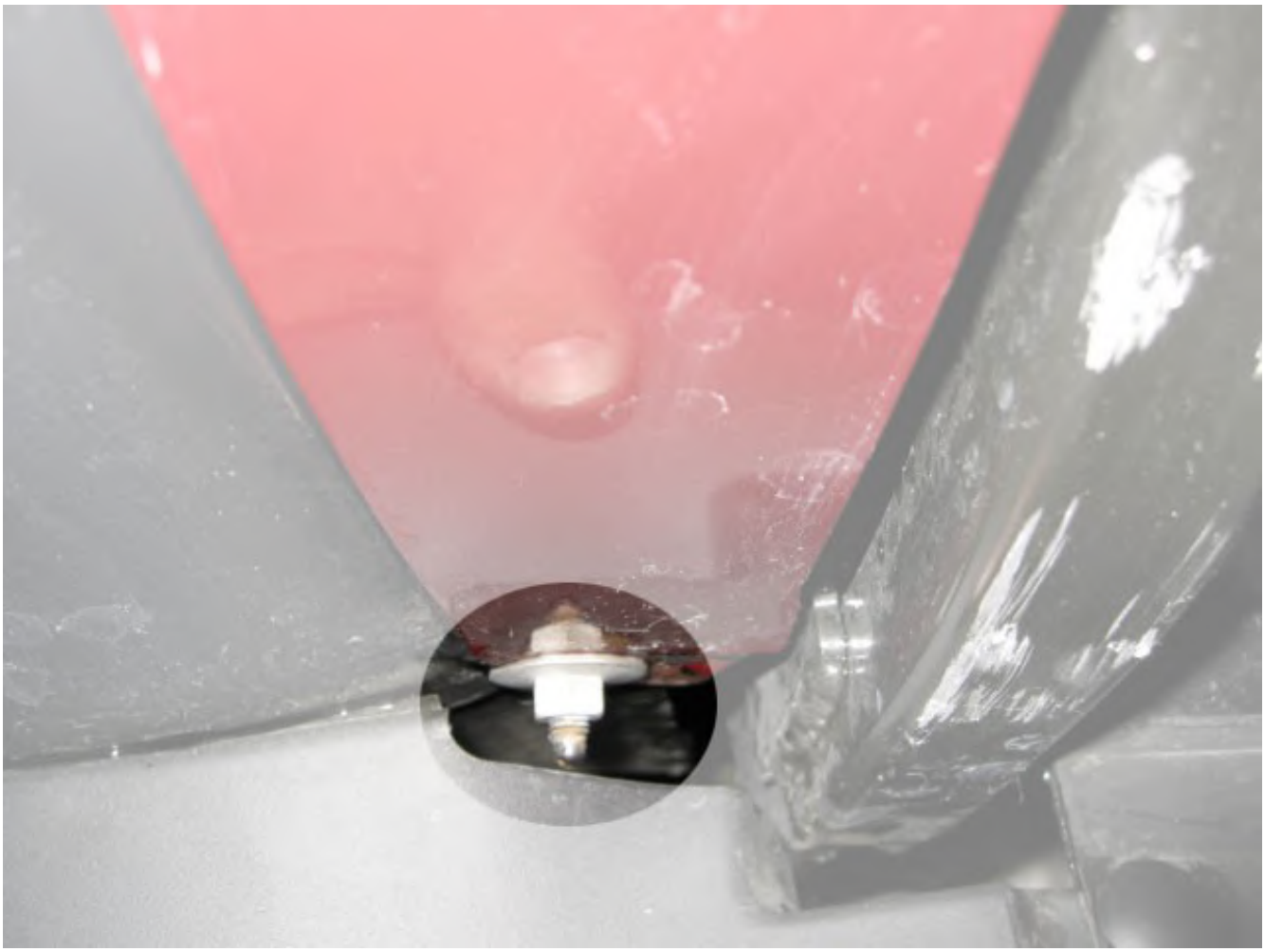


(UNDO SIDE MARKER HARNESS AND REMOVE TWO 10mm BOLTS)

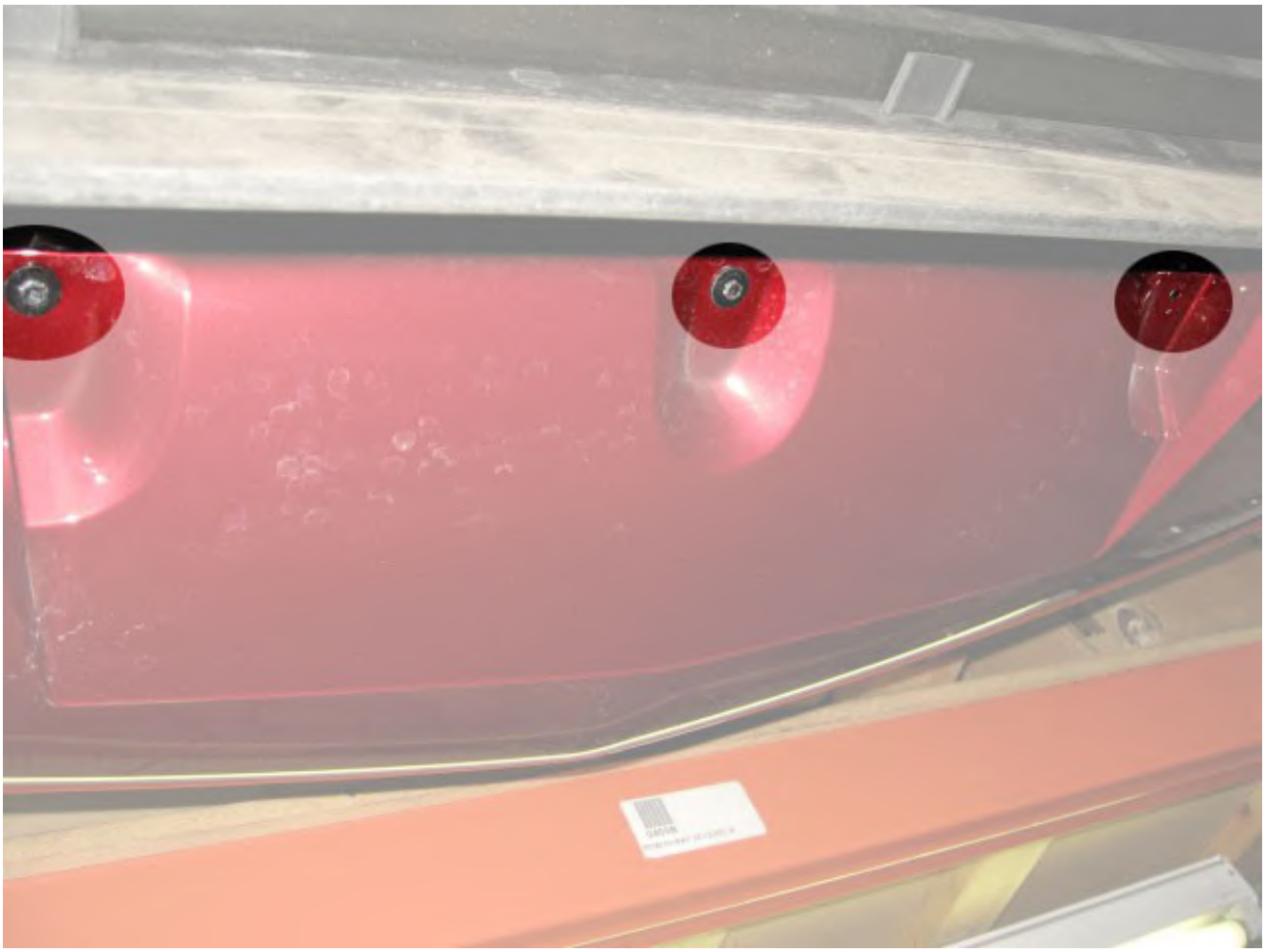
PINNING THE CRANKSHAFT PULLEY: THE STEERING RACK DOES NOT NEED TO BE REMOVED TO PIN THE CRANKSHAFT

- Unplug the fog light harness by pulling up on the tab and pulling the harness down.


FOG LIGHT HARNESS



(ONE OF TWO 10mm BOLTS)



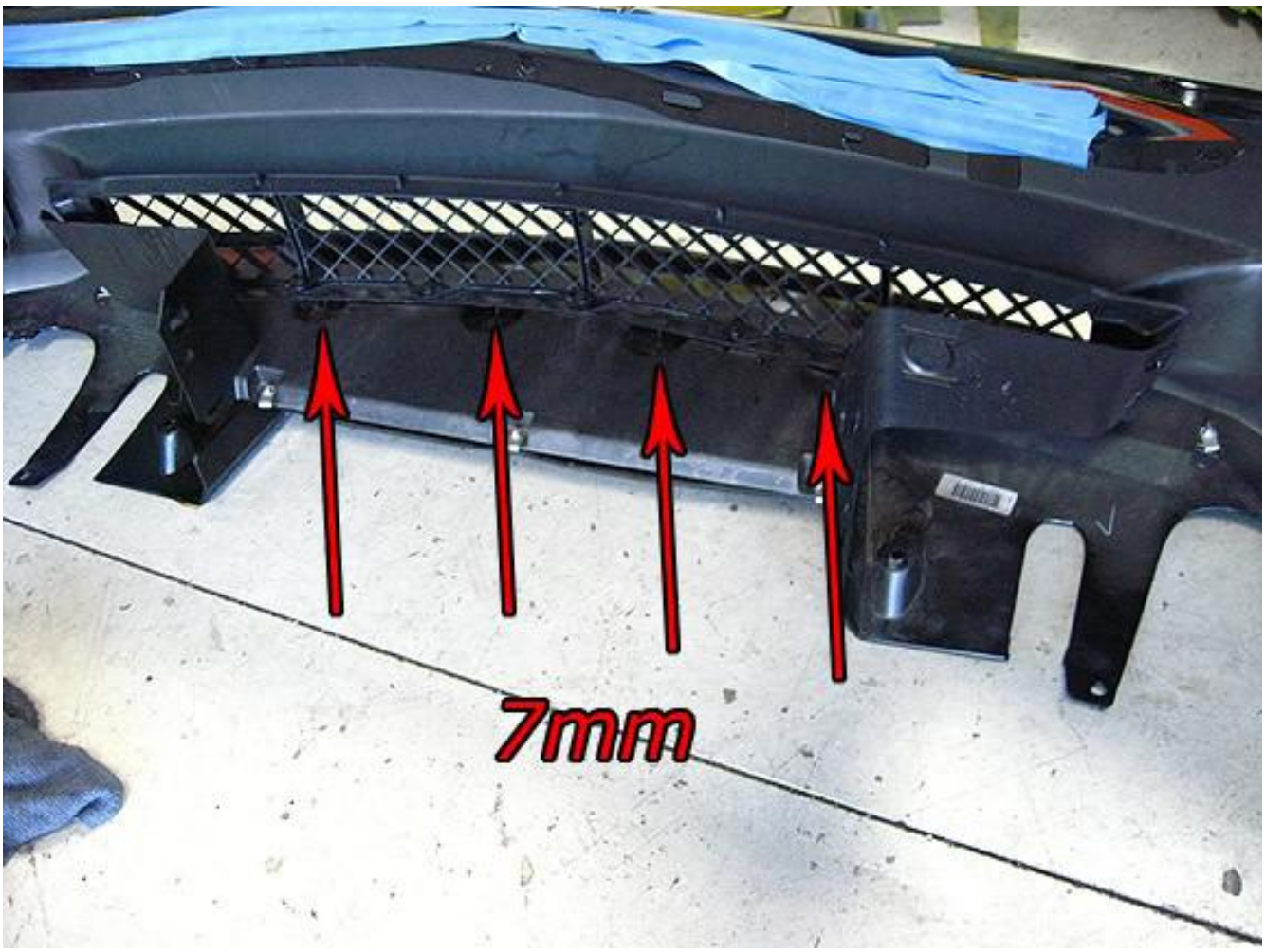
(7mm SCREWS IN BOTTOM OF FASCIA)

- If your hood is still on, use masking tape on the front nose of the hood and adjacent fascia while you are removing the front fascia from the car.

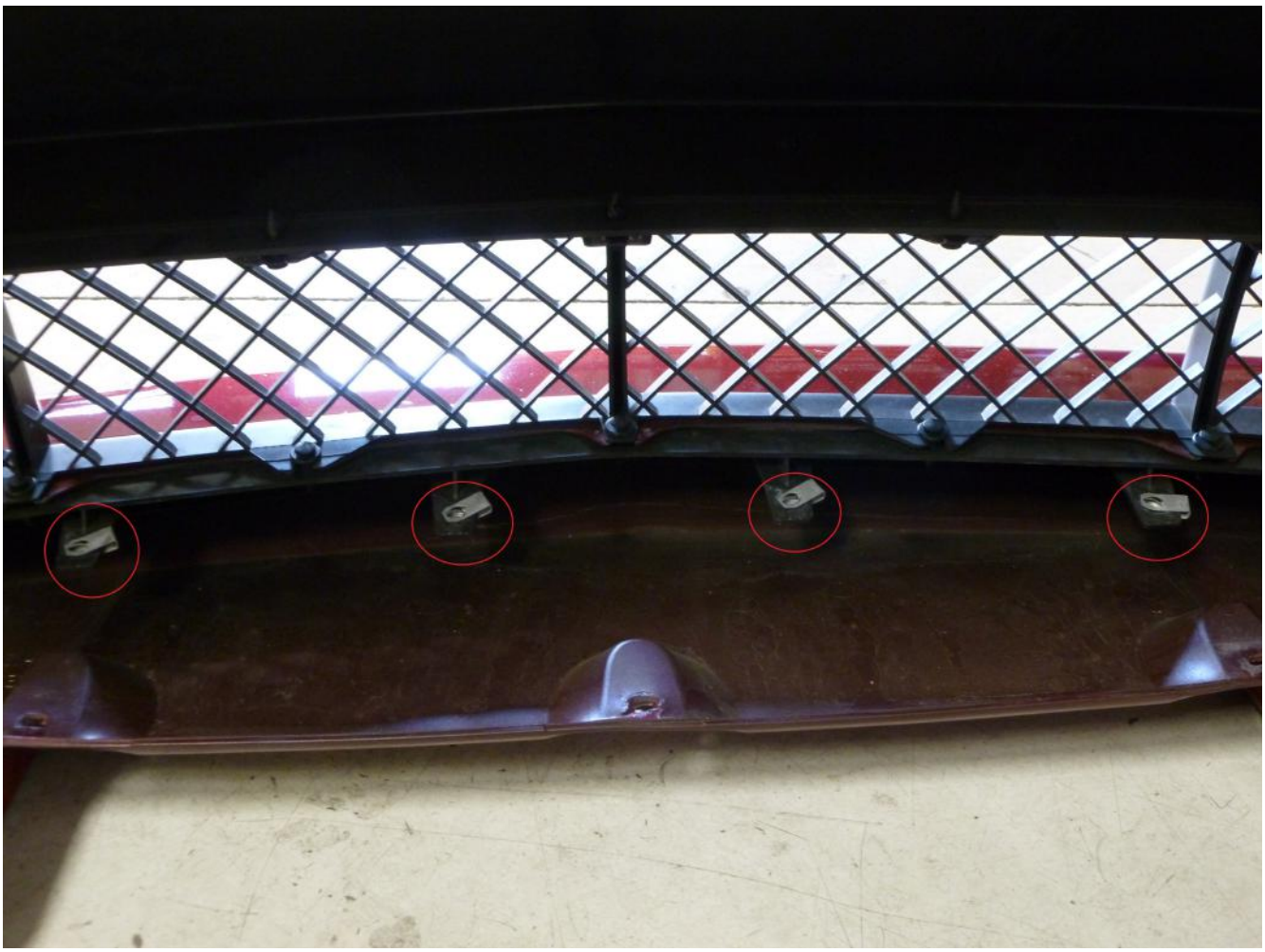
- Pull straight up on corners of the front fascia until the clip “pops.” Remove fascia from vehicle and set aside.

(PULL UP UNTIL THE PANEL POPS OUT)

- Remove the 4 (7mm) bolts holding this inner panel to the front fascia. Remove the panel from the fascia, it will not be reused. Trim off bolt tabs so they don't interfere with the intercooler duckbill when reinstalling the fascia. See picture on next page.



(REMOVE 7mm SCREWS)



(TRIM OFF TABS CIRCLED IN RED)

REMOVE FACTORY BELT

- Remove accessory drive belt and the two bolts holding the tensioner to the water pump. Keep these bolts handy as they will be used to mount part of the rear supercharger bracket. Remove the 15mm bolt holding the evaporation solenoid bracket and remove the solenoid from the bracket. (The bracket will not be reused)

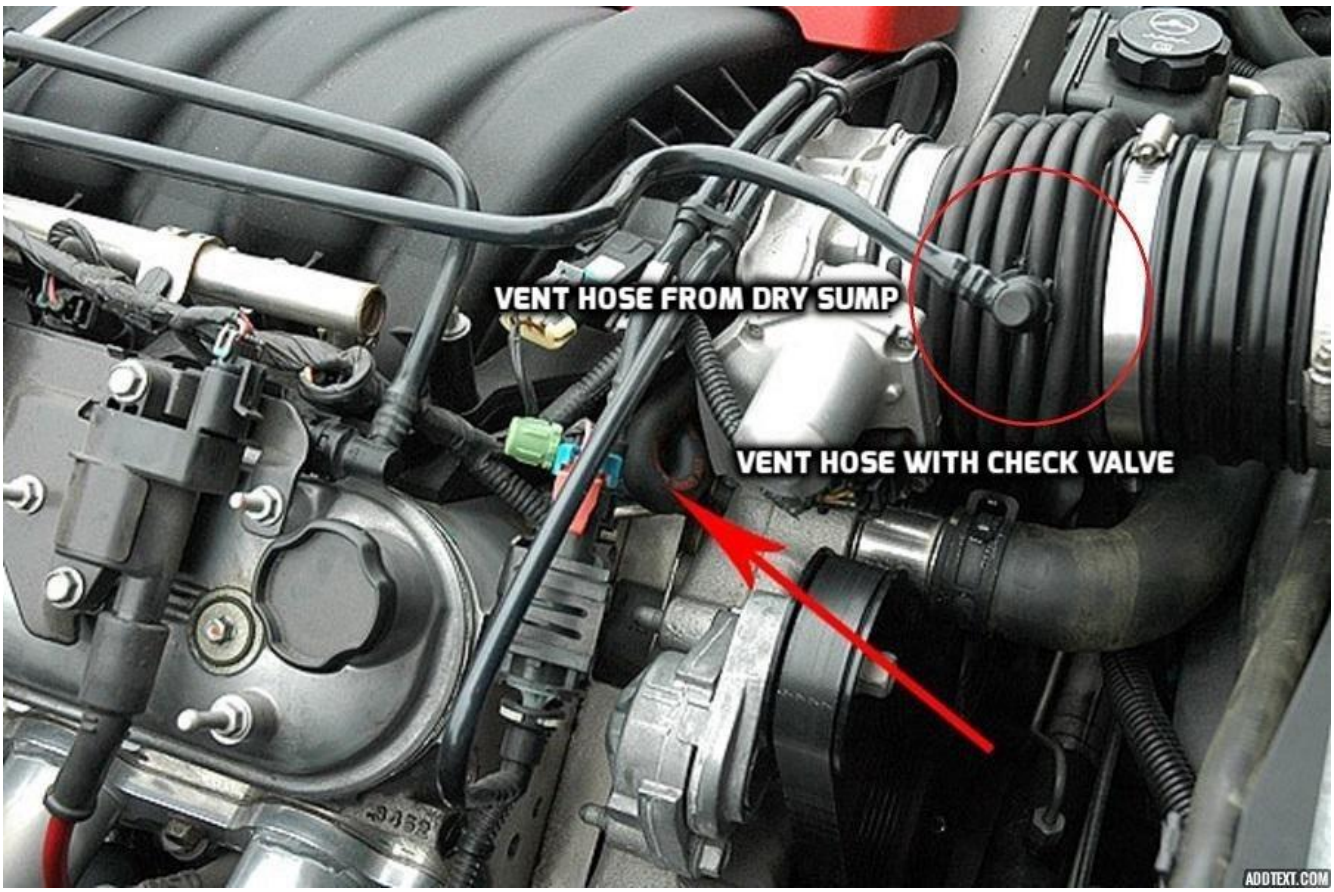
(TOP: EVAP. BRACKET – BOTTOM: TENSIONER)

CRANKCASE VENTILATION HOSES

- Locate the small, U shaped hose going from the intake manifold to the engine cover located under the manifold. Remove this hose, remove it and replace it with the hose containing the small plastic check valve. Orient the valve so that airflow is allowed to flow from the engine cover TO the intake manifold and is blocked from traveling the other way.

- This vent hose is common to standard C6 and Z06.

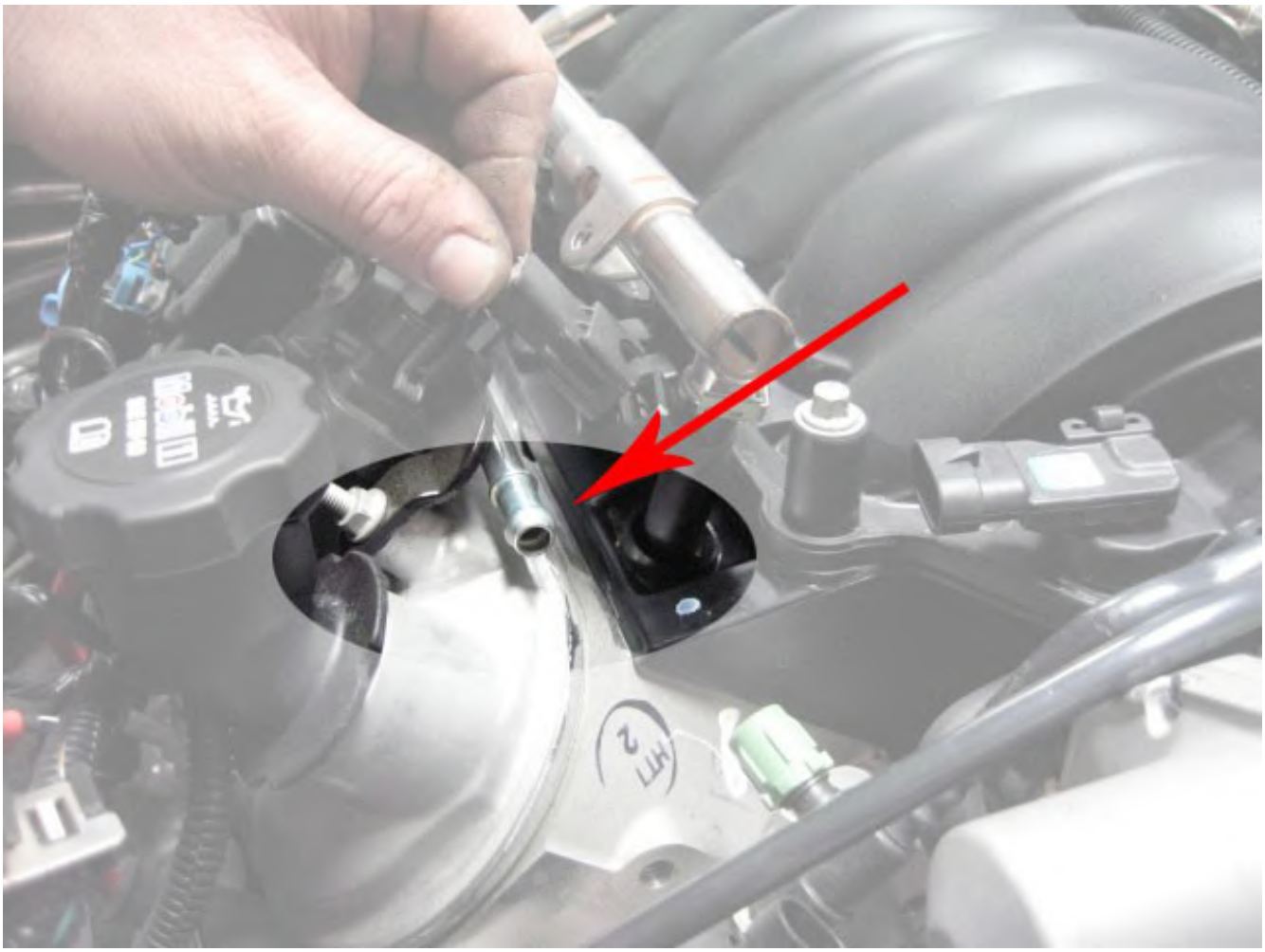
- The vent hose shown below going to the dry sump tank is for Z06 and LS3 dry sump cars only. This hose is removed completely. On the dry sump tank itself, slip the short piece (1”) of hose over the empty nipple to act as a sleeve. Slip the 5/8 hose over the sleeve and clamp. This hose goes directly to the air filter in front of the radiator.



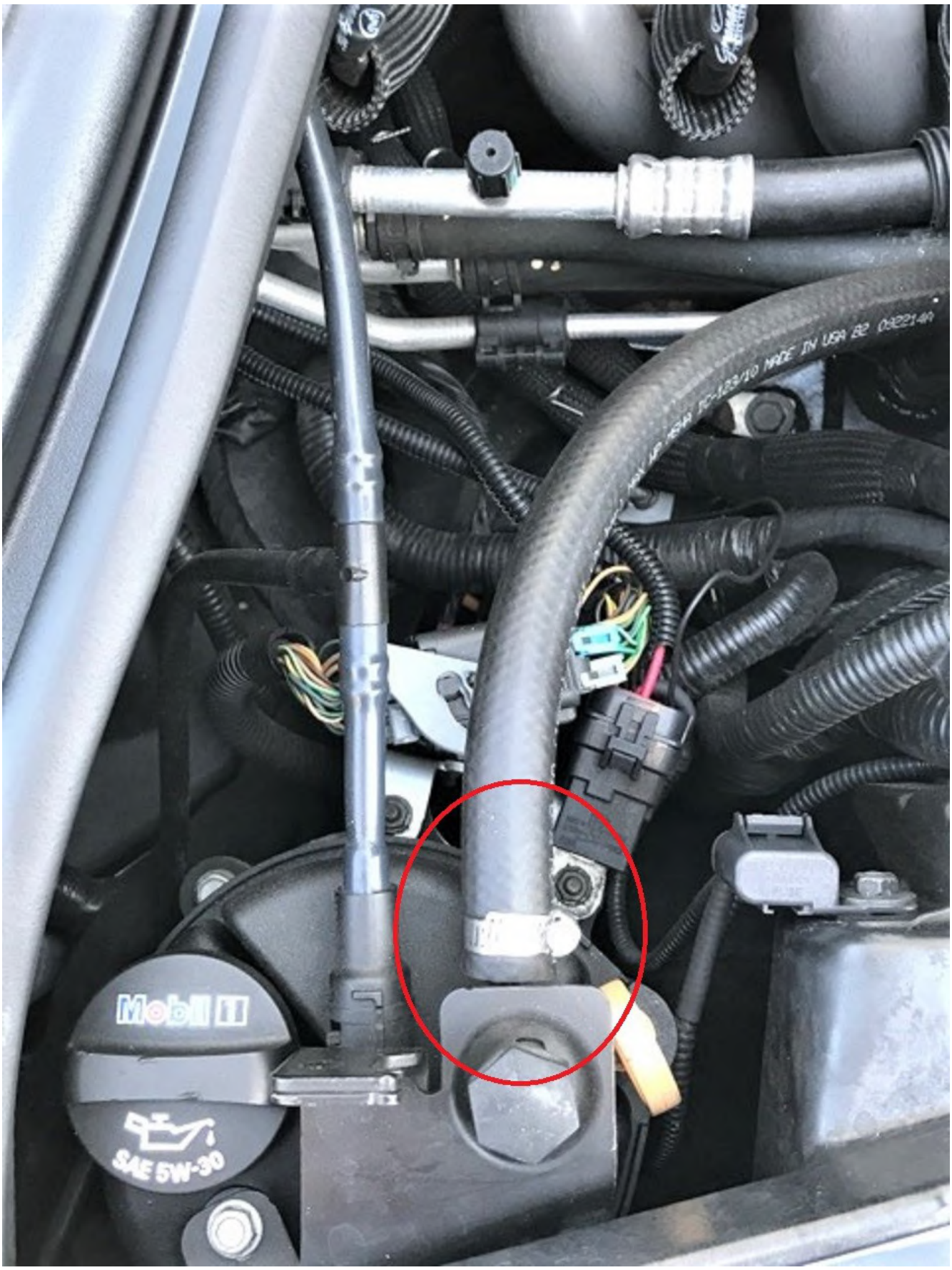
(VENT TUBE- Z06 SHOWN)

(VENT TUBE WITH CHECK VALVE INSTALLED, AIRFLOW DIRECTION INDICATED)

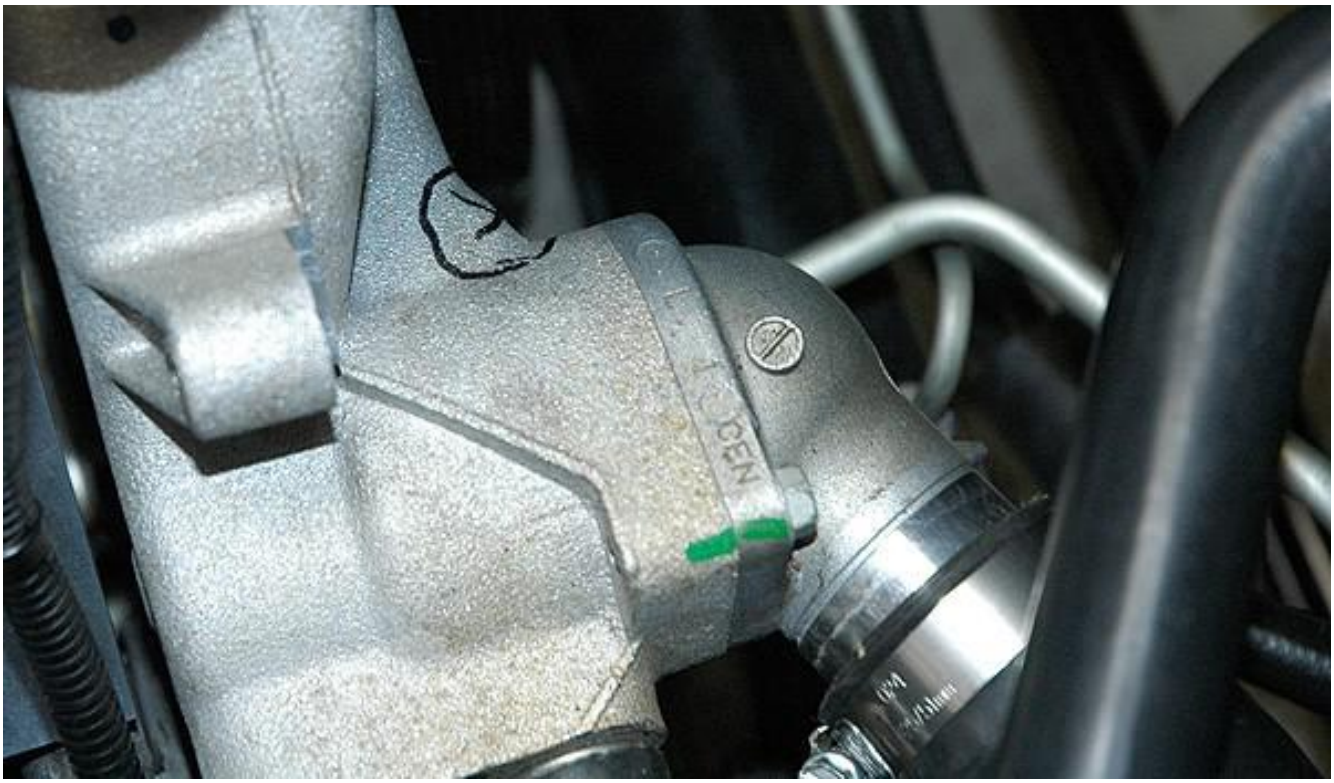
- On standard C6, cap the nipple on the passenger side valve cover that originally had the vent hose running from the valve cover to the factory inlet coupler. Drill the oil filler cap,u sing a 9/16” drill or Rota-broach. Tap hole to 3/8” NPT. Thread the supplied 90-degree fitting into the cap. The supplied 5/8” hose runs directly from the cap to the air filter. Venting from the cap raises the fitting above most of the oil spraying around and eliminates the need for a catch can.



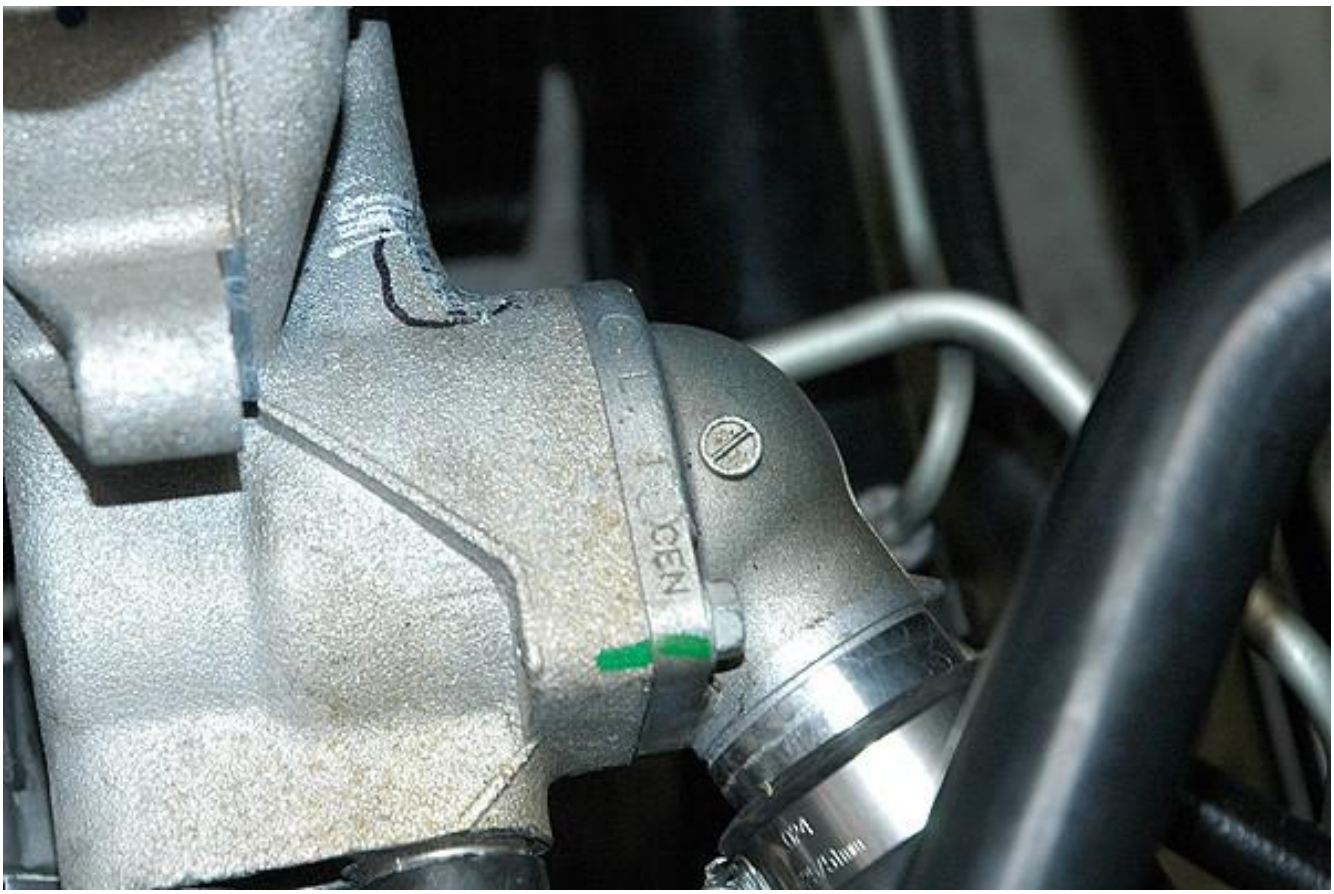
(ATTACH SUPPLIED RUBBER VACUUM CAP TO NIPPLE)


Mobil 1
SAE 5W-30

OIL CAP VENT HOSE INSTALLED ON STANDARD C6

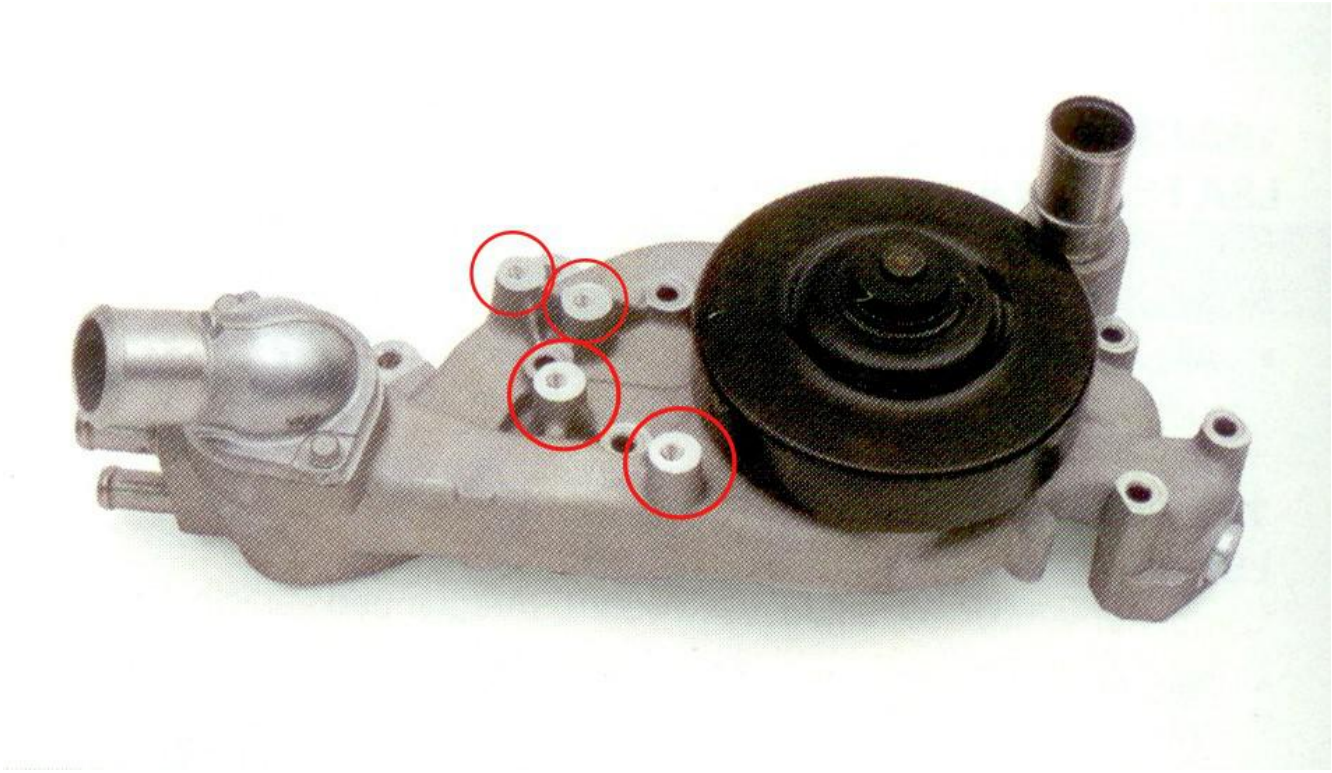


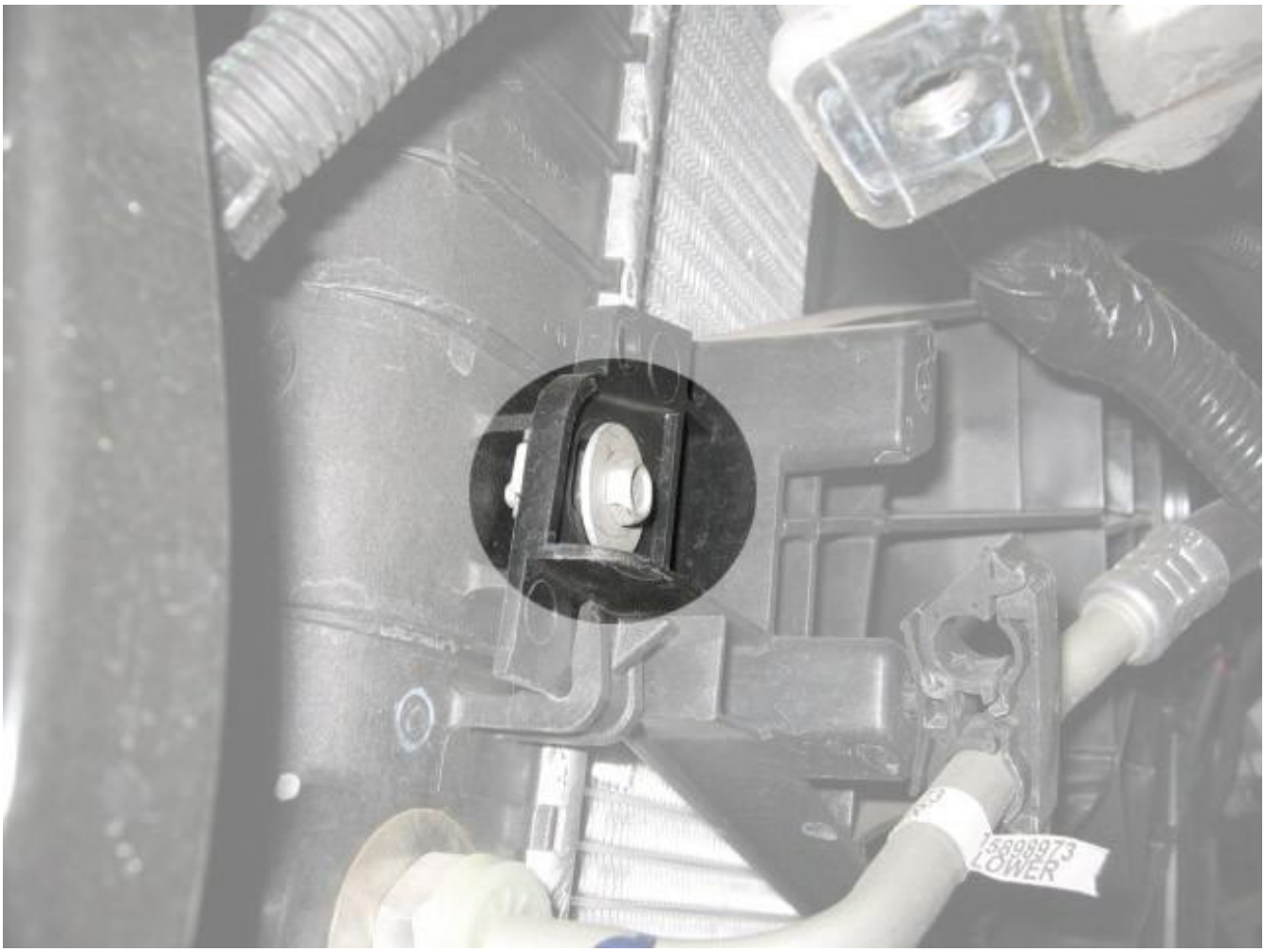
(WATER PUMP/THERMOSTAT)

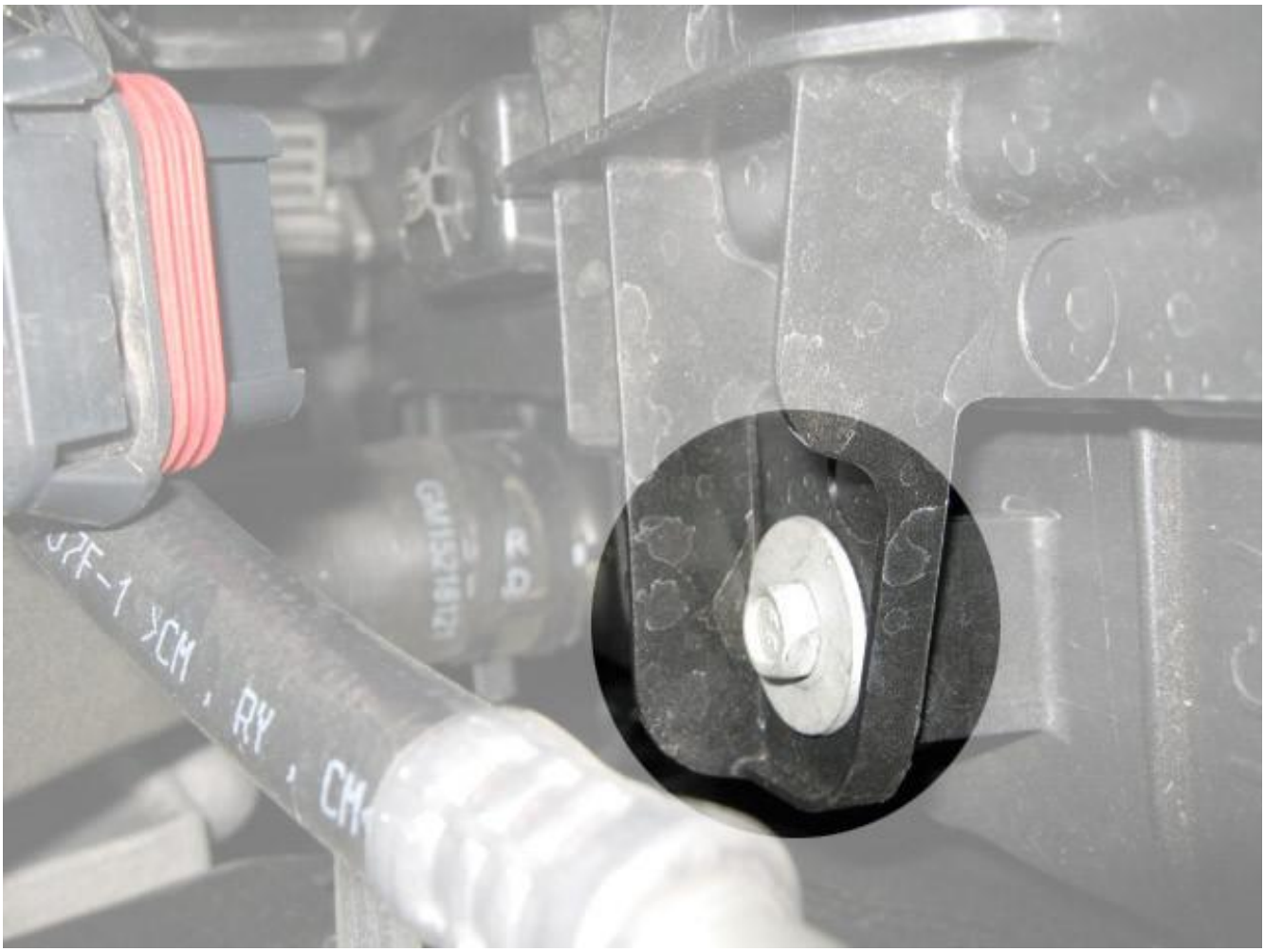


(WATER PUMP/THERMOSTAT AFTER GRINDING)

- On 2009+ vehicles, the water pump will need to be modified further. There are four aluminum bosses that will need to be milled or ground down. (The water pump is shared with the ZR-1 and these are not used on the LS3/LS7 cars) You will want to make sure they are even or just below the flat part on the bottom of the pump.



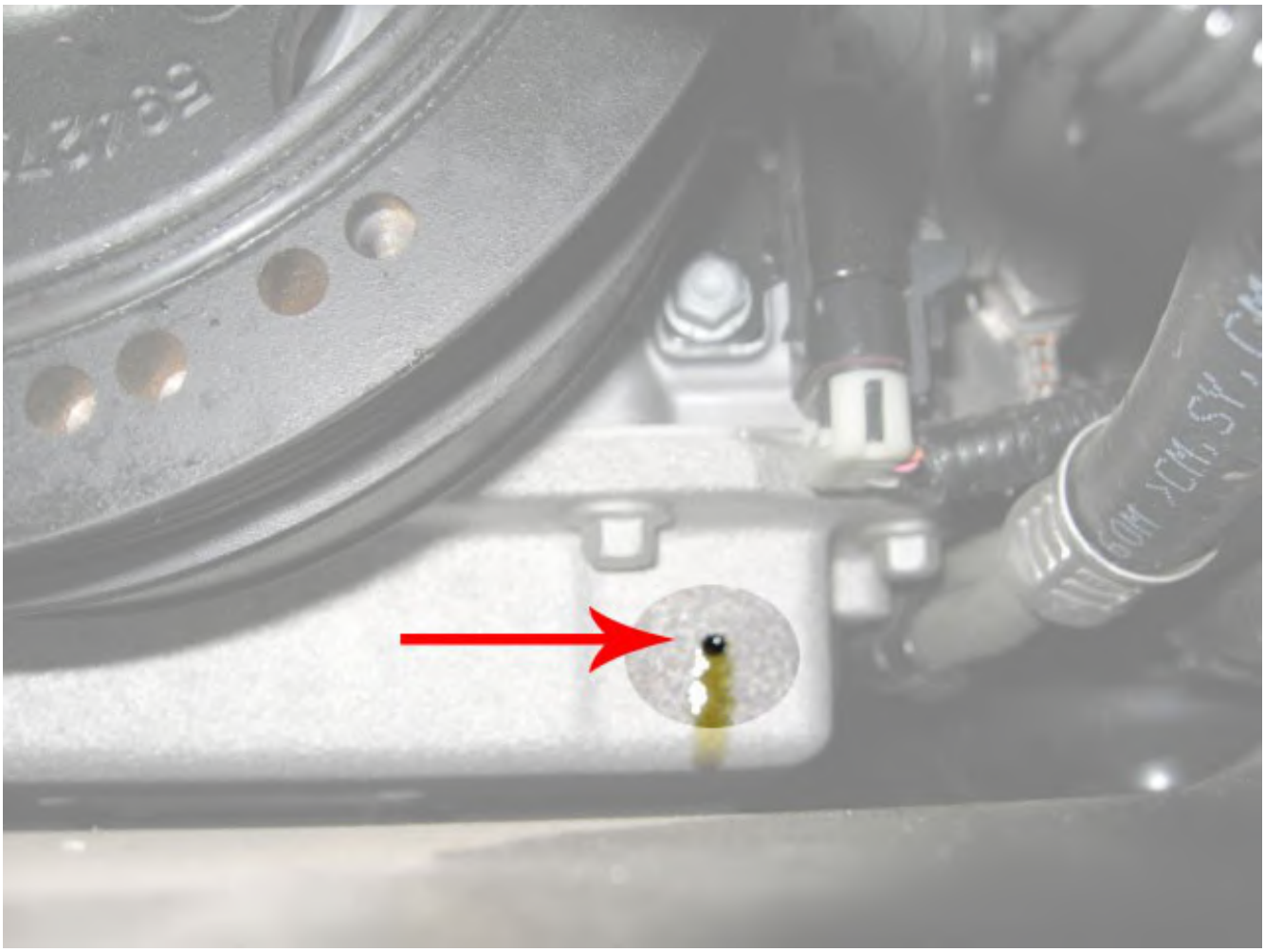

15699973
LOWER

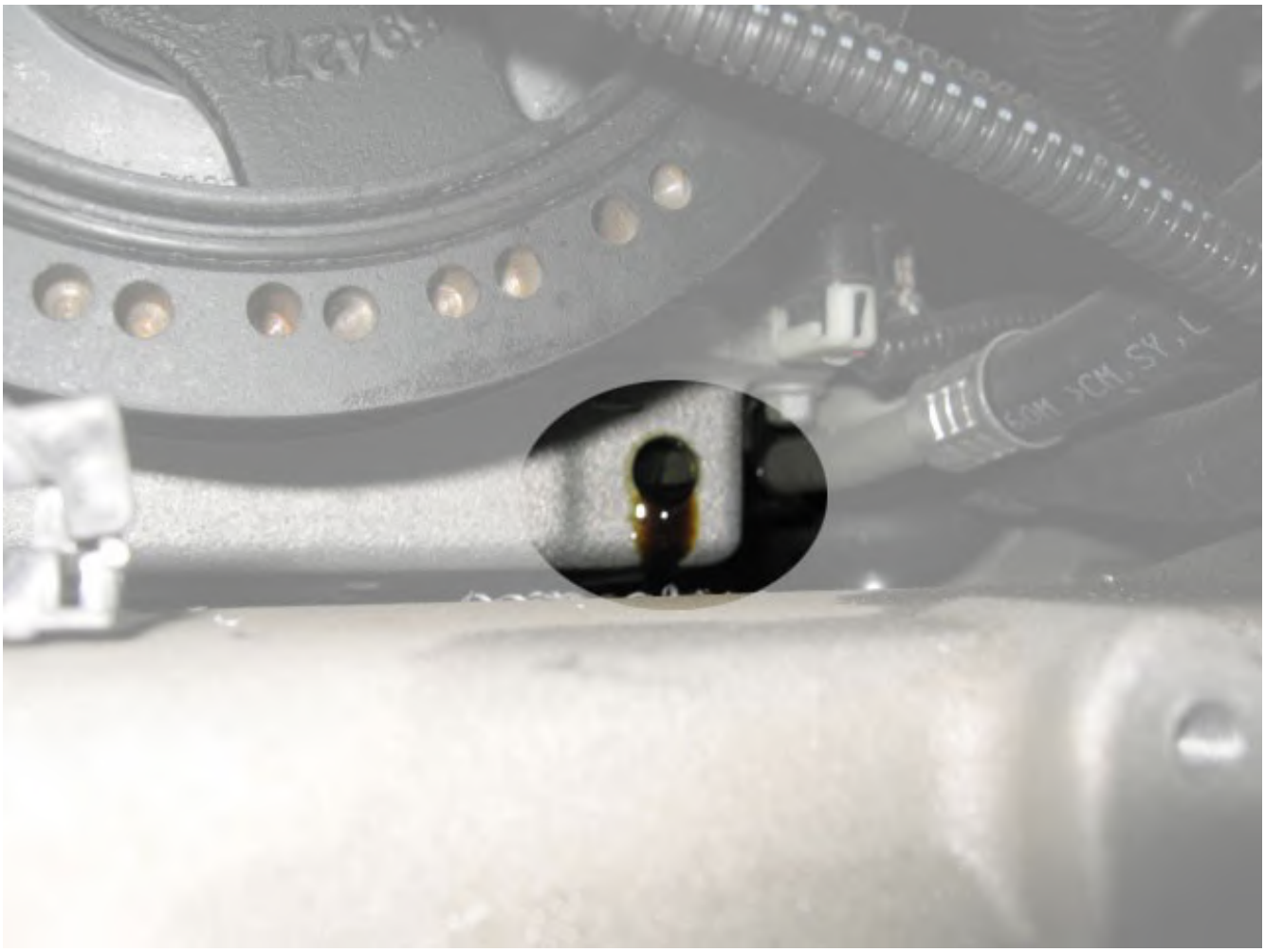

SPF-1 XCM , RX , CH

(ABS MODULE – MOUNTING STUDS)


NOTE FLAT
SPOTS


Ford
58427M

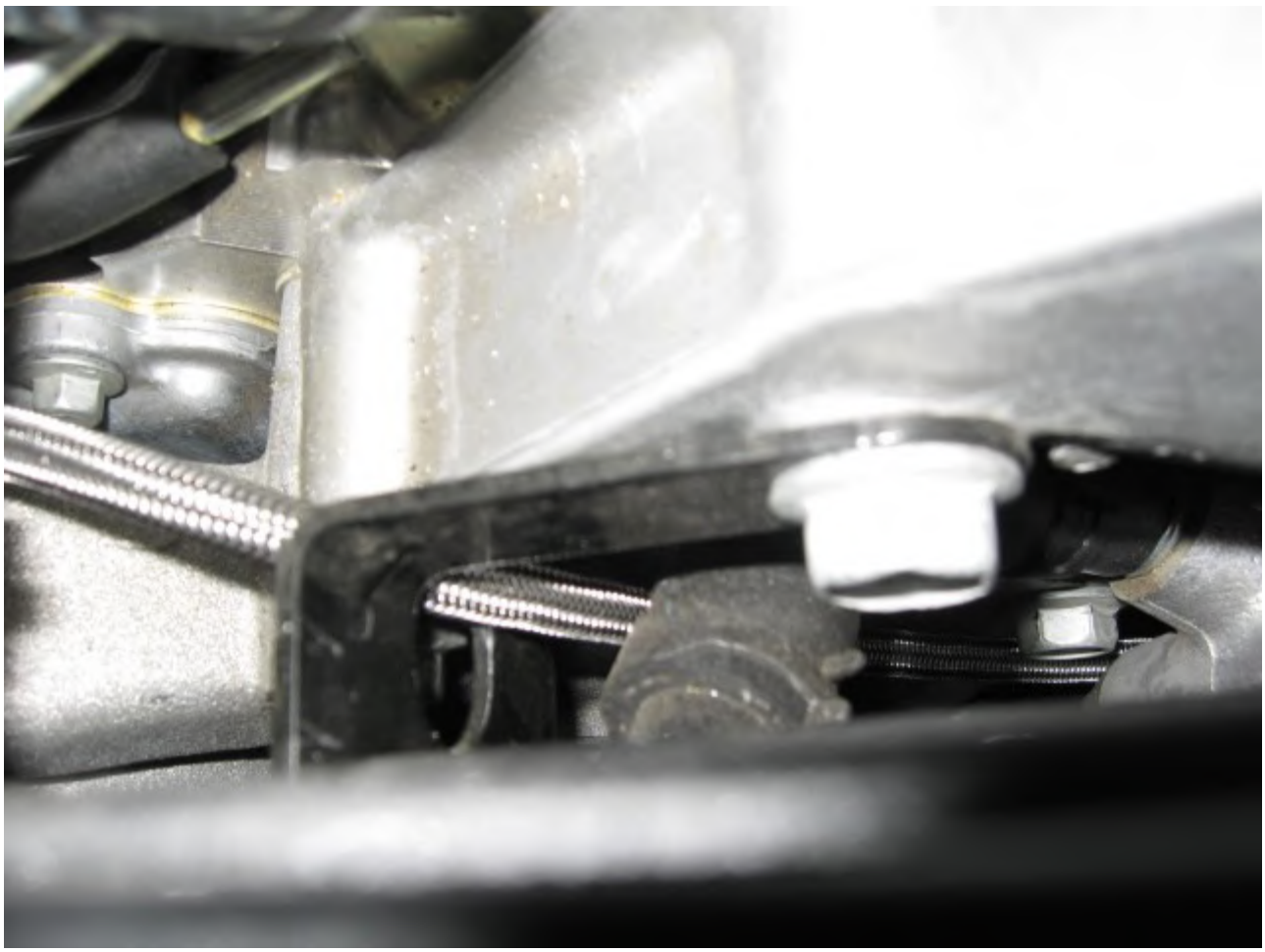


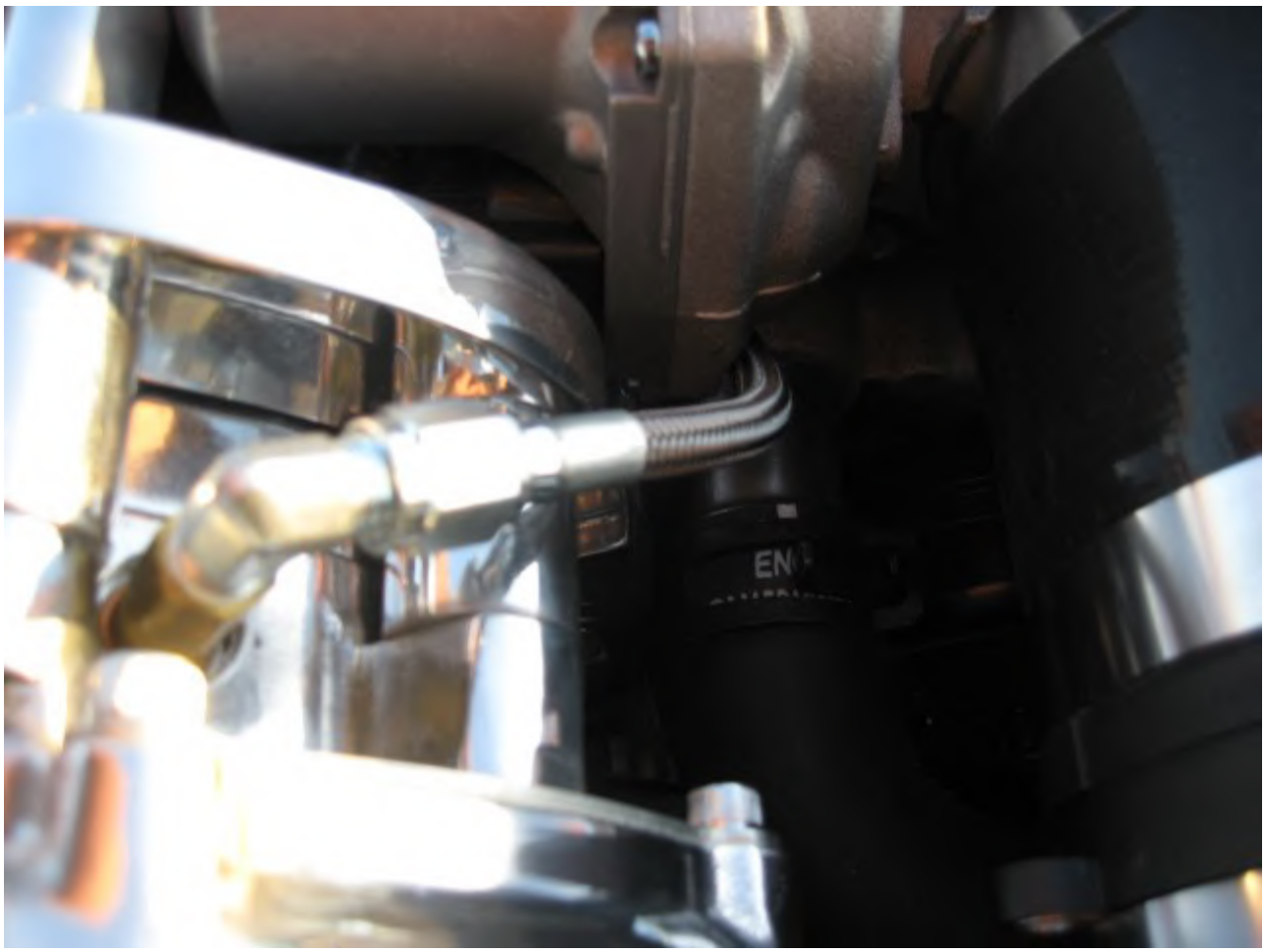


(OIL PAN PILOT HOLE AFTER CUTTING WITH ROTOBROACH)

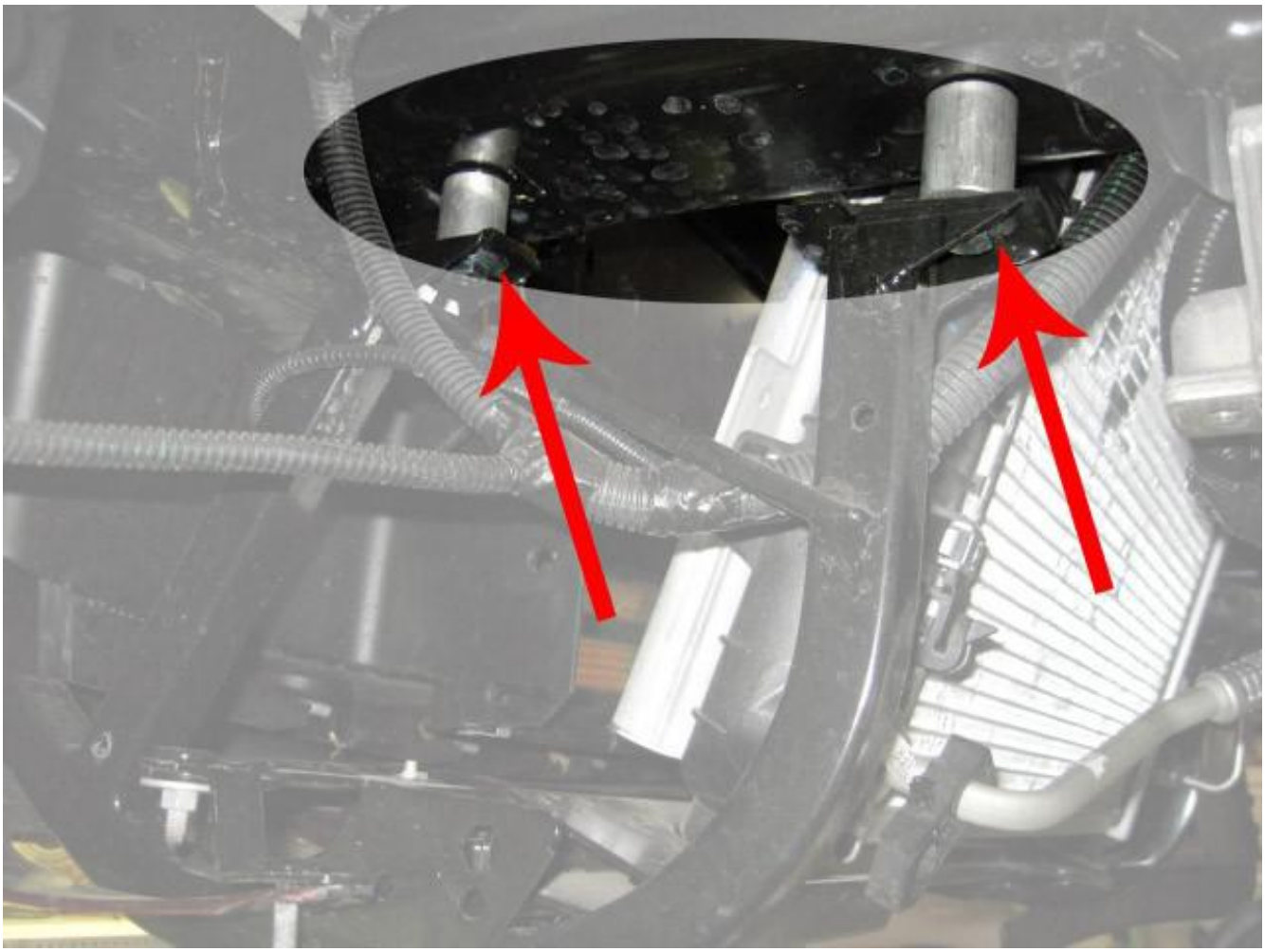
- Take a 3/8” NPT tap (not included) and fill the flutes with heavy grease to catch any chips. Tap the hole a little, then remove and clean the tap of shavings. Put more grease on the tap and do it again. Most 3/8” NPT taps use a 9/16” square drive. (Measure yours to be sure) A square socket on an extension will make the tapping process very easy. Tap the hole approximately 1/2”deep or until the fitting will just start. Be careful not to go too deep. The oil pickup screen is very close to this location and can be damaged if you are not careful. Clean up any stray chips. (Dabbing a bent Q Tip with grease through the hole works well) Clean the threads and fitting with carburetor cleaner or something similar and apply a small amount of silicone sealer to the pan threads as well as the threads on the 3/8” NPT to -8 AN fitting. Make sure there is a seal formed all around the fitting. There is plenty of aluminum to form threads in the pan. Oil leakage at the fitting is a non- issue.

- NOTE: On the C6 Z06, the oil drain will have to be drilled in the side of the pan and a 90° fitting will be used. The hole will be drilled behind the frame and about 1” down from the pan rail. You don’t want it too high where the fitting will not be able to be screwed in to the pan. Do NOT attach the drain hose to the fitting yet, as it will be attached to the supercharger unit first and then routed down to the oil pan fitting.





(LINE RUNS THROUGH P/S RESERVOIR BRACKET AND UNDER THROTTLE BODY)



STAINLESS A-N OIL DRAIN LINE INSTALLED (NOT USED ON SELF-CONTAINED V3)

(MAIN BRACKET BOLTED TO SUPERCHARGER)

LOCK THE TENSIONER IN THE OPEN (SLACK) POSITION)

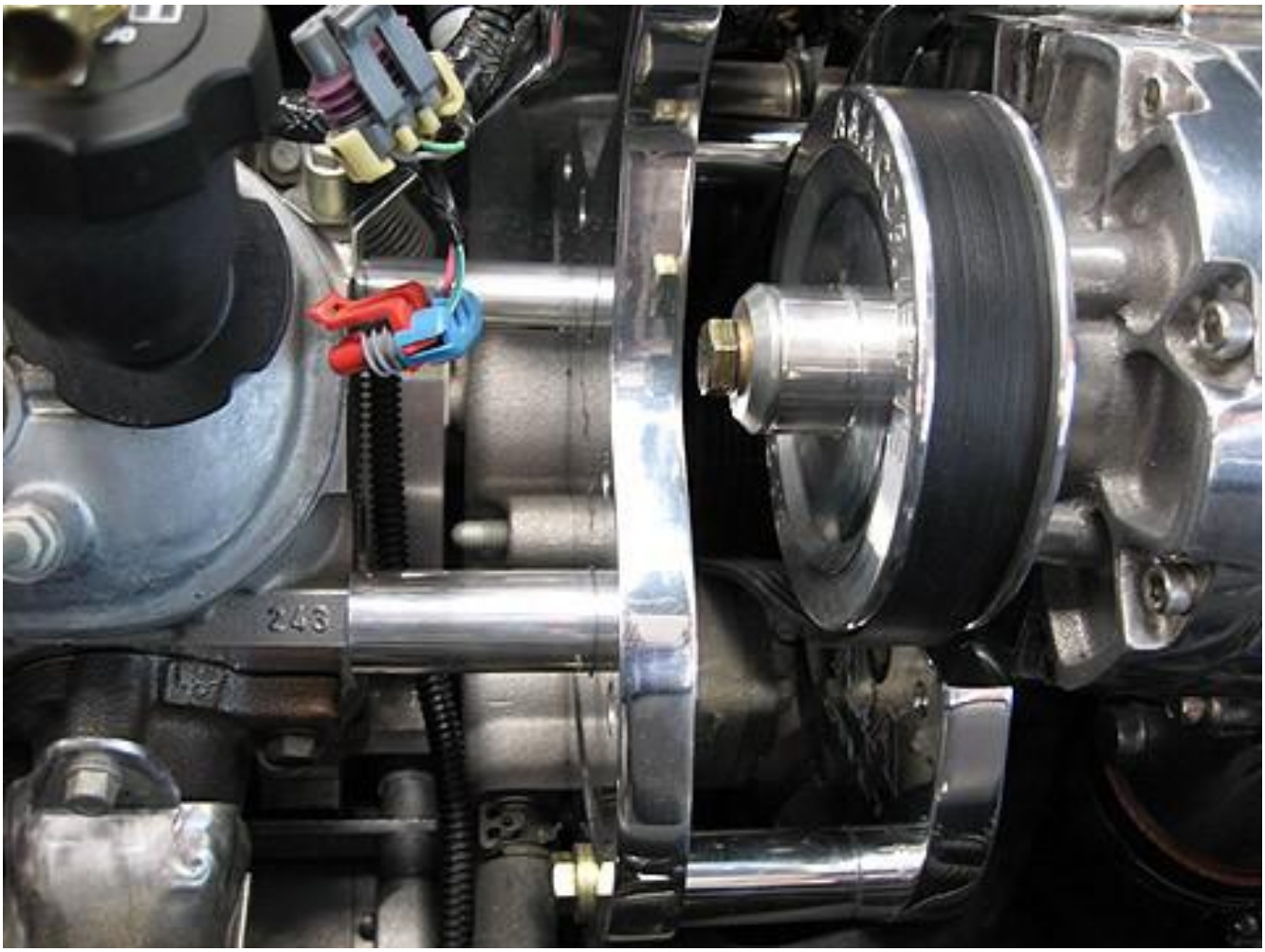
- The billet tensioner has an open 5/16” hole on the front. While having someone hold the bracket assembly, rotate the tensioner clockwise, using a ¾” socket, until you can push the lock pin (5/16” bolt) all the way in the hole. This locks the tensioner open and ready for belt installation. (NEVER take out the black socket head bolt).

- Install the drive belt in the vehicle. Wrap the belt around the crank pulley, up and over the idler, down to the power steering pump and up towards the alternator, but do not wrap around the alternator pulley yet. This will leave you with a large loop on the passenger side. Loop the belt between the spring tensioner and the ribbed idler pulley and then around the supercharger pulley as in the previous picture. Lower the bracket into place. The long bolt coming through the rear bracket and spacer is probably the easiest to start. Thread this bolt into the supercharger a few turns to take the weight.

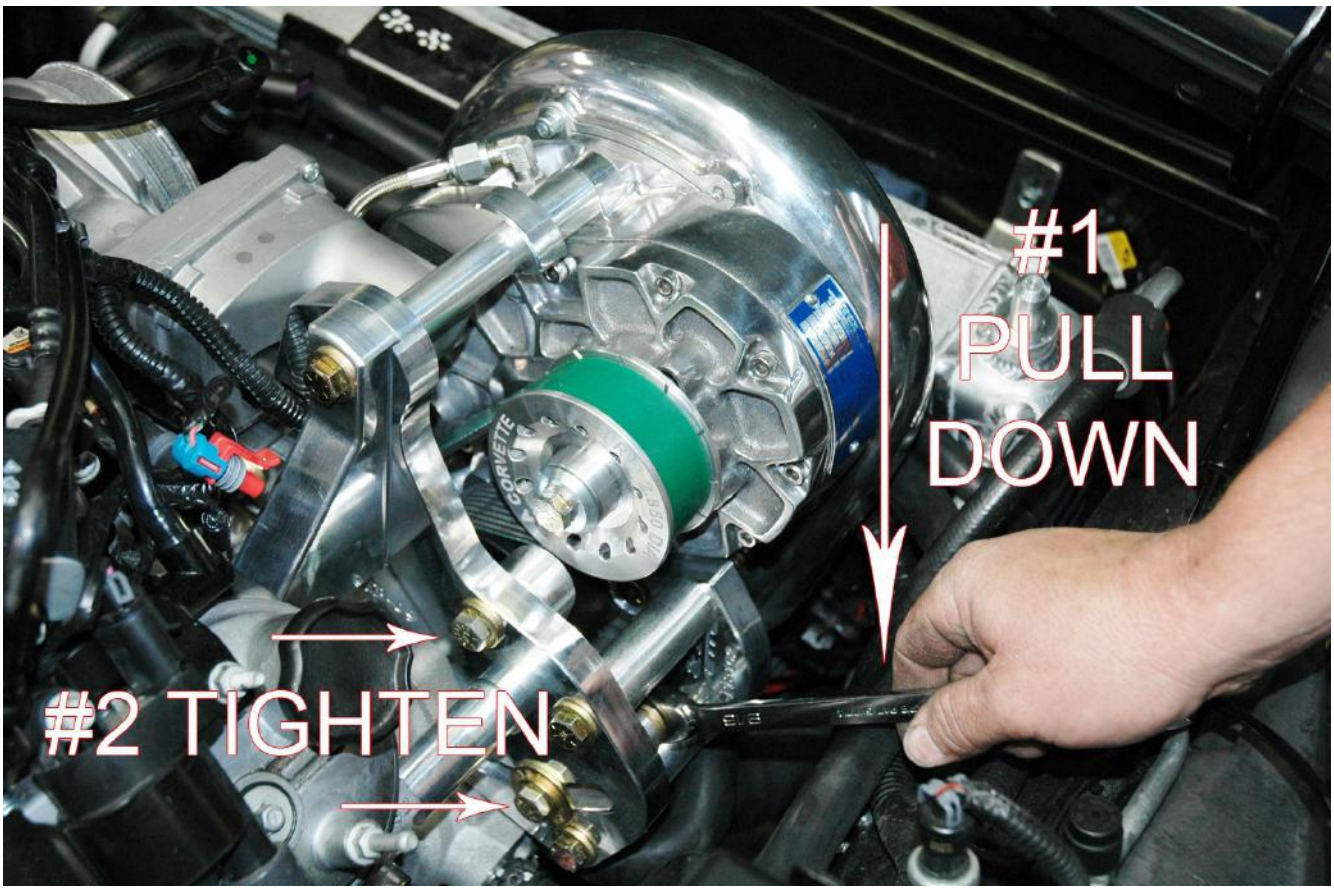
(BELT SHOULD BE ROUTED LIKE THIS AS YOU LOWER THE BRACKET INTO THE VEHICLE)

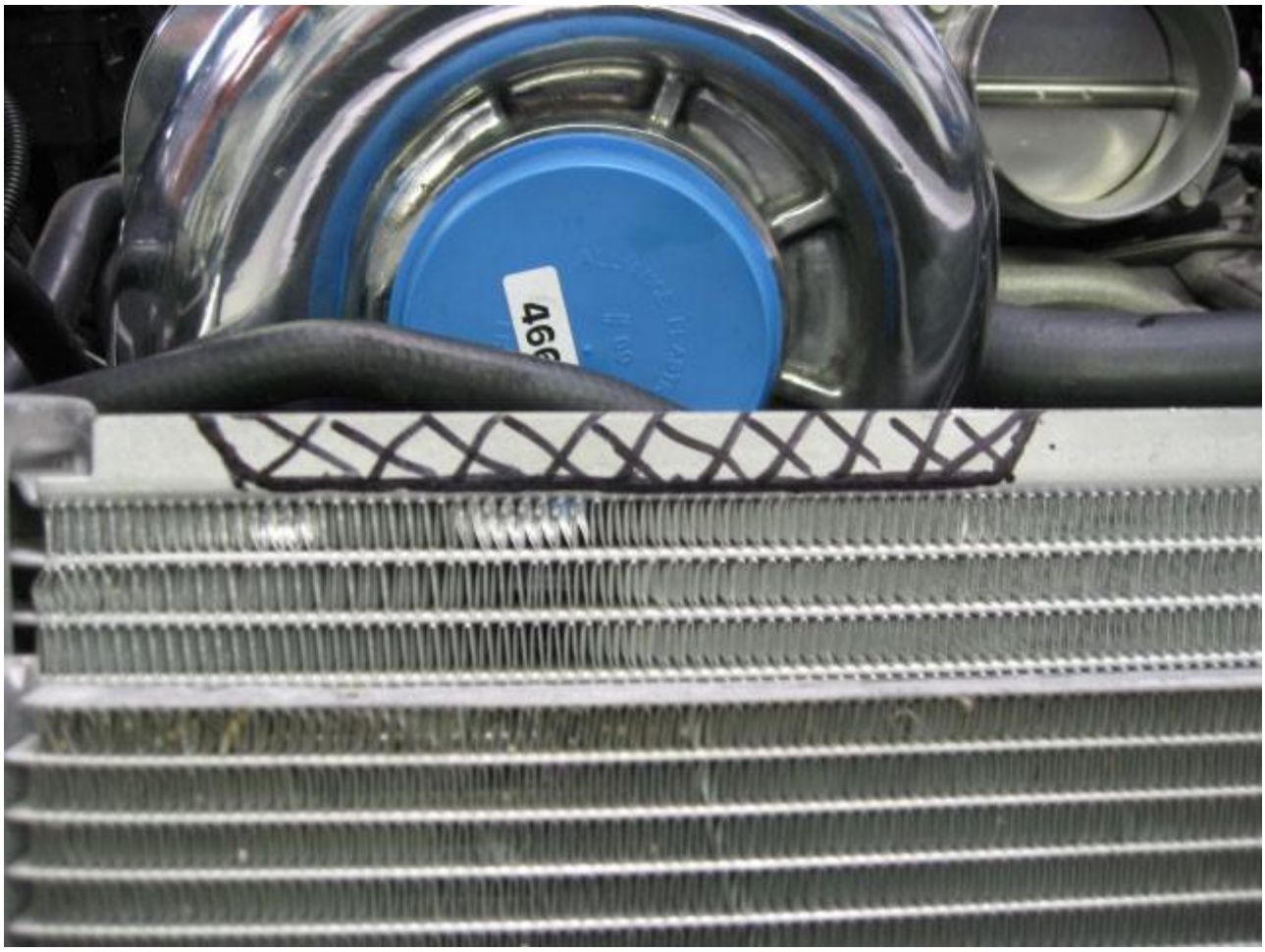
- Double check the belt as it comes off the spring tensioner. It should go down and under the balancer. If the belt is routed correctly, try to align the front and rear brackets and get the remainder of the 3/8” bolts started. Once all 4 bolts are in, tighten them up just snug them up to make sure the blower is in its final position. You can now pop the belt over the alternator pulley.

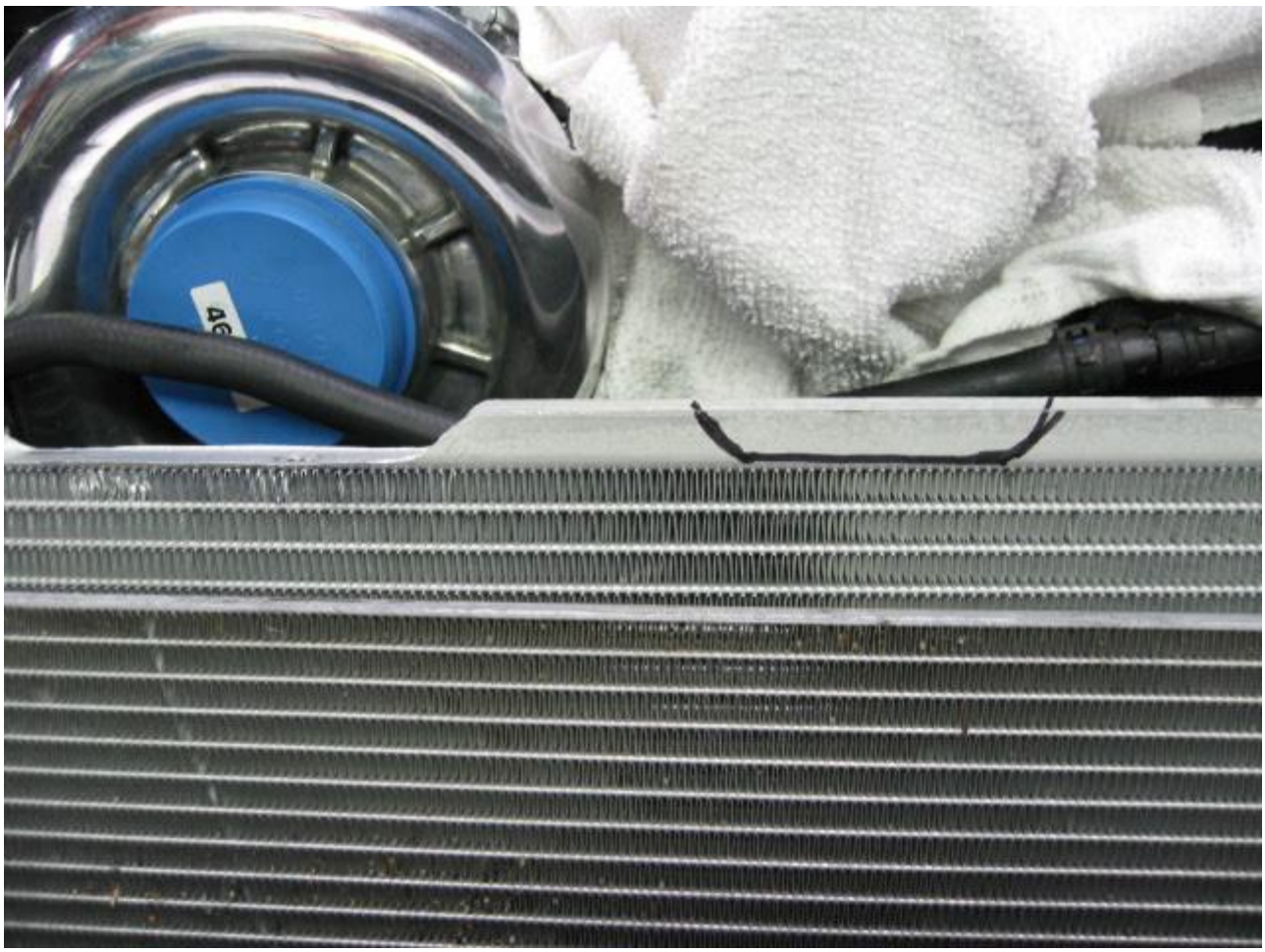
- You’re actually going remove the outside spacer and bolt temporarily for this next step. Install he sliding idler on the “J” shaped bracket as it was when the unit was shipped. Push the idler bracket over to the inboard side with a 9/16 wrench on the exposed bolt. This is a left- handed thread so you will not loosen the bolt while pulling down. The belt does not need to be extremely tight. Remember that the spring tensioner is still in the open position. Pull down on the wrench and then tighten the two bolts on the idler bracket. Reinstall the outboard spacer and bolt that you just removed. Tighten all 4 bolts going to the supercharger bracket. Now you can go to the spring tensioner and remove the lock pin to properly tension the belt. You’ll need to rotate the tensioner slightly to take the load off the pin. The belt is now properly tensioned.



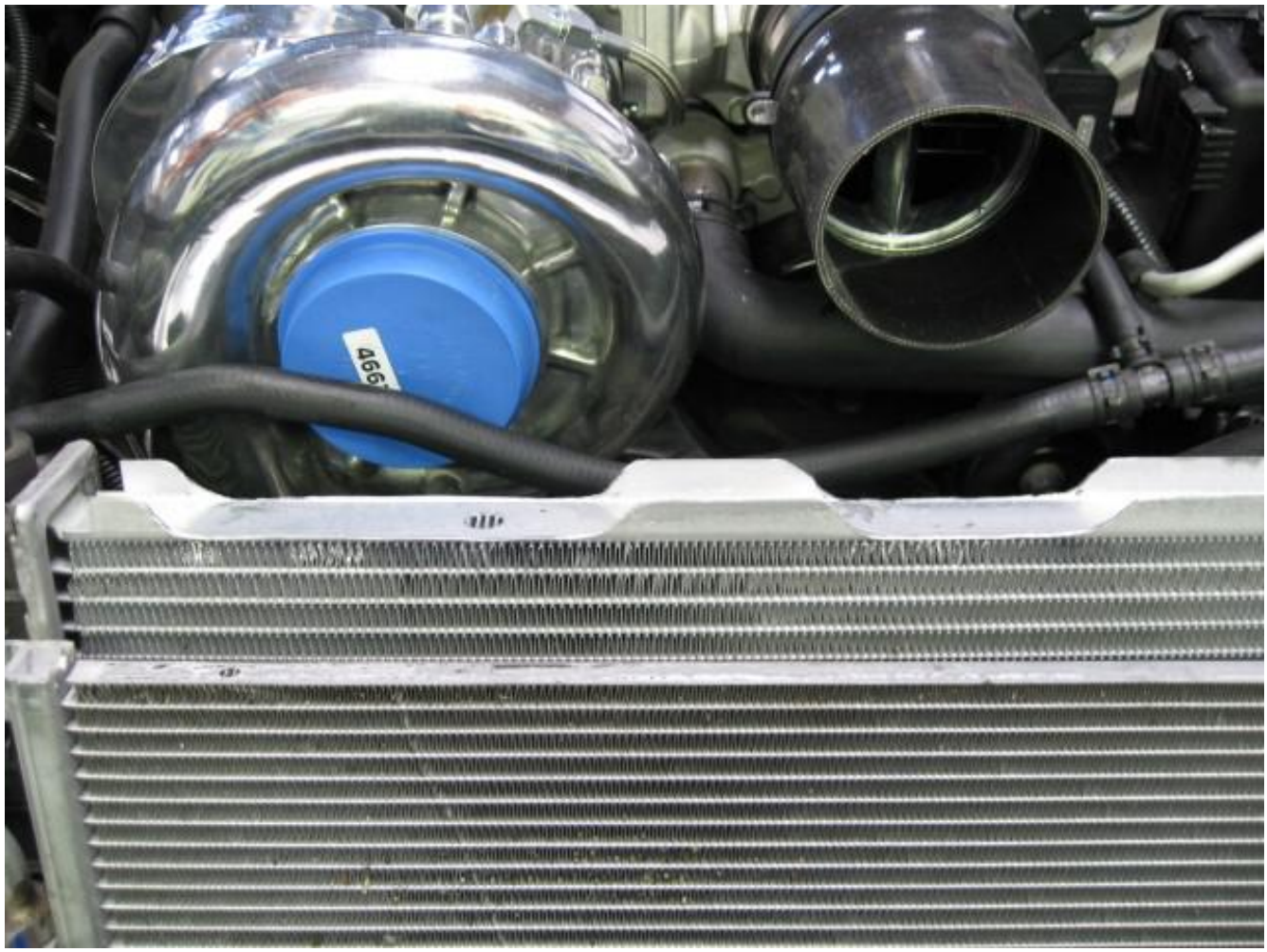
(ADJUSTABLE IDLER REMOVED DURING SUPERCHARGER INSTALL)


#1
PULL
DOWN
#2 TIGHTEN





(RADIATOR MARKED FOR TRIMMING)



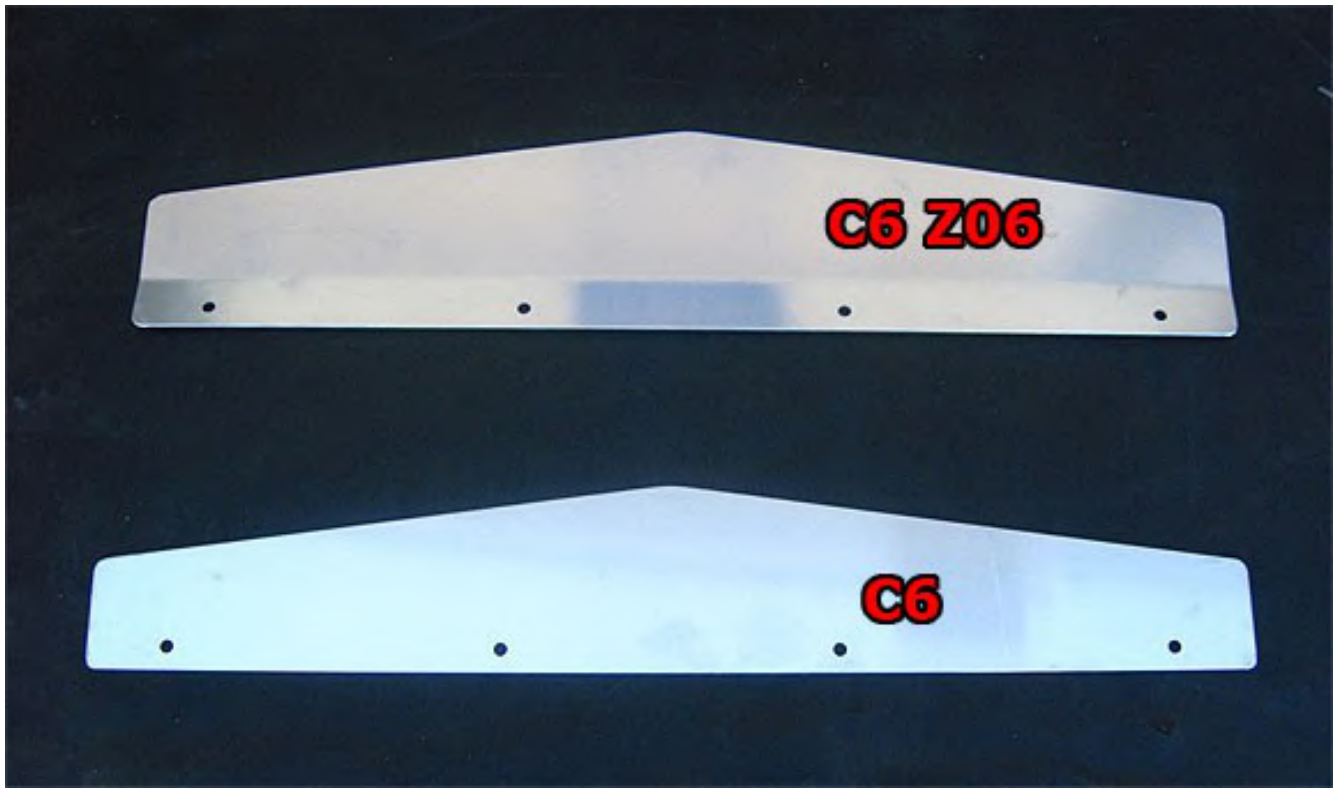

SHEET METAL SCREWS

(INTERCOOLER ATTACHED)

- The side air panels will go in next. The bracket with the circular cut out will go on the passenger side. There is already a hole on both sides of the support frame that will be used to attach the panels. Line up the aluminum brackets with the radiator support frame. Holding the panel in place, drill a hole through the panel using a ¼” drill bit. Bolt the panel in place using the two aluminum washers between the panel and the frame and the ¼” hardware as shown. Repeat for the opposite side.

(PASSENGER SIDE PANEL INSTALLED)

- Depending on the model of your C6, the kit will come with 1 of 2 duckbills for the Ram Air Intercooler. The standard C6 is flat and the Z06 and Grand Sport has a bend in it. Attach the duck bill to the front of the intercooler with the 4 stainless button head bolts, nuts and washers provided. Be sure to use anti-seize on these so they do not lock up.



(DUCKBILL INSTALLED)

SILICONE CHARGE HOSES

- The following is a picture of the charge hose layout from the supercharger outlet to the intercooler inlet. Use this for a visual reference when installing your hoses.

(TRIMMED PASSENGER SIDE)

INSTALLING THE MAF TUBE AND HOSES

- (LS2) Install the 3 ½” to 4” angled silicone reducer on the intercooler outlet as shown. The 60° mandrel bent tube, a silicone coupler, the MAF and then another silicone coupler to complete the connection between the intercooler and throttle body. The diameters of the couplers are slightly different so watch for that.

- (LS7 and LS3) Install the 3 ½” to 4" angled silicone reducer over the intercooler outlet as shown. The 60° mandrel bent MAF tube, and remaining silicone coupler will complete the connection between the intercooler and throttle body. You may have to play with the depth the tube is pushed into each coupler to get the proper clearances over the radiator.

(ANGLED COUPLER BETWEEN INTERCOOLER AND MAF TUBE)

(INLET TRACT ASSEMBLED LS7 AND LS3)

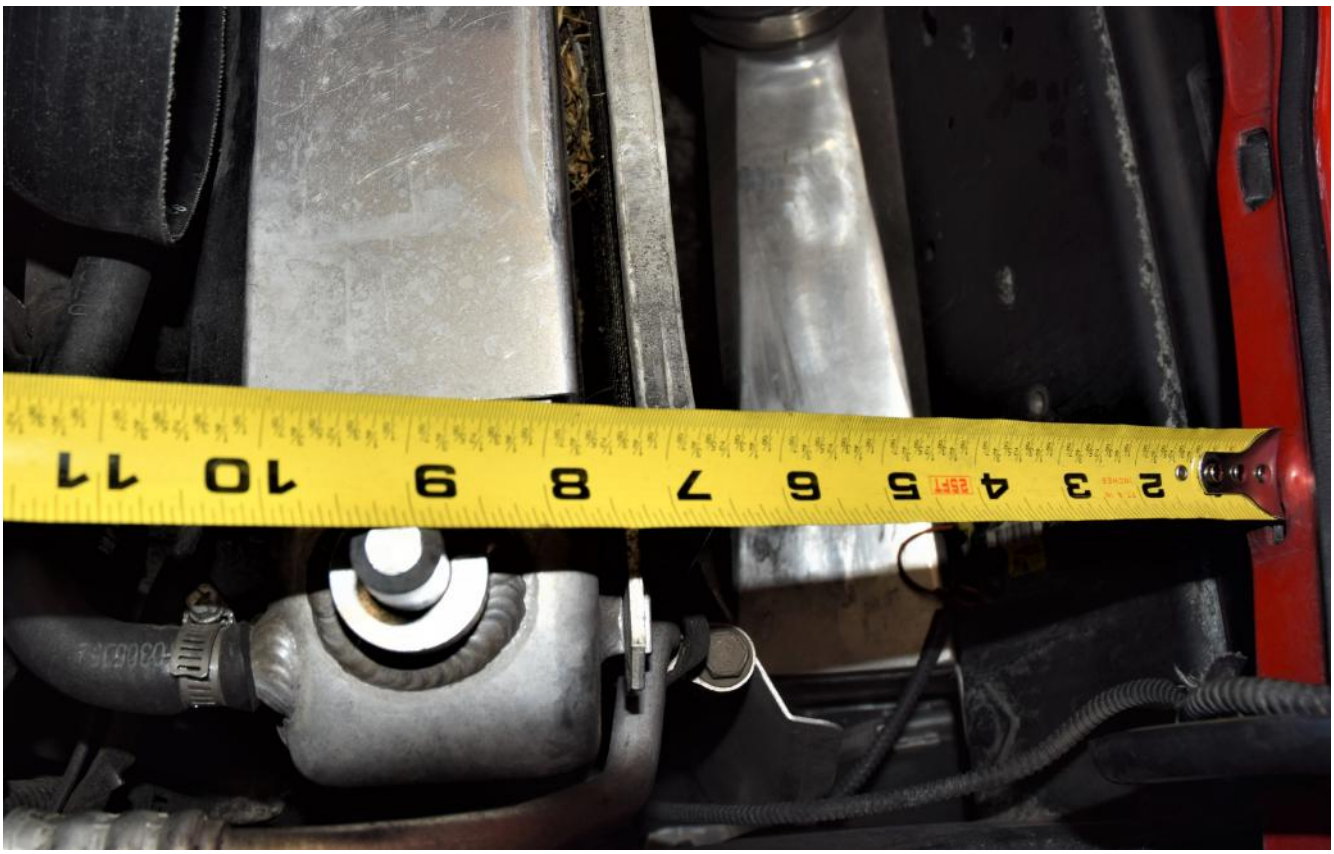
SUPERCHARGER INTAKE AIR BRIDGE

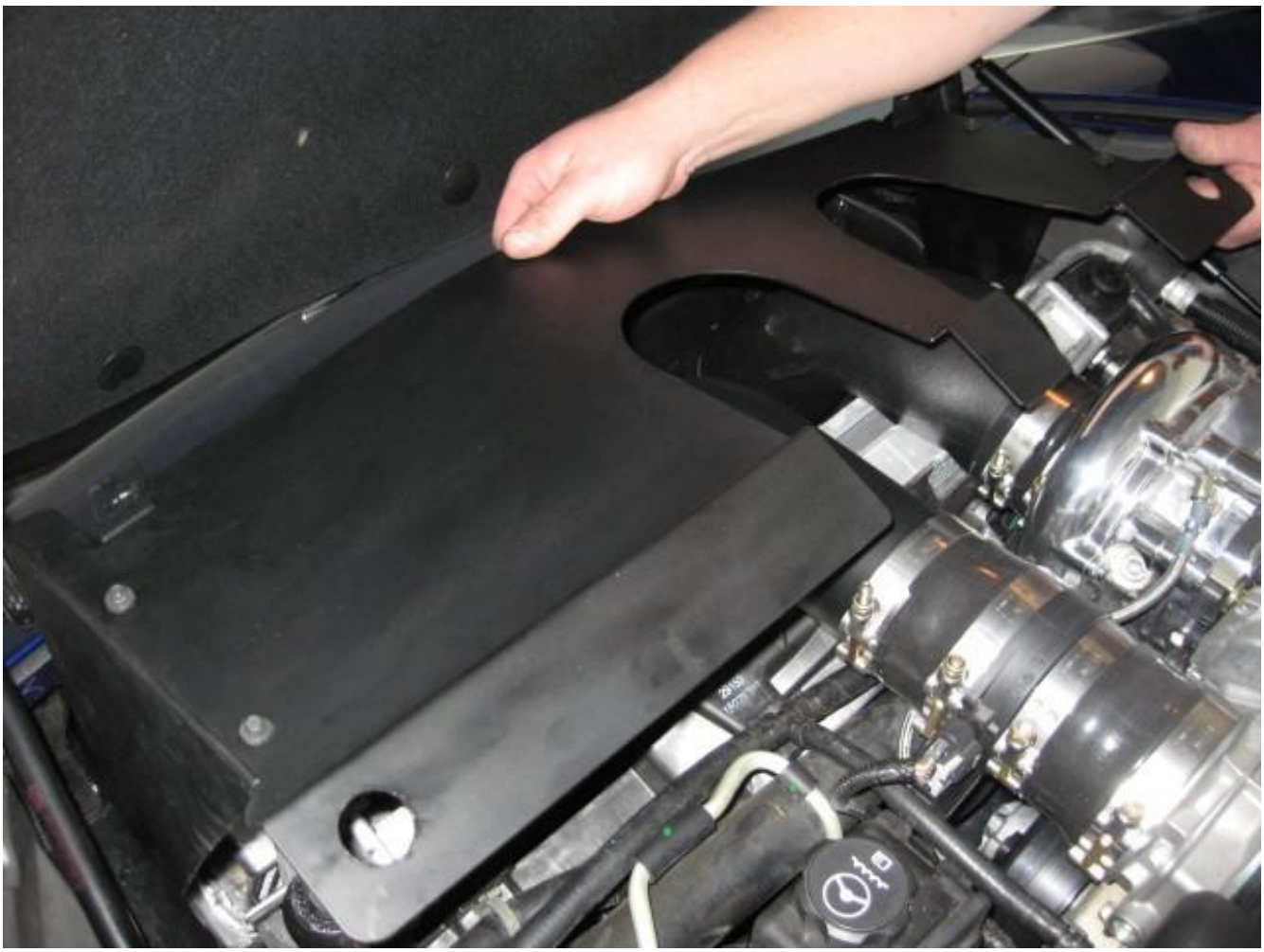
- Install the supplied air filter onto the plastic air bridge.

- The radiator will naturally want to rest too close to the supercharger. You will need to move the top of the radiator forward in order to install the air bridge. There will be resistance from the AC lines and hoses.

- The proper distance from the screw hole where the top shroud mounts to the center of the locating pin on the radiator is approximately 9 1/8”. This is the location where the aluminum top shroud will locate the radiator later in the installation process and where it needs to be in order for the plastic air bridge to fit. Refer to the picture below for clarification.

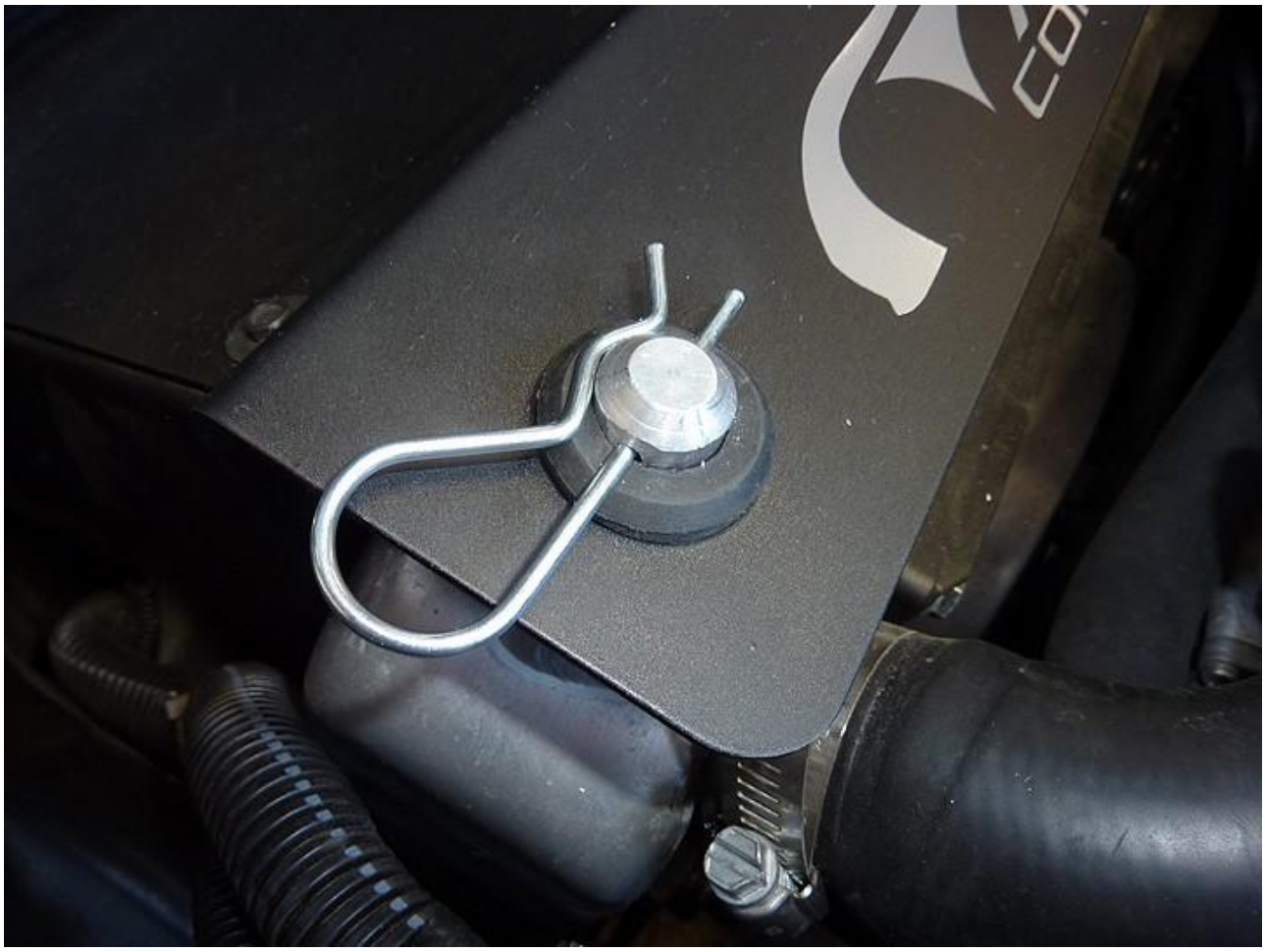
- Clamp the 4 ½” silicone reducer onto the supercharger inlet. Slip the air bridge into the coupler. Install the clamp and tighten. (again, you will really benefit from the use of a hose hook in this extremely tight area) Check the area around the fan shroud where you trimmed earlier to make sure enough material was removed.


2 3 4 5 6 7 8 9 10 11



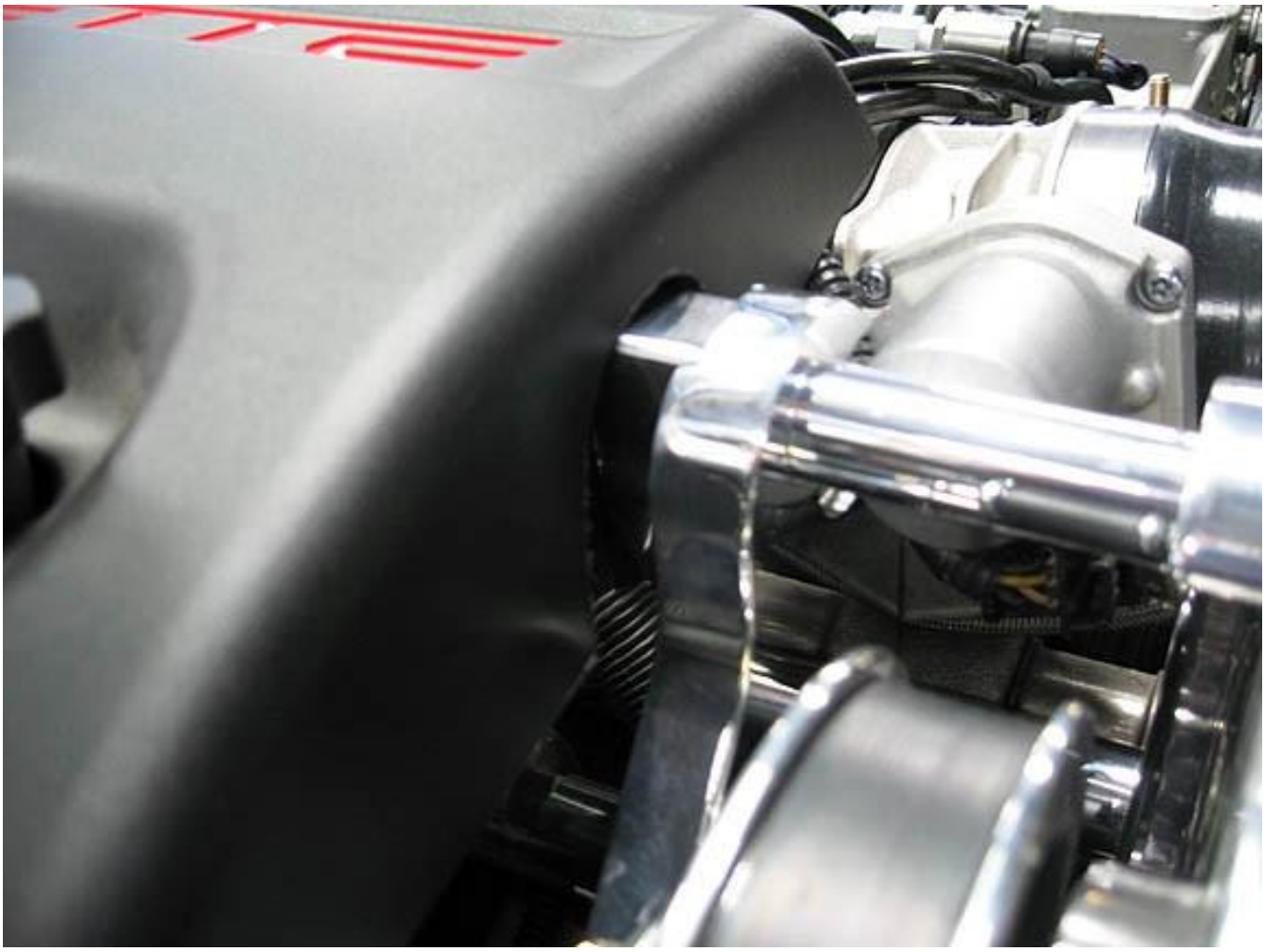
(TOP COVER INSTALLATION)

- Slide the cotter pins through the holes previously drilled.



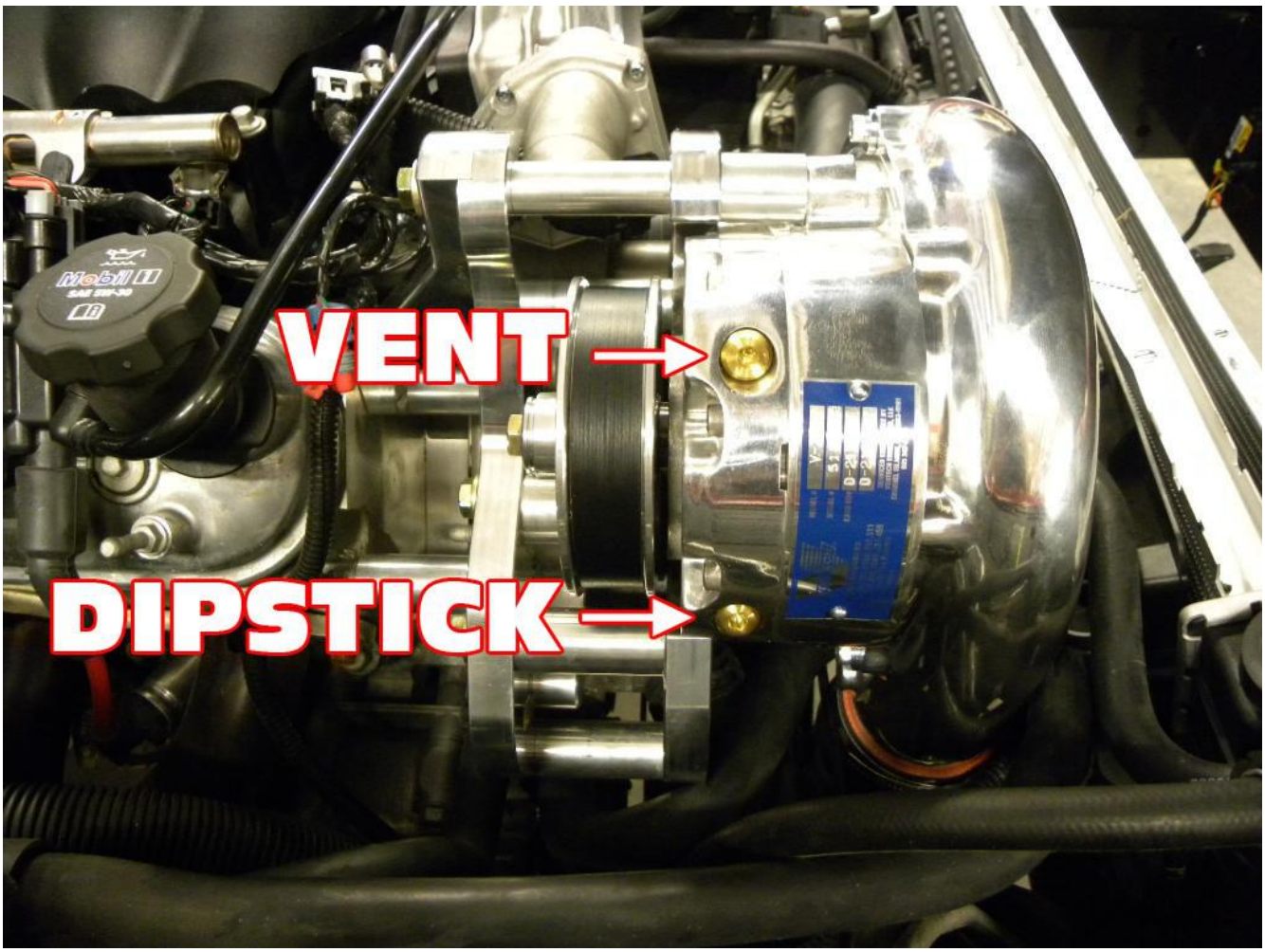
- Run the wire up to the power brake booster area. Install two female spade connectors to the wires. Find the boost switch in the package. Screw the barbed fitting onto the switch, using a small amount of sealer. Plug the two wires onto the boost switch. (Polarity does not matter) The barbed fitting is “teed” into the brake booster hose with a piece of vacuum hose. Boost pressure closes the switch and activates the BAP at approx. 3-4PSI.

(PASSENGER SIDE COIL COVER TRIMMED)



(TRIMMED PASSENGER SIDE COIL COVER INSTALLED)

- On V3 Self-contained units only, remove the shipping plug and install the vent plug included with the supercharger. Save the shipping plug in case you ever need to send your unit in for service. Any unit to be considered for warranty repair MUST INCLUDE THE OIL to be analyzed.



VENT PLUG INSTALLED IN PLACE OF SHIPPING PLUG

We want you to have the best experience possible when dealing with us both before and after the sale. You can always talk to a sales manager, the owner and head designer, or one of our techs who is infinitely knowledgeable on how the products operate and are installed. You won't get a minimum wage customer service rep that knows nothing outside his or her script. You'll get great advice based on many years of experience every time.

We're happy to help you with your DIY install questions or product inquiries even after hours. The phones forward to either a Manager or Owner to help with both. Remembering that we are on Pacific time, you can generally get help until 9PM on weekdays and weekends alike. It's something we started when the company was very young and have found it to be an invaluable resource to our customers.