LINGENFELTER
PERFORMANCE ENGINEERING

MAGNUSON
SUPERCHARGERS

C8 Corvette TVS2650 Supercharger Installation Guide

Rev. Q: 10/5/2023

Index - C8 Supercharger Installation Manual

C8 Corvette Supercharger Program – Magnuson Optional Warranty Documentation Process

The following process MUST be followed for any C8 customers requesting optional power train warranty:

Step 1: Installer Salesperson forwards DocuSign Form 1 to customer to request vehicle details (VIN #, mileage, proof of registration, damage/modification disclosure).
Step 2: Completed Form 1 will then be auto forwarded to Magnuson (Noel) to run VIN check in GM Global Connect (Q&A w/ installer as required).
Step 3: Noel performs VIN check then completes final step of Form 1 to Approve or Deny optional power train warranty for vehicle. Completed Form 1 back to Installer with results.
Step 4: Installer schedules and receives vehicle, installer initiates DocuSign Form 2 to record mileage, photograph vehicle as received, note any as-received damage, test drive and baseline dyno results. Feedback to customer if issues noted.
Step 5: Perform oil change / visually analyze oil for contaminants. Feedback to customer as required.
Step 6: Mail ECU to Trifecta for calibration update. Next day air each way. Mailing instructions, see p. 19.
Step 7: Perform vehicle up-fit as per customer order.
Step 8: Perform post-install road test and record results on Form 2.
Step 9: Perform post-install dyno test and record results on DocuSign Form 2.
Step 10: Attach final detailed photographs of vehicle prior to customer pick up / shipment.
Step 11: Perform final verification steps/document upgrades performed on Form 2 (oil/coolant levels, wheel torque, leak check etc.)
Step 12: Document if customer has qualified for and accepted or declined optional power train warranty on Form 2. Qualifications include: completed Forms 1 and 2, customer invoice must show proof of purchase for warranty ($4000), valve spring/push rod kit and axle kit.
Step 13: Attach customer invoice/payment verification to Form 2.
Step 14: Return vehicle to customer.

Required Tools:

- Small right-angle battery powered driver i.e. Milwaukee Model# 2457-20
- 14 EPL low profile socket (Torx Plus female) for under body fasteners. Snap-On # FLEPL140.
- Adjustable height cart (for coolant drain)
- 8mm ¼ drive swivel socket (for intake bolts)
- Coolant drain pan
- Used engine oil and coolant recycling containers
- Absorbent mat i.e. Pig mat
- China marker
- Constant tension clamp tool
- Fuel line disconnect tools
- Optional (if A/C lines will be disconnected): A/C discharge/recharge equipment for R1234YF refrigerant OR use local dealer/service center to evac + refill refrigerant.
- Snap-On crow foot adaptors FRDHM12, 13 and FRDHM15 (or longer)
- Snap-On 3/8 in. and ½ in. drive digital torque wrenches
- Stretch belt installation tool (EN-51767-1 Freedom Racing)
- Black Tesa tape P/N 51036
- 3 ¾" diameter hole saw
- JGR Billet Aluminum Jacking Lift Pads for Corvette (Amazon)
- C8 power train removal/installation fixture (supplied by LPE)
- C8 vehicle frame to hoist locking adaptors (to lock vehicle to hoist). (2) C clamps for rear and 2 tie straps for front.
- Hydraulic jack
- C8 sub-frame to body alignment pins
- Coolant system evac and fill kit (i.e. Snap-On SVTSRAD272A or OEMTOOLS 24444 Coolant System Refiller Kit)
- GM website access for torque specs.
- OBD2 plug in cable to flash calibration to unlocked ECM (LPE to supply)
- HP Tuners software for datalogging vehicle during dyno test

Project / Vehicle Prep:

- Notify customer to have 91 octane in tank prior to drop off
- Ensure vehicle has minimal fuel before beginning teardown in order to minimize fuel loss/spillage
- Discharge air conditioning system using appropriate system for R1234YF refrigerant if the A/C lines will be disconnected (not required if A/C compressor is removed from engine and secured to vehicle while power train is removed)
- Place all hardware that is removed from the vehicle into labelled bags or containers.

Consumables:

- AC Delco Dexcool 50/50 Premix Antifreeze (P/N 12378390) 8 gal. per vehicle required.
- 0W40 GM Dexos-compatible full synthetic motor oil (7.5 qts. per vehicle)
- AC Delco PF64 oil filter.
- AC Delco P/N 19418016 DCTF FFL-4 Automatic Trans Fluid (2 quarts per vehicle)
    - Note: additional fill quantity per GM C8 Corvette tech bulletin
    - IMPORTANT: 2023 and newer M.Y. vehicles having VIN # P5137263 or later DO NOT require additional fluid due to a running change to the transmission case design.

Fastener Torque Specifications:

Frunk:

Battery Post clamp nuts: 4.5 Nm (40 lb in)

Exhaust System

Exhaust Manifold bolts: 20 lb. ft, loosen 180 degrees, then re-torque 17 lb. ft.
Catalytic convertor nuts: 58 Nm (43 lb ft)
Exhaust System Rear nuts: 22 Nm (16 lb ft)
Muffler Hanger Bracket bolts: 22 Nm (16 lb ft)
Exhaust Manifold Heat Shield bolts: 10 Nm (89 lb in)
HEGO Sensors: 42 Nm (31 lb ft)

Intake

Intake Air Duct Bolt: 9 Nm (80 lb in)
Air Cleaner Bolt: 9 Nm (80 lb in)
Air Cleaner Outlet Duct Clamp: 3.5 Nm (31 lb in)
Evap Canister Purge Solenoid Valve bolt: 10 Nm (89 lb in)

Fastener Torque Requirements (cont'd):

Underhood

Upper Frame Cross Brace bolts (under hood): 23 Nm (17 lb ft)

Powertrain / Underbody

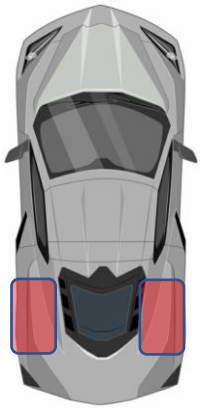
Rear Body Compartment Bolts: 2.5 Nm (22 lb in)
Rear Wheel Protective Bumper bolts (Crash bars): 9 Nm (80 lb in)
Upper Control Arm bolts: 58 Nm (43 lb ft)
Rear Suspension Cradle Bolts: 160 Nm (118 lb ft)
Brake Hose Bracket bolts: 9 Nm (80 lb in)
Rear Cradle Brace bolts: First pass 58 Nm. Second pass: rotate clockwise additional 90 – 105 degrees
Fuel Tank Crossover Pipe bolts: 9 Nm (80 lb in)
Fuel Feed Front Hose Clip bolt: 9 Nm (80 lb in)

Fastener Torque Requirements (cont'd):

Fuel Feed Front Hose Clip bolt: 9 Nm (80 lb in)
A/C Line nuts: 22 Nm (16 lb ft)
Radiator Inlet Hose clamp: 5 Nm (44 lb in)
Alternator B+ cable nuts: 15 Nm (11 lb ft)
Trans Control Module bolts: 2.5 Nm (22 lb in)
Fuel Pipe Shield bolts: 9 Nm (80 lb in)
Underbody Rear Air Deflector bolts (M6): 9 Nm (80 lb in) (M8): 22 Nm (16 lb ft)
Tunnel Panel Reinforcement Plate: 22 Nm (16 lb ft)
Tunnel Plate to Rear Cradle Brace bolts: 160 Nm (118 lb ft)
Rear Wheelhouse Liner/Air Deflector/Bumper Fascia bolts and screws: 2.5 Nm (22 lb in)
Rear Cradle Shear Plate bolts: M8 6-Lobe: 29 Nm (21 lb in). M8 regular bolts: 22 Nm (16 lb ft)
Rear Wheel Driveshafts bolts: First Pass 50 Nm criss-cross pattern. Second Pass Rotate clockwise 40-50 degrees
Rear Wheel Driveshaft Shield bolts: 9 Nm (80 lb in)
Strut Top Mount nuts: (22 lb ft)
Oil Filler Tube bolt: 10 Nm (89 lb in)
Oil Drain plug: 25 Nm (18 lb ft)
Oil Capacity: 7.5 quarts (with filter)

Vehicle Teardown

Loosen rear lug nuts.



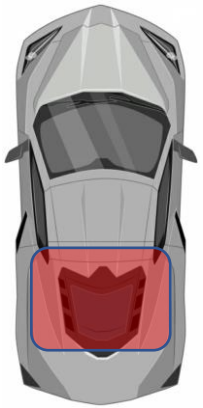
Prepare vehicle to be lifted on hoist.

Only raise vehicle via factory lift locations.

Secure vehicle to hoist using ratchet straps and clamps @ LH / RH rear as required.

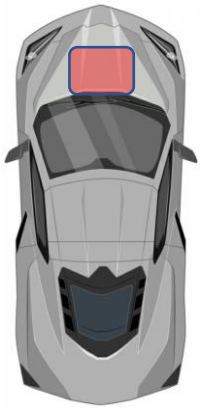
Remove rear wheels.

For C8 Convertible applications: turn on accessory power by holding start button until dash powers up then raise convertible top to allow access to engine.



Raise hood and trunk BEFORE disconnecting negative battery cable from battery.

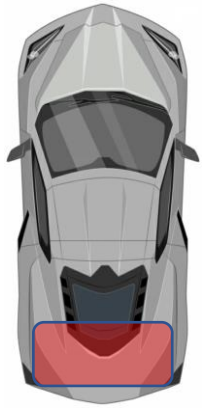
After battery cable has been removed, place a rag between the cable and the terminal to ensure they do not accidentally contact each other.

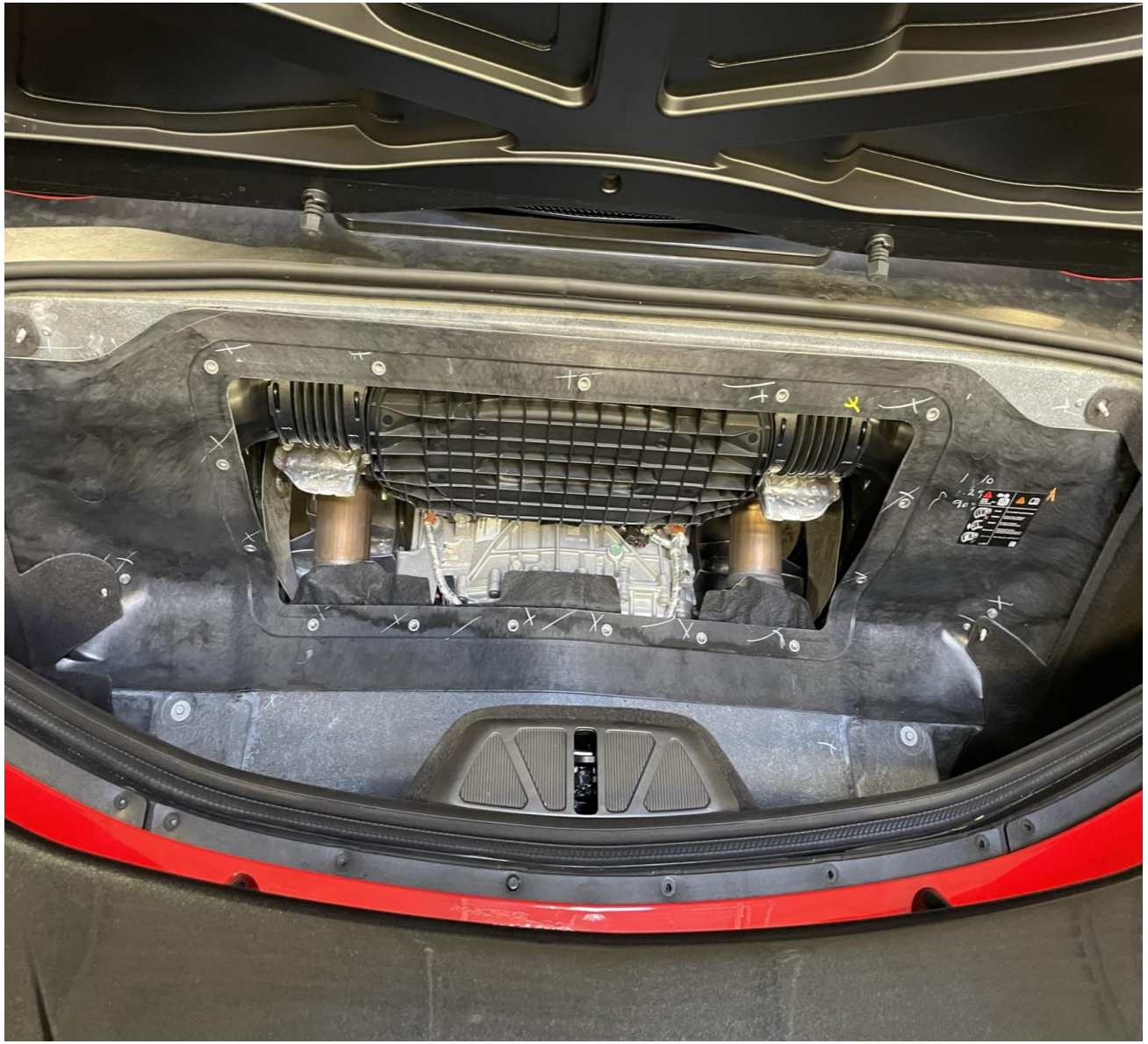


Inside trunk, remove carpet from trunk then remove fasteners from perimeter of front closure panel.

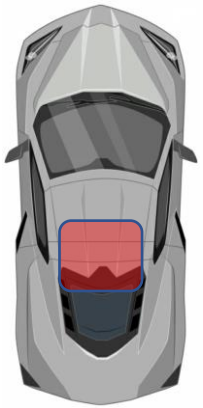
Remove front closure panel and set aside.

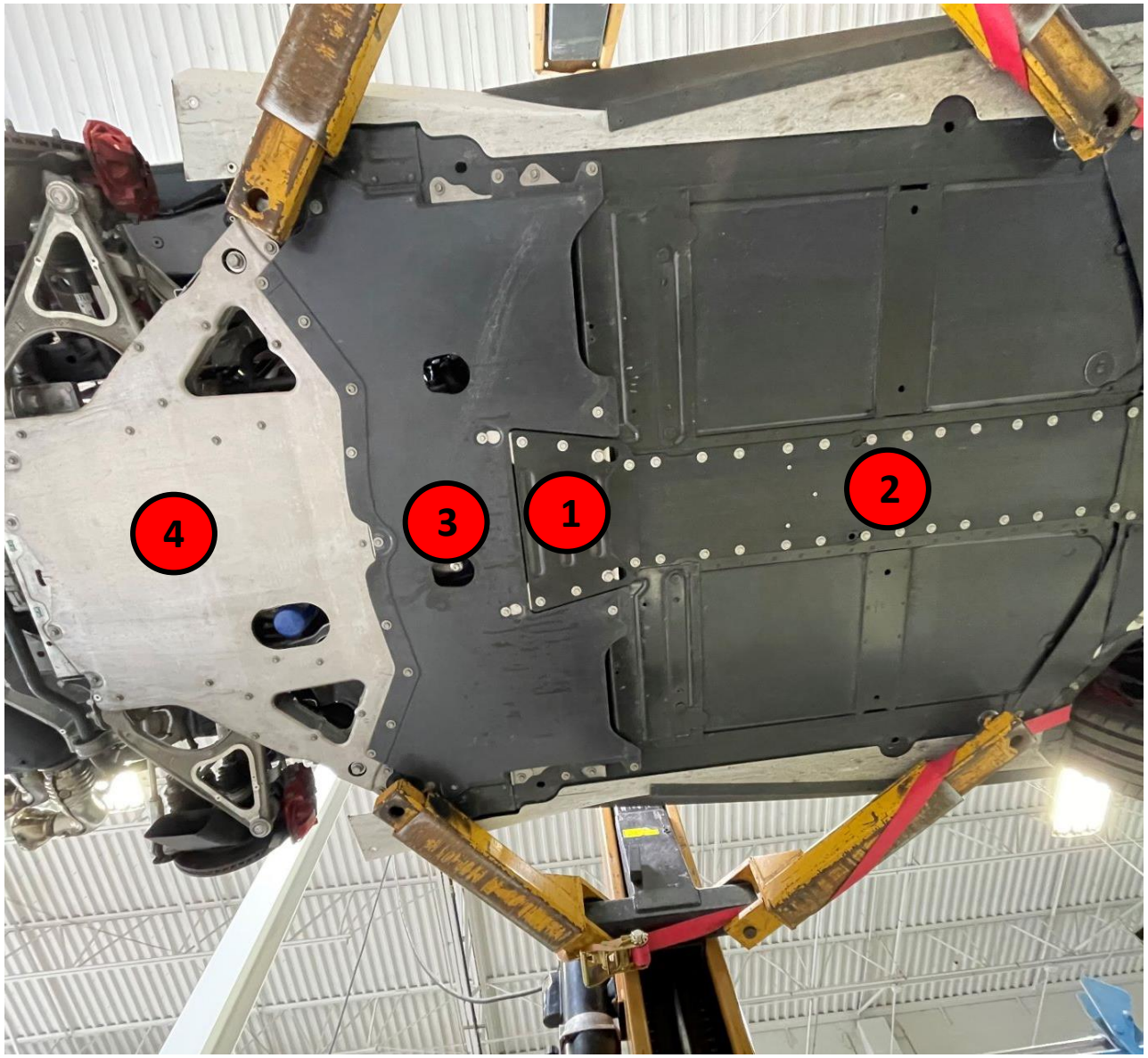
Place all fasteners in an identified bag.



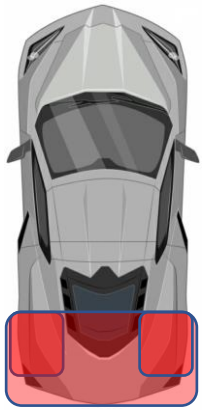


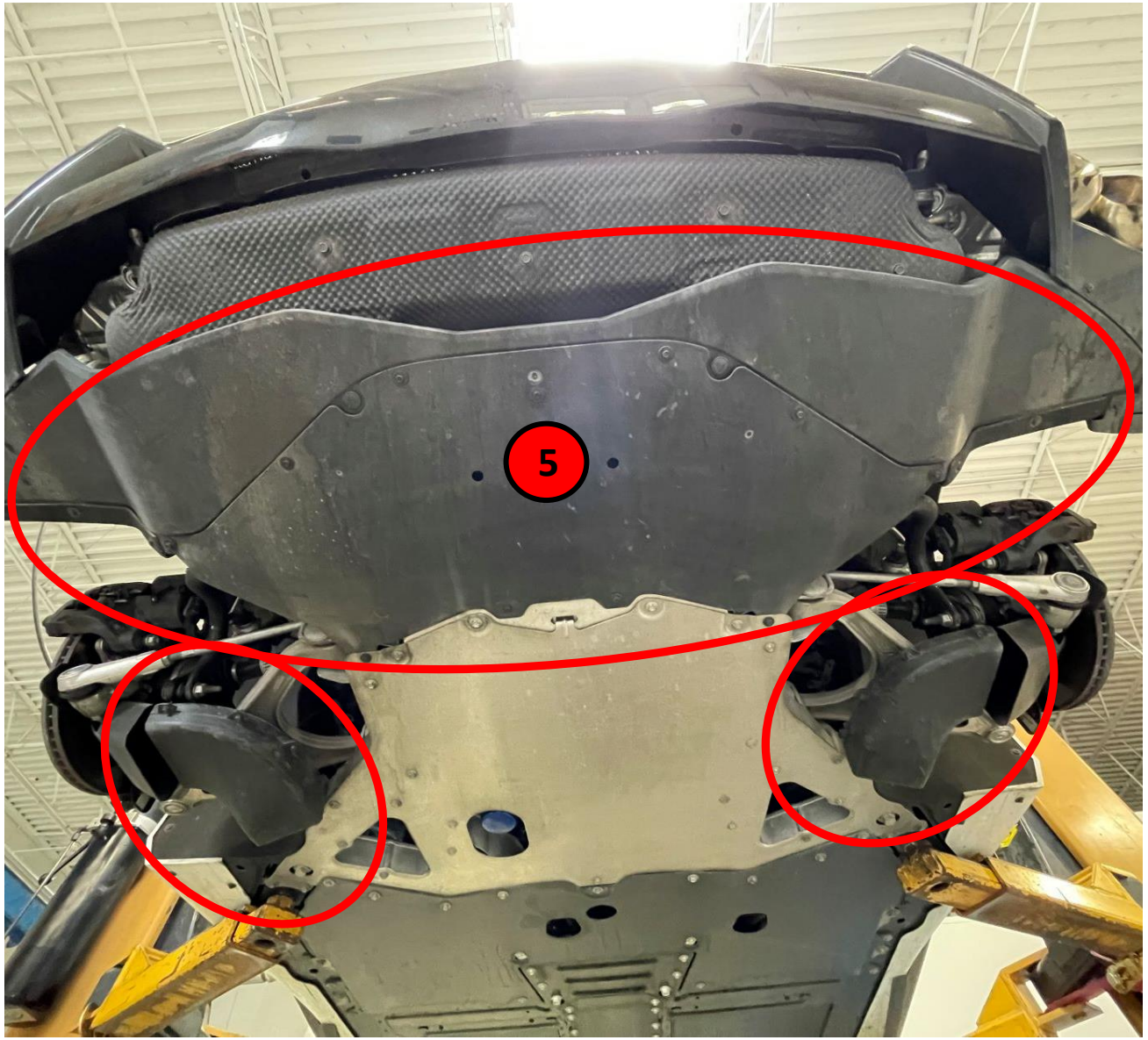
Working from under the vehicle, remove (4) under body panels in the center of chassis, in the order shown in the photo.



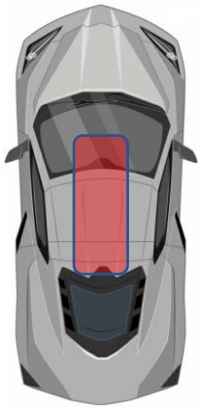


Remove rear lower under body valence and rear brake cooling ducts, if installed.

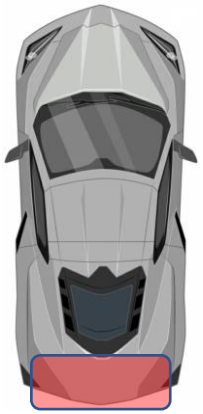




Remove the long rectangular composite center cover plate



Remove rear plastic exhaust cover.
IMG_4192.

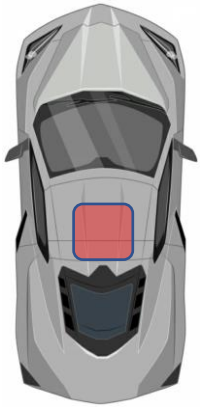


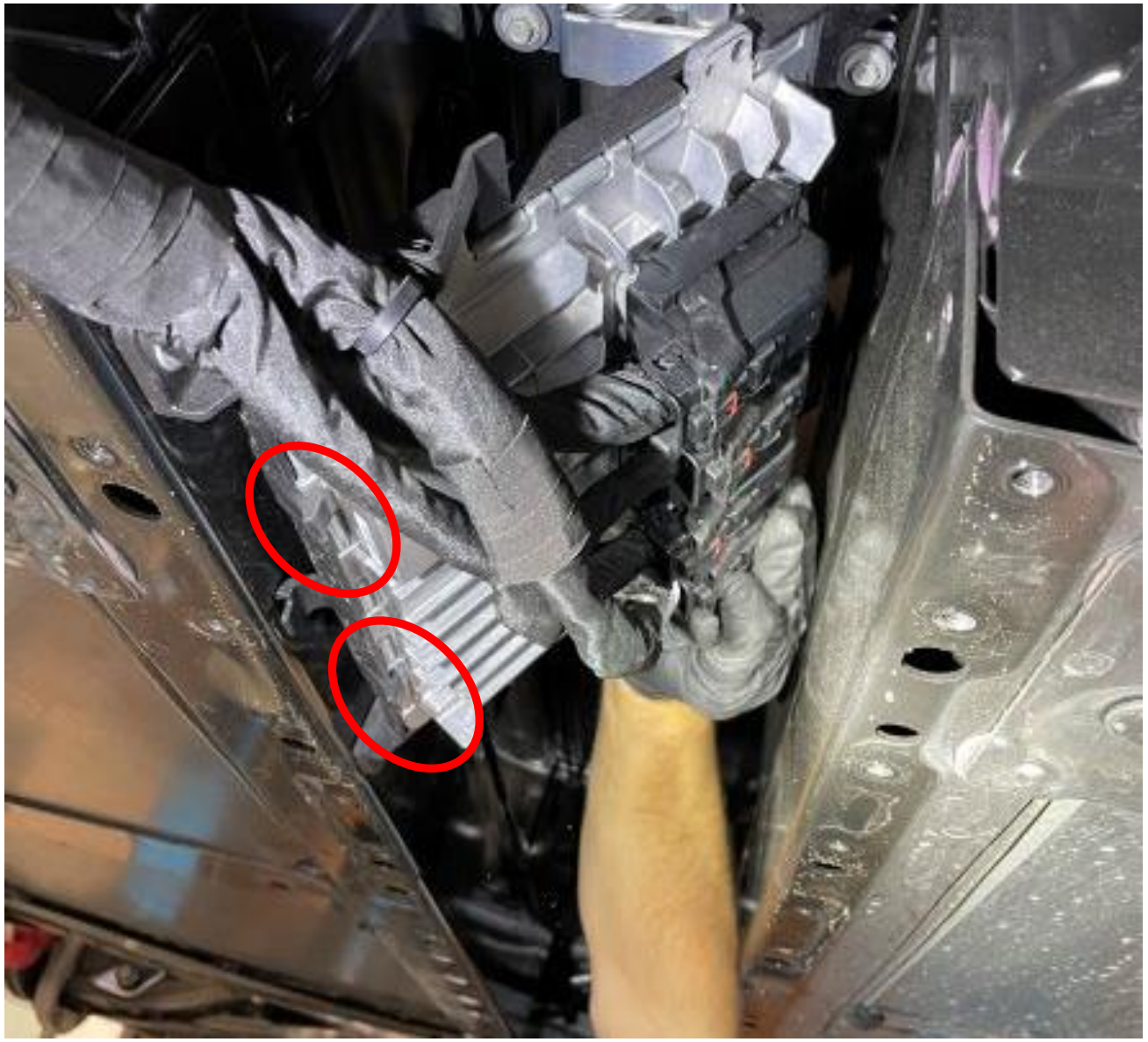
Disconnect (4) electrical connectors @ ECM in vehicle tunnel.

Push tabs down at bottom of ECM bracket then remove the ECM from the bracket and set aside.

Neatly write the VIN# on the back of the ECM using a permanent marker.

Send ECM out to Trifecta Performance to be unlocked/updated. Shipping info can be found on the following page.





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LINGENFELTER
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ENGINE CONTROL MODULE SHIPPING INSTRUCTIONS

LINGENFELTER / MAGNUSON TVS2650 CHEVROLET C8 CORVETTE DI SUPERCHARGER

STEP 1 Fill out the **INSTALLER INFORMATION BOX** below for Trifecta Performance.
STEP 2 Add your **RETURN ADDRESS INFORMATION** and **PHONE NUMBER** to the shipping label below.
STEP 3 Write your **VIN** on the included yellow label and stick it on the bottom of the ECM.
STEP 4 Place your ECM in the **CENTER** of the shipping box provided as shown.
STEP 5 Place the **COMPLETED SHIPPING LABEL** on the outside of the box.
STEP 6 Place **THIS** paper inside the box with your ECM for Trifecta.
STEP 7 Securely **TAPE** the shipping box and ship your ECM to Trifecta.
Performance for programming with an **INSURED VALUE OF $300**.

ATTENTION TRIFECTA PLEASE USE THIS REUSABLE SHIPPING BOX TO SEND THE ECM BACK TO THE CUSTOMER

INSTALLER INFORMATION FOR TRIFECTA PERFORMANCE

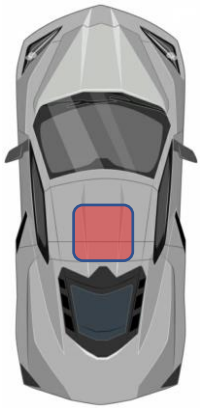
Company_____
Name_____
Street_____
City_____ State_____ Zip_____
Phone _____
Email_____
Reference Info _____

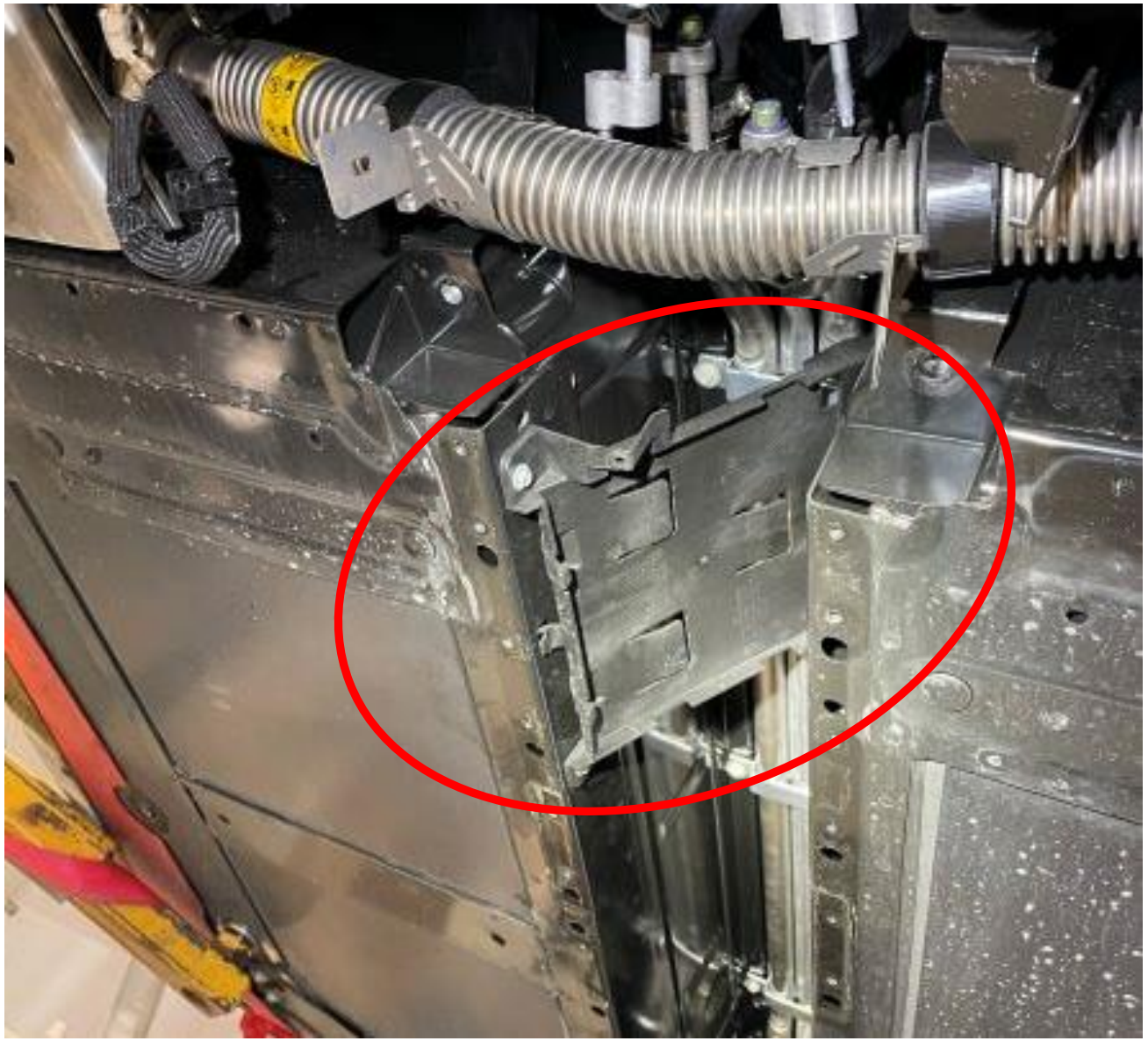
RETURN ADDRESS INFORMATION COMPANY, NAME ADDRESS AND PHONE NUMBER FOR SHIPPING LABEL

_____
_____
_____
_____
_____

TRIFECTA PERFORMANCE, INC.
2801 Bickford Avenue
Ste 103 PMB 183
Snohomish, WA 98290

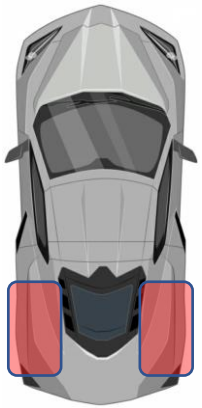
Remove the ECM bracket from the tunnel.

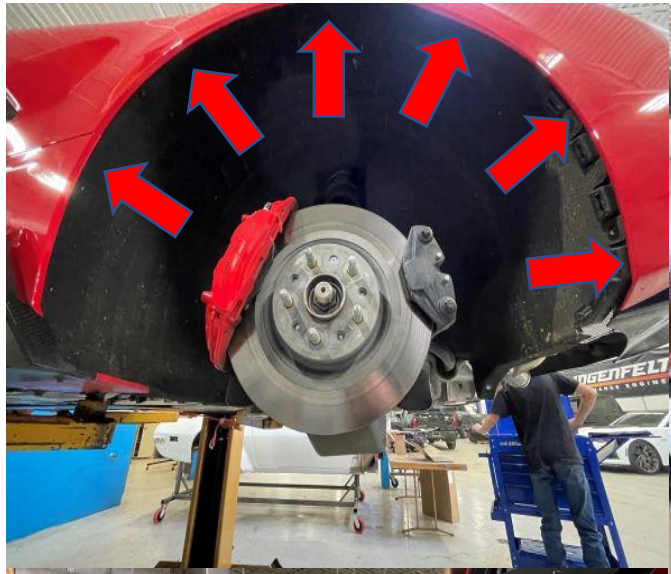


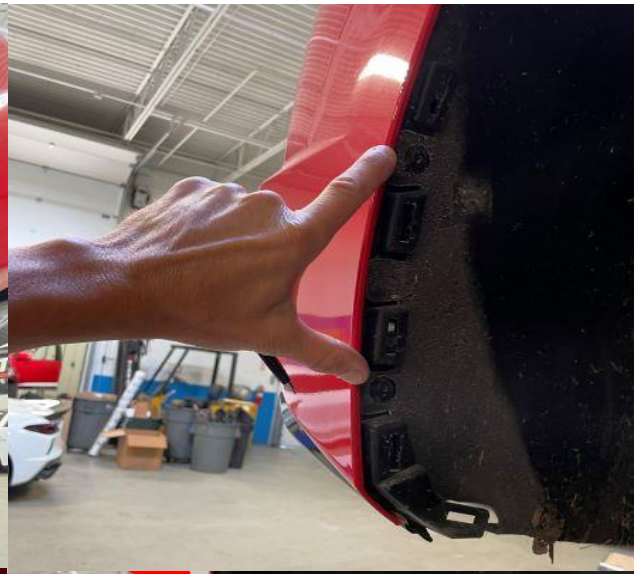


Remove LH / RH rear inner fender panels using a Torx T15 socket for screws and forked trim removal tool for plugs.

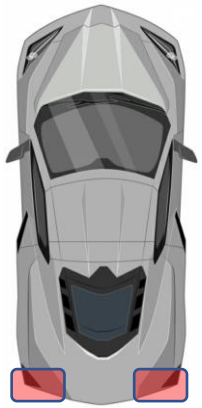
Pull plastic rock guards off LH / RH rear corners of wheel wells (bottom right photo).







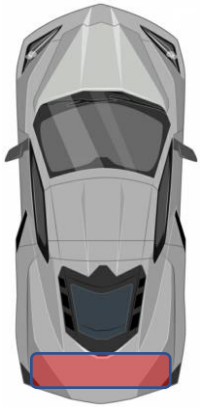
Facing rearward from inside each rear fender, locate and remove the fasteners attaching the rear fascia to the LH / RH fenders @ rear upper corners.



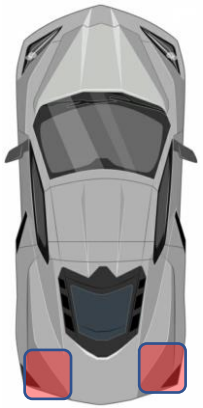
Remove fasteners around perimeter of rear upper valance.

Note quantity of shims that are located between rear valence and body structure at each location. A grease pencil can be used to identify the quantity by each screw hole.

Remove all shims and place in an identified bag.



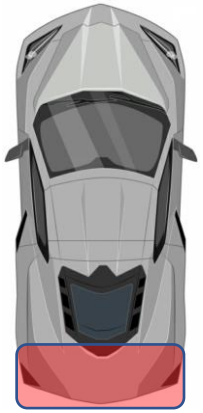
Remove fasteners in upper LH / RH corners securing rear valence to rear fenders



With help from a second person, gently lift and begin to separate rear fascia from vehicle.

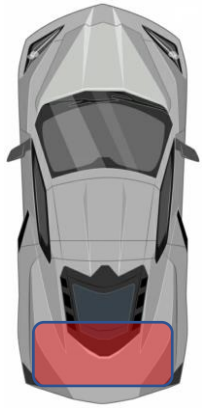
Disconnect (3) electrical connectors between body and rear fascia.

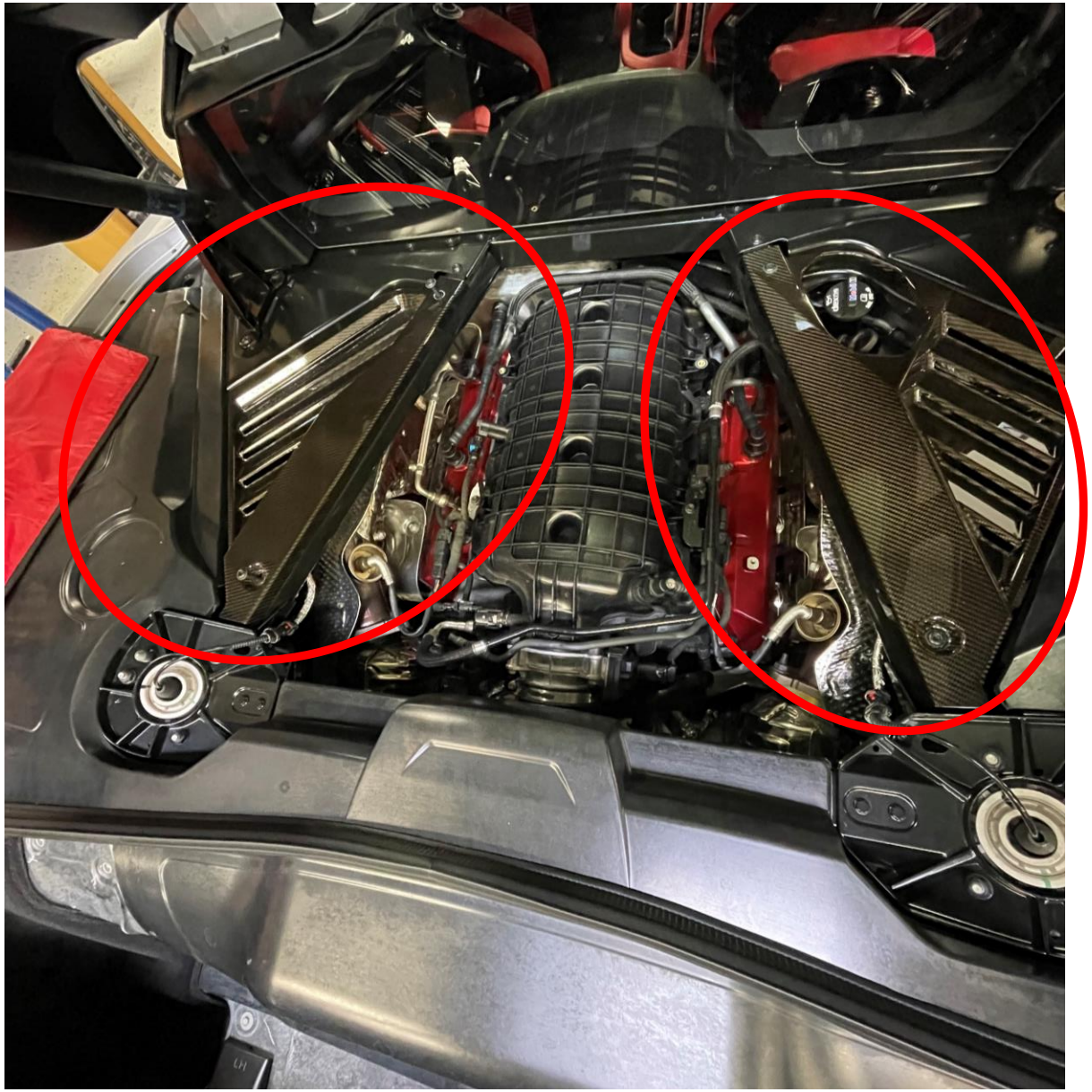
Set the rear fascia aside on a soft, clean surface to avoid scratches.



Remove header beauty covers (if installed).

Discard the OE black torx bolts. They will be replaced with new bolts later in the process.

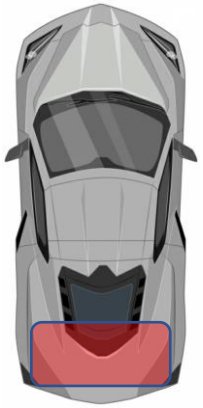


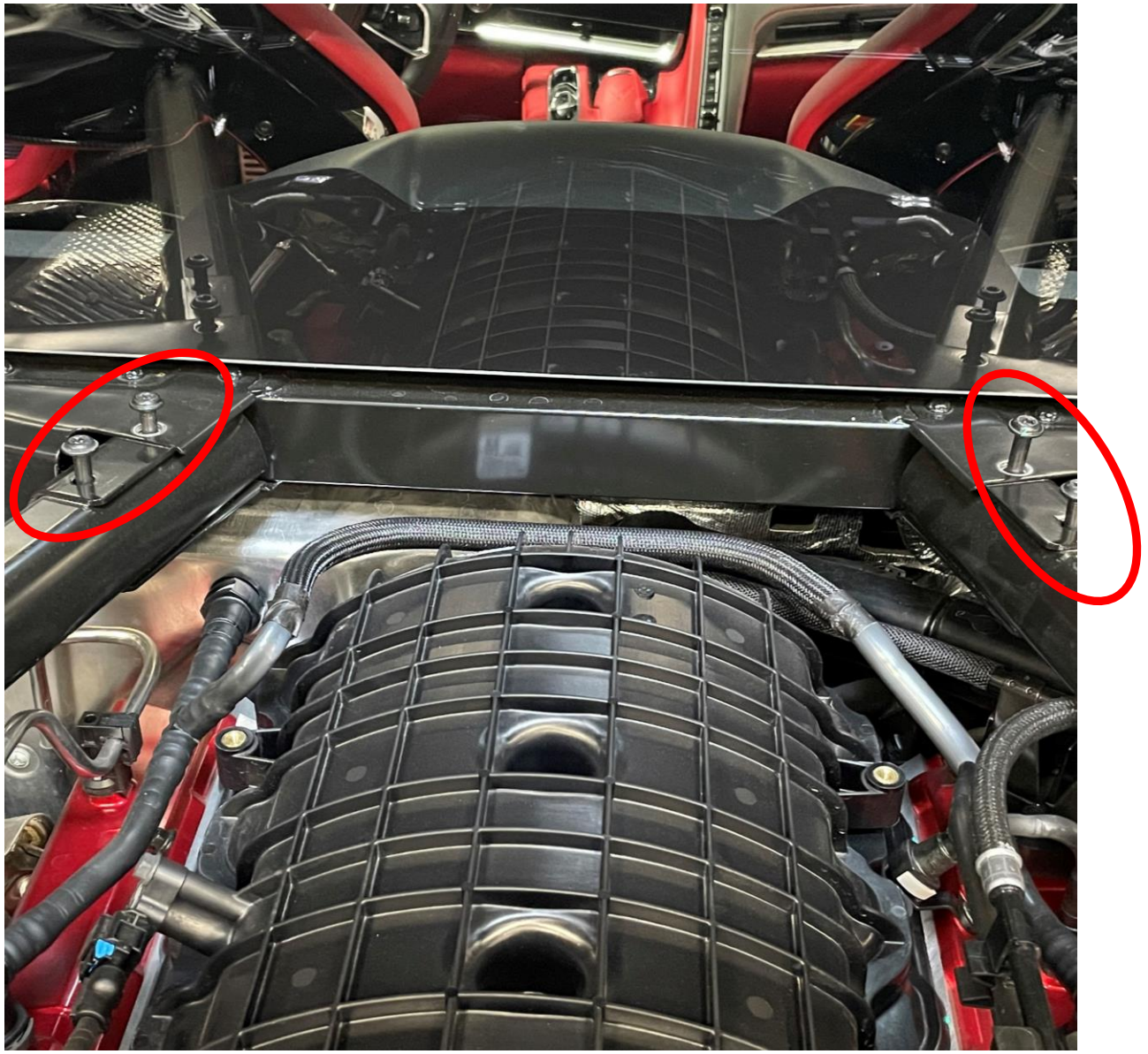


Remove (4) engine strut fasteners.

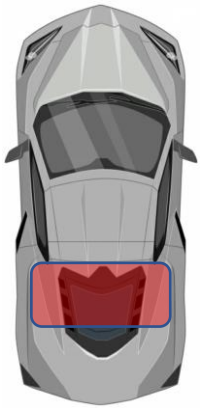
Install revised M8X1.25-60mm long flanged fasteners from kit.

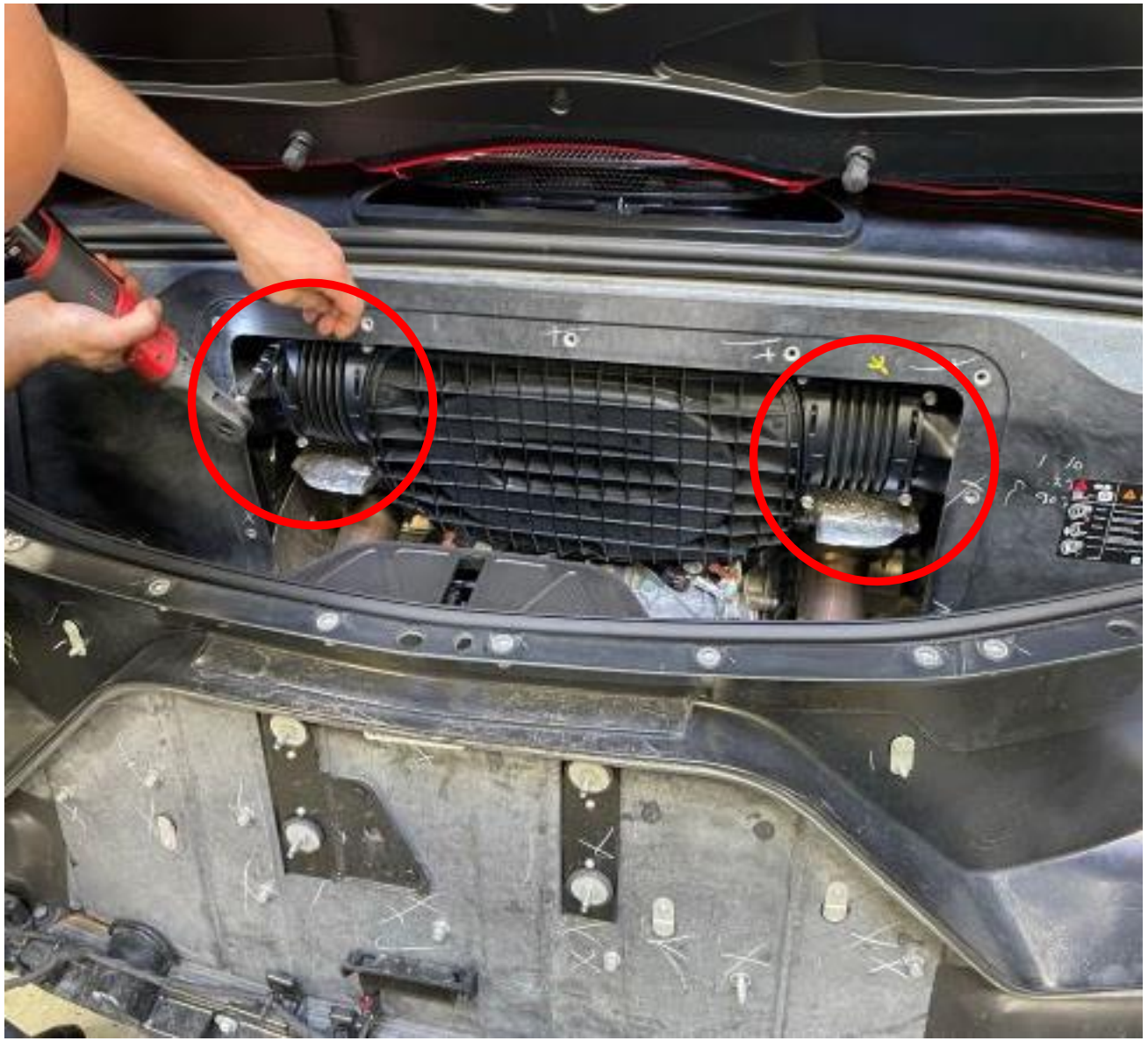
Torque the fasteners 22 ft. lbs.





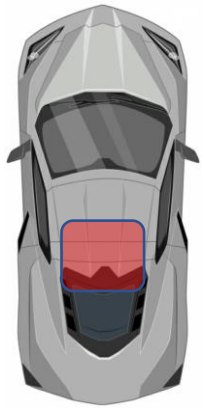
Loosen LH / RH air inlet ducts (4 fasteners per side) and remove from vehicle.





Disconnect vapor purge line connection @ RH side of engine.

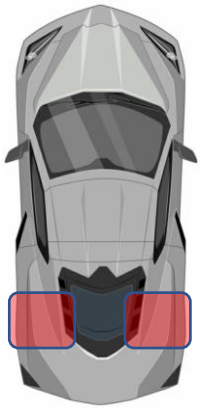
Remove purge line clip fastened to body brace.



Lower the vehicle to provide access into the engine compartment.

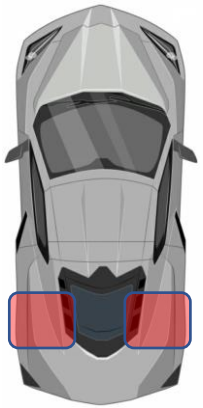
Remove upper shock mount nuts (3 per side) from LH / RH sides.

Disconnect mag ride sensors from bracket then disconnect hard shell connector (LH / RH sides).



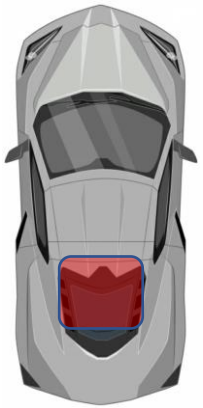
If equipped with mag ride, zip tie LH / RH mag ride pig tail harnesses back onto themselves so they won't catch on the shock tower during power train removal.

Trim zip-ties.

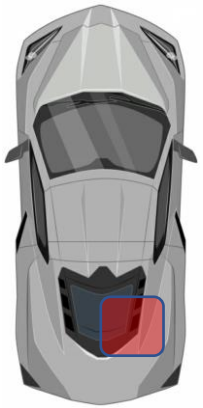


Convertible: Remove fasteners around the perimeter of the engine access cover.

With a helper, remove cover and place aside.

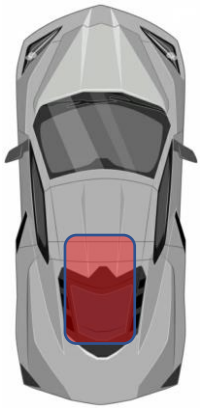


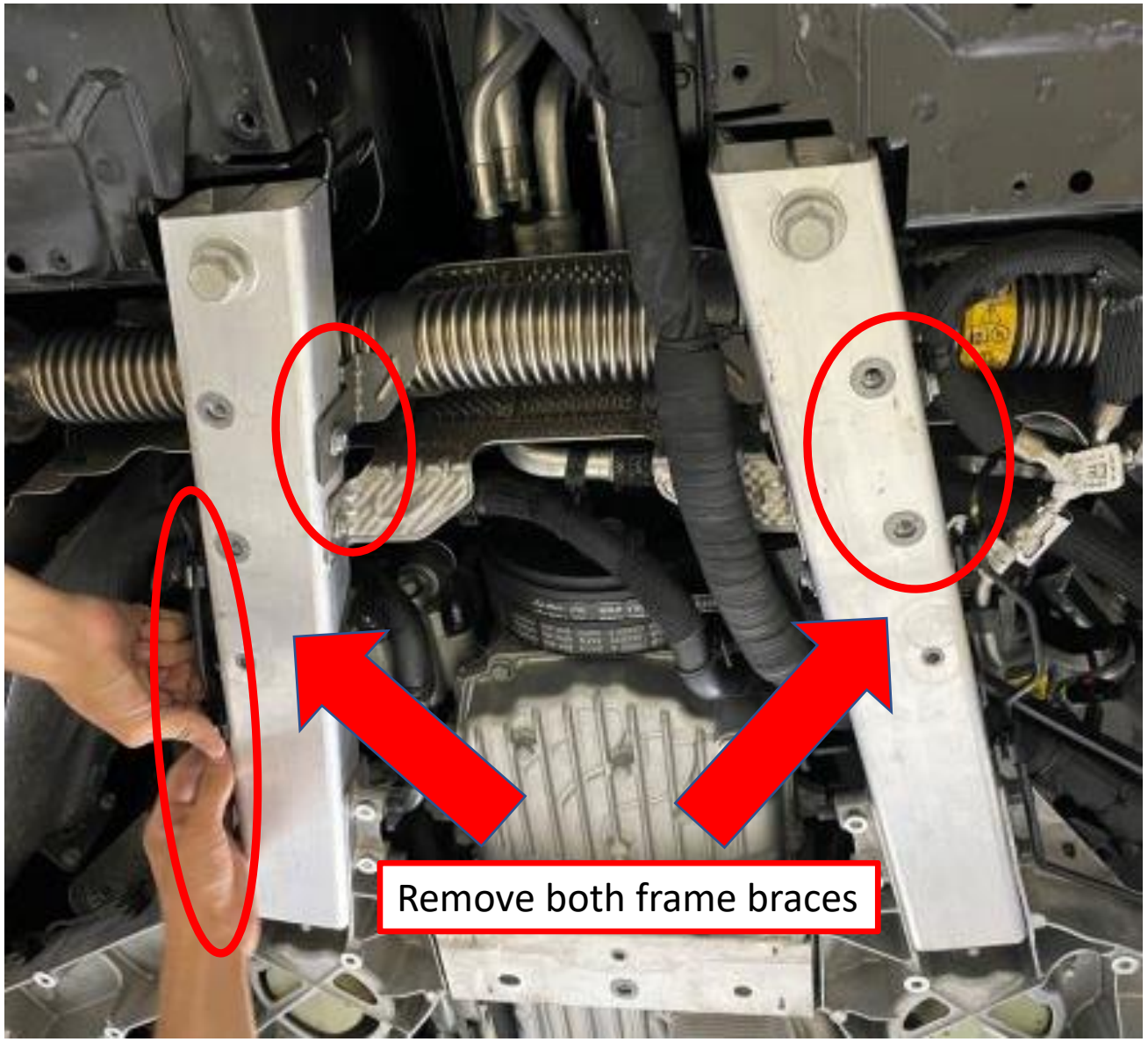
Remove radiator cap from reservoir and set aside



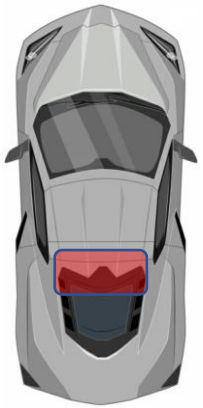
Remove any fasteners holding the brake line brackets and heat shields from the LH and RH aluminum frame braces by the fuel cross-over.

Remove LH and RH frame braces from the vehicle.

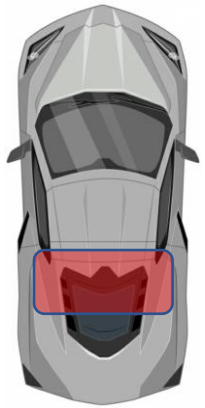


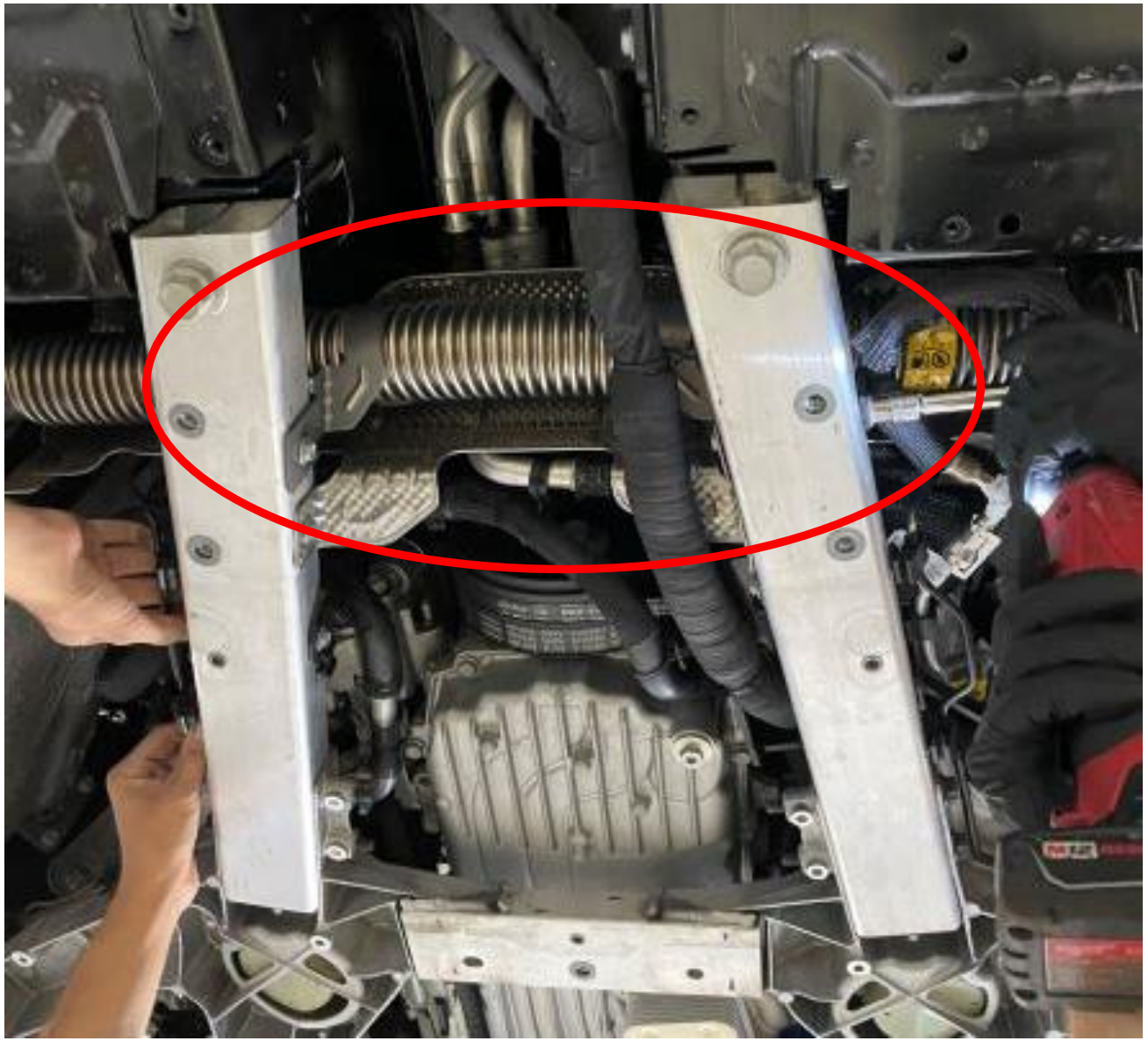


Disconnect LH and RH brake lines from plastic holders at cradle.

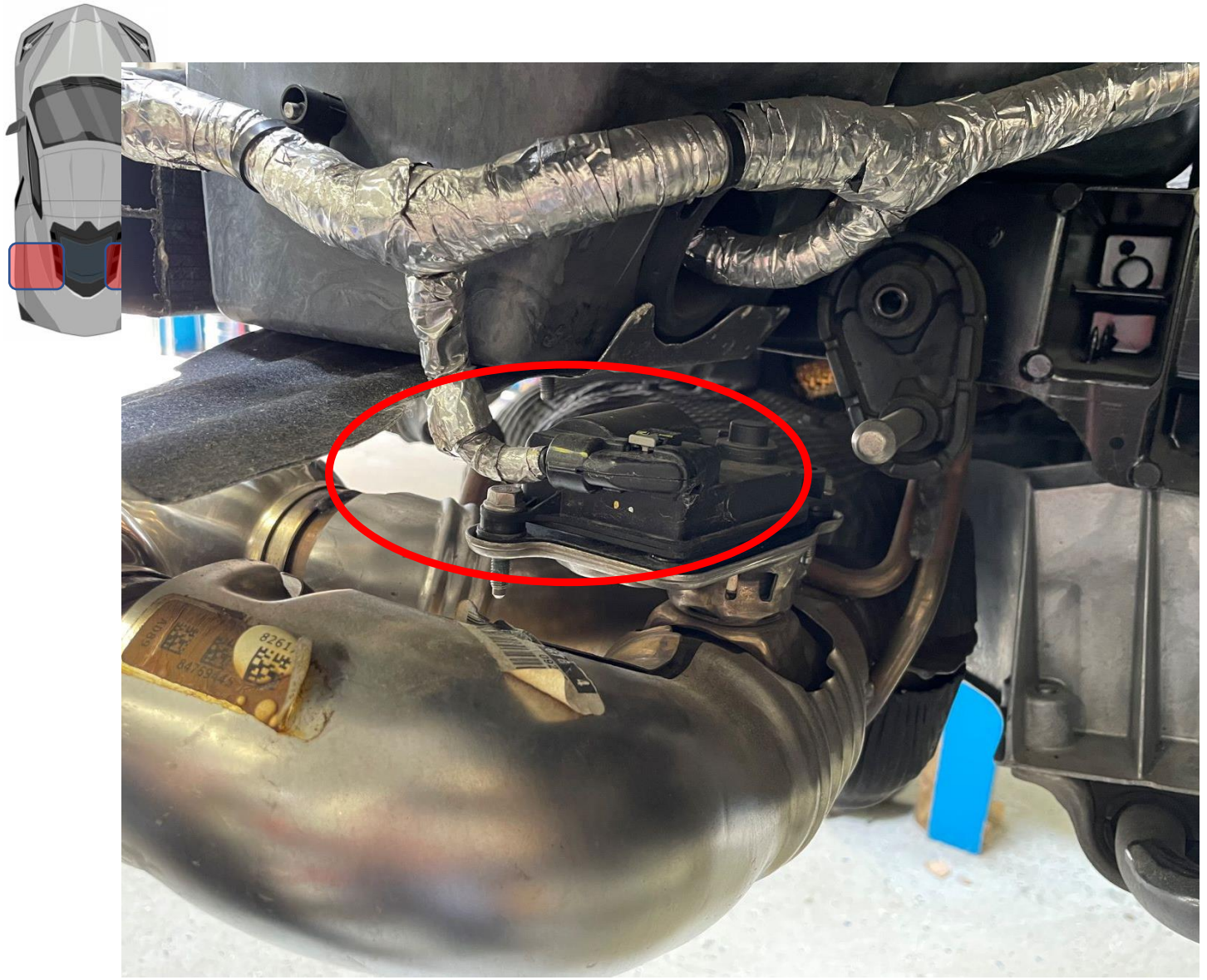


Remove (4) push pins securing the fuel cross-over heat shield. Remove heat shield from the vehicle.



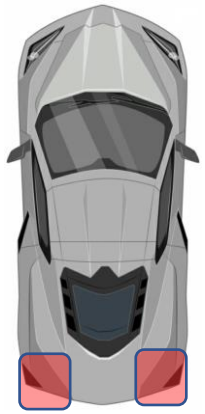


Disconnect exhaust valve connectors near exhaust pipes. (LH/ RH sides).

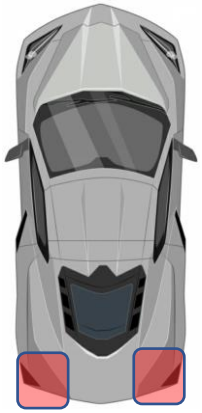


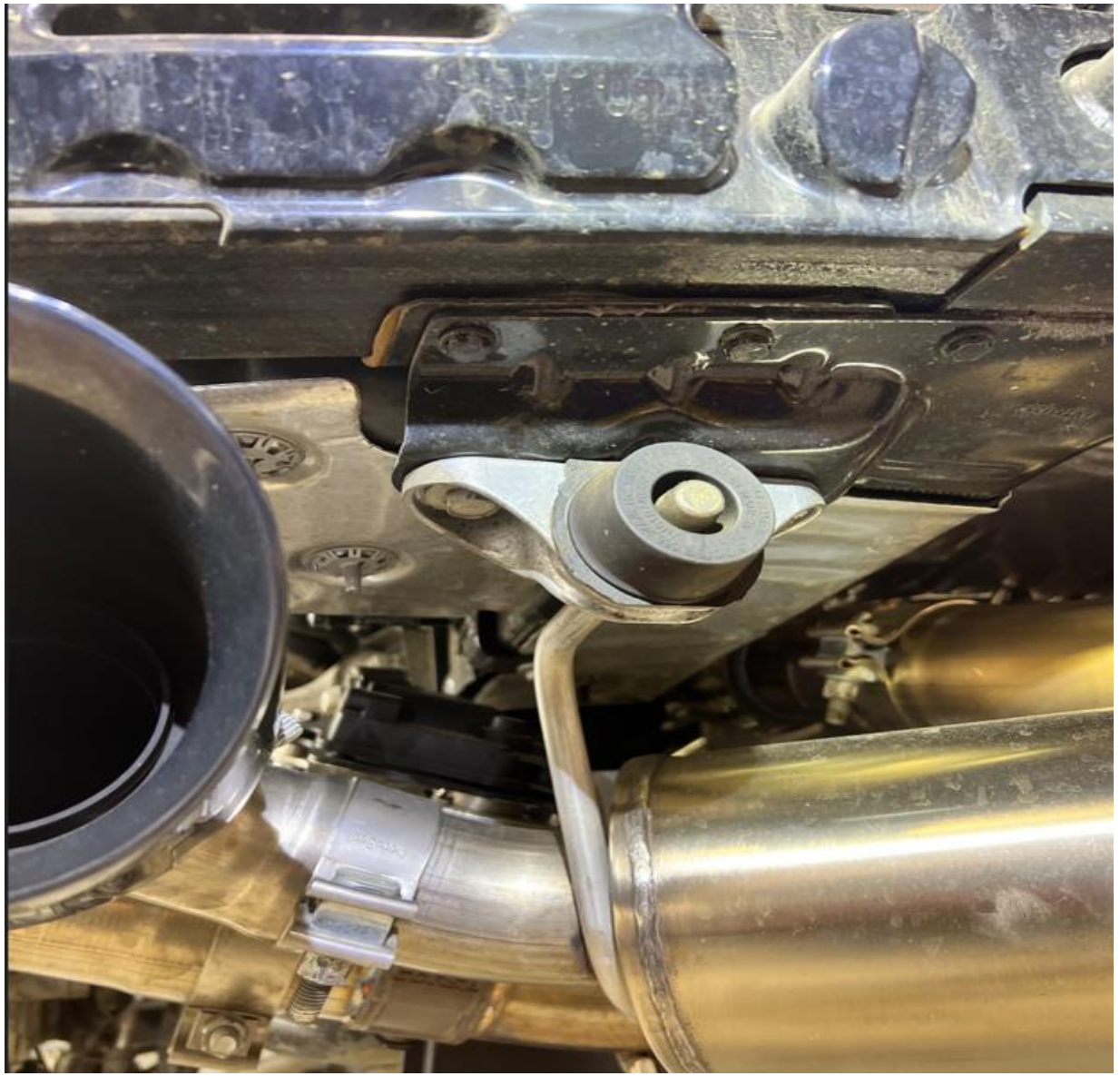
Disconnect rubber exhaust hangers from LH / RH sides.

LH / RH just before exhaust valves and LH /RH after exhaust valves (Remove bracket fasteners).



Remove fasteners securing the LH and RH rear exhaust hanger brackets to the body.

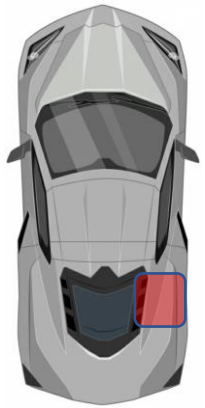


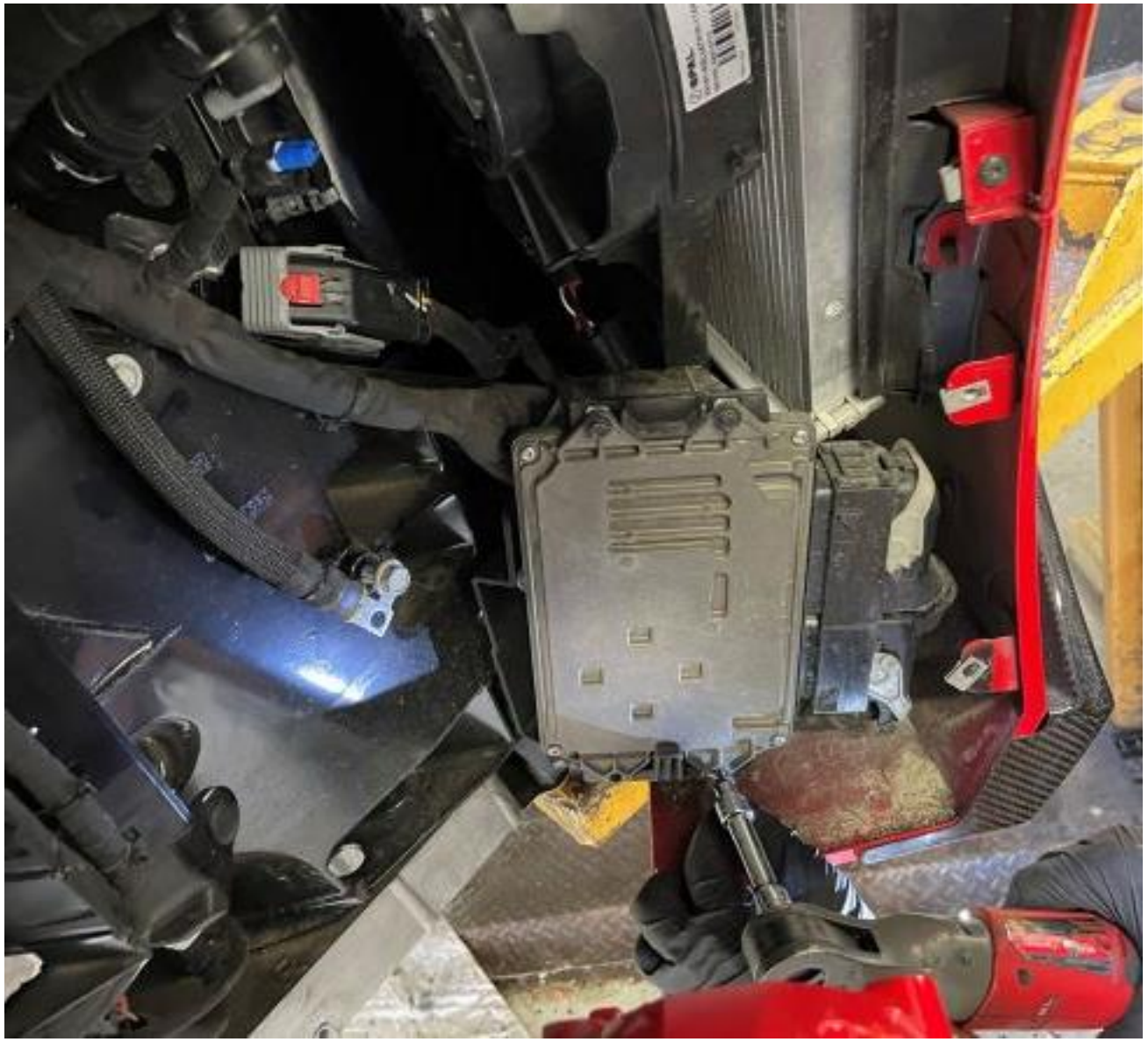


Remove Trans Control Module (TCM) by removing (4) bracket bolts.

Disconnect (2) electrical connectors @ TCM.

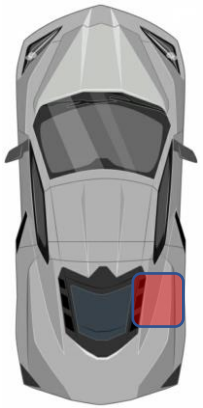
Set TCM aside.





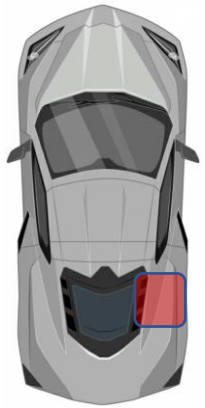
Remove wiring harness fur tree connectors from plastic TCM bracket.

Remove fasteners securing TCM bracket to vehicle then remove bracket and set aside.

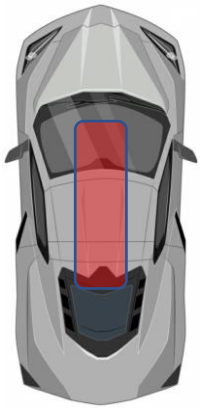


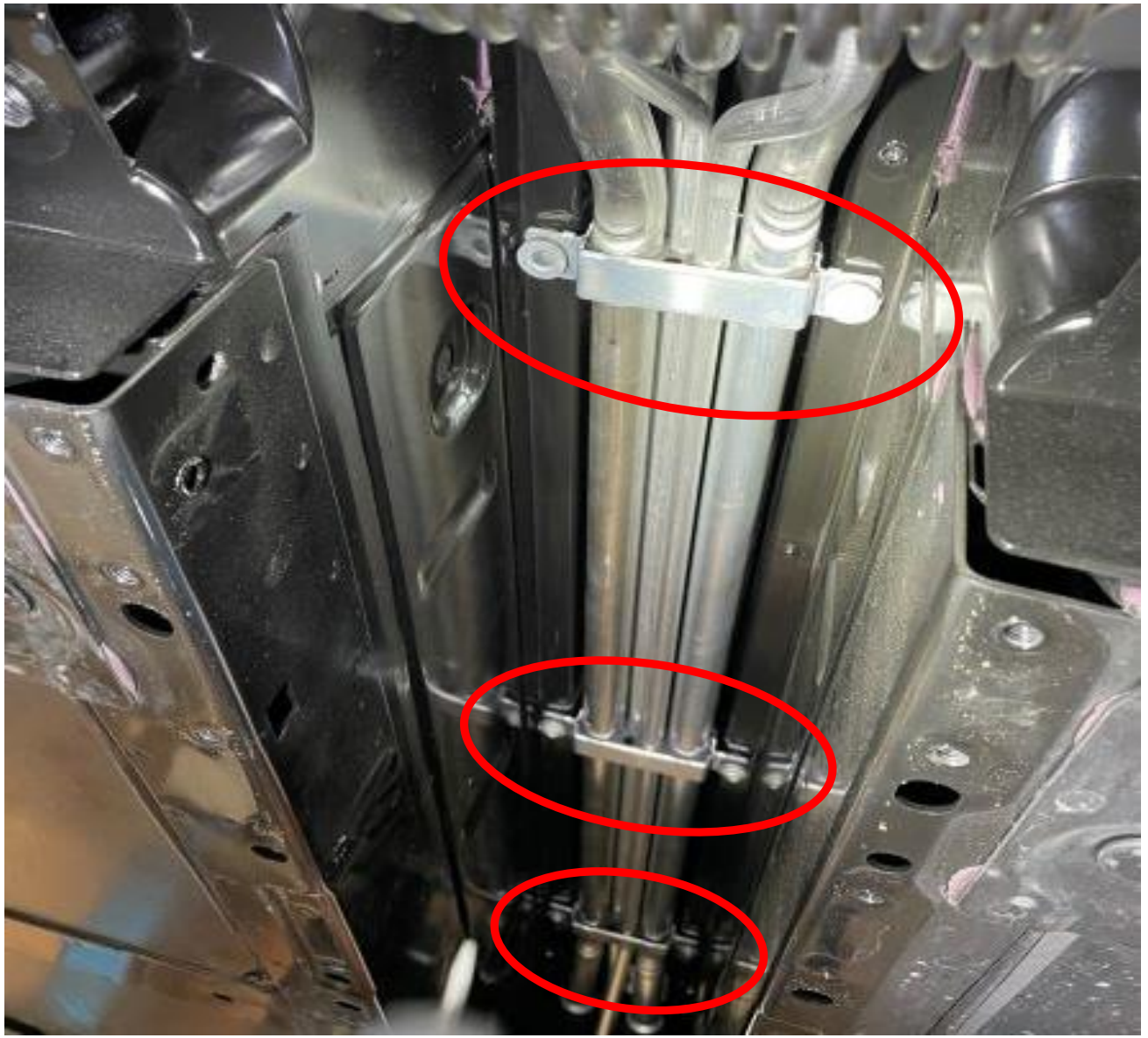
Place a large, clean container on a stand to minimize coolant loss.

Install a 3/8” I.D. rubber hose onto the drain tube. Place a rag under the drain then loosen the coolant drain @ bottom of radiator and allow coolant to drain in a bucket.



Remove (3) tunnel tube brackets from top of tunnel.



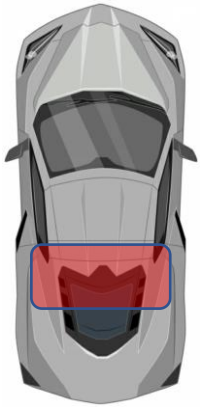


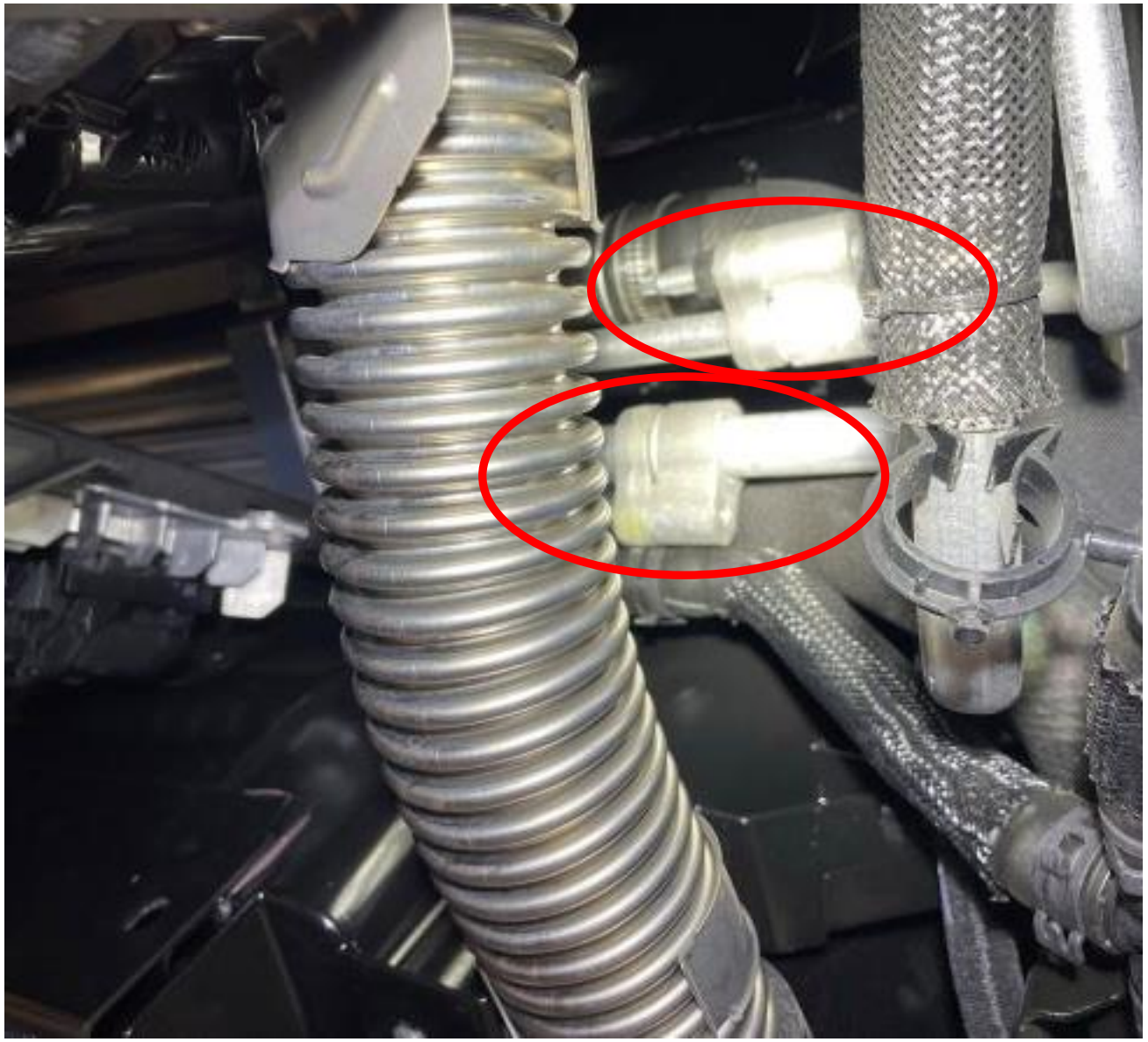
If the A/C compressor will be left attached to the engine, the A/C system must be evacuated.

Loosen and remove (2) AC tube connection nuts above the fuel crossover tube.

Separate the 2 lines.

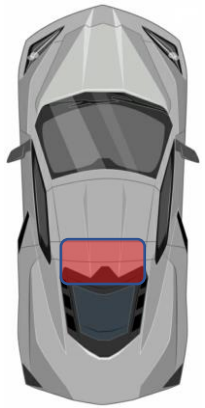
If the compressor is being removed from the engine and hung from the chassis, disregard this step. Compressor removal will be discussed in a later step.





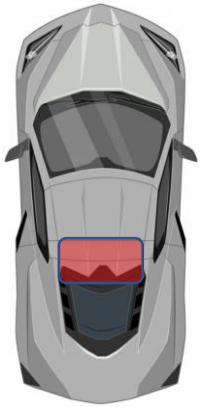
Disconnect rubber hose from small aluminum tube.

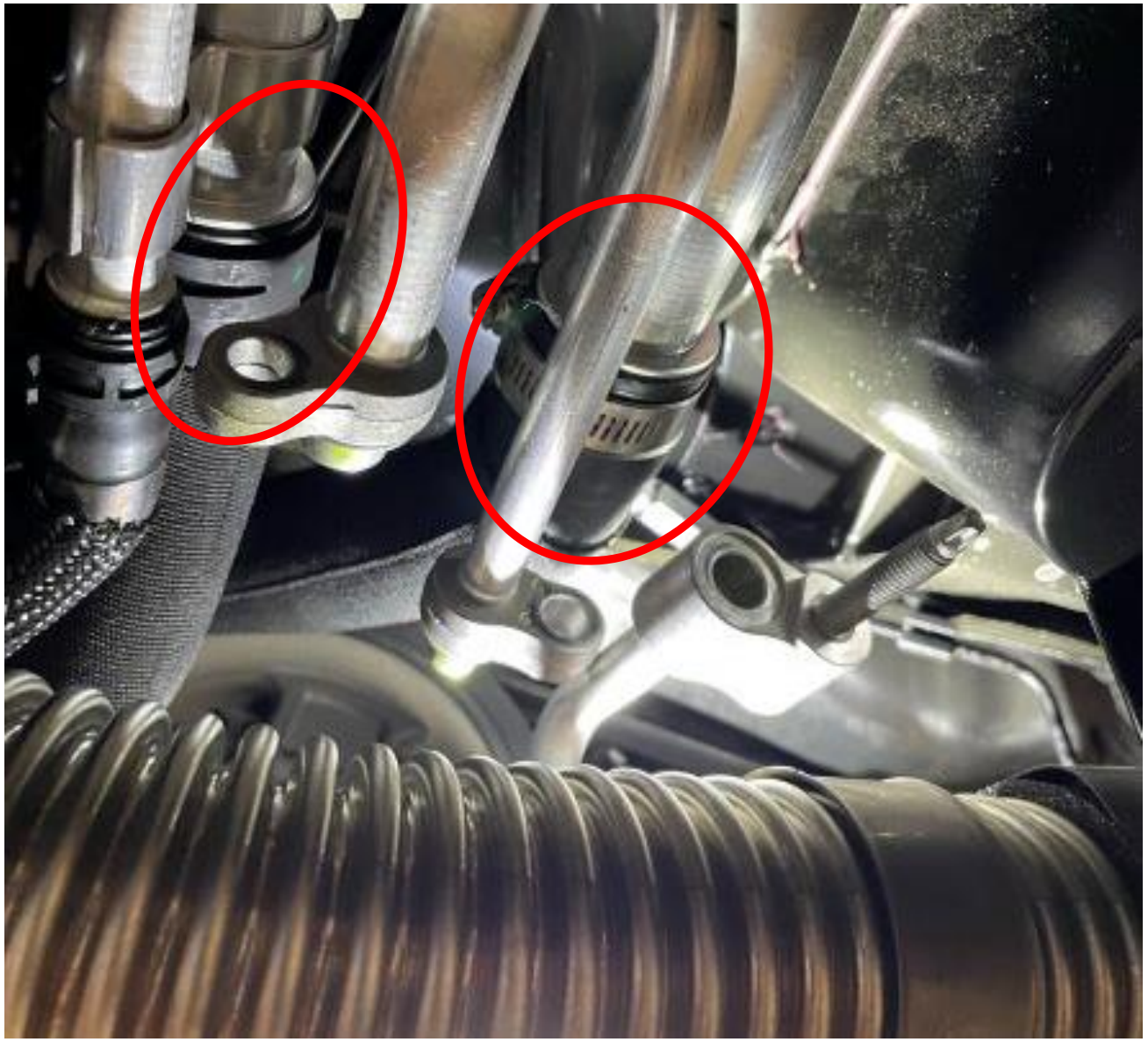
* Prepare for additional coolant loss *



Loosen (1) gear clamp and (1) constant tension clamp from main coolant tube connections. Remove coolant hoses from tubes.

* Prepare for additional coolant loss *

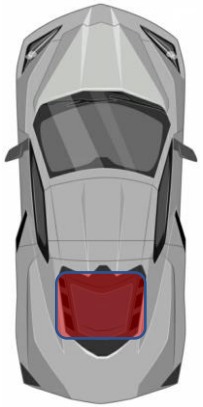




Place a large, clean container on a stand to minimize coolant loss.

Continue to drain the engine coolant by disconnecting the rubber coolant hose at the lower aluminum tube below the alternator.

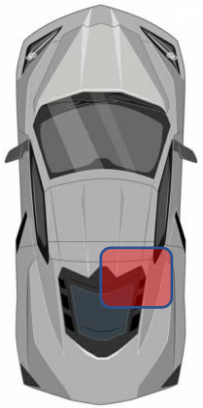
After all coolant has drained, re-connect the hose and fasten with the original constant tension clamp.

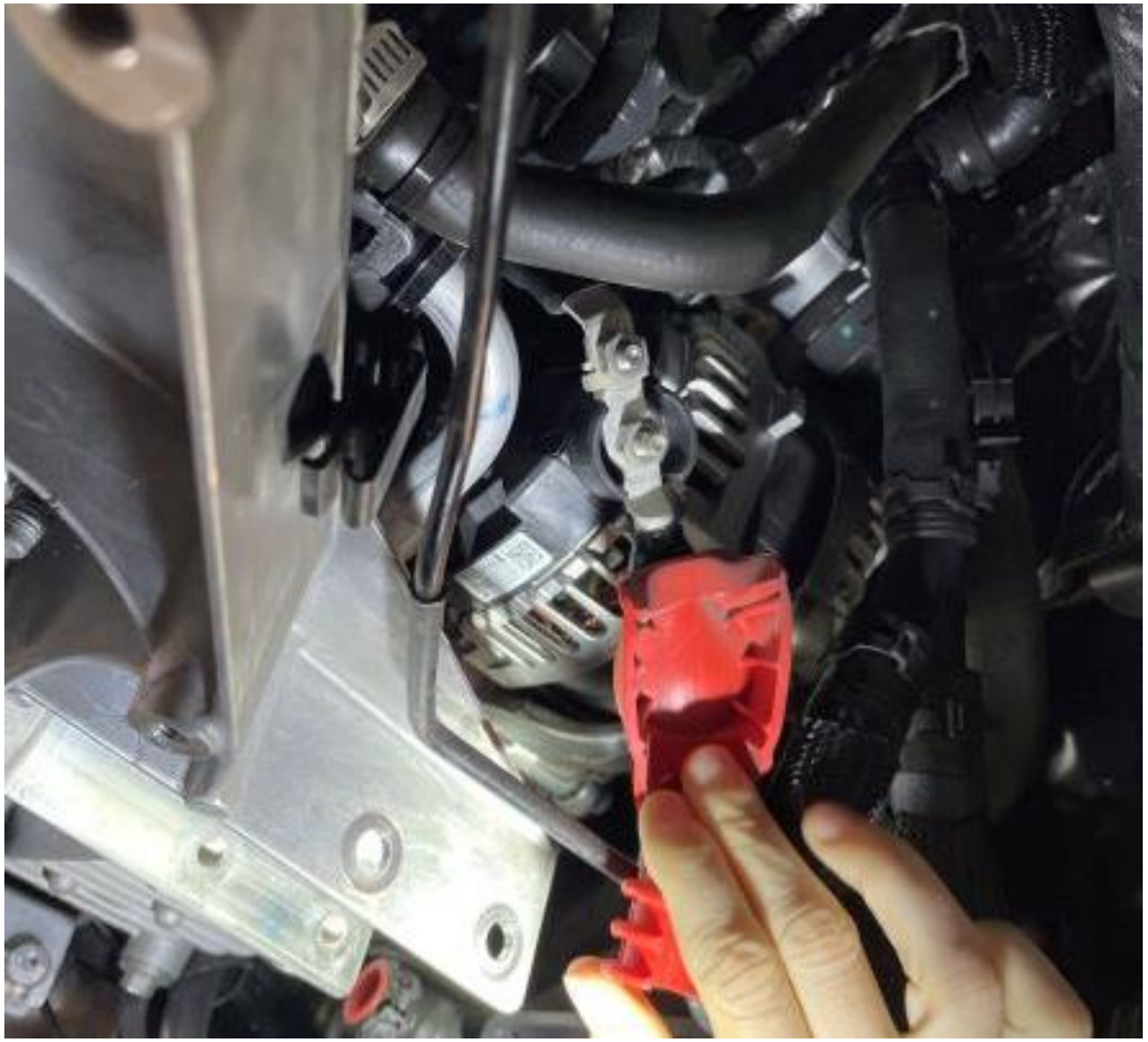


** VERIFY BATTERY IS DISCONNECTED BEFORE PROCEEDING WITH THIS STEP **

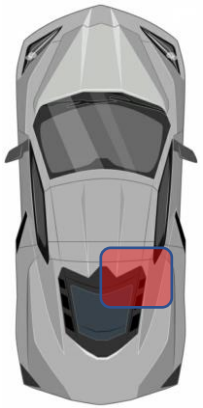
Inside RH rear wheel well, remove the positive battery cable cover from alternator.

Loosen and remove (2) nuts securing positive battery cable to the alternator.



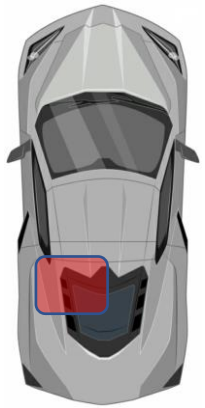


Disconnect B+ fur tree connector from the bracket by the alternator.



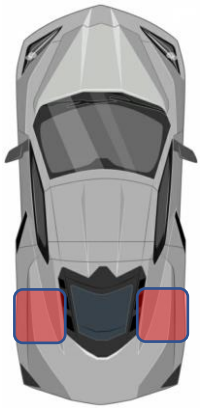
Disconnect fuel line at LH side by tunnel.

Plug fuel line connectors with fuel-safe plugs to avoid contamination/leakage.

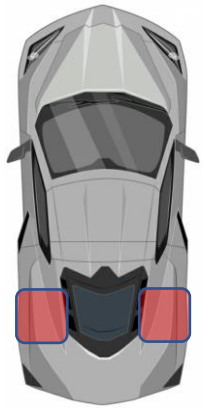


Remove brake line bracket fasteners on LH / RH control arms.

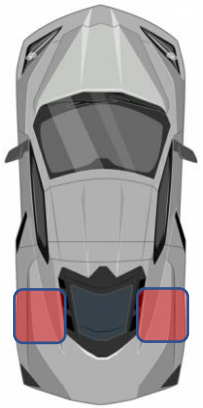
Remove brake line bracket fasteners inboard of LH / RH lower control arms @ sub-frame.

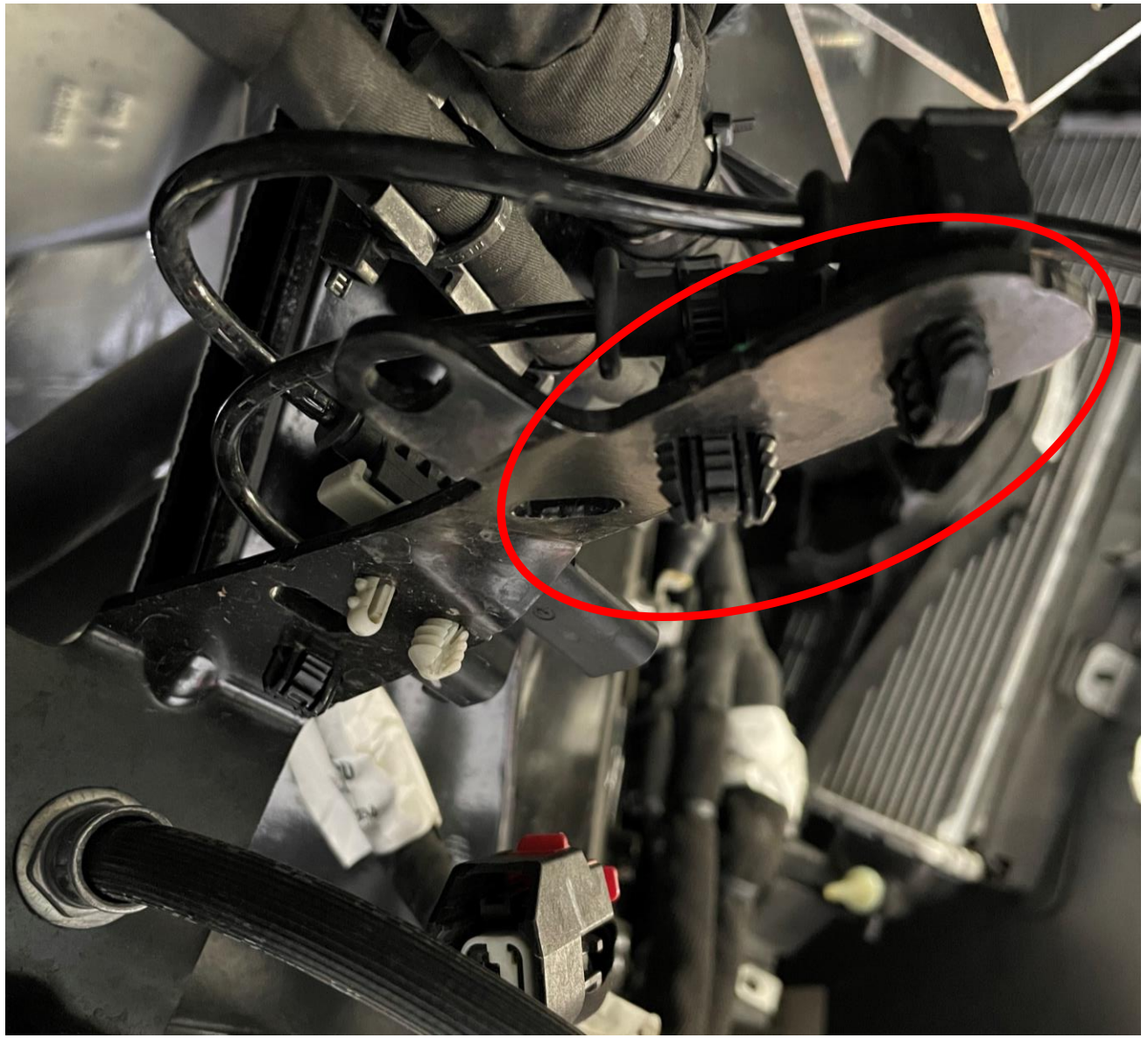


Disconnect LH / RH wheel speed sensors and mag ride sensors at hardshell connectors by inboard bracket.



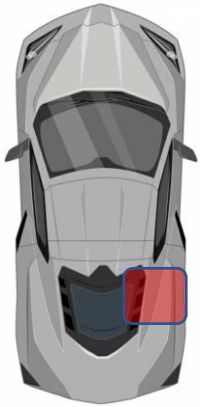
Disconnect LH / RH wheel speed sensor and mag ride harness fur tree connectors from inboard bracket.



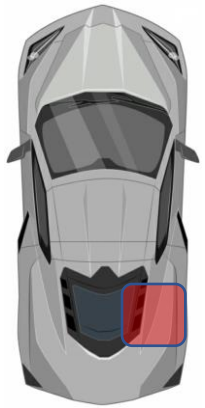


Inside RH rear wheel well, remove fastener securing chassis cable ground.

Remove plastic harness bracket securing ground cable to chassis.



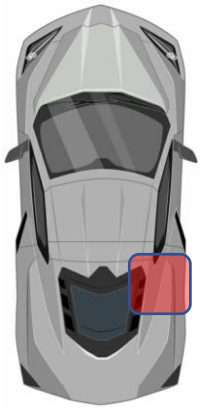
Inside RH rear fender: Remove hardshell connector from thermostat sensor.

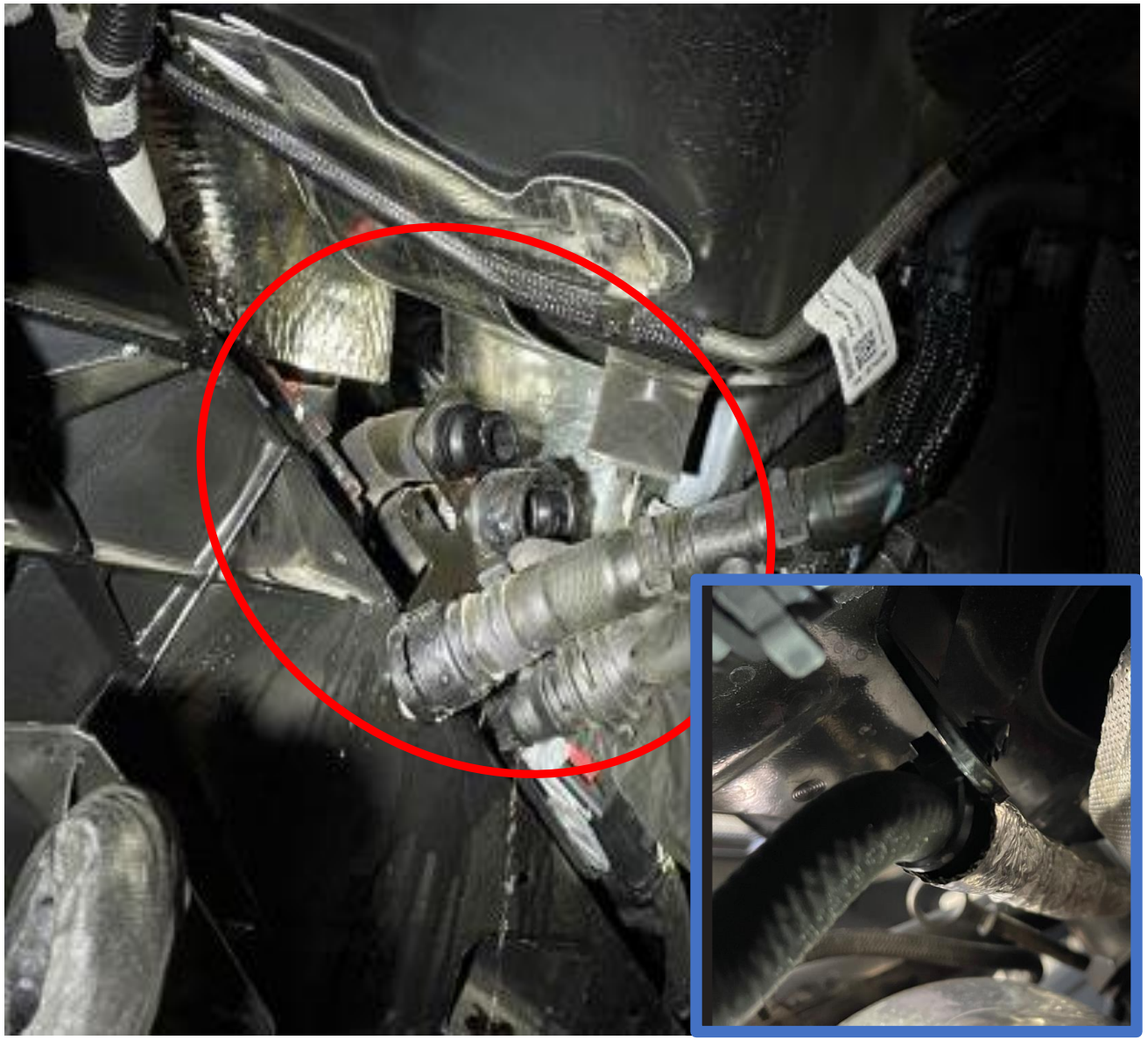


Disconnect (2) coolant lines at bulkhead connection @ RH rear of car. Note there is a thermostat inside one connection. Disconnect inboard of this connection.

Note: coupe version will have (4) connections inside RH rear fender (1 is @ Q bottle, 1 is a coolant vent).

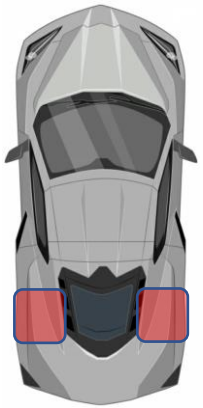
Coupe: remove (1) fur tree connector @ bracket (blue inset photo).



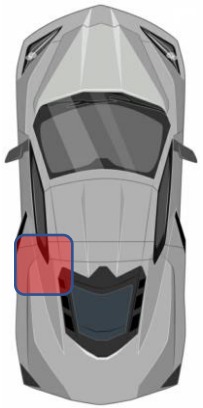


Remove LH / RH rear calipers from rear suspension.

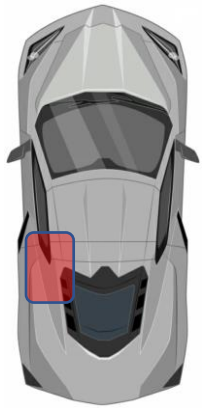
Wrap in a towel and slide the calipers inside the base of LH / RH rear fenders.



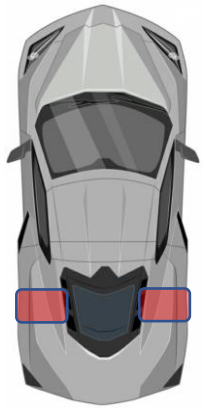
Remove (2) bulkhead connectors inside LH rear wheel well.



LH side: Remove (2) fur tree connectors holding plastic harness bracket to frame.

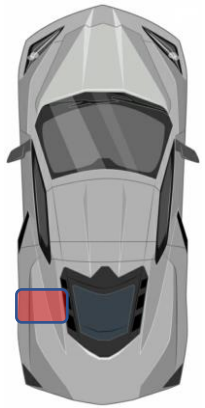


Disconnect LH / RH wheel speed sensor and accelerometer (if equipped) pigtails at connection points in front of the rear calipers.

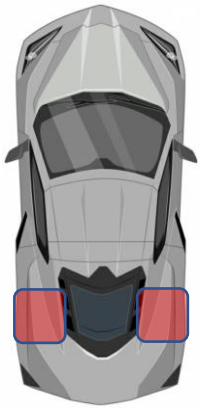


Remove FTZM module from LH fender by removing all bracket fasteners.

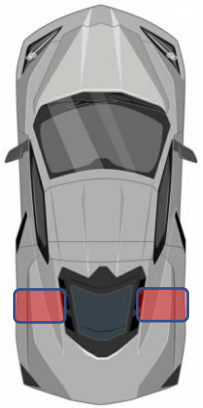
Disconnect electrical connector from module. Set module aside.



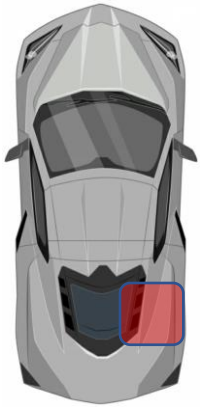
Disconnect LH / RH parking brake harnesses from chassis retention points.

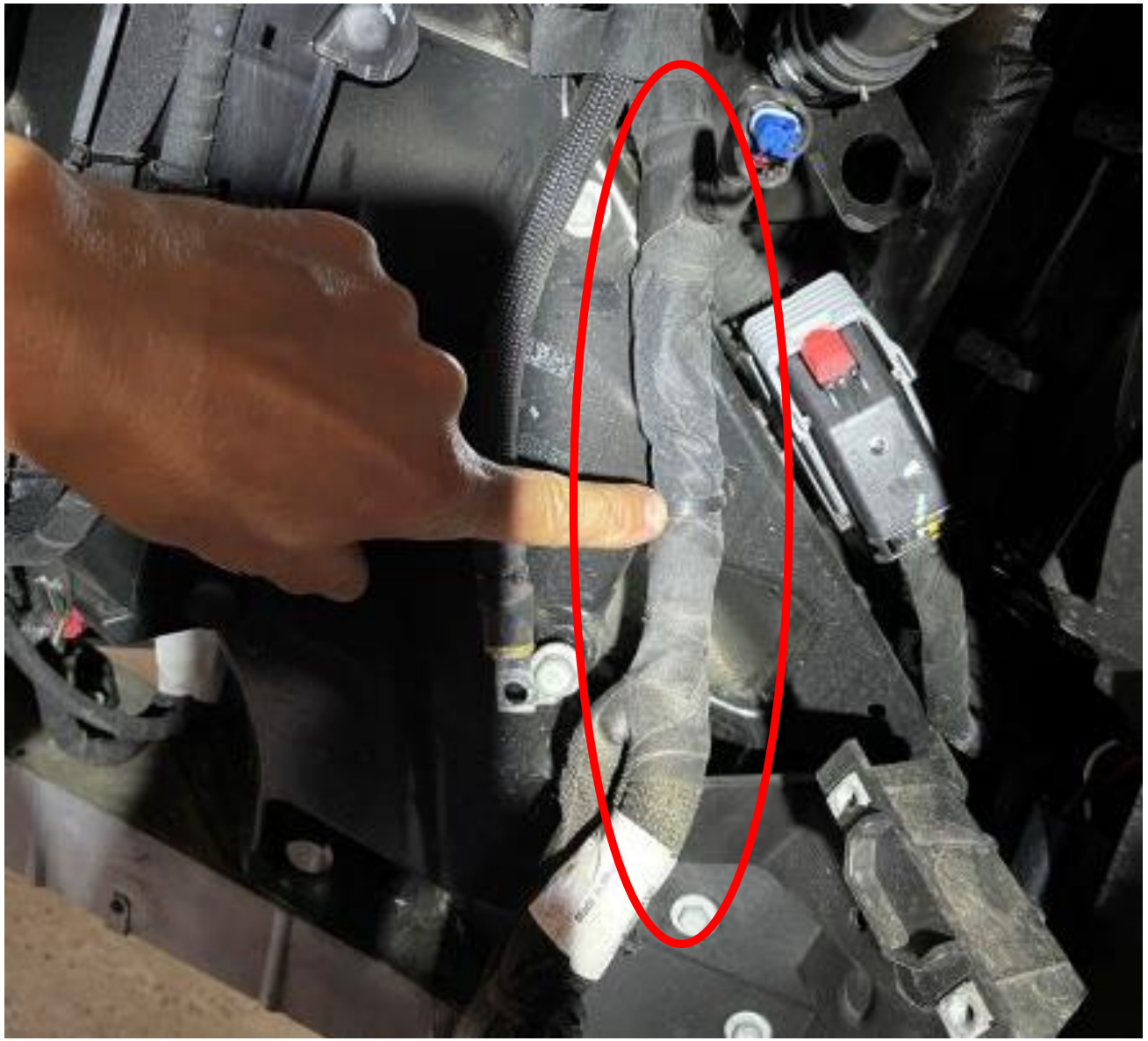


Remove LH / RH crash blocks in front of upper control arms.



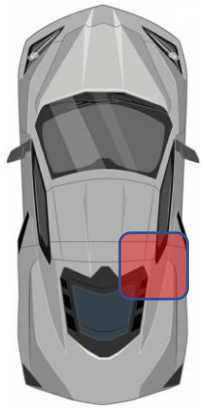
Inside the right rear wheel well, fur tree connectors secure the main harness bundle to a bracket, the frame structure and the coolant line bracket. Use a forked removal tool to remove the harness from these points.



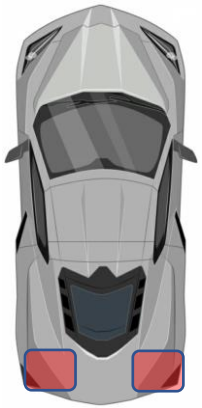


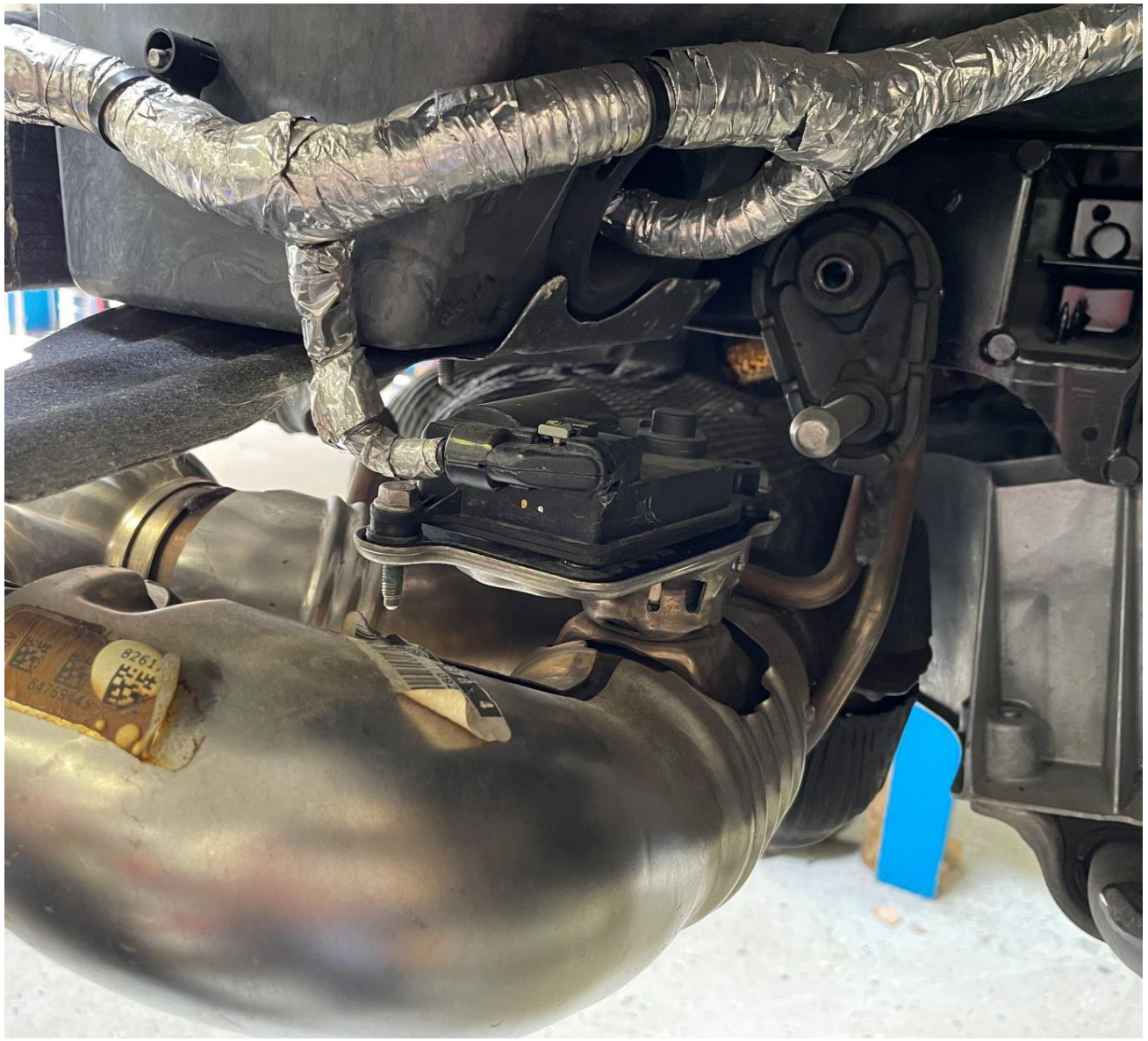
Remove (1) fastener @ coolant line bracket.

Tuck coolant lines inside frame so they won’t catch during power train removal.

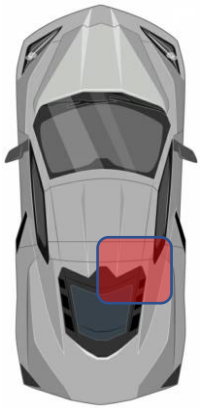


Disconnect NPP exhaust valve connectors @ LH / RH valves if vehicle is equipped.

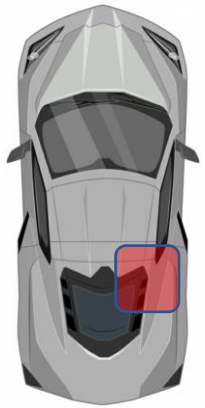




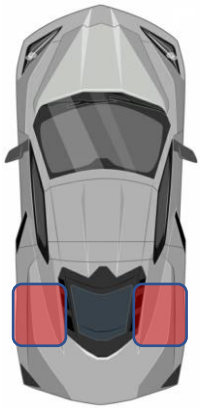
Convertible only: Inside RH side of engine bay, disconnect (2) coolant fittings.

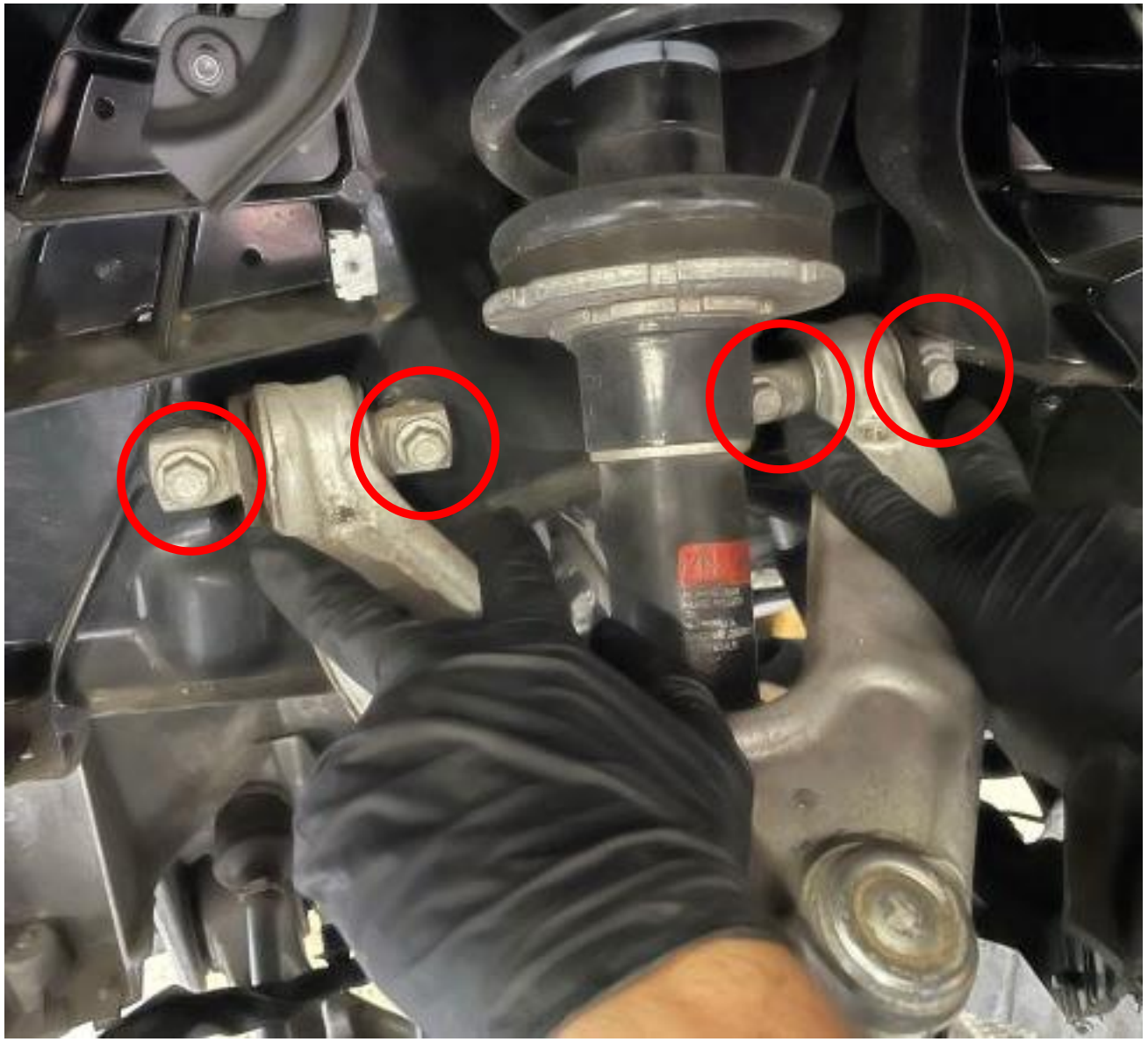


Convertible only: Remove (2) nuts securing fuel line above RH exhaust manifold.

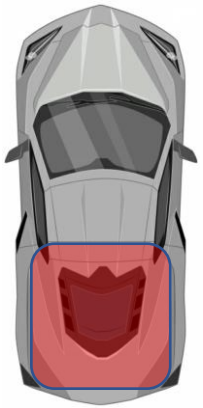


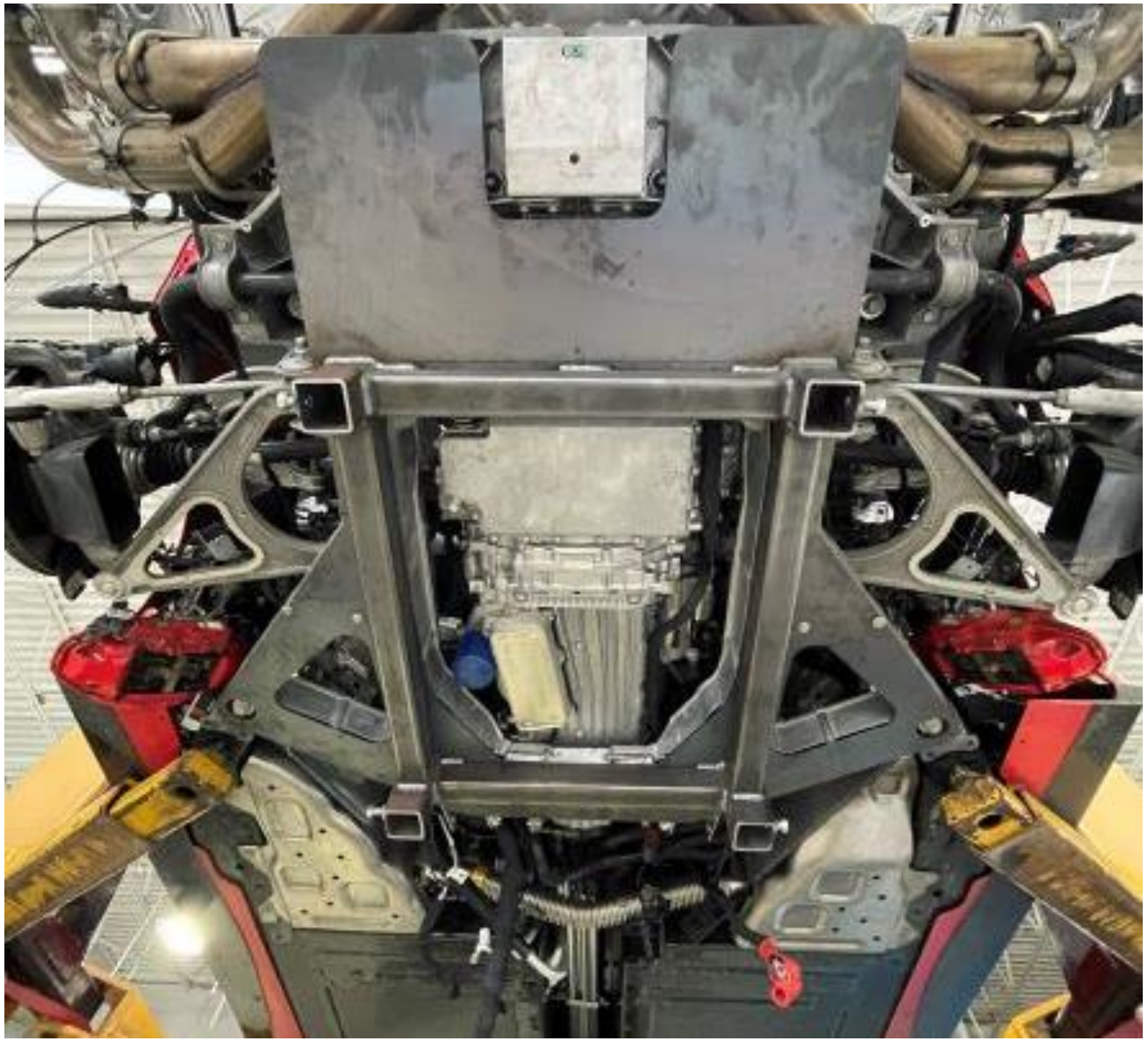
Remove LH / RH upper control arm bolts (4 per side).



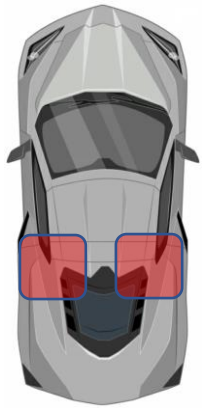


Raise the vehicle. Fasten power train removal fixture to vehicle sub-structure using M8 fasteners. Tighten snug.





Install C-clamps @ LH / RH rear hoist lift points to secure vehicle to hoist.

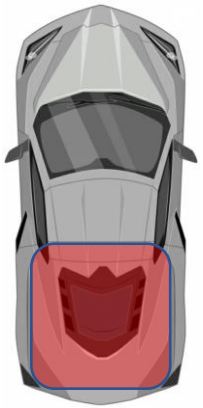


Roll the lower fixture under the vehicle, aligning (4) posts over upper fixture.

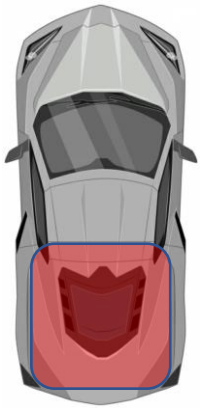
Lower vehicle to engage posts into upper fixture. Fully seat posts into holes.

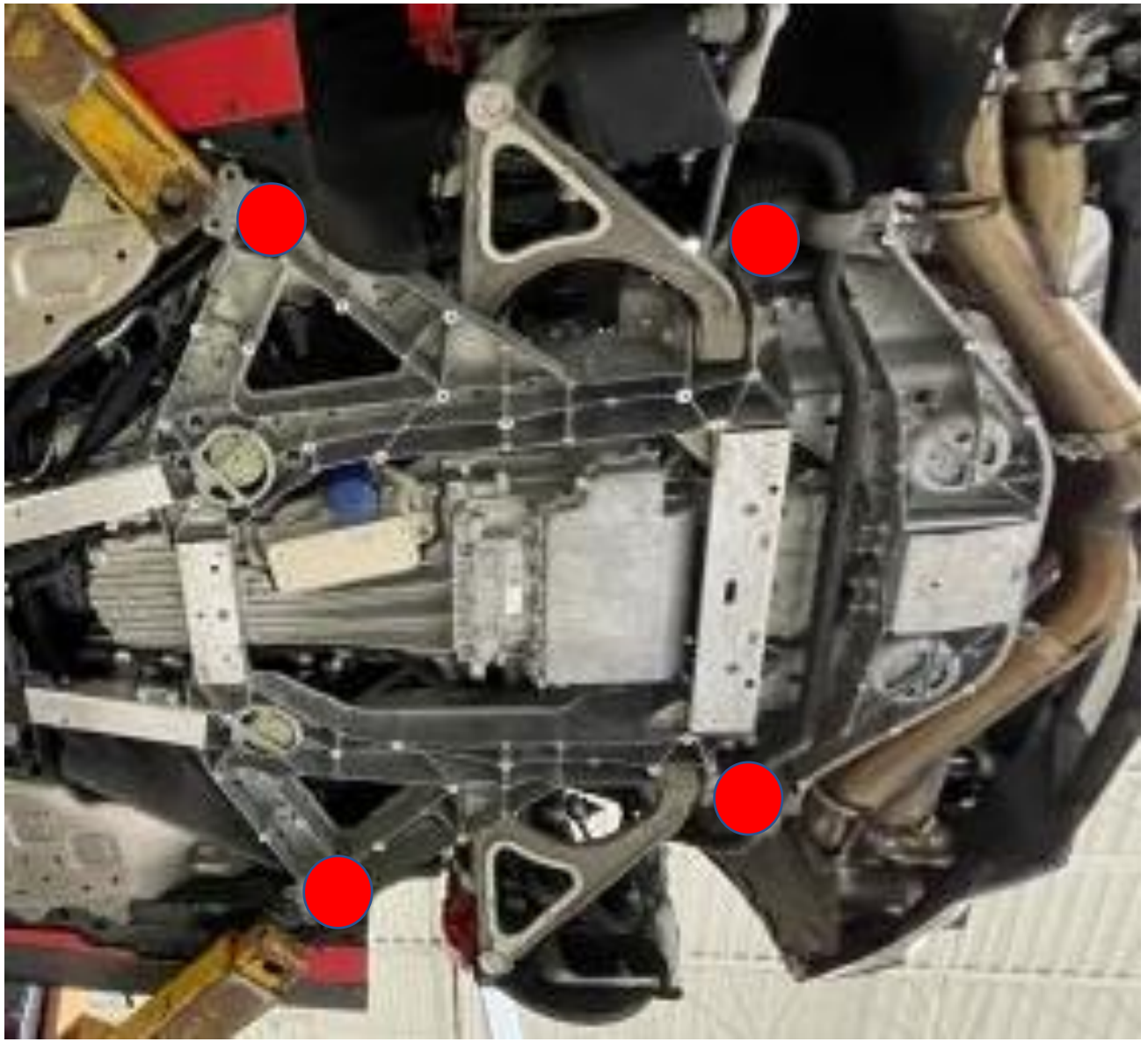
Tighten (8) jack screws at all post locations.

Lower vehicle to pre-load the weight of the power train onto the fixture.



Remove (4) main body structure bolts.



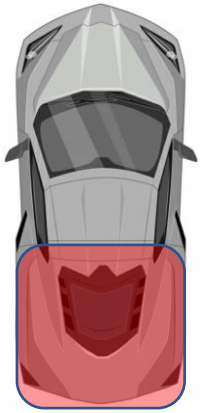


SLOWLY raise vehicle on hoist. Using the aid of (4) helpers, inspect for any remaining coolant, fuel or wiring harness connection issues and/or snags.

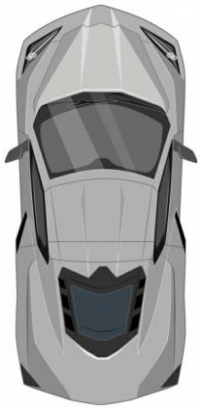
(1) Under front of power train, (1) @ rear of power train, (1) inside each LH / RH wheel well.

Ensure nothing gets snagged as vehicle is raised.

Note: if removing A/C compressor from the engine, raise vehicle approx. 6 inches from power train then remove A/C compressor belt followed by A/C compressor electrical connector and fasteners. Hang compressor securely from under body. Continue raising vehicle.



Carefully roll power train out from under vehicle. Use wheel locks as necessary to ensure it remains secure.



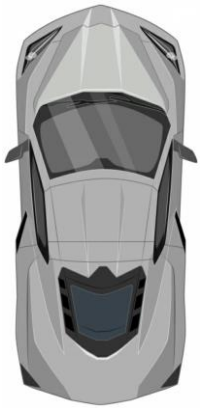
MAGNUSON SUPERCHARGERS

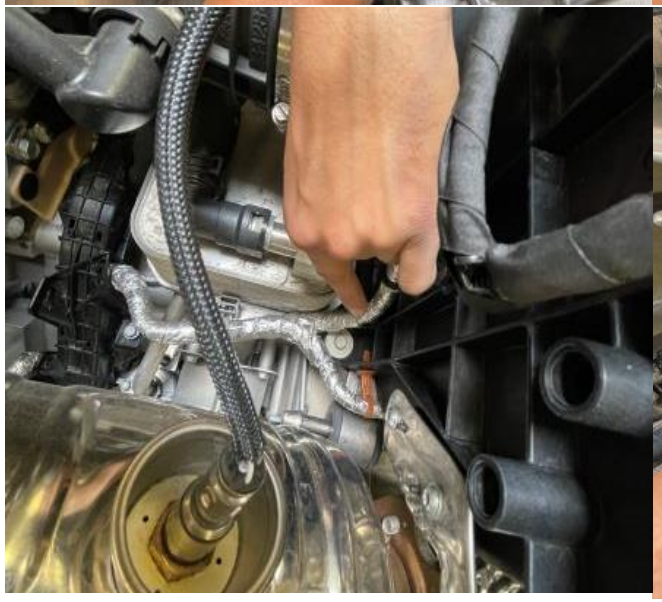
C8 Corvette Supercharger Installation

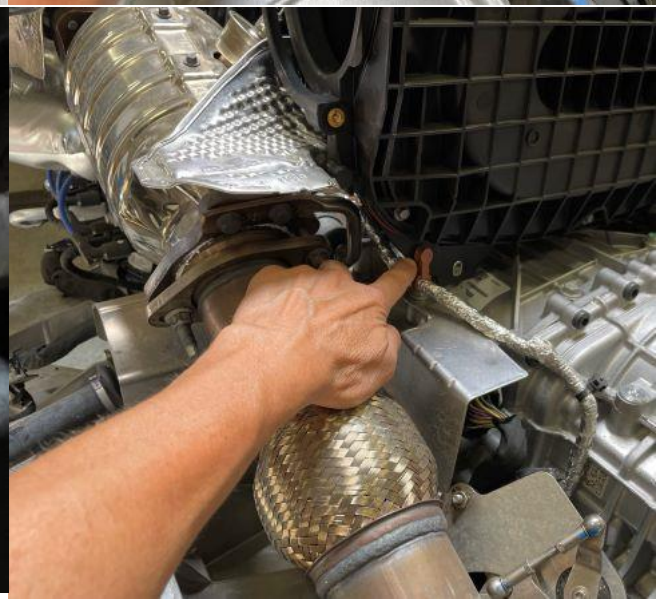
If adding trans fluid, the OE airbox must be removed.

IMPORTANT: See notes on page 5 of this manual for proper fluid type and applicability based on model year and VIN #. Some 2023 M.Y. vehicles DO NOT require additional fluid due to internal design changes introduced during this model year.

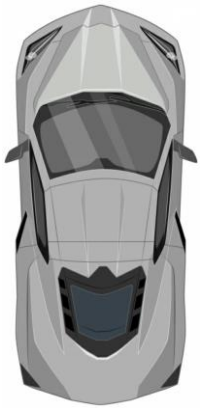
To remove airbox, remove (2) fasteners @ bottom rear, (1) sensor @ bottom rear, (2) wiring harness furr tree connectors @ bottom corners.



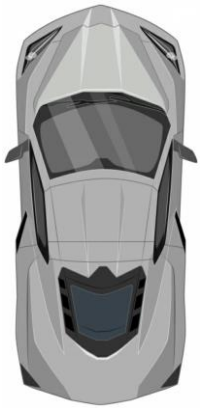




Disconnect trans breather vent fur tree connector from airbox.

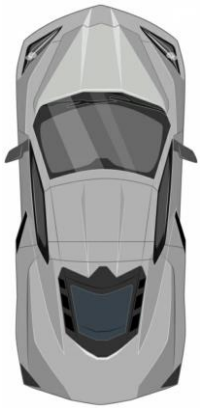


Disconnect oxygen sensor fur tree connectors and takeouts from front of airbox.



Remove the YELLOW trans fill plug and add (2) quarts of AC Delco P/N 19418016 DCTF FFL-4 Automatic Trans Fluid into the transmission (Note: see page 5 of this manual).

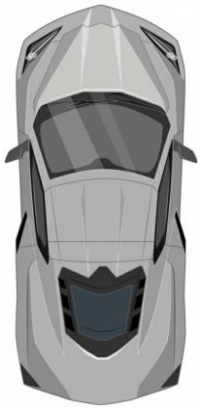
Place a “+2” ID mark next to the plug to denote extra fluid has been added.

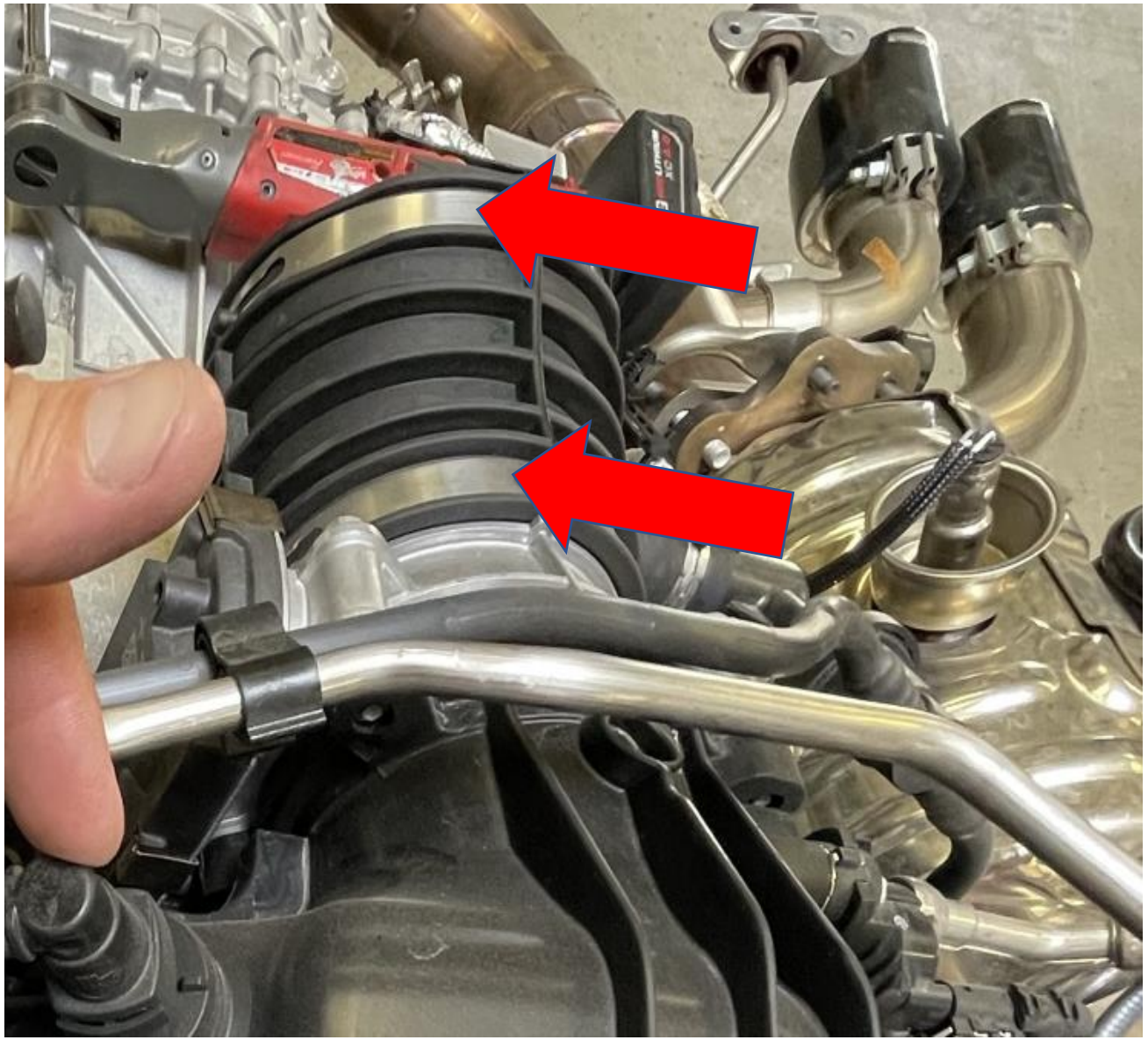


Loosen gear clamps at both ends of rubber inlet adaptor between airbox and throttle body.

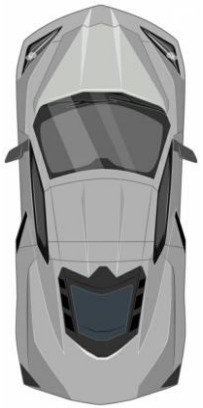
Disconnect PCV tube from adaptor.

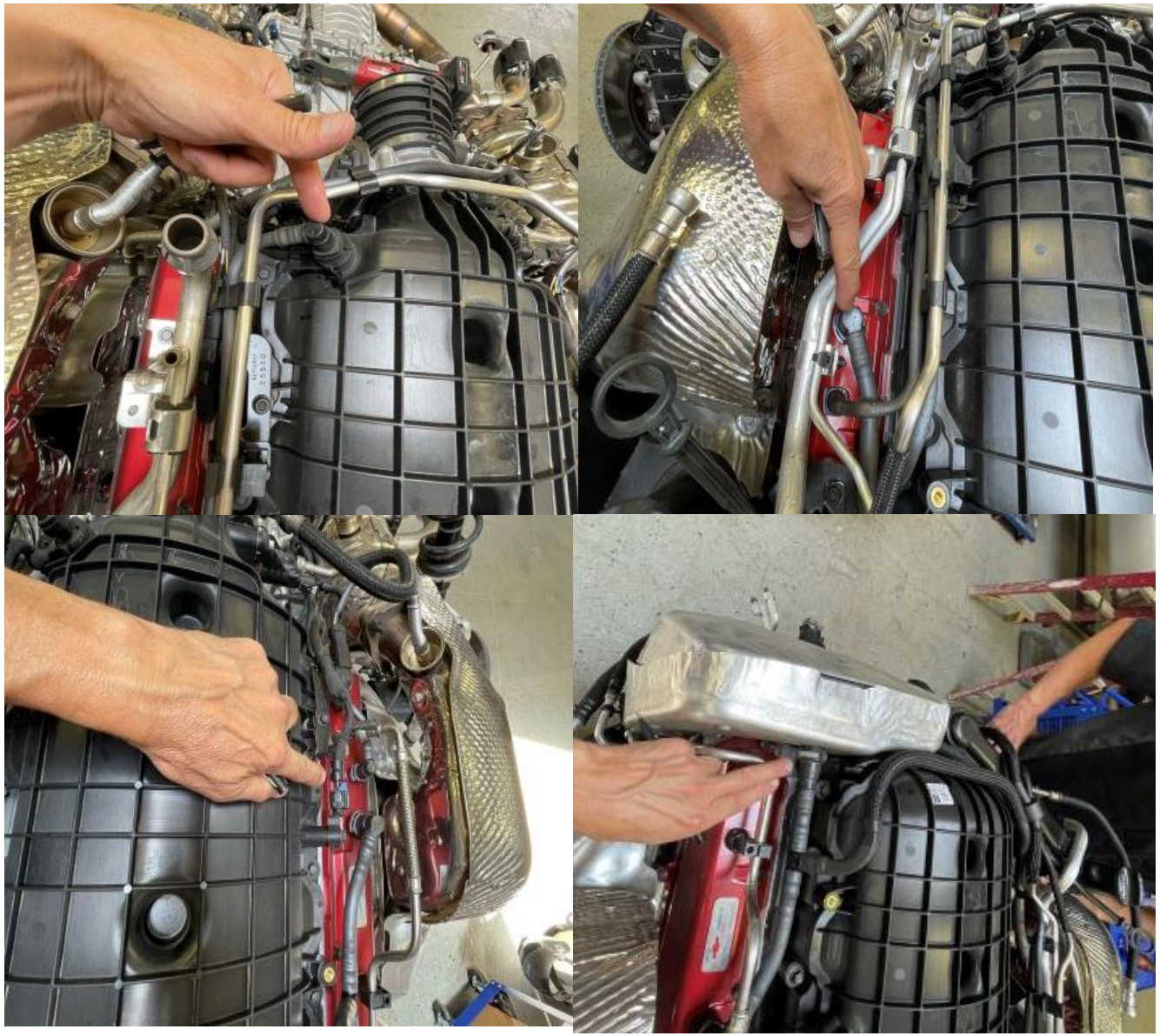
Remove adaptor and set aside.





Remove entire Purge and PCV valve tube assemblies from engine.



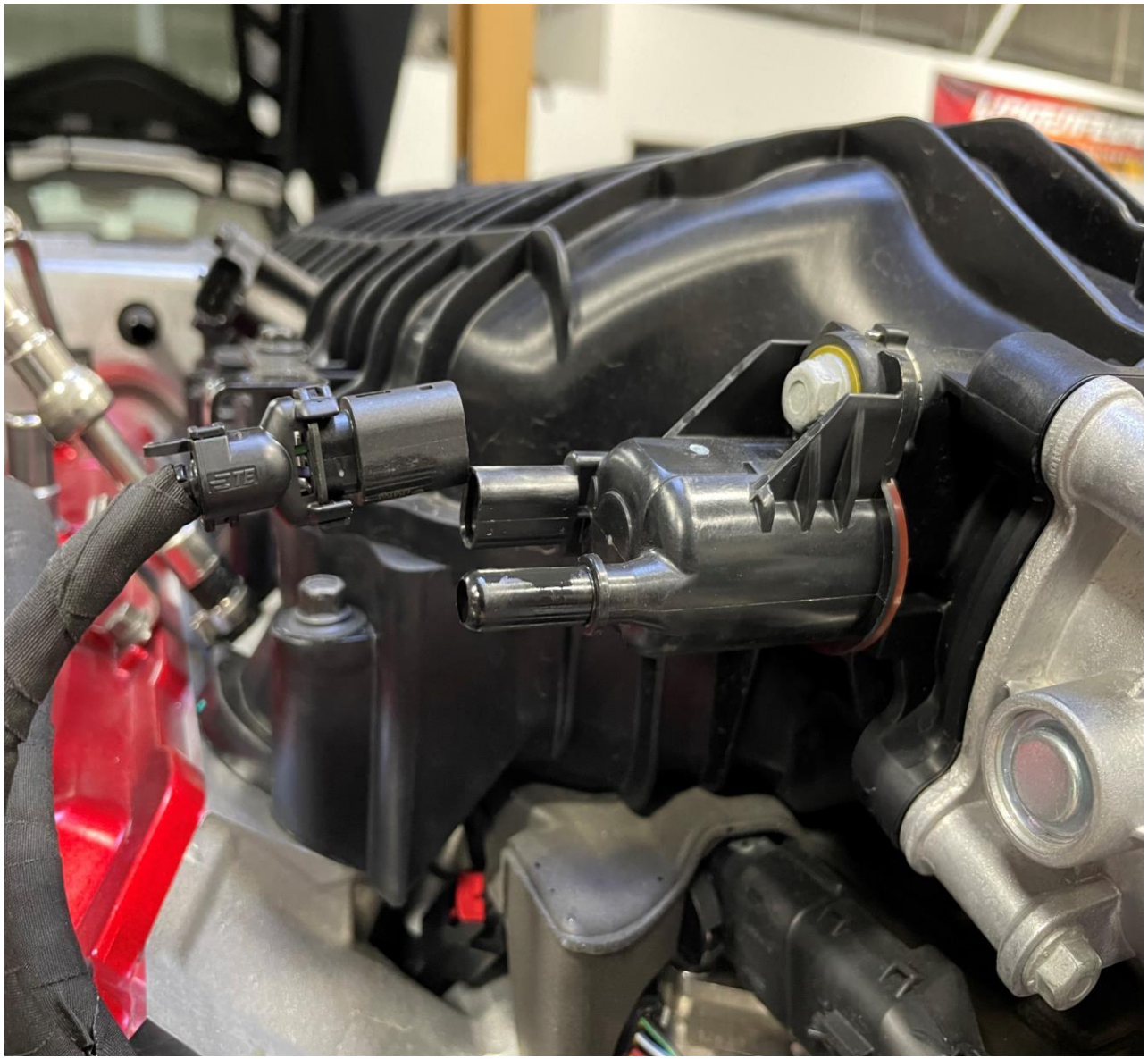


Disconnect oxygen sensor fur tree connectors then disconnect oxygen sensors at hardshell connectors.

Disconnect ETB electrical connector on RH side of throttle body.

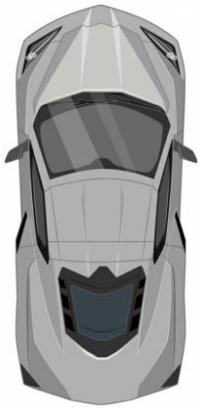
Remove purge solenoid from the intake.

The solenoid and its' OE fastener will be re-installed to the inlet adaptor on the supercharger in a later step.



Remove evap purge solenoid from the evap line using the orange 3D printed removal tool (available from LPE)

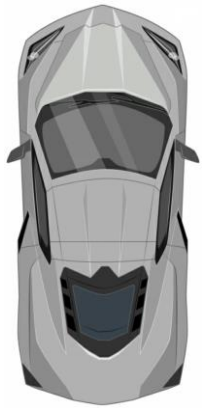
Disconnect harnesses @ hardshell connectors and remove wiring harness bracket @ RH front of engine.

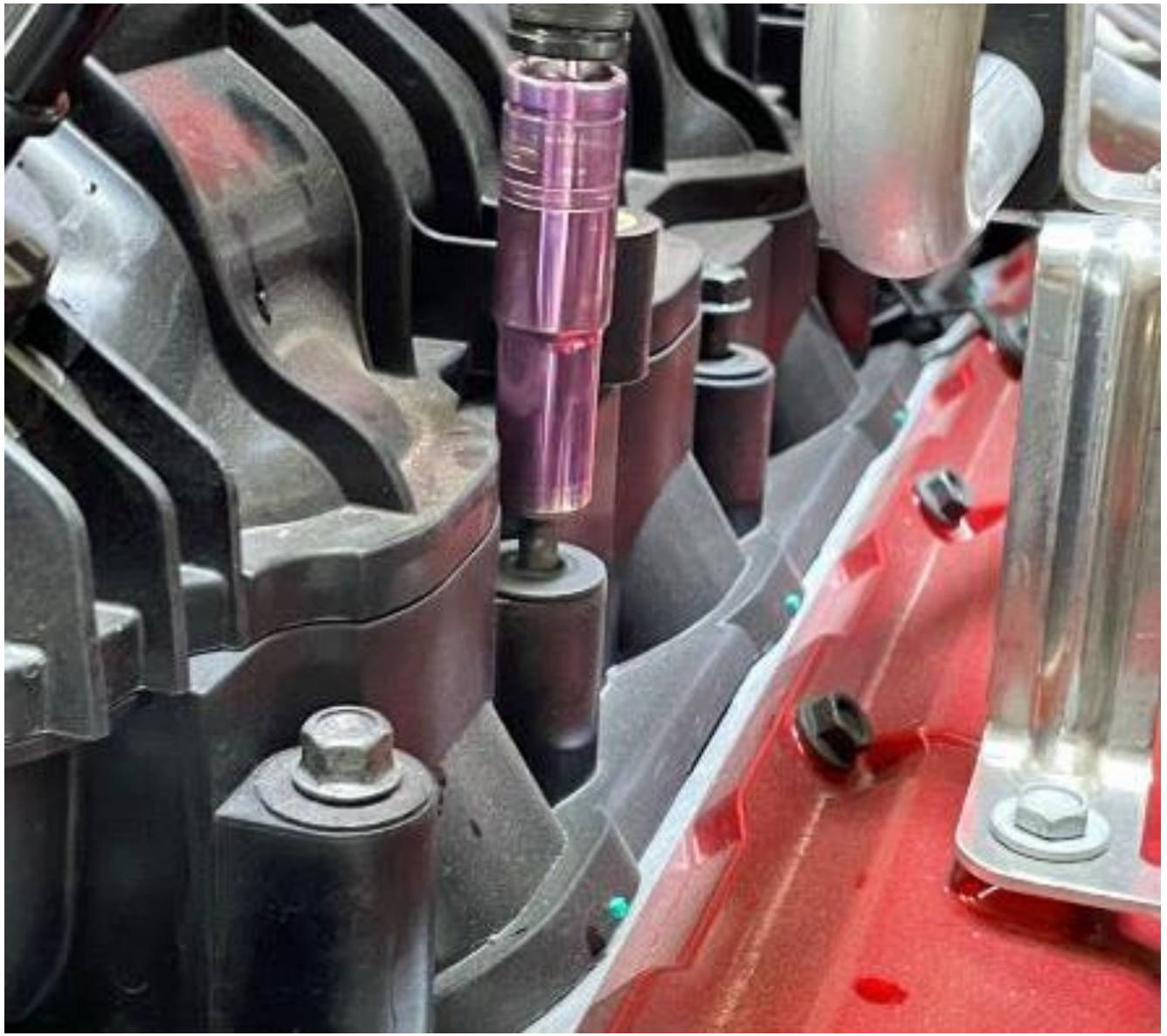


Loosen and remove all intake fasteners.

Remove intake from engine.

Wipe down and tape all intake ports to ensure no contaminants enter the engine.

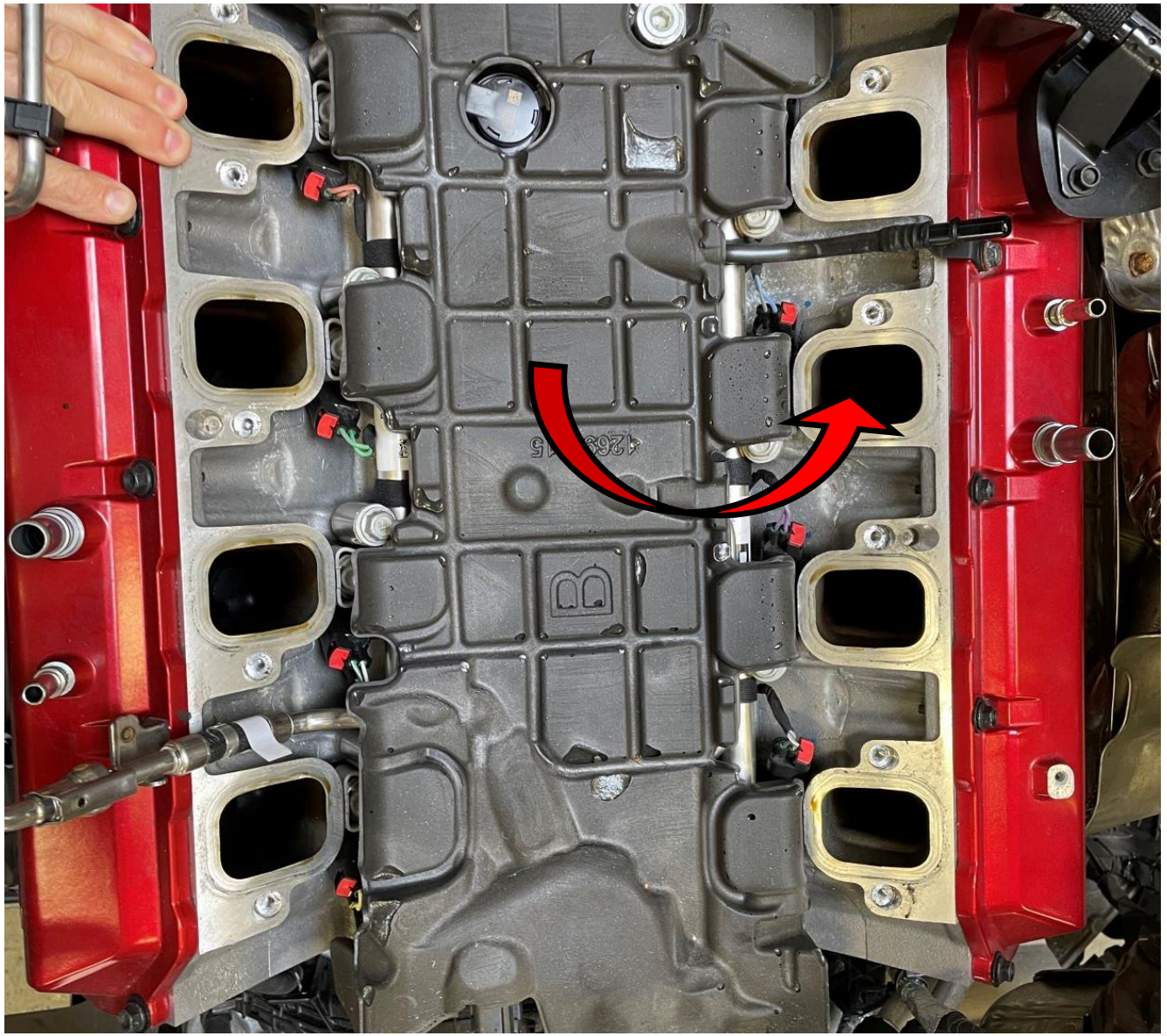




Remove NVH foam blanket from engine valley.

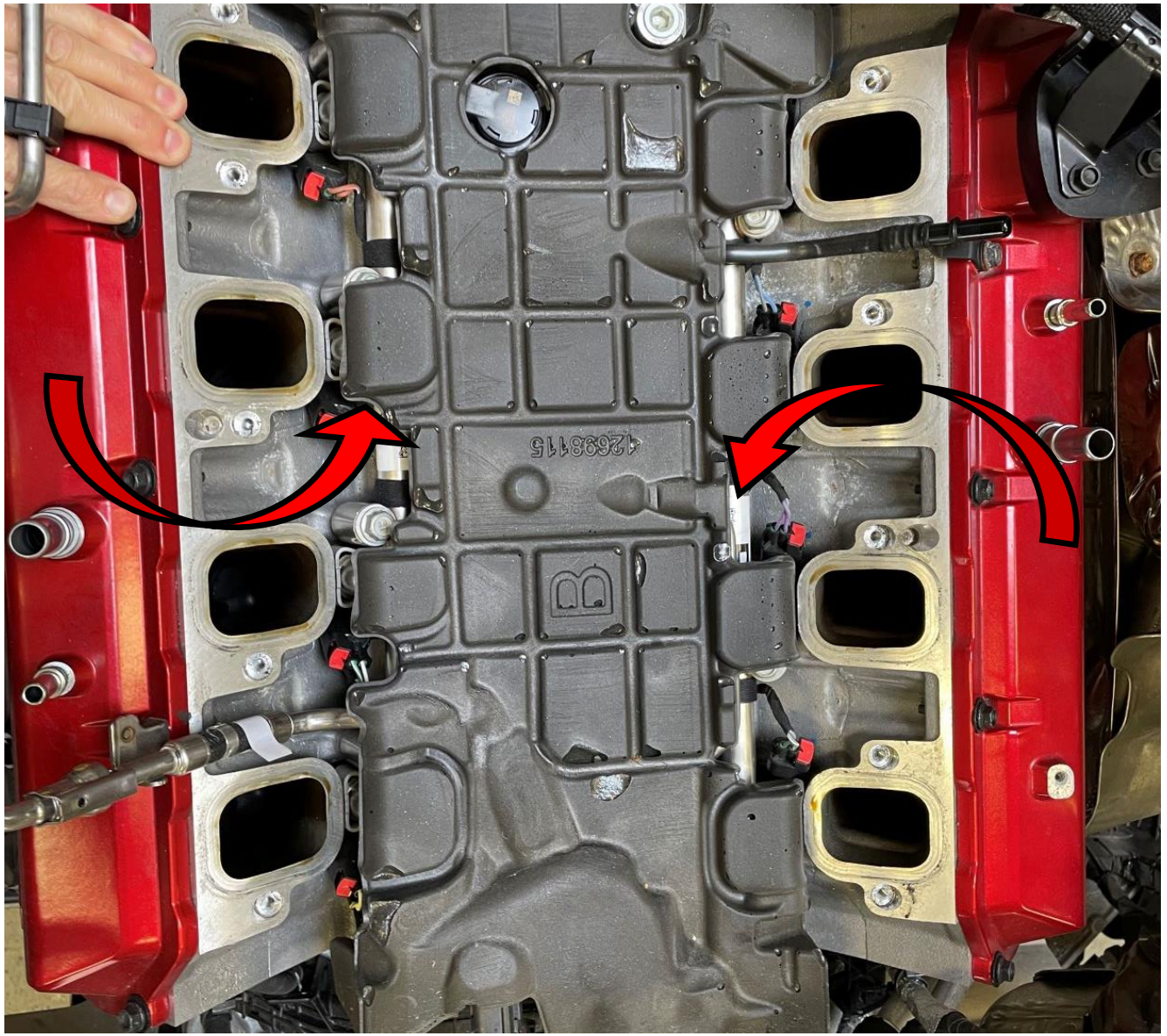
Clean intake ports with a clean rag and brake kleen.

Tape off ports to prevent contamination from entering engine as necessary.



If valve springs are being upgraded, the following slides detail the GM procedure to remove and re-install this hardware. Remove both valve covers.

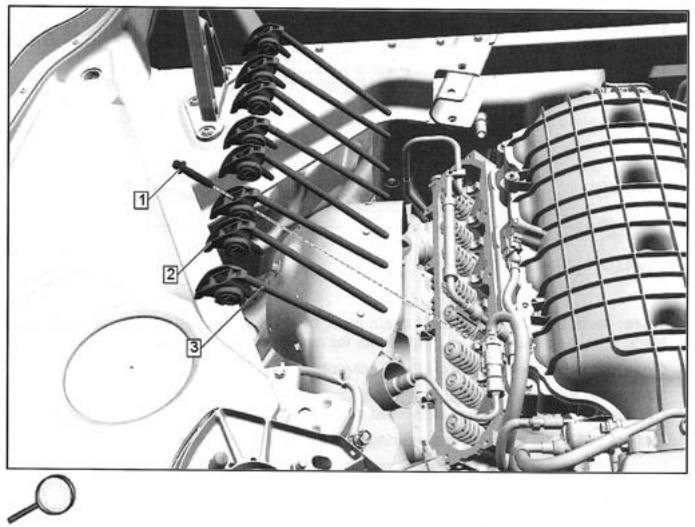
If this upgrade is not being performed, skip to page 97



Valve Rocker Arm and Push Rod Replacement

Removal Procedure

1. Remove the appropriate valve rocker arm cover:
   - Valve Rocker Arm Cover Replacement - Left Side
   - Valve Rocker Arm Cover Replacement - Right Side



Note: The bolt is separated from the valve rocker arm for visual purposes only. It is not necessary to separate these components once they are removed.

2. Valve Rocker Arm (2) & Valve Rocker Arm Pivot Support Bolt (1) » Remove
3. Valve Push Rod (3) » Remove

Cleaning and Inspection Procedure

Valve Stem Oil Seal and Valve Spring Replacement

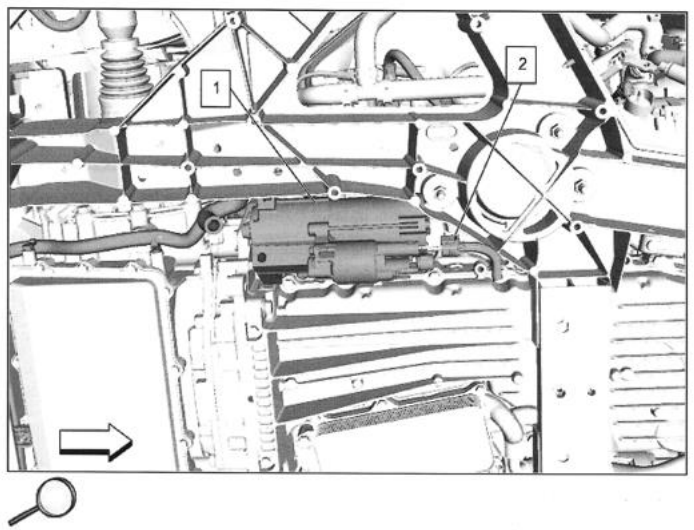
Special Tools

- *EN-46116* Valve Stem Seal Remover/Installer
- *EN-46335-A* On-Vehicle Valve Spring Compressor
- *EN-51749* Spark Plug Port Adapter
- *EN-52751* Flywheel Holding Tool

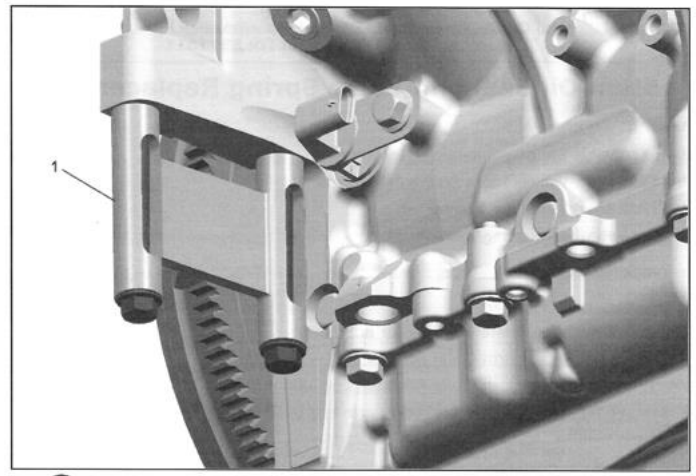
Equivalent regional tools: Special Tools

Removal Procedure

1. Remove the appropriate valve rocker arm cover:
   - Valve Rocker Arm Cover Replacement - Left Side
   - Valve Rocker Arm Cover Replacement - Right Side
2. Remove the appropriate valve rocker arm and push rod. Valve Rocker Arm and Push Rod Replacement

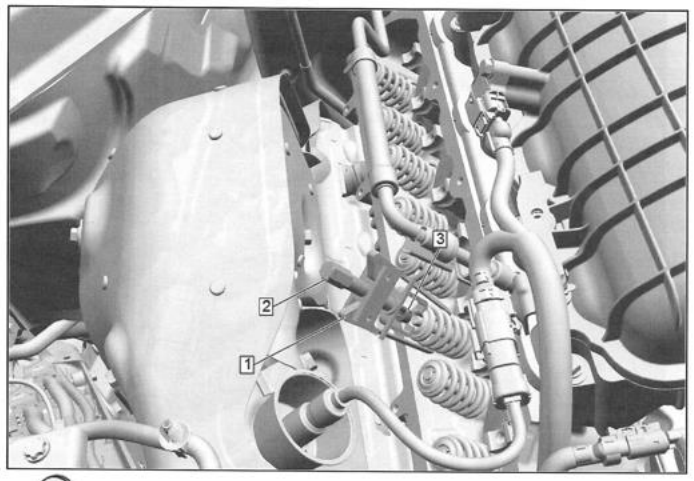


3. Starter (1) » Remove — Starter Replacement

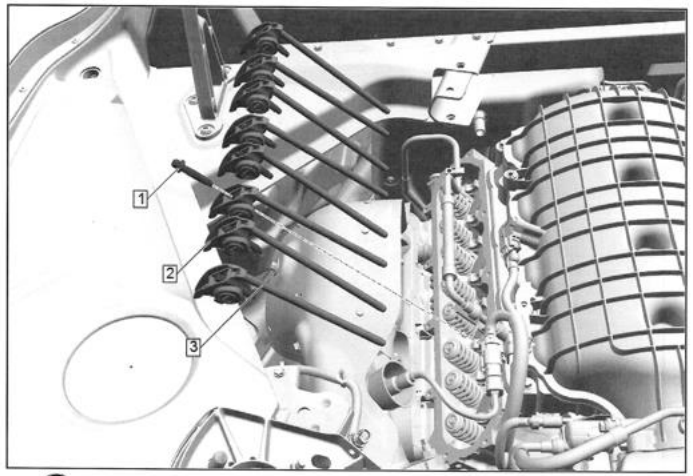


Note: If the *EN-52751* Flywheel Holding Tool is not installed, the crankshaft may rotate. If the crankshaft rotates, disassembly and reassembly of the entire camshaft timing system may be required.

4. Install the *EN-52751* Flywheel Holding Tool (1) to prevent crankshaft rotation.
5. Remove the spark plug from the applicable cylinder.
    - Gas Engine Ignition Spark Plug Replacement - Left Side
    - Gas Engine Ignition Spark Plug Replacement - Right Side
6. Install the *EN-51749* Spark Plug Port Adapter to the applicable cylinder.
7. Connect the *EN-51749* Spark Plug Port Adapter to a compressed air source.
8. Lower the vehicle.



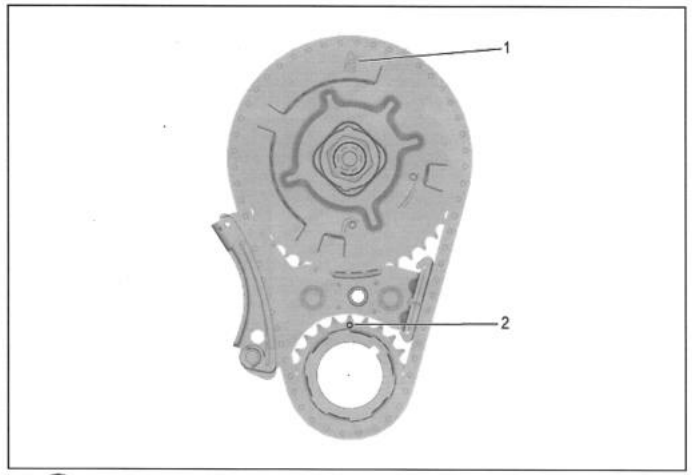
9. Install the *EN-46335-A* On-Vehicle Valve Spring Compressor (1) above the applicable cylinder as shown.
10. Tighten the *EN-46335-A* On-Vehicle Valve Spring Compressor bolt (2).
11. Valve Stem Key (3) » Remove
12. Loosen the *EN-46335-A* On-Vehicle Valve Spring Compressor bolt (2) and remove the compressor (1).



Note:

- When using the valve train components again, always install the components to the original location and position.
- Valve lash is net build. No valve adjustment is required.
- Lubricate the flange of the valve rocker arm bolts with clean engine oil.
- Lubricate the valve rocker arms and push rods with clean engine oil.
- Ensure the push rods seat properly to the valve lifter sockets.
- The rocker arm bolts are not serviced separately.
- Ensure the push rods seat properly to the ends of the rocker arms.
- Do NOT tighten the rocker arm bolts at this time.

1. Valve Push Rod (3) » Install
2. Valve Rocker Arm (2) & Valve Rocker Arm Pivot Support Bolt (1) » Install



3. Rotate the crankshaft until number 1 piston is at top dead center of compression stroke.
   In this position, cylinder number 1 rocker arms will be off lobe lift, and the crankshaft sprocket key will be at the 1:30 position. The camshaft and crankshaft sprocket alignment marks (1, 2) will be in the 12 o'clock position. If viewing from the rear of the engine, the additional crankshaft pilot hole, non-threaded, will be in the 10:30 position.
   The engine firing order is 1, 8, 7, 2, 6, 5, 4, 3.
   Cylinders 1, 3, 5, and 7 are left bank.
   Cylinders 2, 4, 6, and 8 are right bank.
   Caution: Refer to Fastener Caution
4. With the engine in the number 1 firing position, tighten the following valve rocker arm bolts:
   4.1. Tighten the exhaust valve rocker arm bolts 1, 2, 7, and 8 to **30 N·m (22 lb ft)**.
   4.2. Tighten the intake valve rocker arm bolts 1, 3, 4, and 5 to **30 N·m (22 lb ft)**.
5. Rotate the crankshaft 360 degrees.
6. Tighten the following valve rocker arm bolts:
   - Tighten the exhaust valve rocker arm bolts 3, 4, 5, and 6 to **30 N·m (22 lb ft)**.
   - Tighten the intake valve rocker arm bolts 2, 6, 7, and 8 to **30 N·m (22 lb ft)**.
7. Install the appropriate valve rocker arm cover:
   - Valve Rocker Arm Cover Replacement - Left Side
   - Valve Rocker Arm Cover Replacement - Right Side

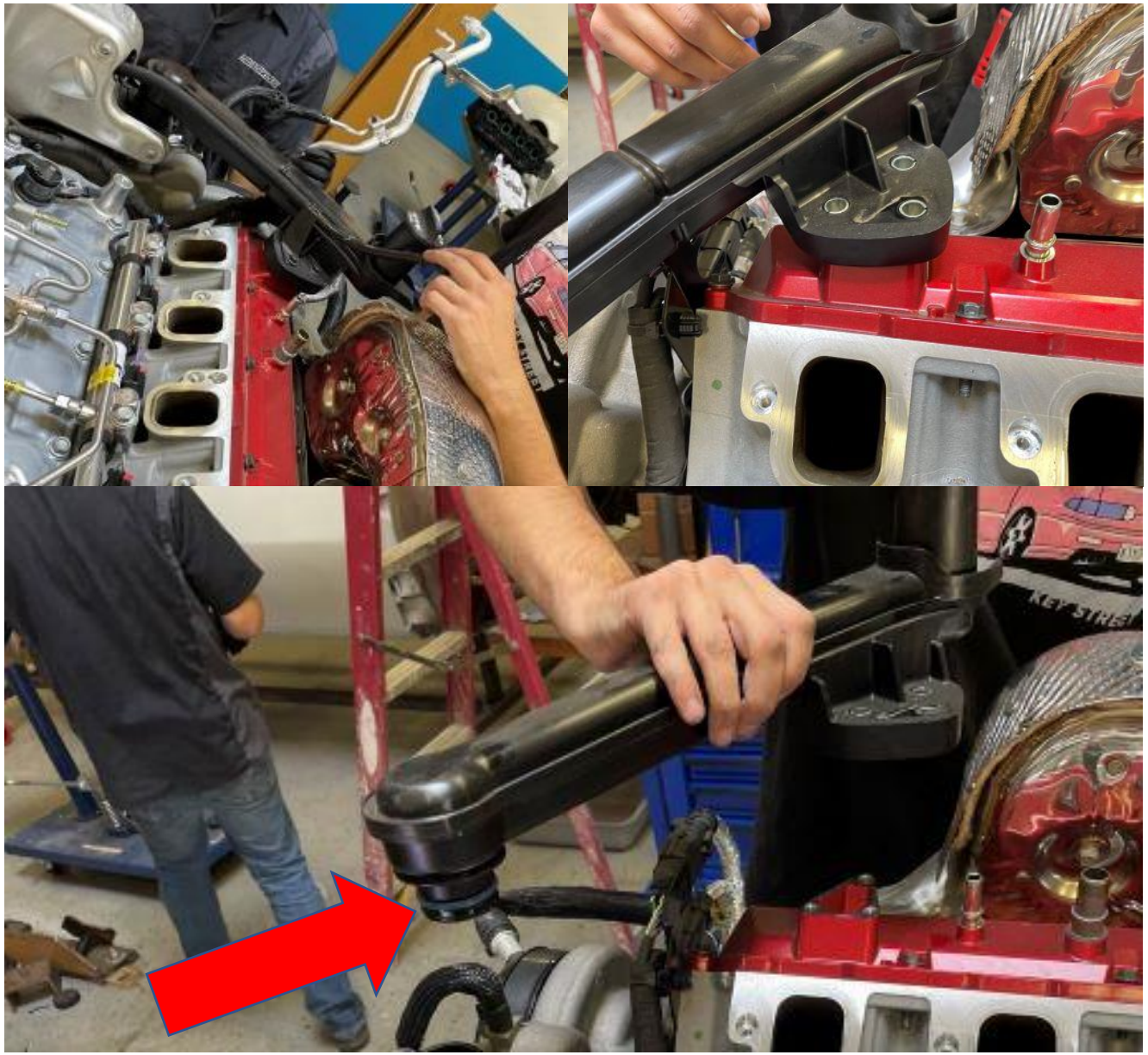
Remove 2 fur tree connectors holding coolant degas tube to oil fill tube.

Remove bolts securing dipstick and oil fill tube.

Remove dipstick and oil fill tube.

Harvest the seal from the oil fill tube @ dry sump side as indicated in the bottom photo. Set the seal aside.

The factory oil fill tube and cap will not be re-used.

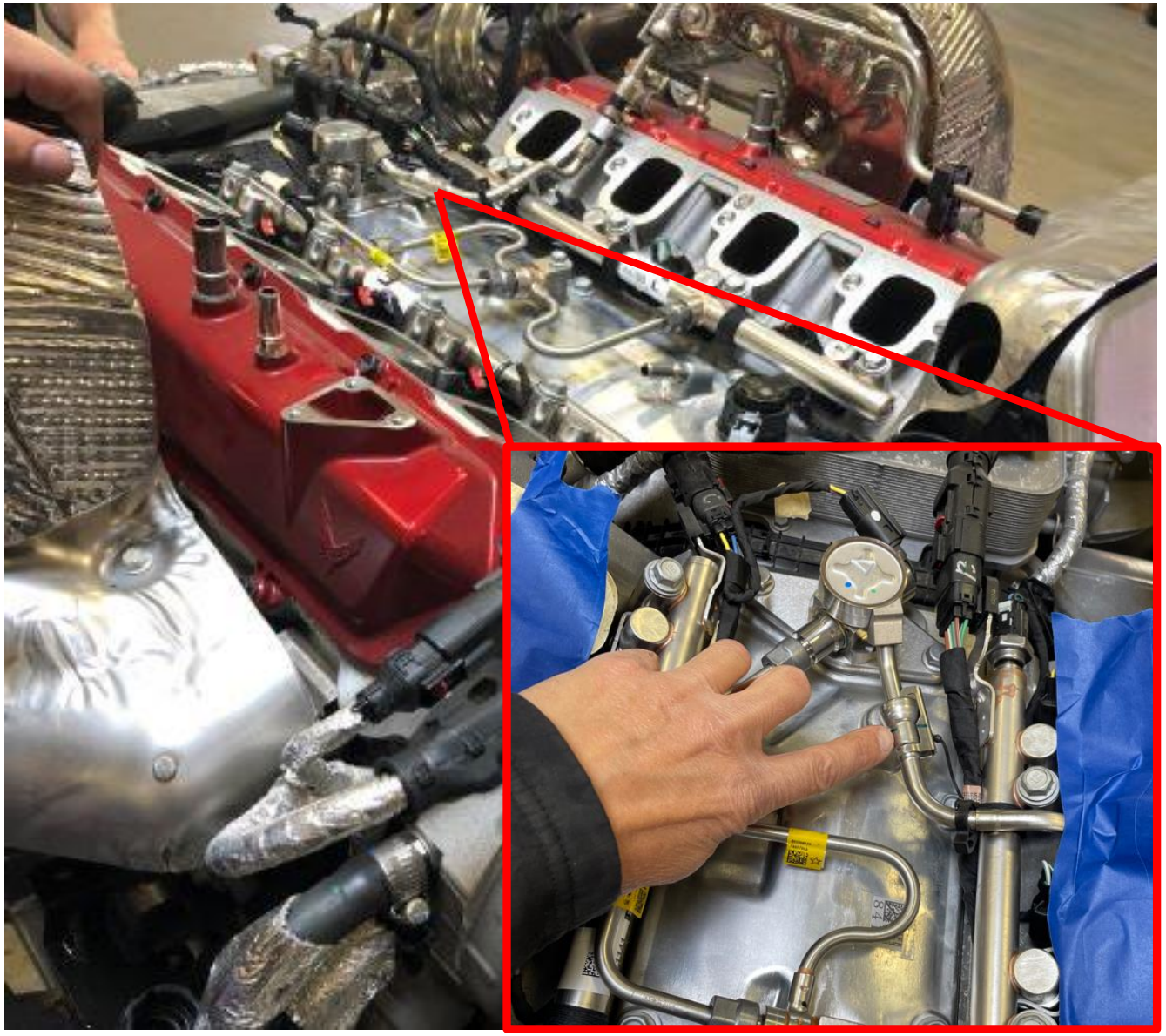


Harvest (8) seals from OE intake ports.

Re-install (8) OE PIP gaskets into SC head unit.

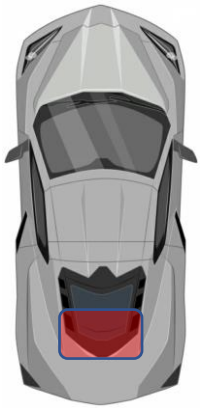
Smear di-electric grease around perimeter of (8) intake ports.

Rotate fuel line lock in valley by DI pump so it faces horizontally.



With the aid of helper, install the supercharger head unit onto the engine.

Ensure the intake gaskets do not roll or become displaced during installation.

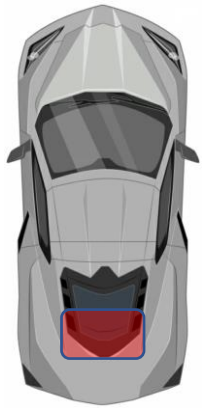


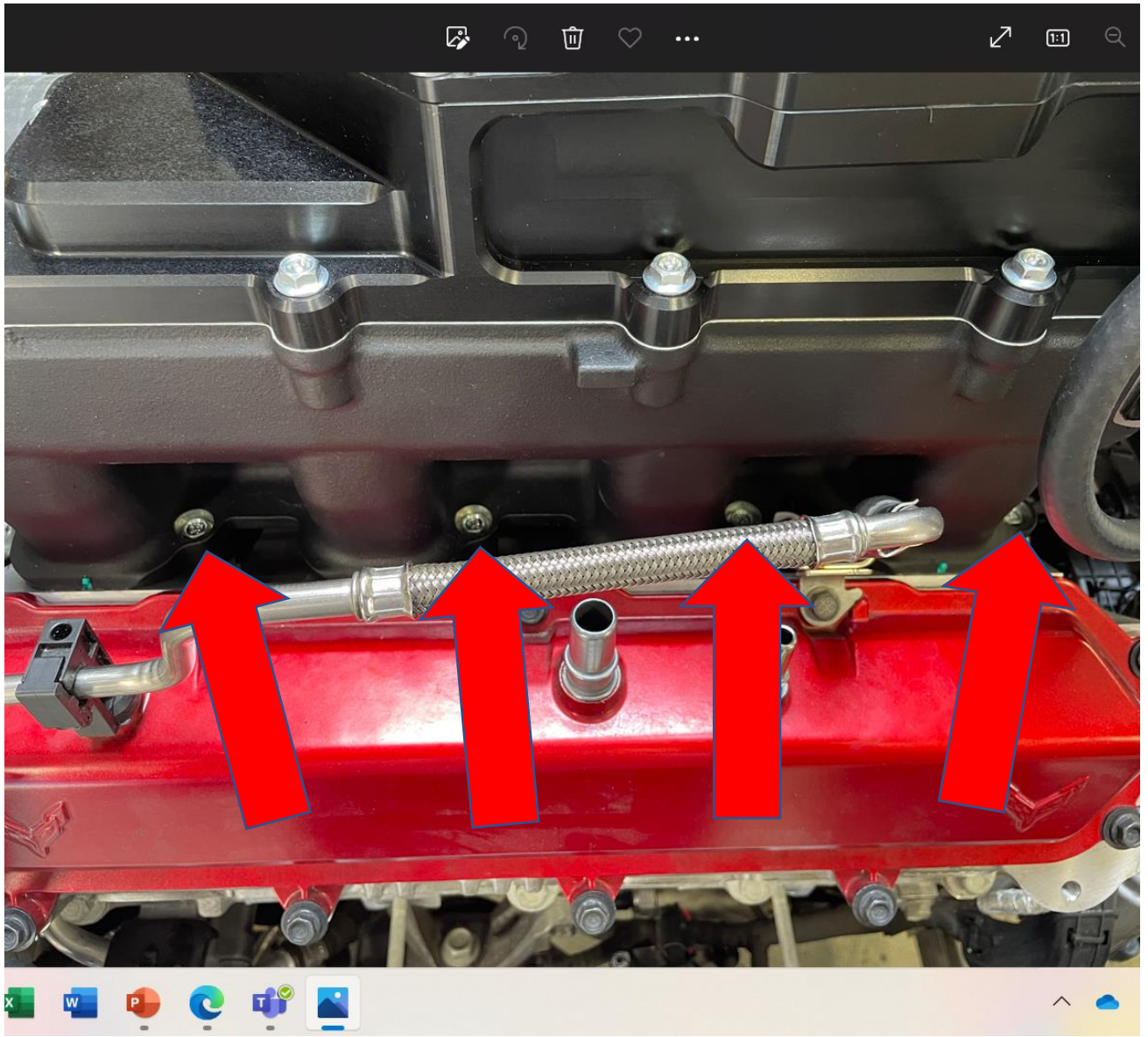
Install (8) intake bolts P/N 71-06-10-035 through intake into cylinder heads.

Zero torque all bolts starting from center out, in a criss-cross pattern.

Pre-torque (8) intake bolts 8 Nm in sequence.

Final torque (8) intake bolts 12 Nm in sequence.

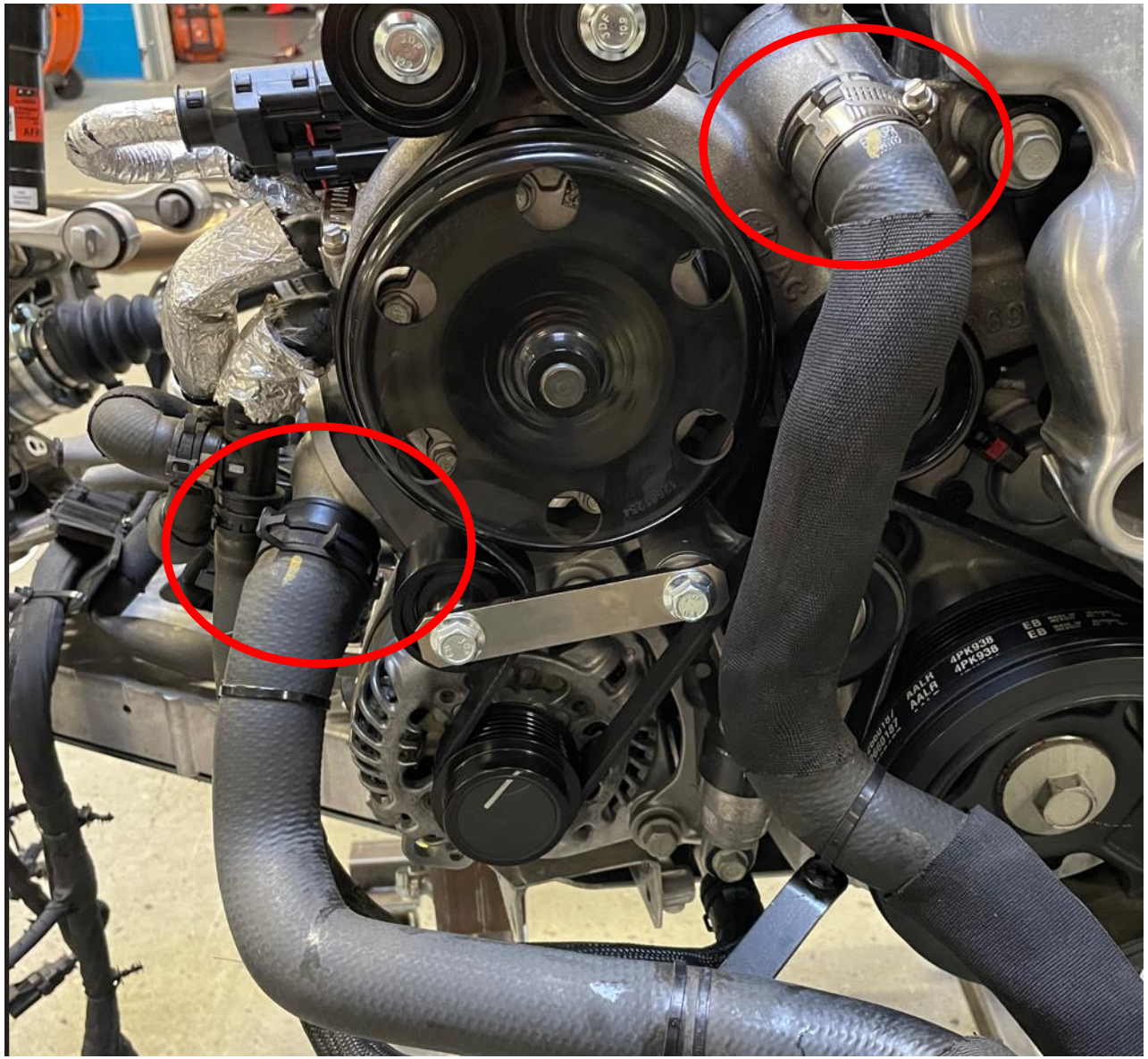




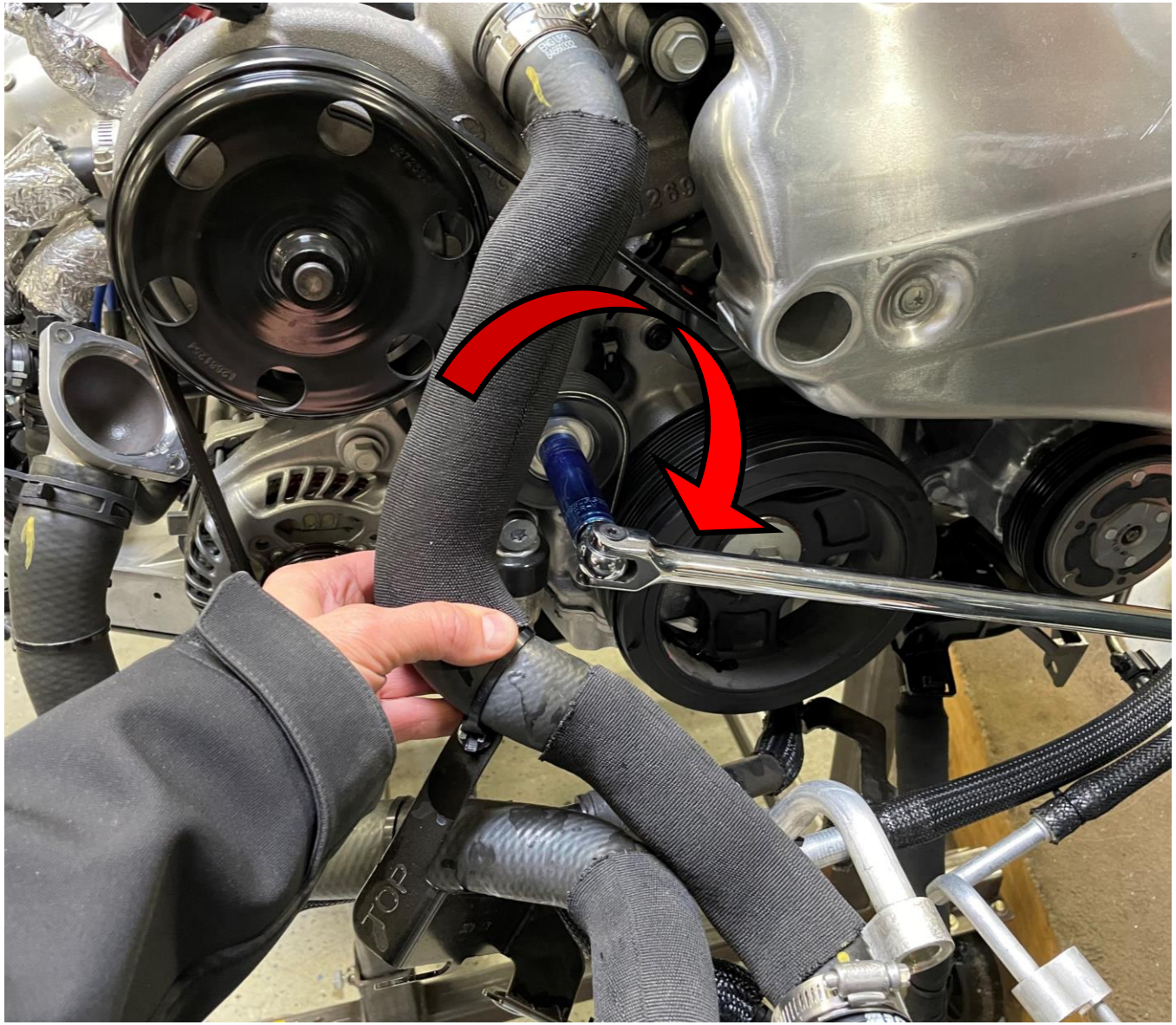
Install revised NGK LTR7IX-11 spark plugs.

Gap to 0.032 – 0.035 inch. Torque spark plugs to 15.0 ft. lbs.

Remove (2) rad hoses from engine.



Remove serpentine belt from engine by gently rotating the hydraulic tensioner via the pulley bolt. Rotate clockwise to release tension.



FEAD Drive Installation

Pre-install (1) P/N 71-10-15-025 fastener into RH front cylinder head in the location shown.

Note: Due to water pump casting variance, the bolt may have to be ground slightly shorter to allow engagement into the cylinder head threads.

2-Piece Jackshaft Installation

Slip the jackshaft lower bracket PN 65-26-62-079 onto the bolt that was pre-installed in the previous step.

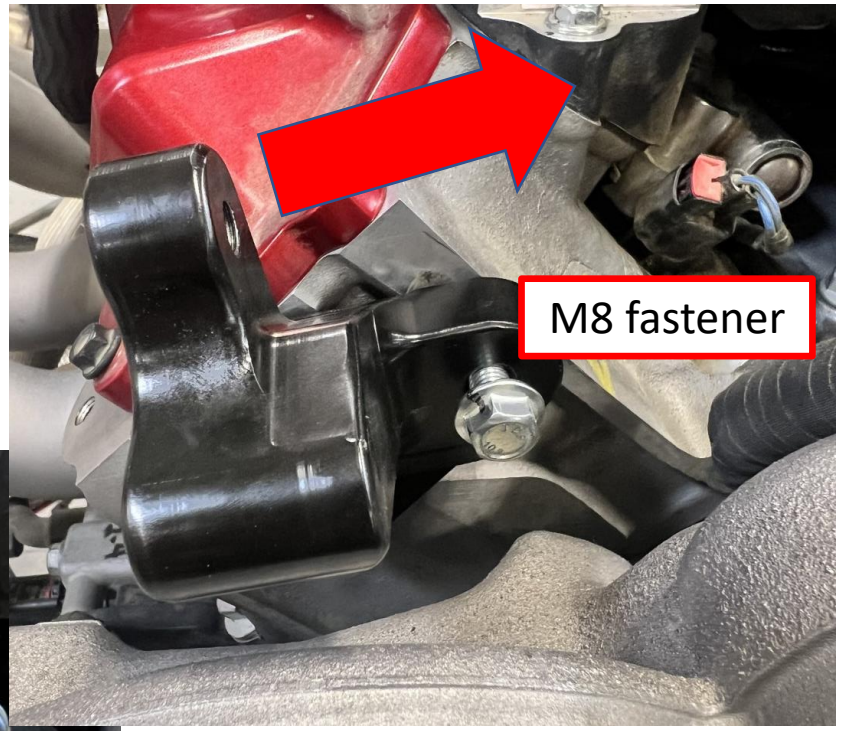
Orient and align the lower bracket with the holes in the RH cylinder head.

Install (2) M8 X 30mm long bolts through the lower bracket into the cylinder head. After all (3) fasteners have been installed by hand, shift the lower bracket toward the drivers' side of the engine, hold in place, then torque the fasteners.

Note: a crow foot wrench may be required.

Tighten M8 bolts 28 Nm.

Tighten M10 bolt 55 Nm.



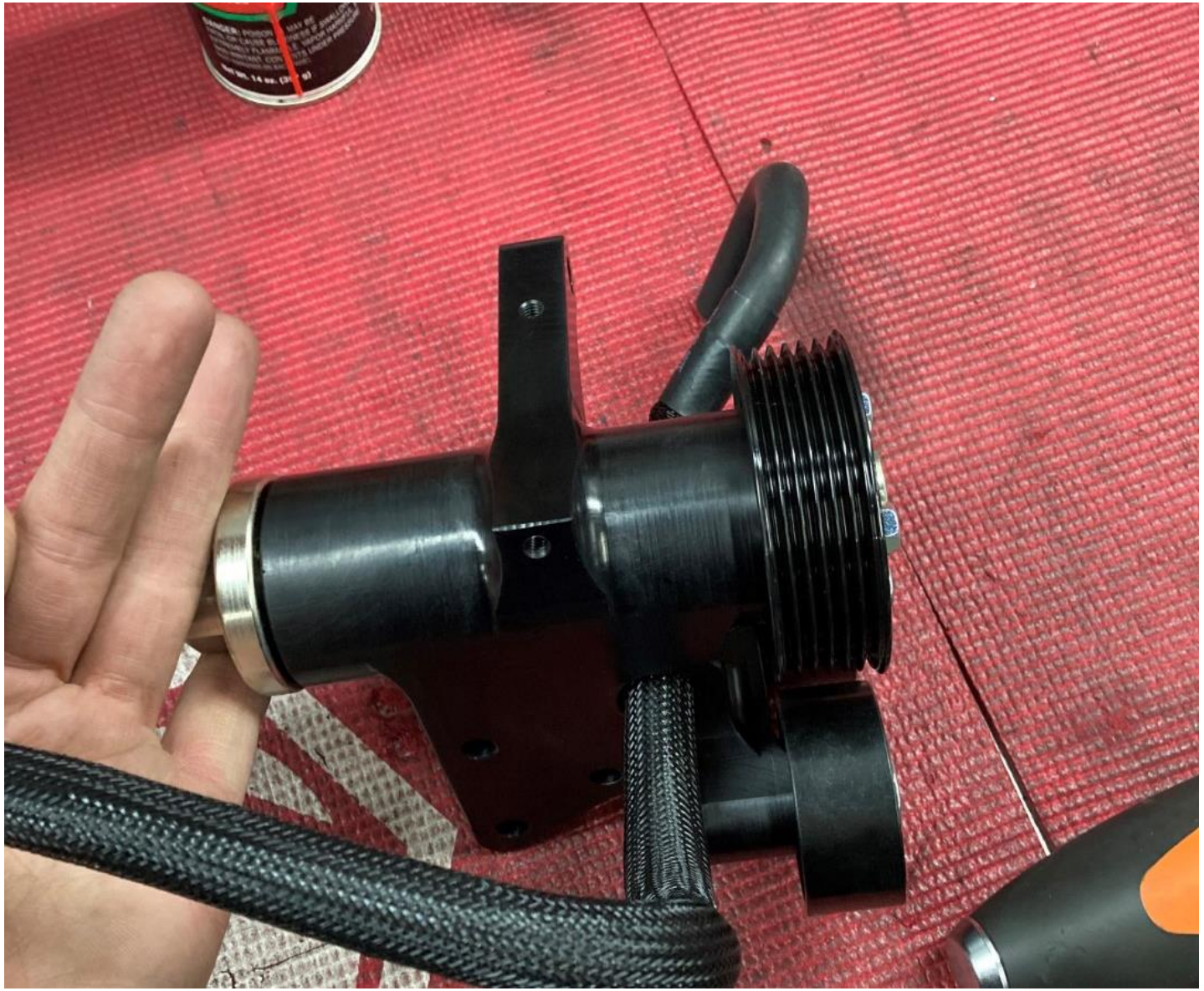
Shift lower bracket toward drivers' side of engine and hold in place while torquing (3) fasteners.

Disconnect and route the factory wiring/hard shell connectors between the lower bracket and the back of the water pump as shown.

Re-connect the wires and slide the locking tabs in place.

Zip tie the wires away from the exhaust system as necessary.

Select the upper jackshaft bracket assembly PN 31-26-62-081.



Sub-assemble the following items to the upper bracket:

Pre-install coolant hose 087F through the hole in the middle of the upper bracket, in the orientation shown.

Sub-assemble (2) P/N 56-06-01-054 idler pullies onto the upper bracket bosses.

Apply blue Loctite to (2) M10 X 35mm long idler pulley fasteners P/N 71-10-15-035. Torque the fasteners to 55 Nm.

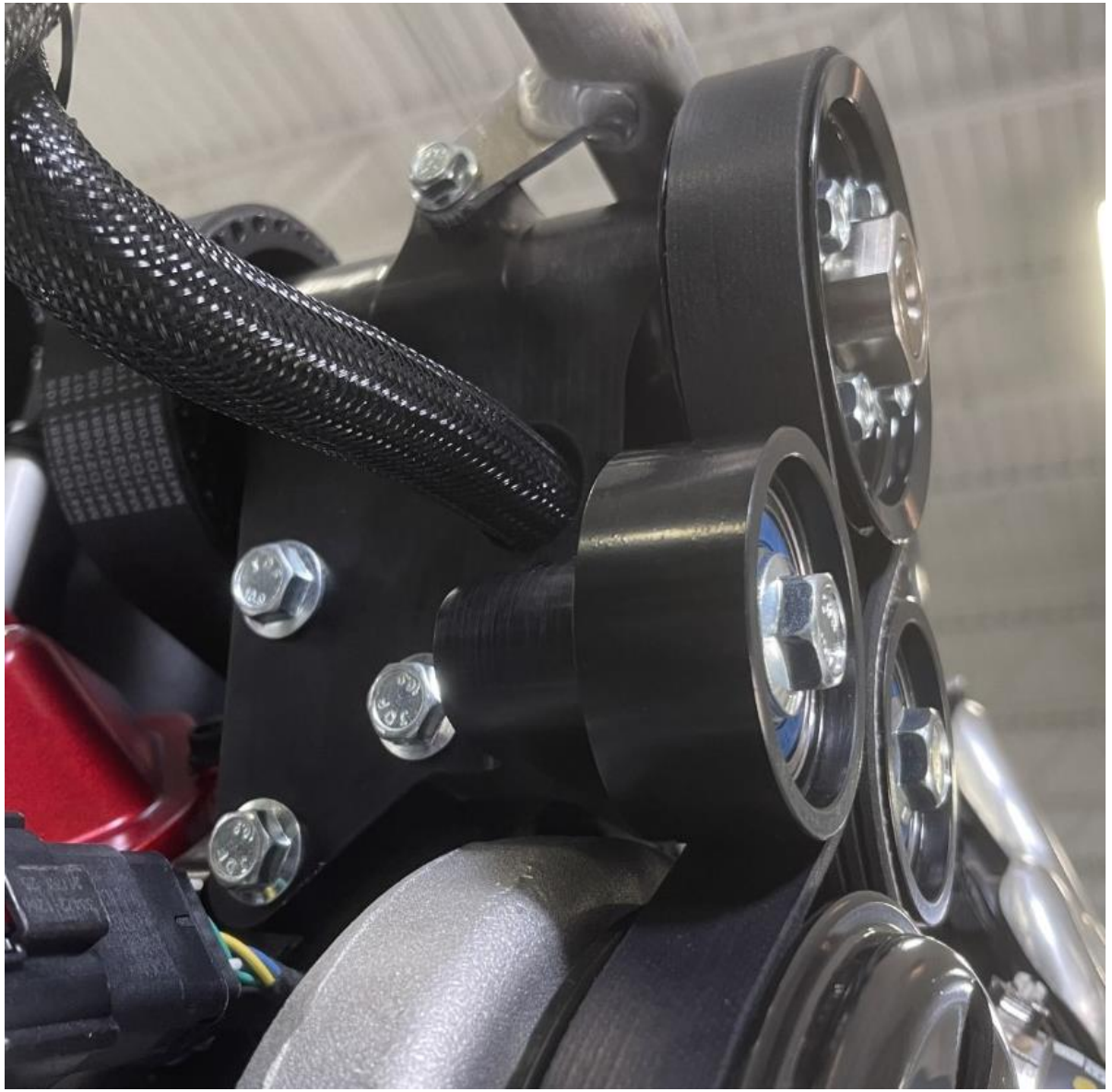
Install drive pulley P/N 57-00-06-130-BL to the jackshaft hub on the same side as the idlers.

Apply blue Loctite to (4) M6 X 12mm long bolts P/N 71-06-10-012. Install the bolts and torque them to 12 Nm in a criss-cross pattern.

Install the upper jackshaft sub-assembly onto the lower bracket, aligning the dowel pin(s) and the 3 holes.

Apply blue Loctite and install (3) M8 X 30mm long fasteners through the upper jackshaft bracket. Ensure the dowel(s) engage the bracket and the two halves fully seat against each other as the bolts are tightened.

Torque the (3) fasteners 28 Nm.



Static tensioner installation:

The static tensioner is installed to the rear of the upper bracket using (2) M10 X 35 mm long socket head cap screws, PN 72-00-10-036 and (2) 10mm ID washers from the kit. Install the washers onto the fasteners then apply blue Loctite to the fasteners. Install and torque 55 Nm.

Select the M8 X 25mm long set screw, apply blue Loctite and pre-install it only a couple of turns, into the billet tensioner as shown.

The static tensioner pulley is secured to the billet bracket using a slide nut P/N 77-10-15-010, idler post P/N 69-90-47-008 and idler P/N 56-30-01-062-BL

Select the idler post P/N 69-90-47-008 and idler P/N 56-30-01-062-BL.

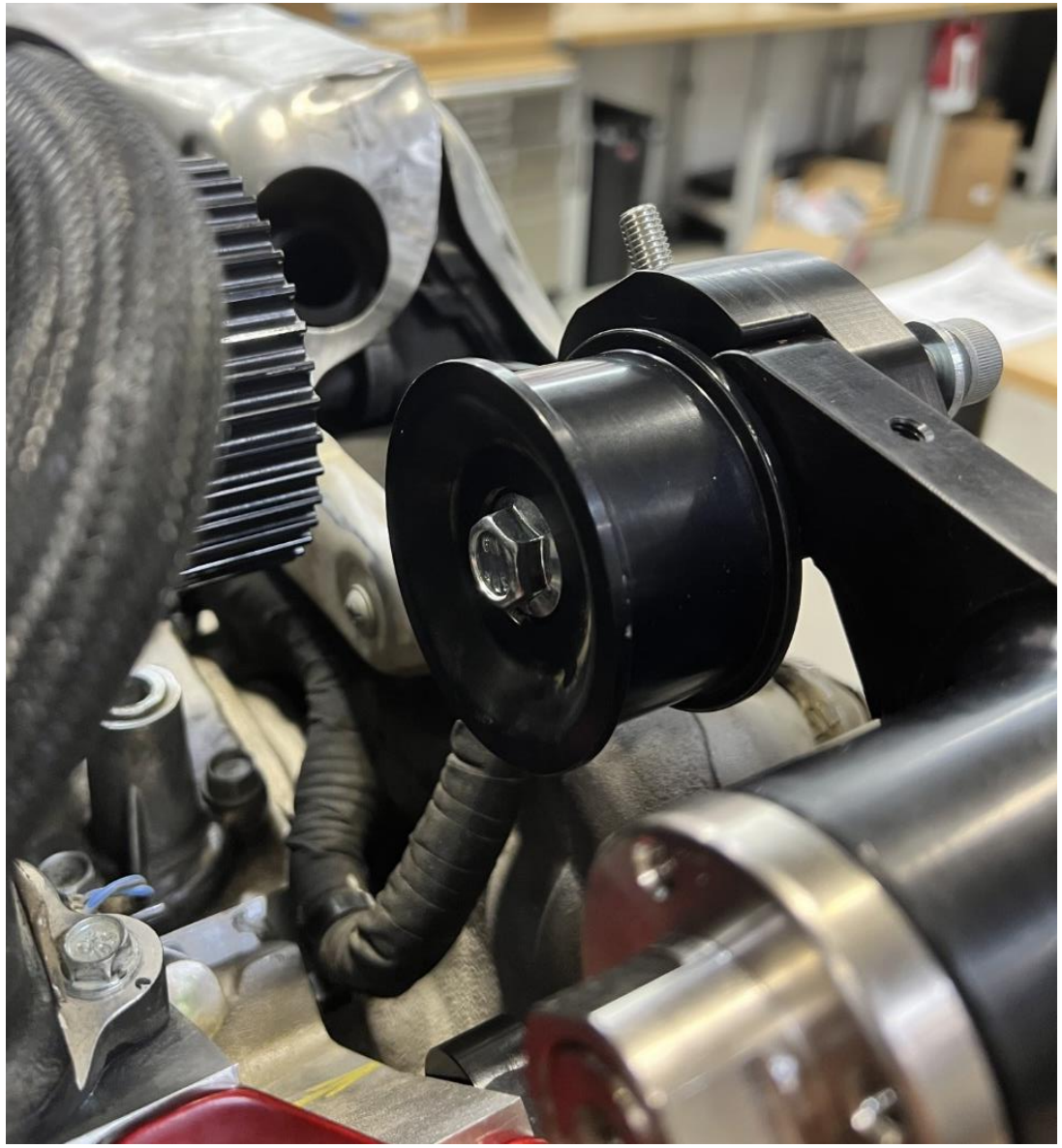
Install the post onto the idler as shown.

Select the tensioner slide nut PN 77-10-15-010 and prepare to install it into the bracket in the orientation shown.

Select the M10-1.5 X 45mm long fastener from the kit. Apply blue Loctite to the threads.

While holding the slide nut in place, hand-start the fastener through the idler and into the slide nut.

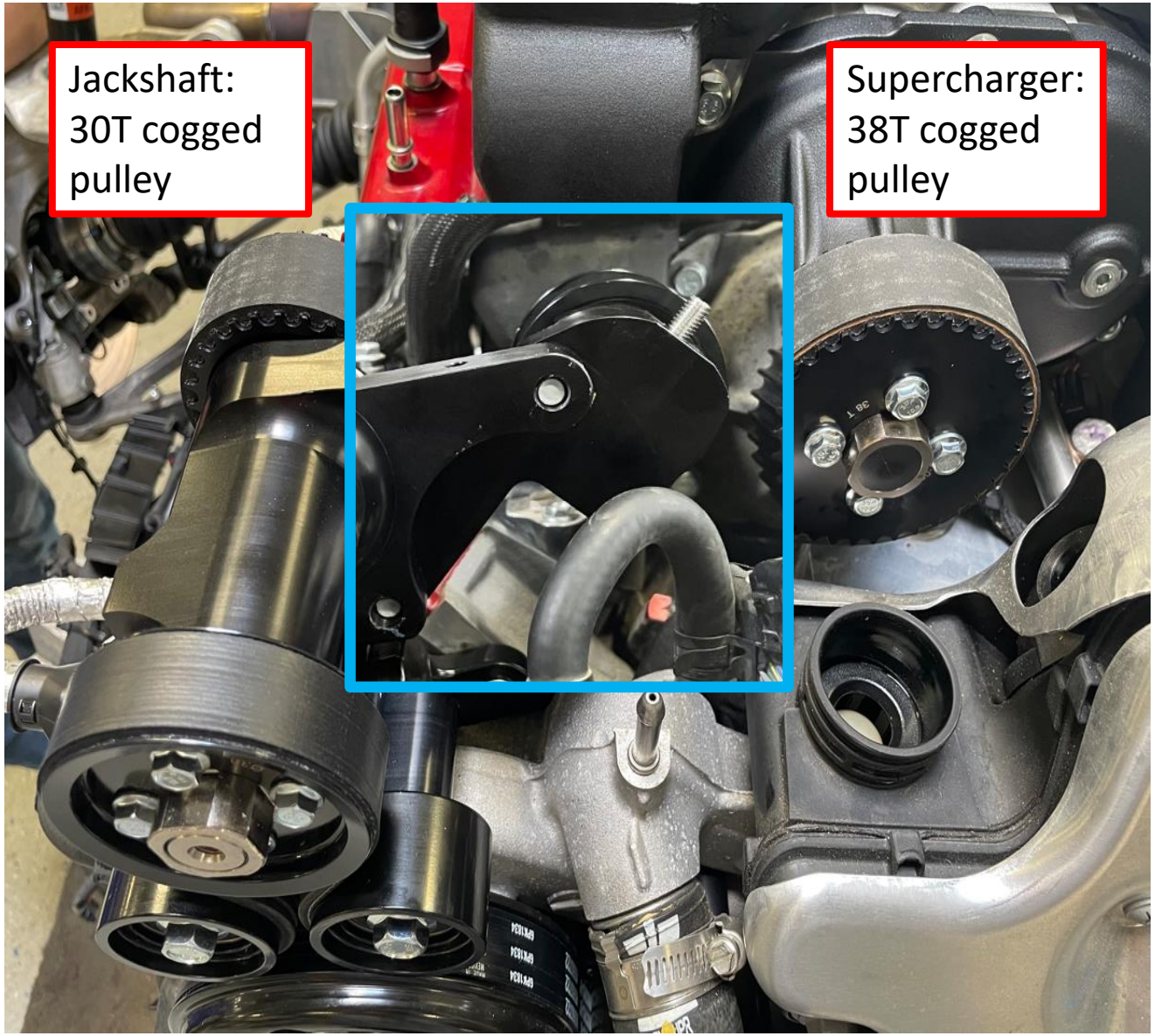
Slide the idler to the top of its' travel in the bracket to allow for sufficient clearance to install the cog belt. Snug the bolt to keep the idler in place. This will provide for the most belt clearance.



Verify the 30T cogged pulley is installed to the rear of jackshaft. If installation is required, apply blue Loctite and install/torque M6 X 16mm long bolts to secure the cogged pulley. Torque 12 Nm.

Ensure the cogged pulley on supercharger is 38mm diameter.

<u>Static Tensioner design:</u> the latest version is shown in the inset photo. See the following slides for belt installation detail.

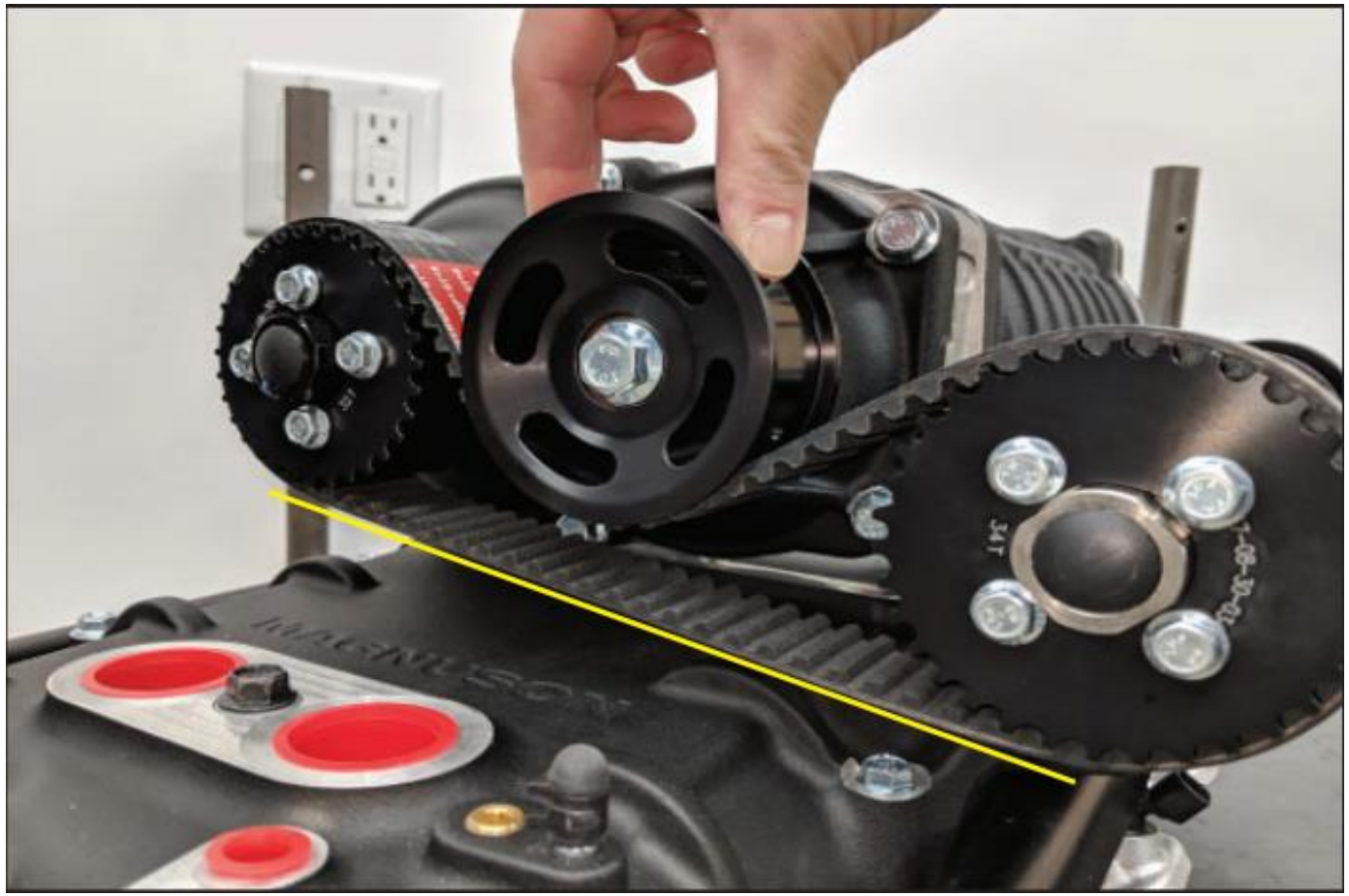


Install the cogged belt PN 79-83-00-720 over the cogged pulleys and under the idler pulley as shown.

Ensure the belt seats fully into the grooves of the cogs.

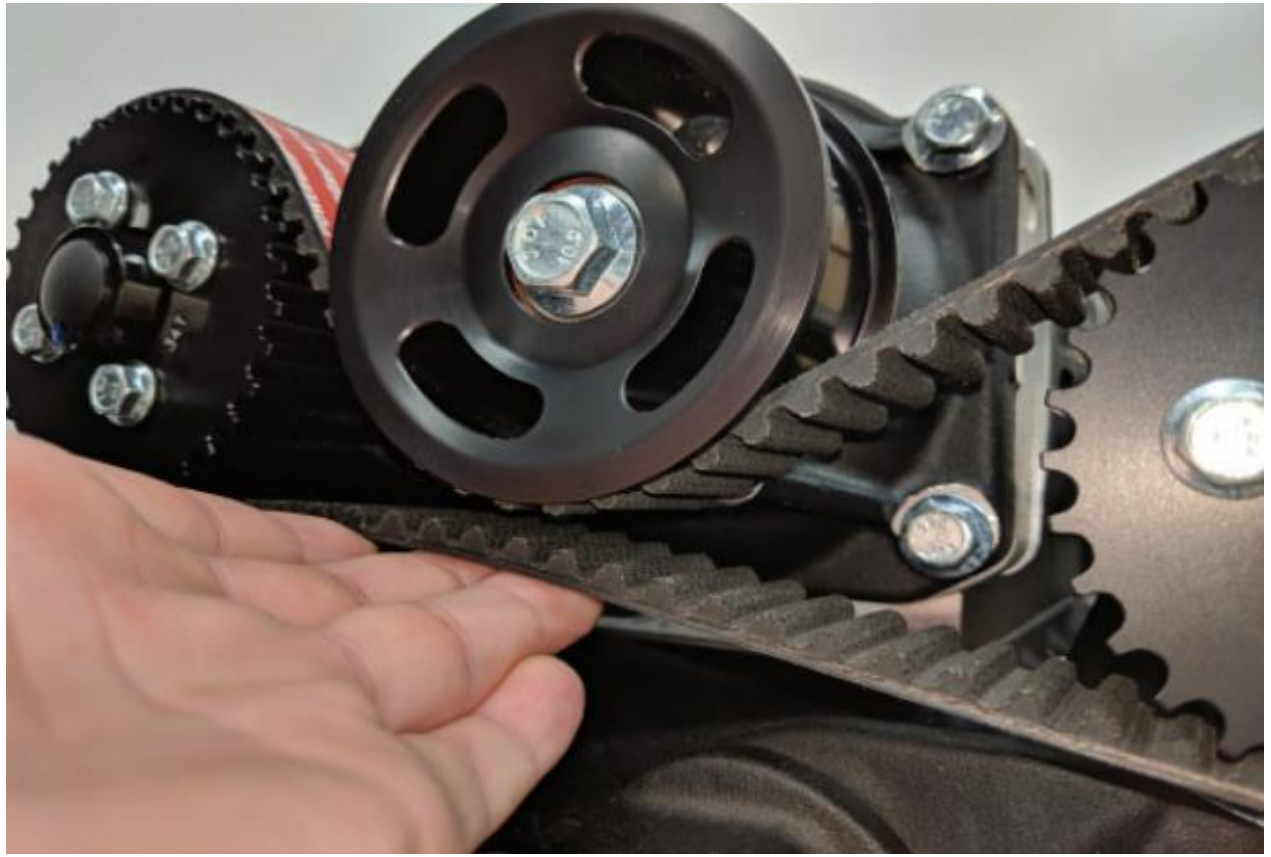
With the idler pulley bolt just loosened enough to allow it to slide, push down on the pulley until the lower span of the cogged belt just starts to create a straight line as shown with the yellow line. Tighten the set screw until it just contacts the slide nut to keep the idler in this position.

Torque the idler bolt to 25 ft-lbs.



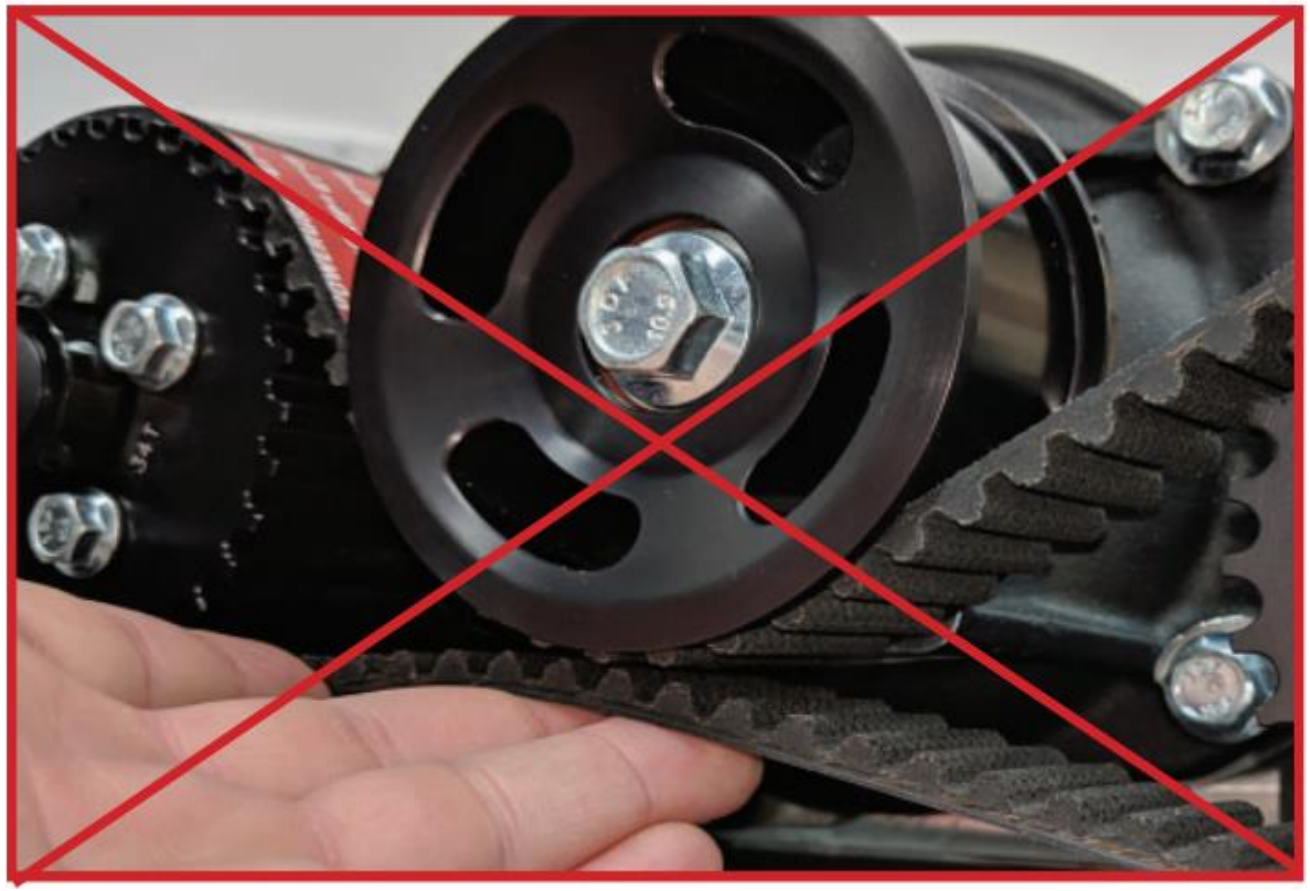
Inspect for proper belt tension:

Press up on the lower belt span to ensure that it does not make contact with the upper belt. The upper and lower belt teeth should be about 4mm apart.



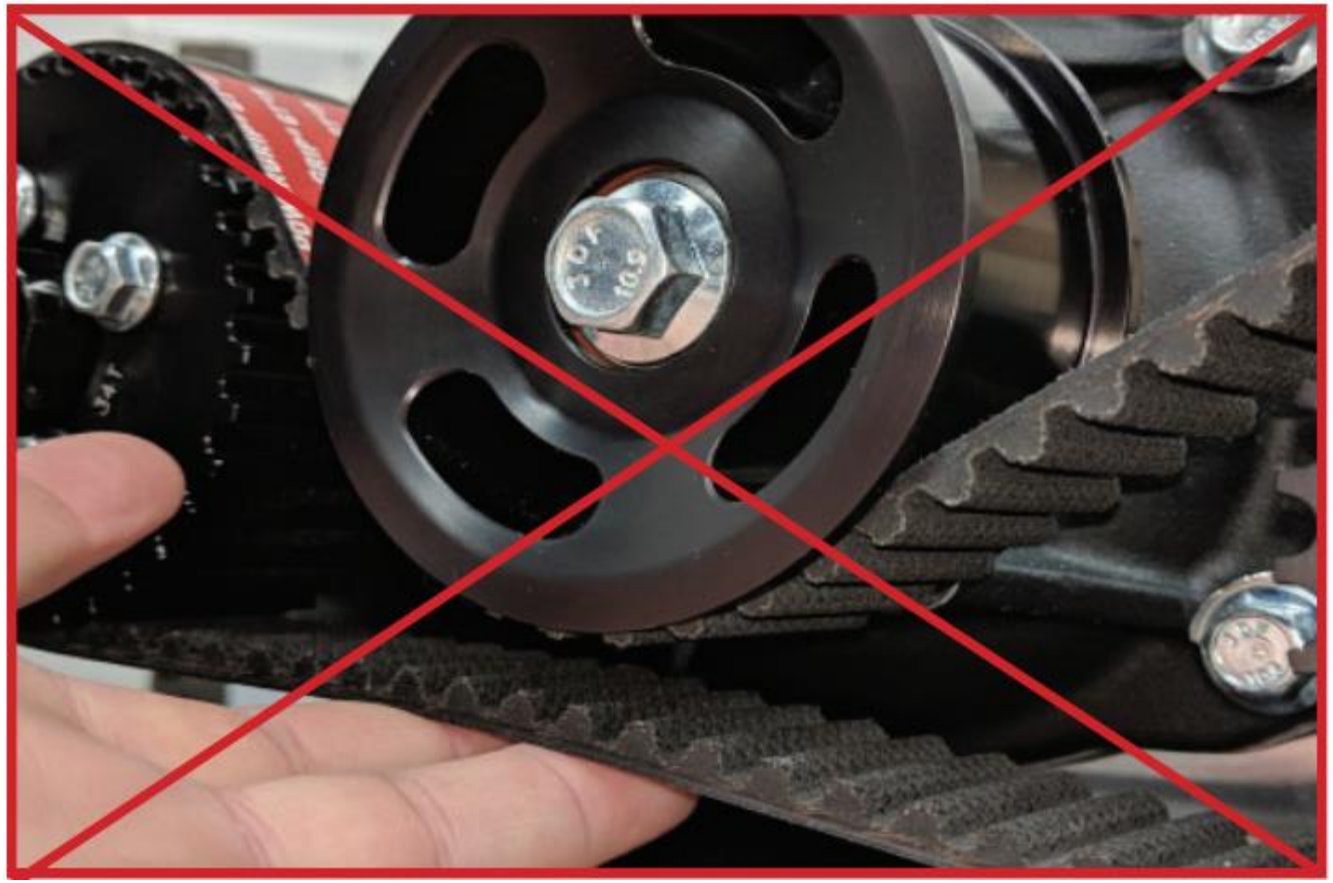
If the lower belt overlaps the upper one, as shown here, further adjustments will be needed.

BELT TOO LOOSE

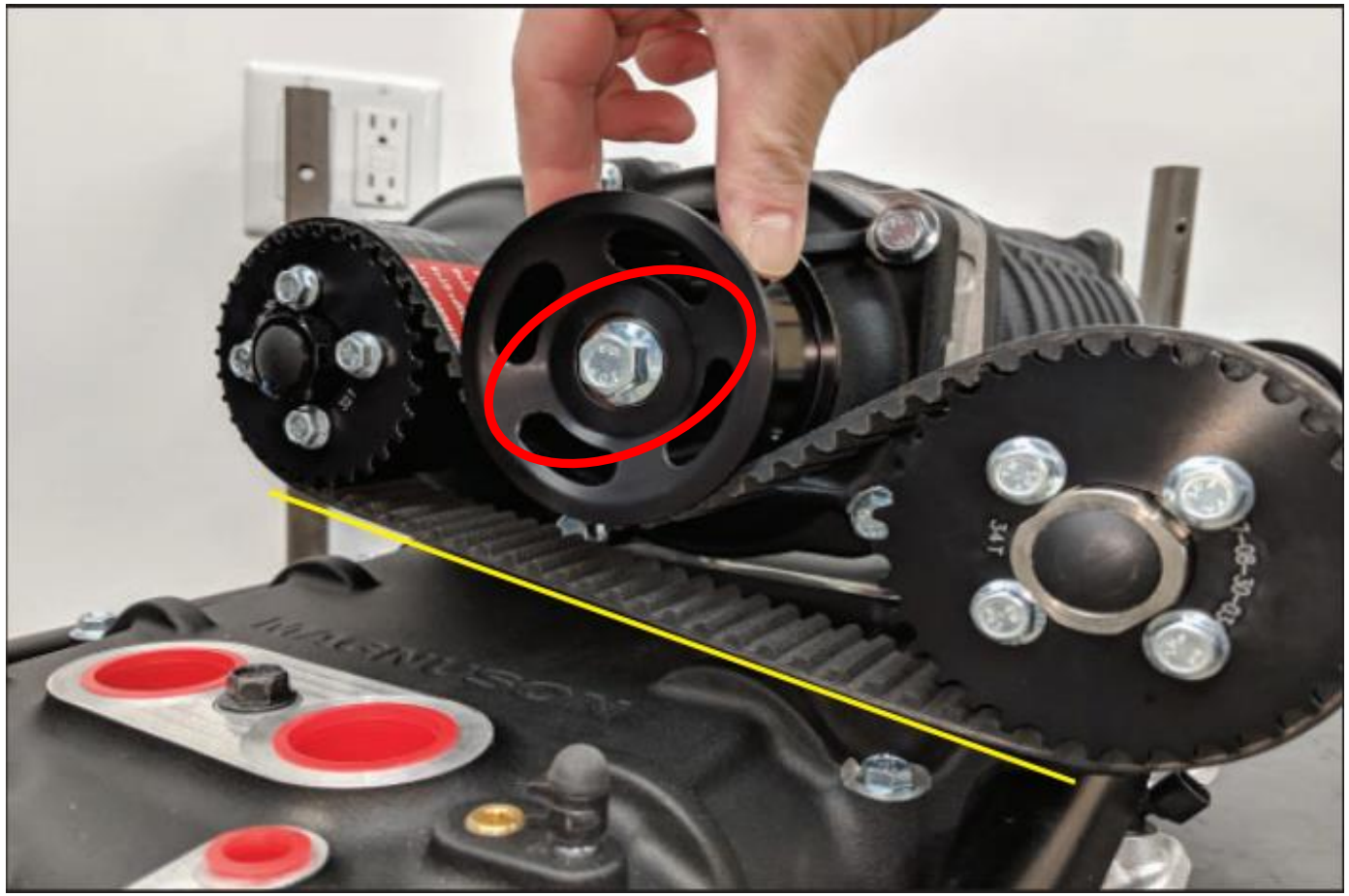


In this image the belt is too tight. Space between the upper and lower cog teeth is greater than 4mm.

BELT TOO TIGHT



Double-check the idler pulley bolt torque, ensuring it is tightened to 25 ft-lbs.



Remove the OE FEAD belt.

Remove (3) water pump bolts.

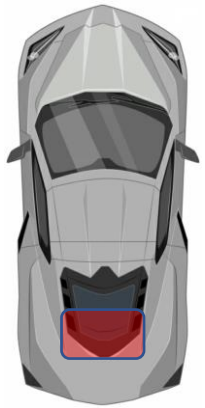
Install idler bracket P/N 65-26-62-085 to engine using (3) SHCS P/N 72-00-08-100. Apply blue Loctite to all fasteners.

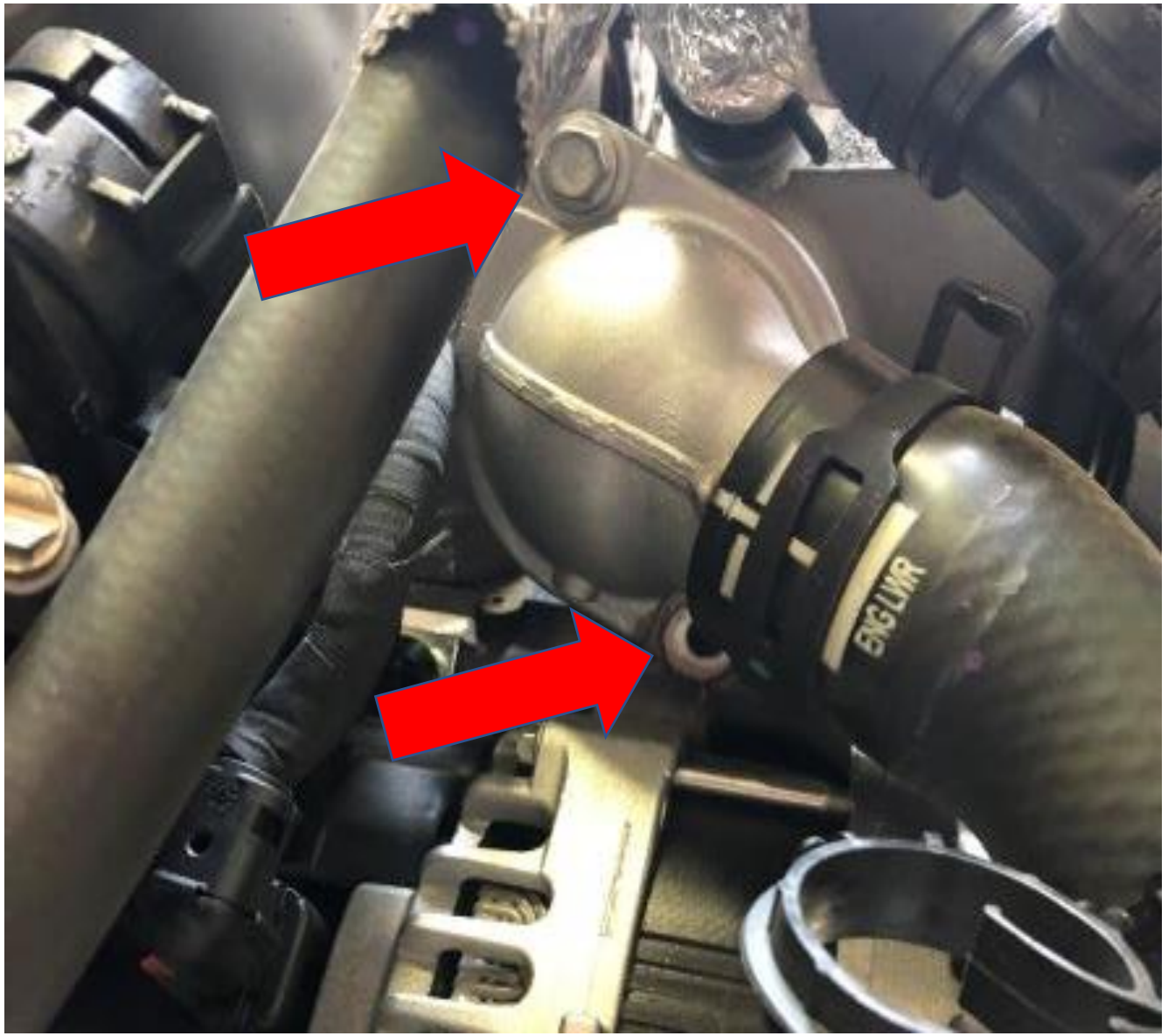
Torque SHCS 25 Nm.

Install 56-50-47-001 Dayco pulley and (1) 71-10-15-030 bolt.

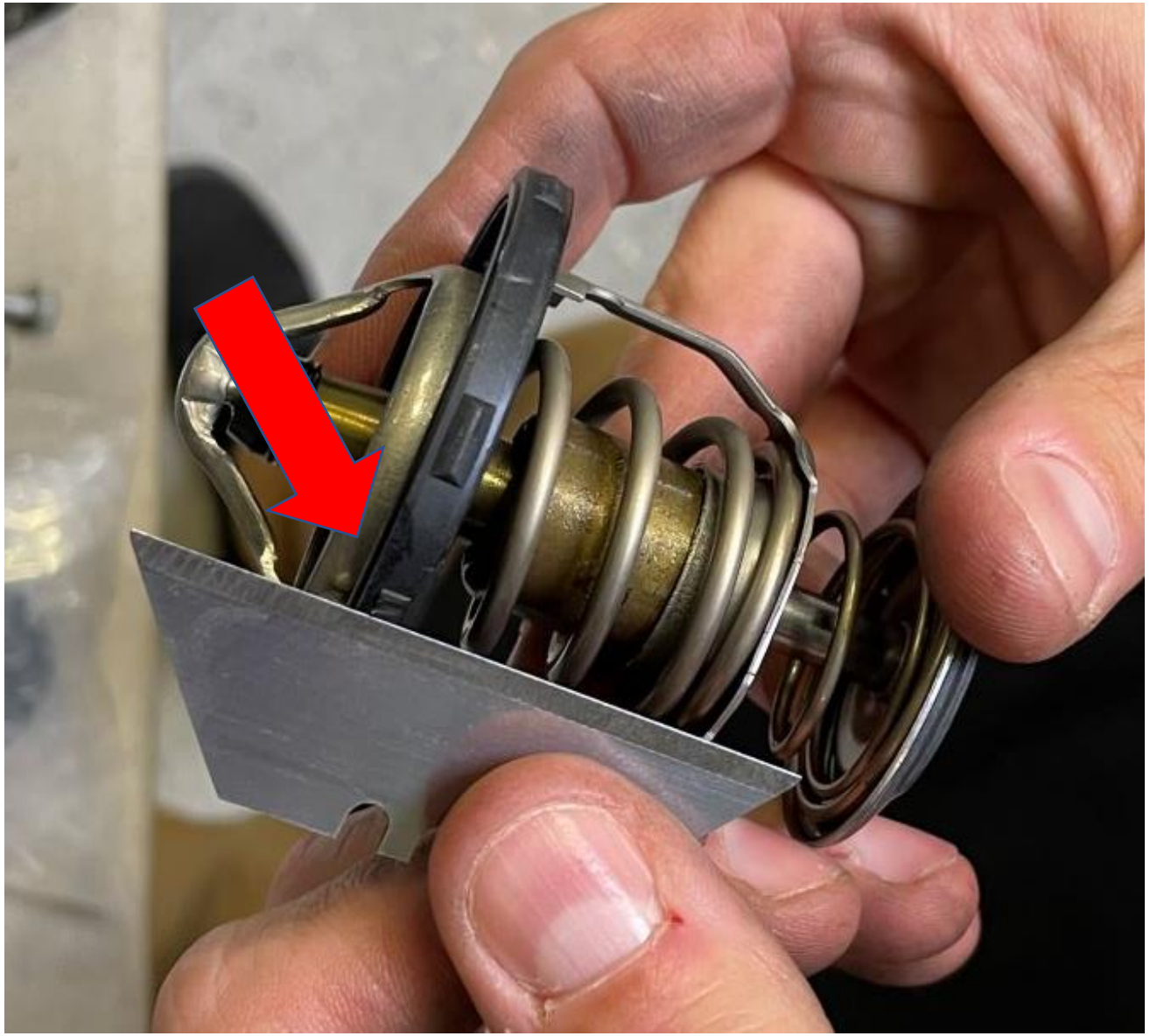
Torque bolt 55 Nm.

Remove (2) thermostat housing bolts.





Remove thermostat and modify rubber seal by removing tab.

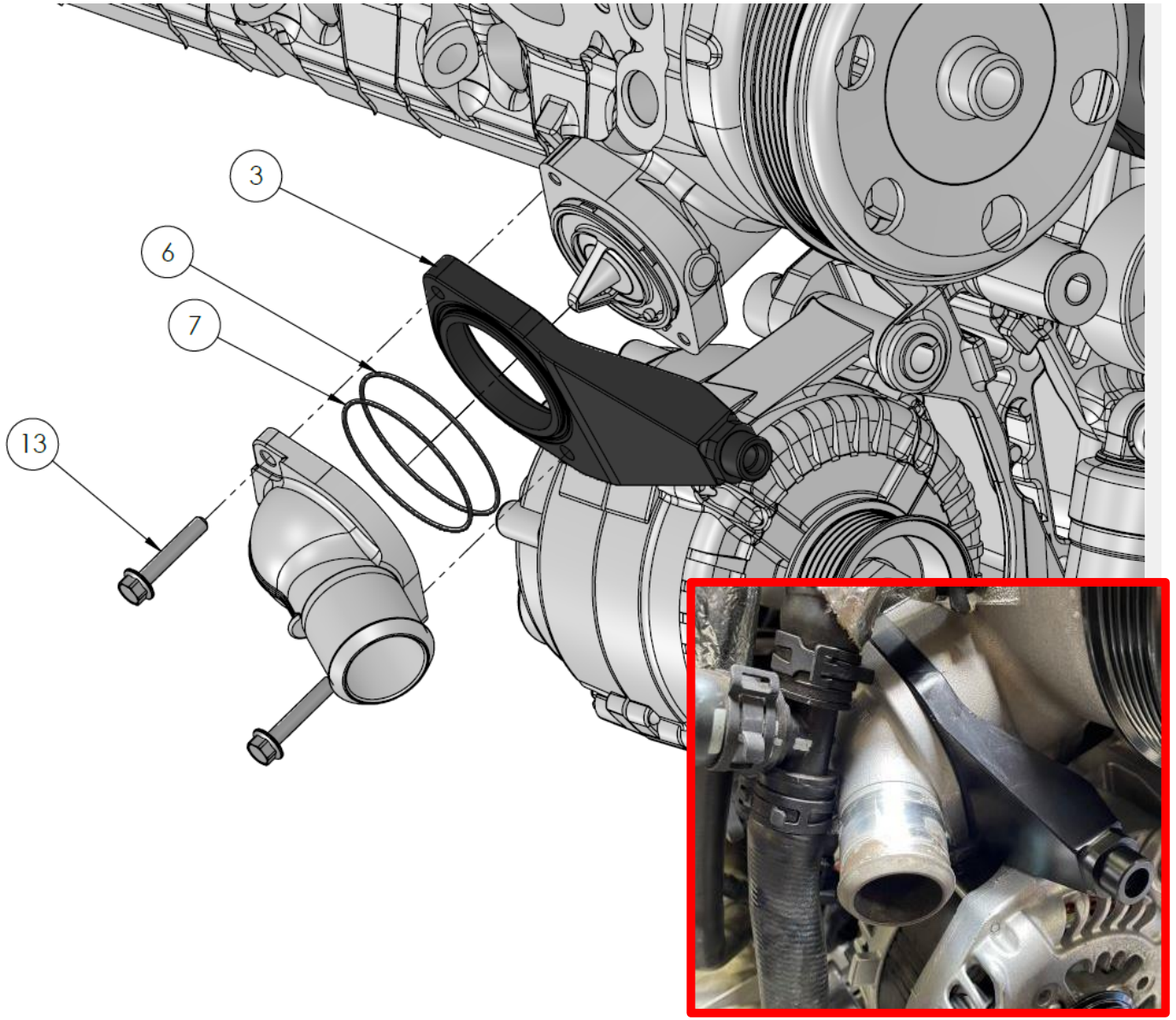


Install (2) PIP seals P/N 80-59-10-561 and 80-59-10-566 from SC kit into T-stat adaptor P/N 65-26-62-083.

It is recommended to use some silicone or vaseline to hold the seals in place during installation of the adaptor.

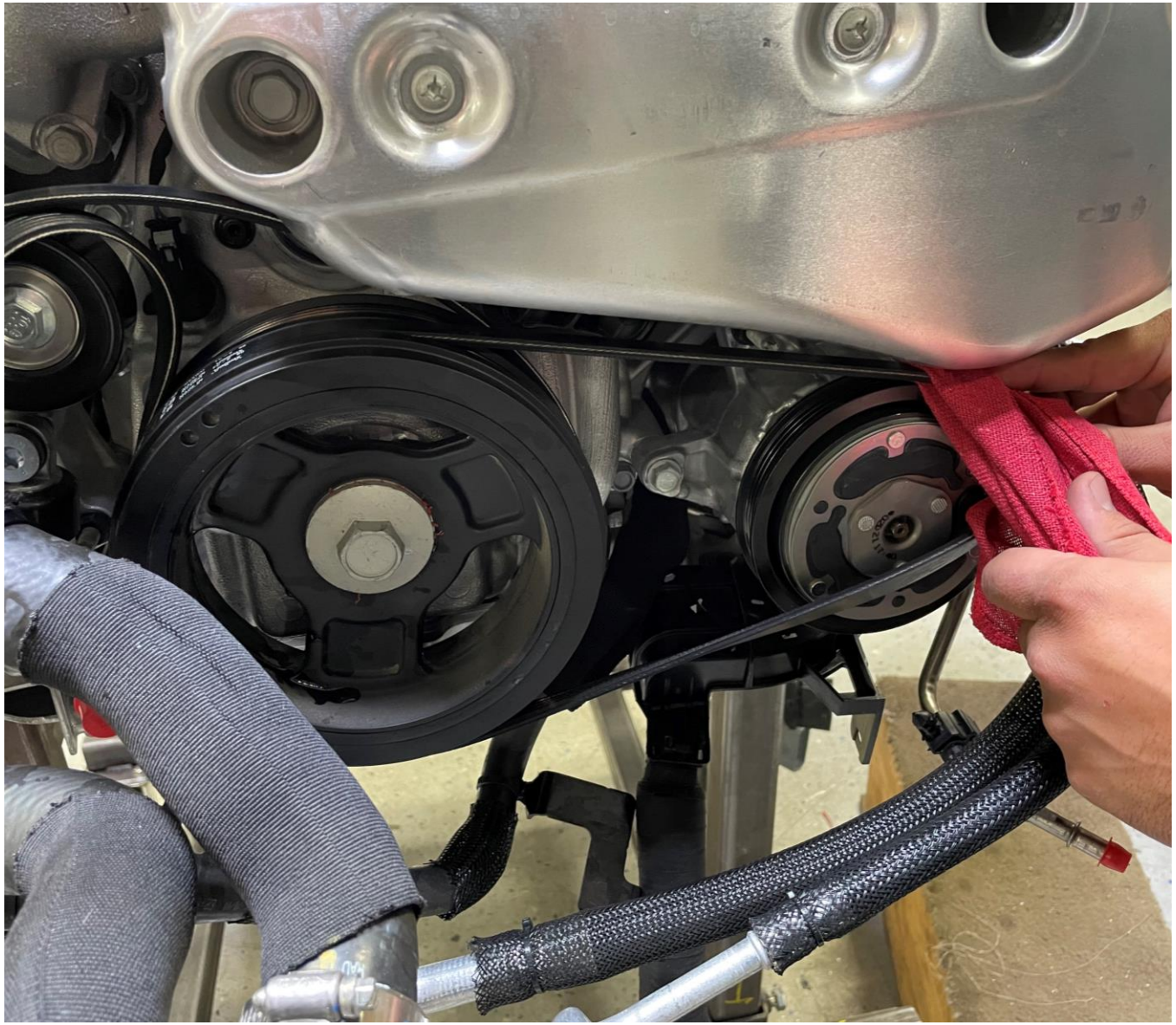
Re-install the modified t-stat into water pump then install t-stat adaptor and OE housing.

Apply Loctite 243 to (2) M6 bolts P/N 71-06-10-035, run down/zero torque then final torque 12 Nm.



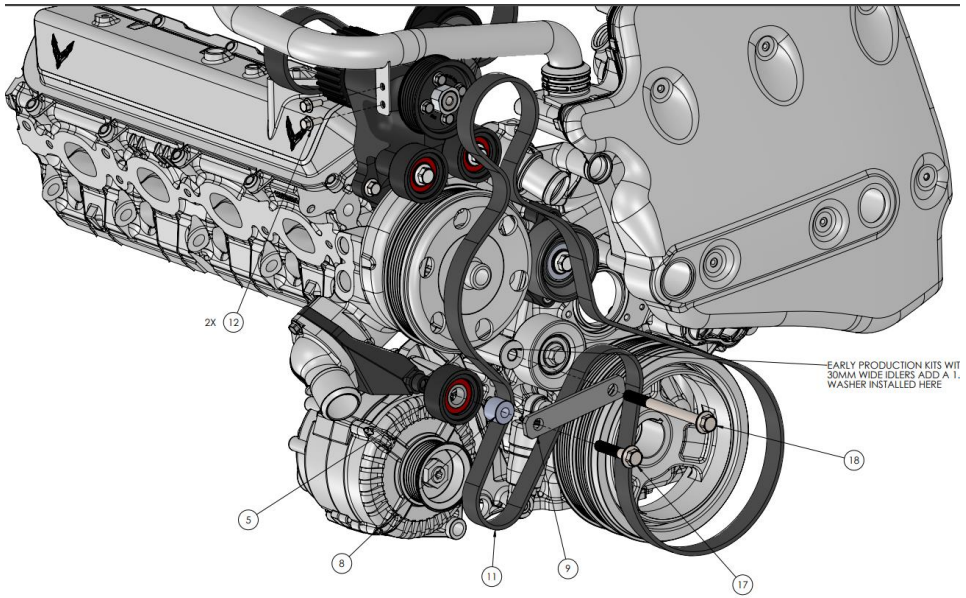
Remove the OE tensioner bracket bolt.

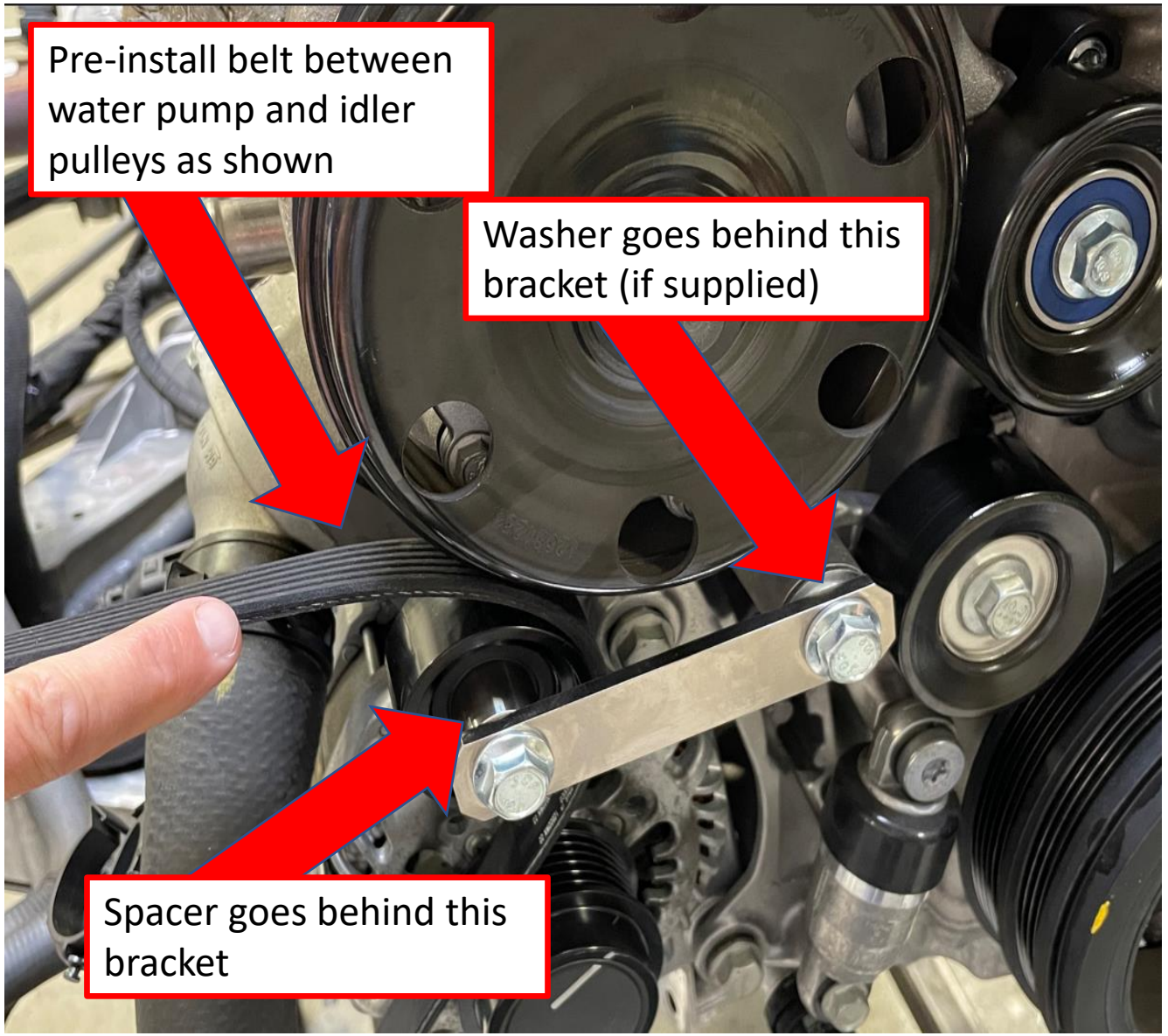
If A/C compressor was left installed on the engine, cut the OE belt and discard it. A new one will be installed in a later step.



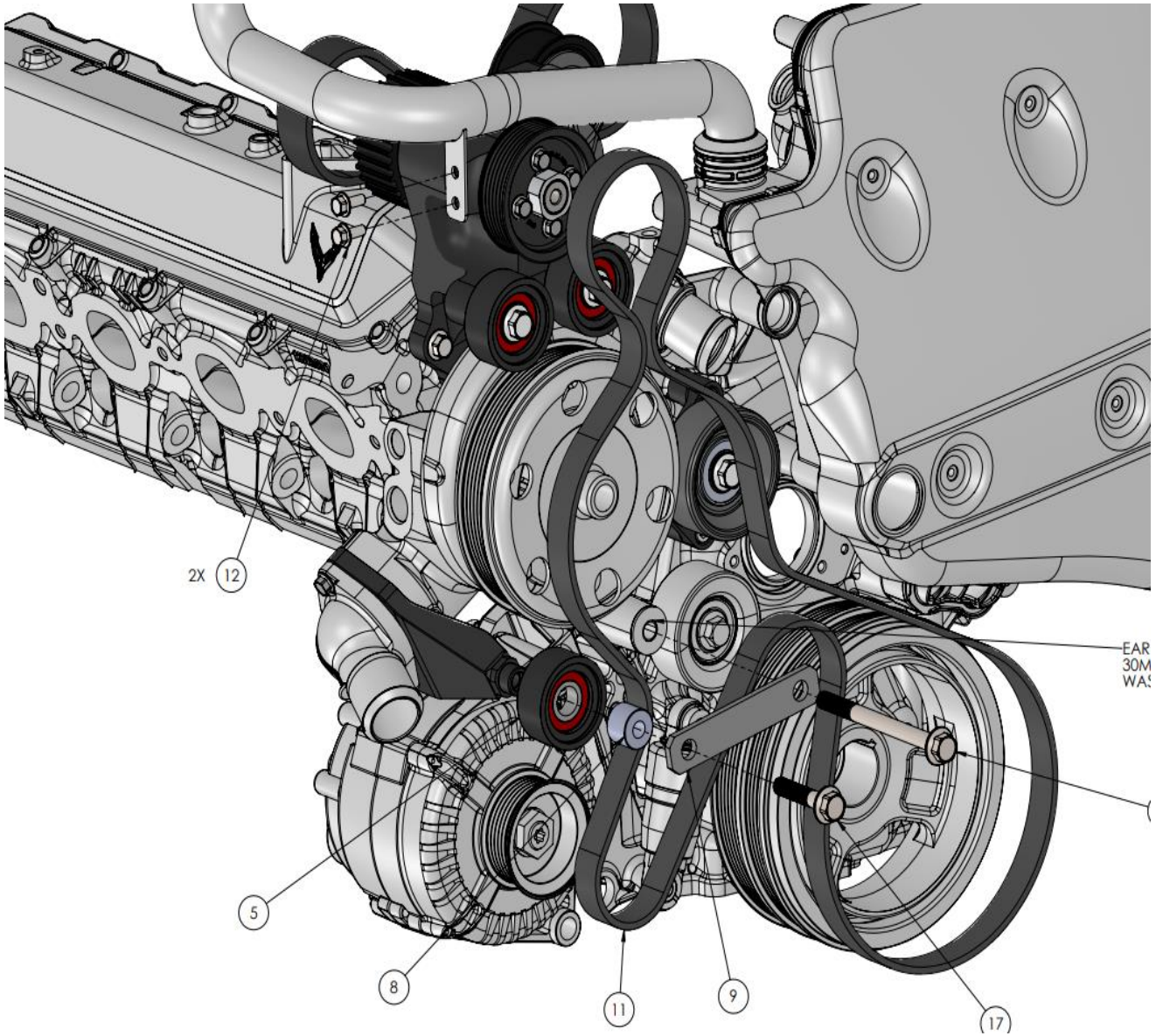
Pre-install the FEAD belt P/N 79-06-07-022 (K060722) into the area shown, then install P/N 56-06-01-054 idler, 69-05-00-038 spacer, 65-26-62-087 idler support bar, 71-10-15-050 bolt, 71-10-15-120 bolt and washer (behind bracket, if supplied).

Torque bolts to 55Nm.



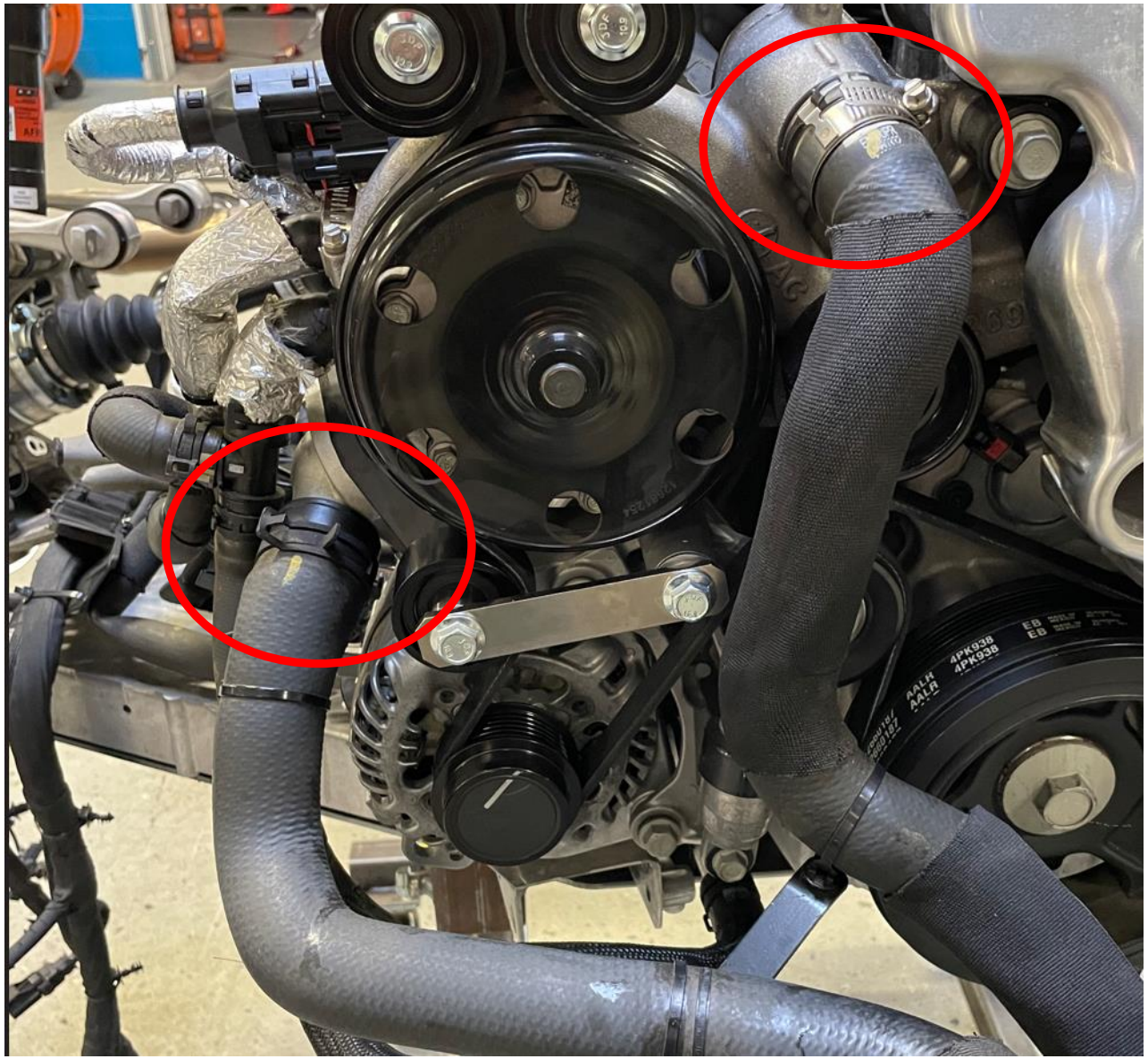


Cycle the tensioner and install the FEAD belt over all pulleys, ensuring the belt is properly seated around each.



Re-install (2) rad hoses onto engine.

Install/position (1) constant tension clamp and position/tighten (1) gear clamp.



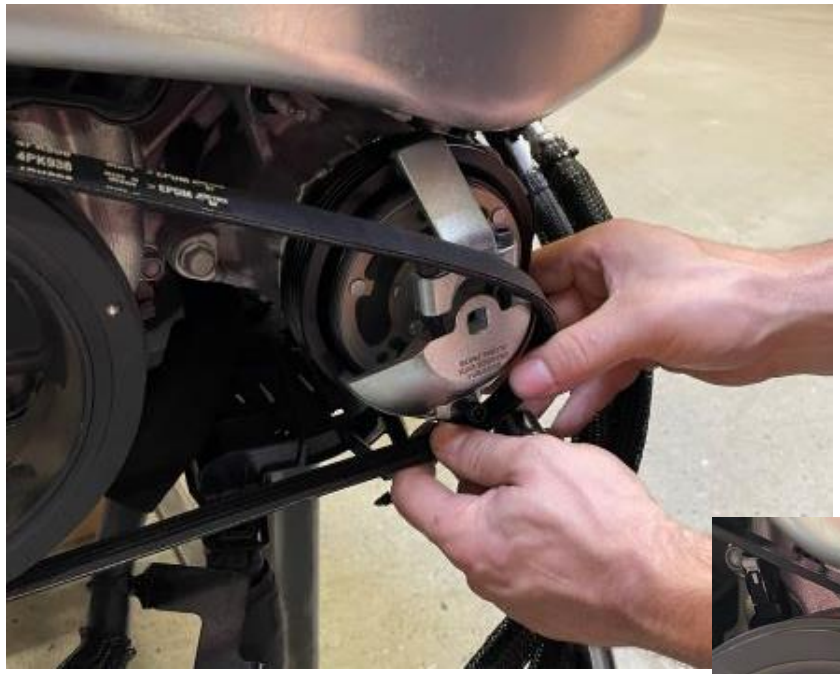
If the A/C compressor was left on the engine, install Freedom Racing stretch belt installation tool onto the front of the pulley.

Install a new A/C stretch belt (GM P/N 12660187) over the crank pulley and onto the installation tool. Rotate the crankshaft clockwise and install the stretch belt over the A/C compressor.

Verify the belt is seated properly around both pulleys.

Remove the installation tool.

Skip this step if the A/C compressor was removed.



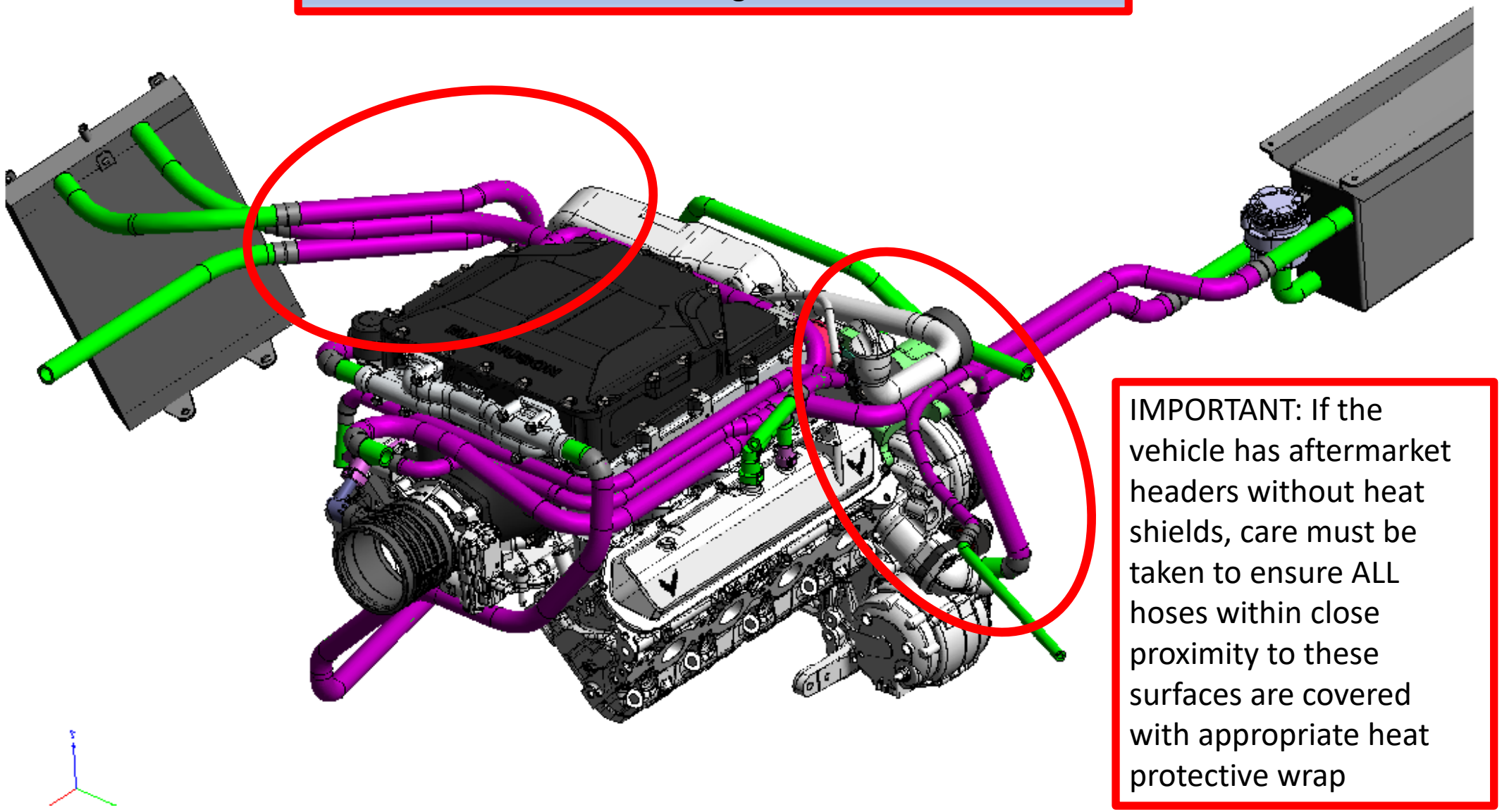
C8 Corvette Hose Part # Matrix

COOLANT HOSES	PART #	CLAMP SIZE / QTY.
IC HOSE – LOW TEMP RAD TO SC INLET	31-26-62-087A	3/4 INCH / QTY. 2
IC HOSE – PUMP TO LOW TEMP RAD	31-26-62-087B	3/4 INCH / QTY.2
IC HOSE ASSY – SERVICE FILL/SC OUTLET TO RESERVOIR (3-PC. HOSE)	31-26-62-087C	3/4 INCH / QTY. 3
IC HOSE – RESERVOIR TO PUMP	31-26-62-087D	3/4 INCH / QTY. 2
HOSE – BTM DEGAS TO WTR PUMP (CONV. ONLY)	31-26-62-087E	3/4 INCH / QTY. 2
HOSE – WATER PUMP BREATHER TO DEGAS BOTTLE	31-26-62-087F	5/16 INCH / QTY. 2

C8 Corvette Hose Part # Matrix

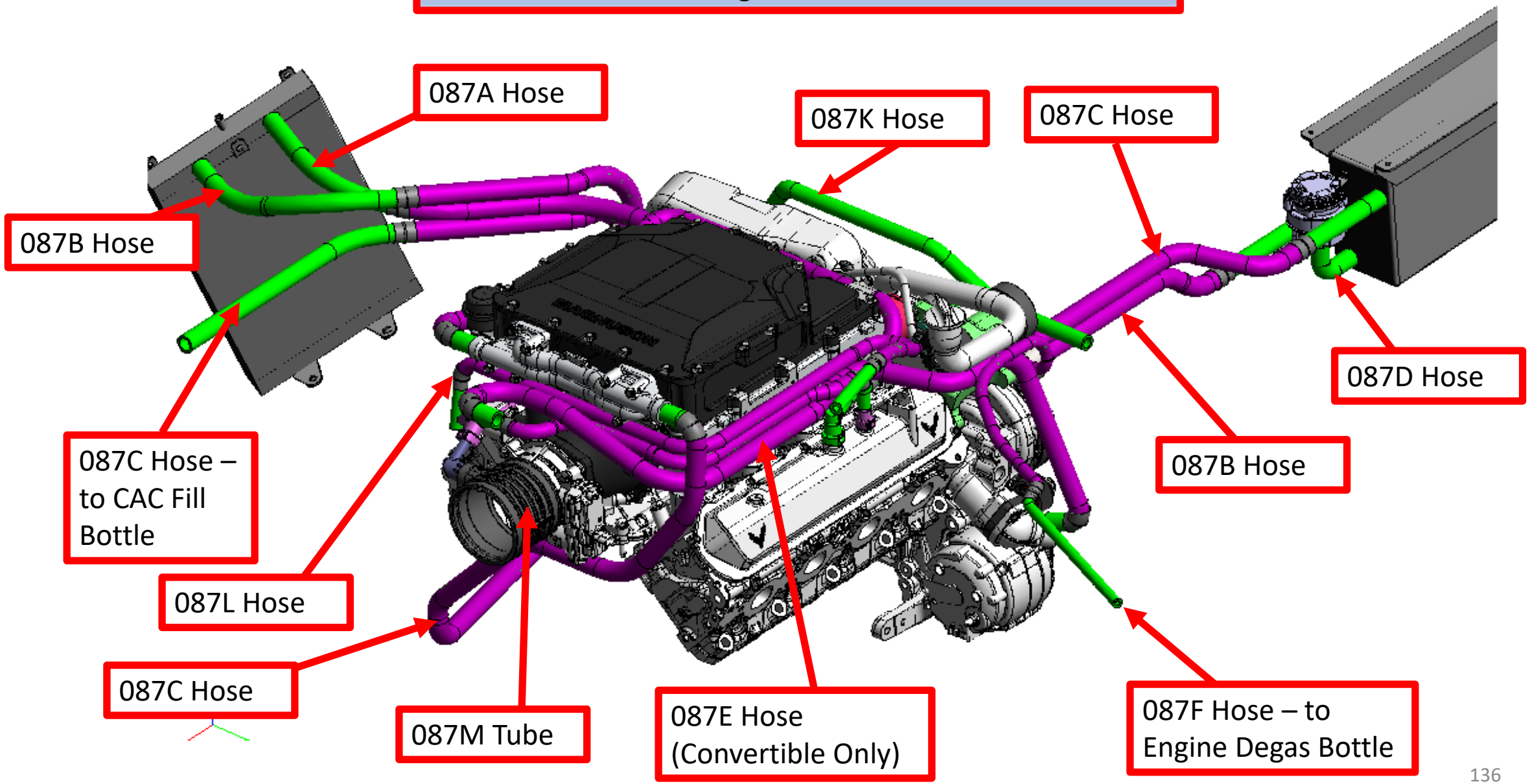
PCV HOSES	PART #	CLAMP SIZE / QTY.
FRESH AIR SIDE	31-26-62-087G	3/8 INCH / QTY. 2
VACUUM, DIRTY SIDE	31-26-62-087H	3/8 INCH / QTY. 2
FRONT CROSSOVER	31-26-62-087J	1/2 INCH / QTY. 2
FUEL VAPOR HOSES		**CLAMP SIZE / QTY.**
FUEL TANK VAPOR CROSSOVER	31-26-62-087K	5/8 INCH / QTY. 2
VMV – BODY LINE TO VALVE	31-26-62-087L	3/8 INCH / QTY. 2
CLEAN AIR TUBE		**CLAMP SIZE / QTY.**
CLEAN AIR TUBE	31-26-62-087M	1.25” OETIKER AND 120mm WORM DRIVE

C8 Corvette Hose Routing – IMPORTANT NOTE

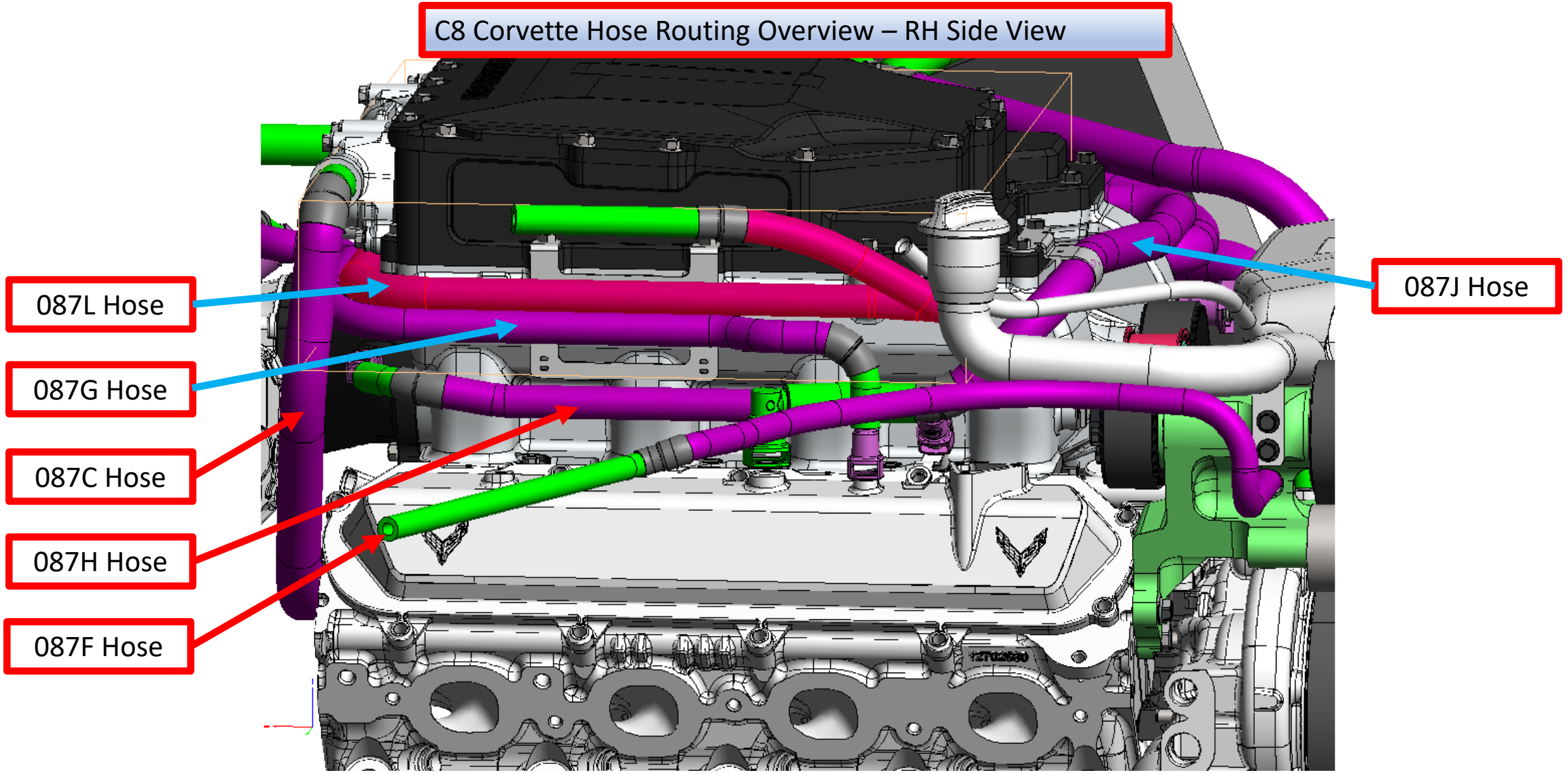


IMPORTANT: If the vehicle has aftermarket headers without heat shields, care must be taken to ensure ALL hoses within close proximity to these surfaces are covered with appropriate heat protective wrap

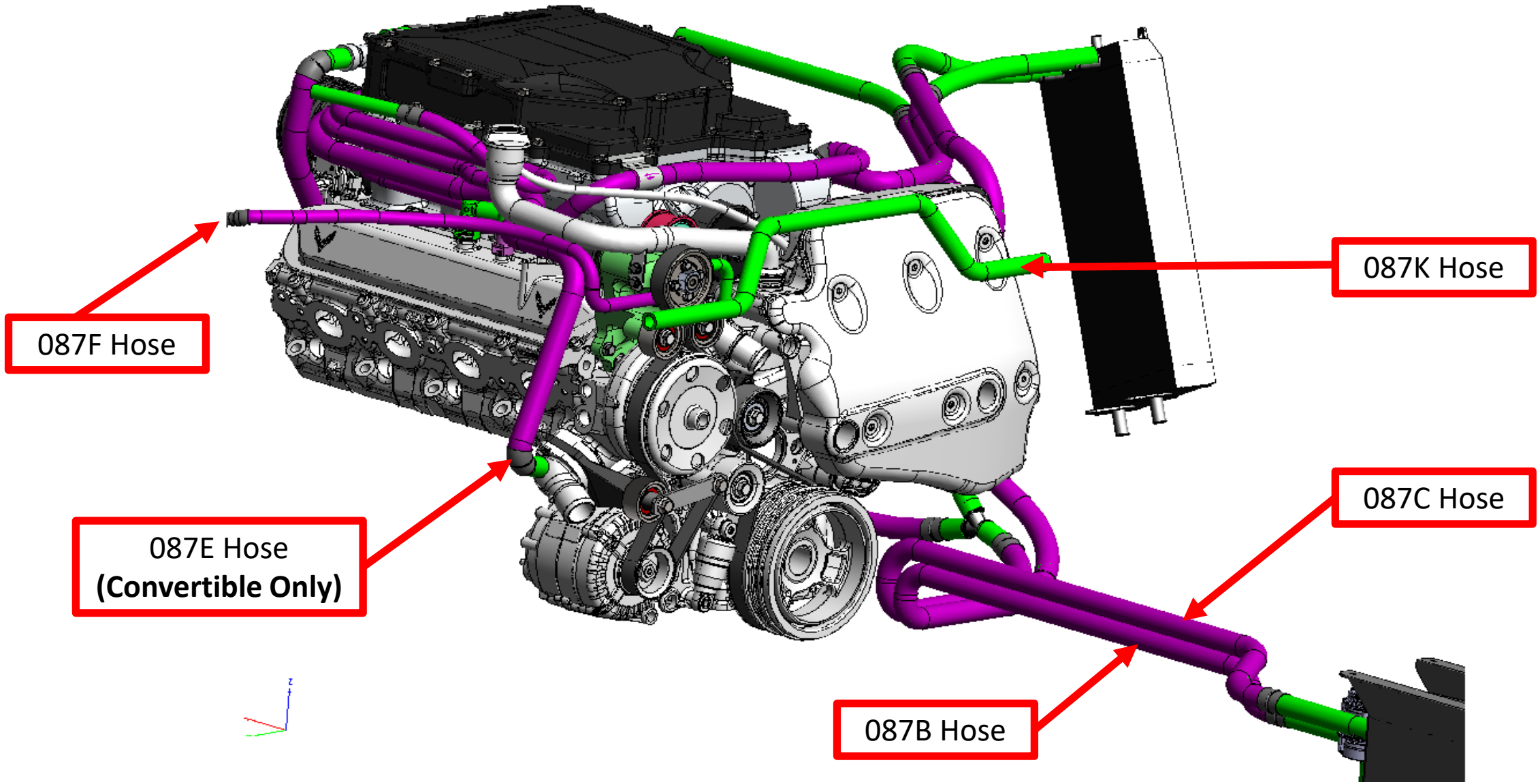
C8 Corvette Hose Routing Overview – RH Rear View



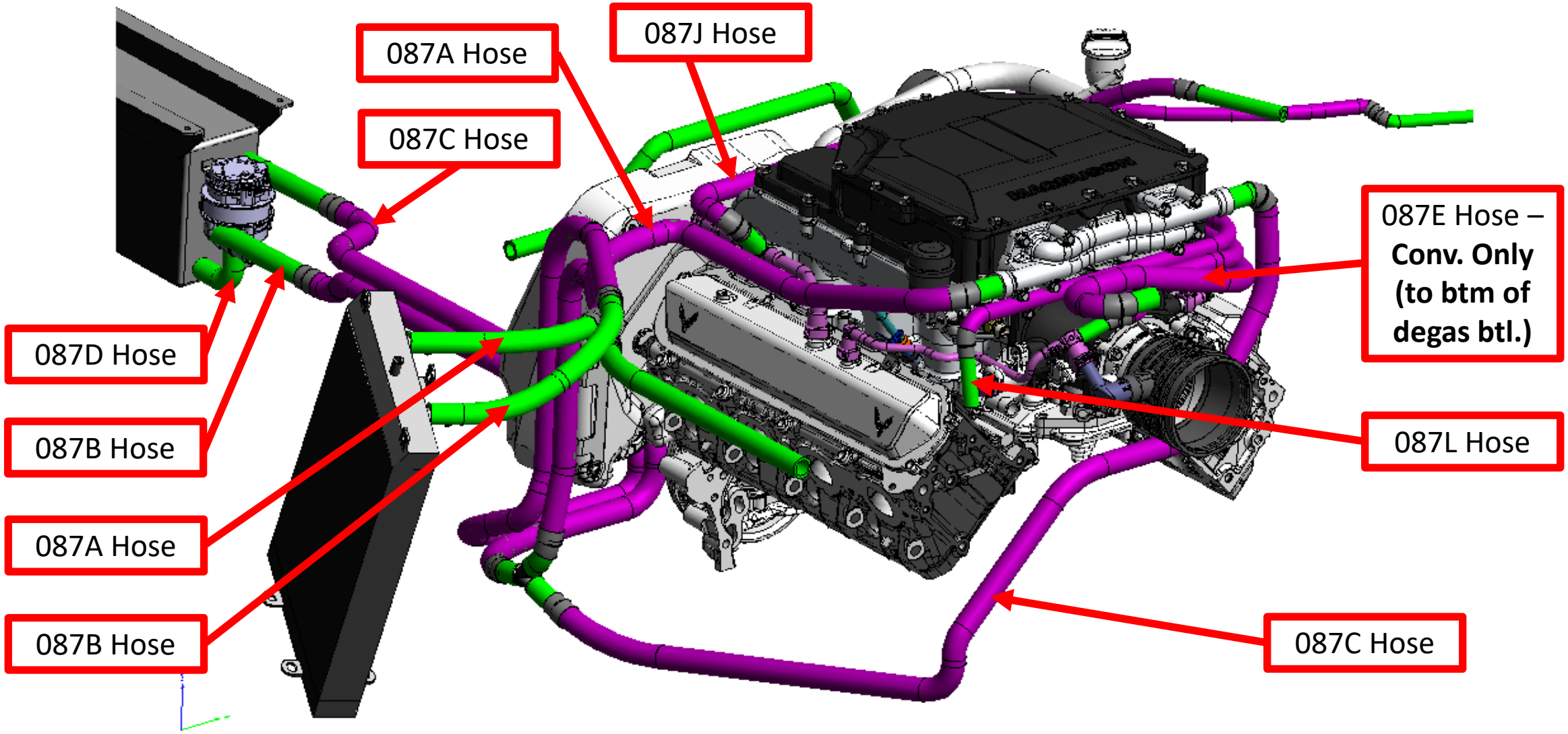
C8 Corvette Hose Routing Overview – RH Side View



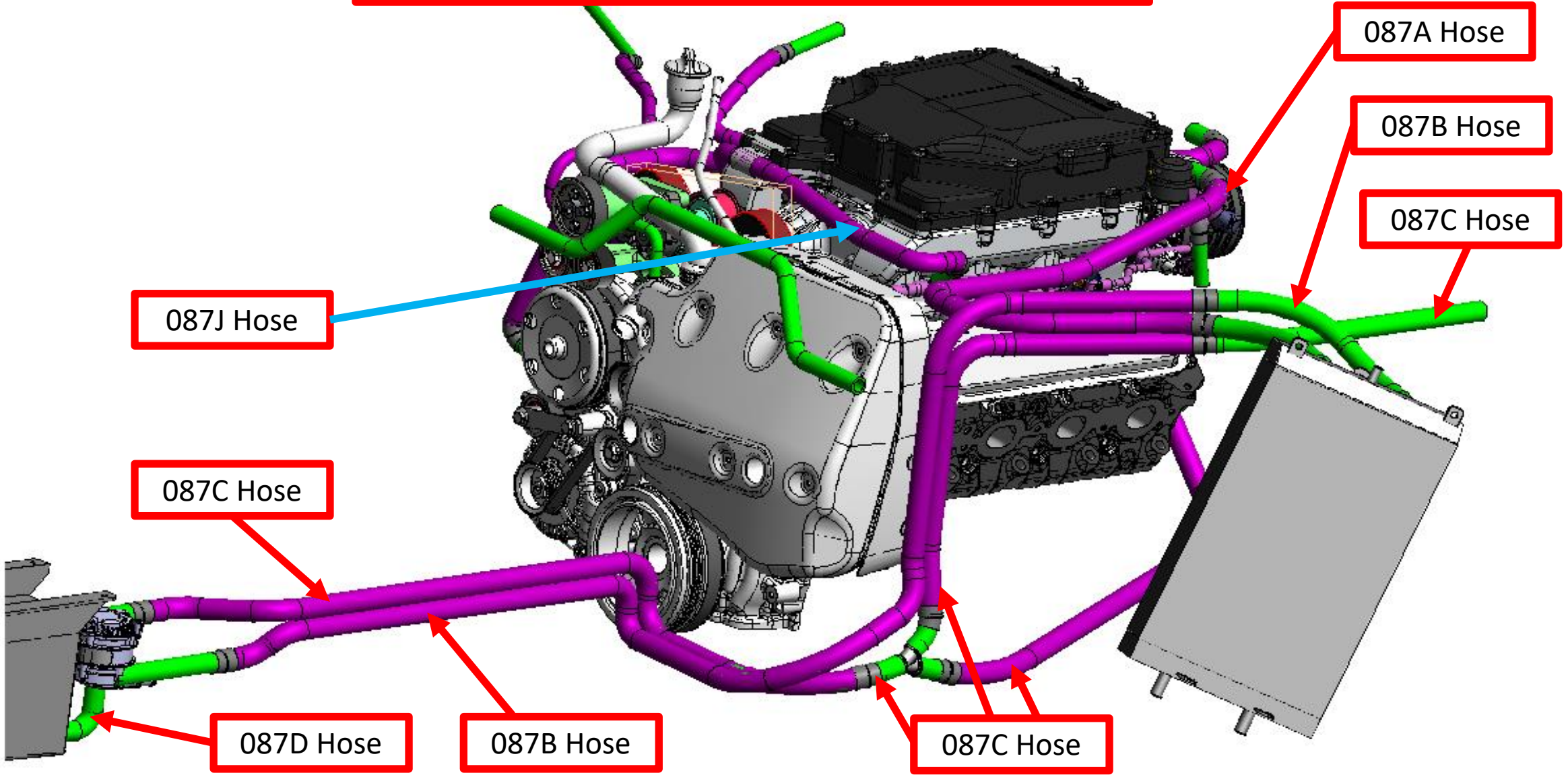
C8 Corvette Hose Routing Overview – RH Front View



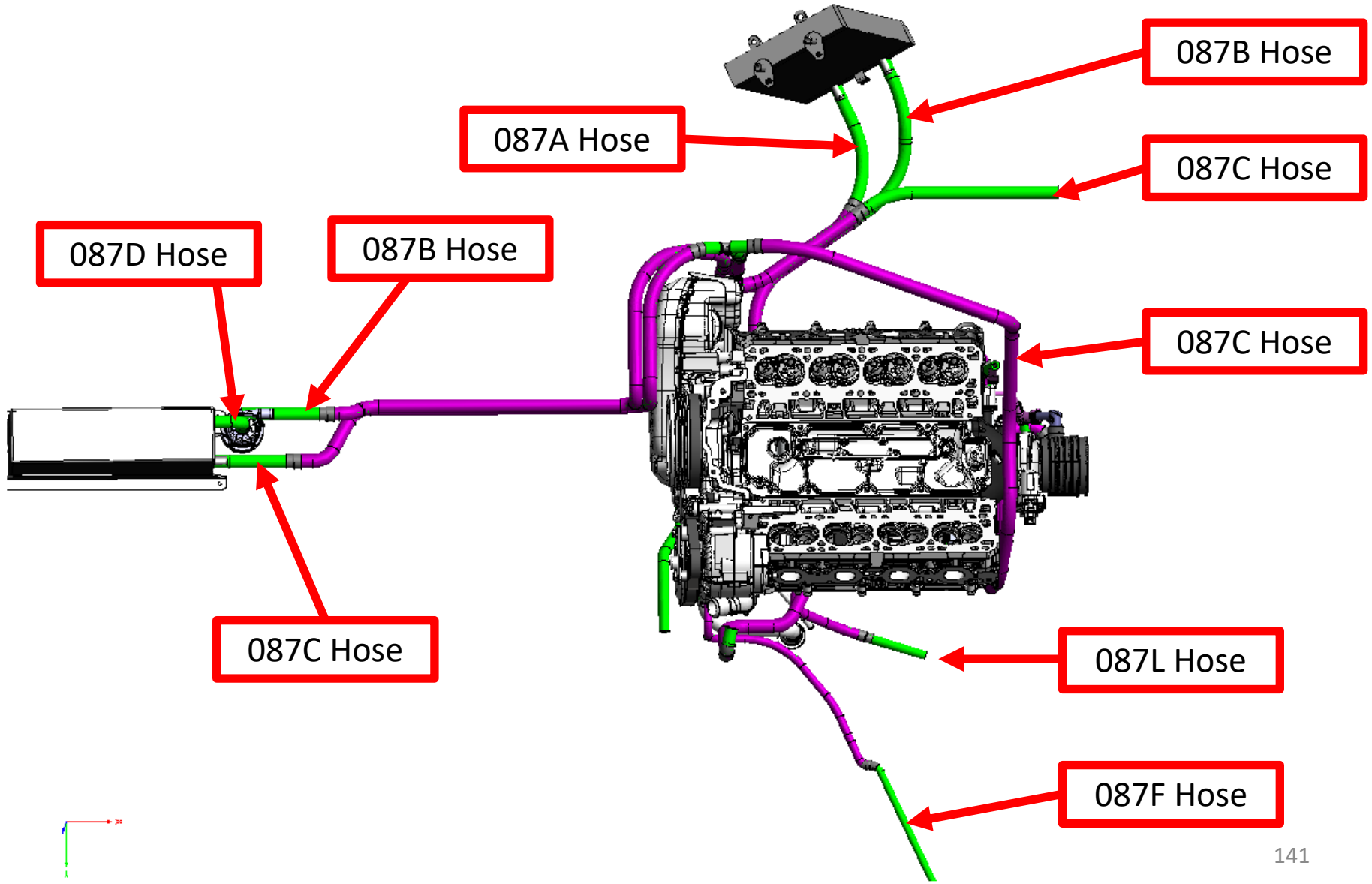
C8 Corvette Hose Routing Overview – LH Rear View



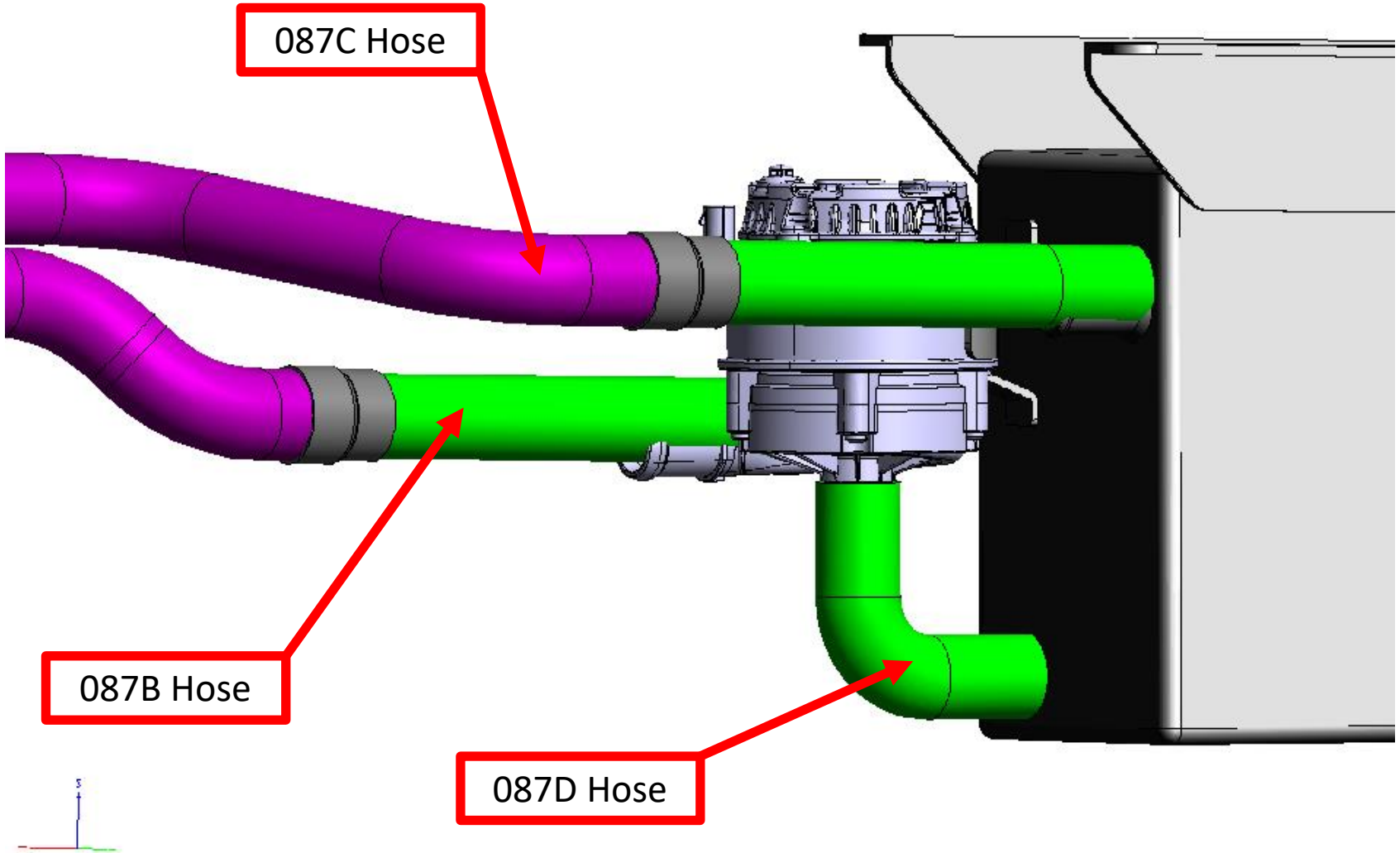
C8 Corvette Hose Routing Overview – LH Front View



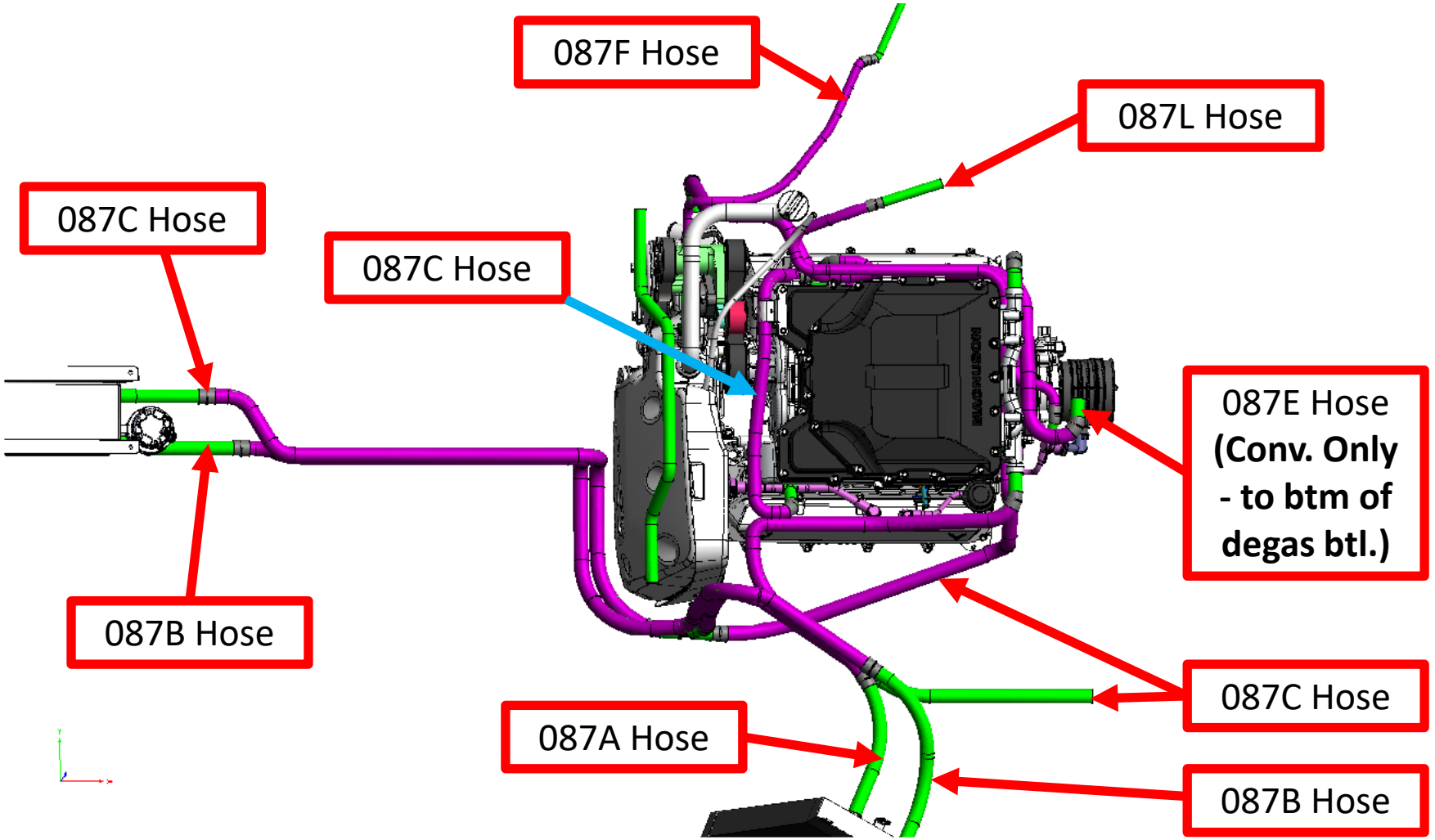
C8 Corvette Hose Routing Overview – Bottom View



C8 Corvette Hose Routing Overview – Reservoir and Tank Hose Routing



C8 Corvette Hose Routing Overview – Top View



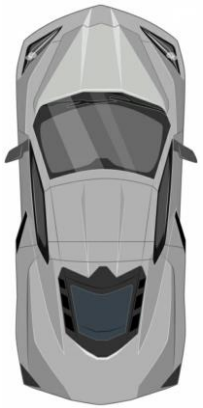
Remove the OE coolant bleed hose assembly from the spigot at the top of the water pump housing. Harvest the male quick connector from the end of this hose.

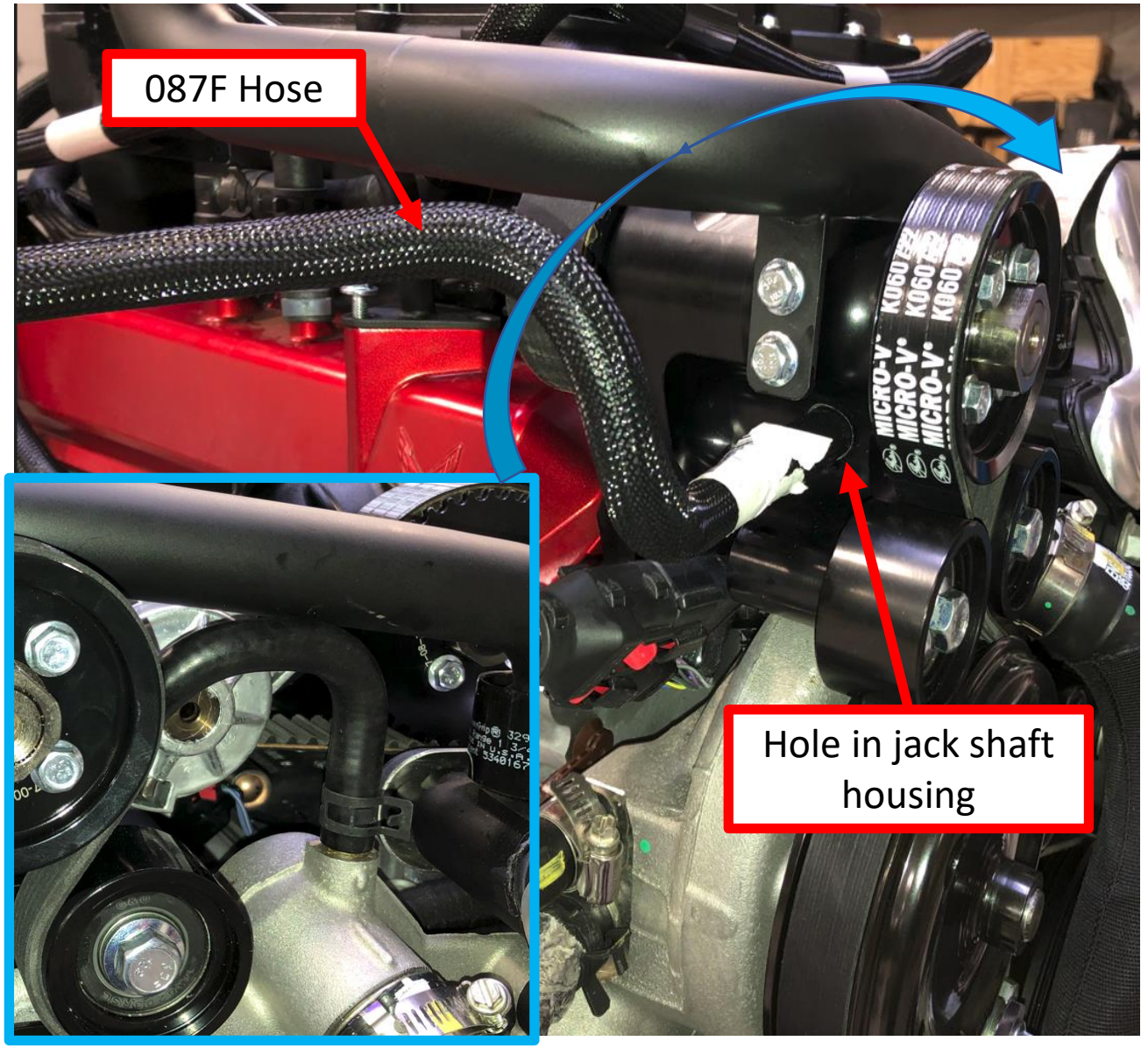
Select coolant hose 31-26-62-087F. This will replace the factory part.

Push the hooked end of the 087F hose through the hole in the jackshaft housing.

Install a 5/16” constant tension clamp at each end of the hose.

Install the hose onto the spigot at the top of the water pump housing. Secure the hose with the clamp.

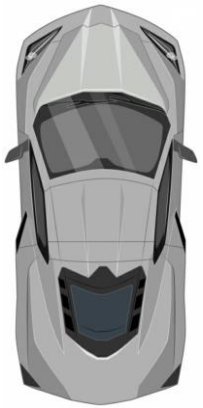


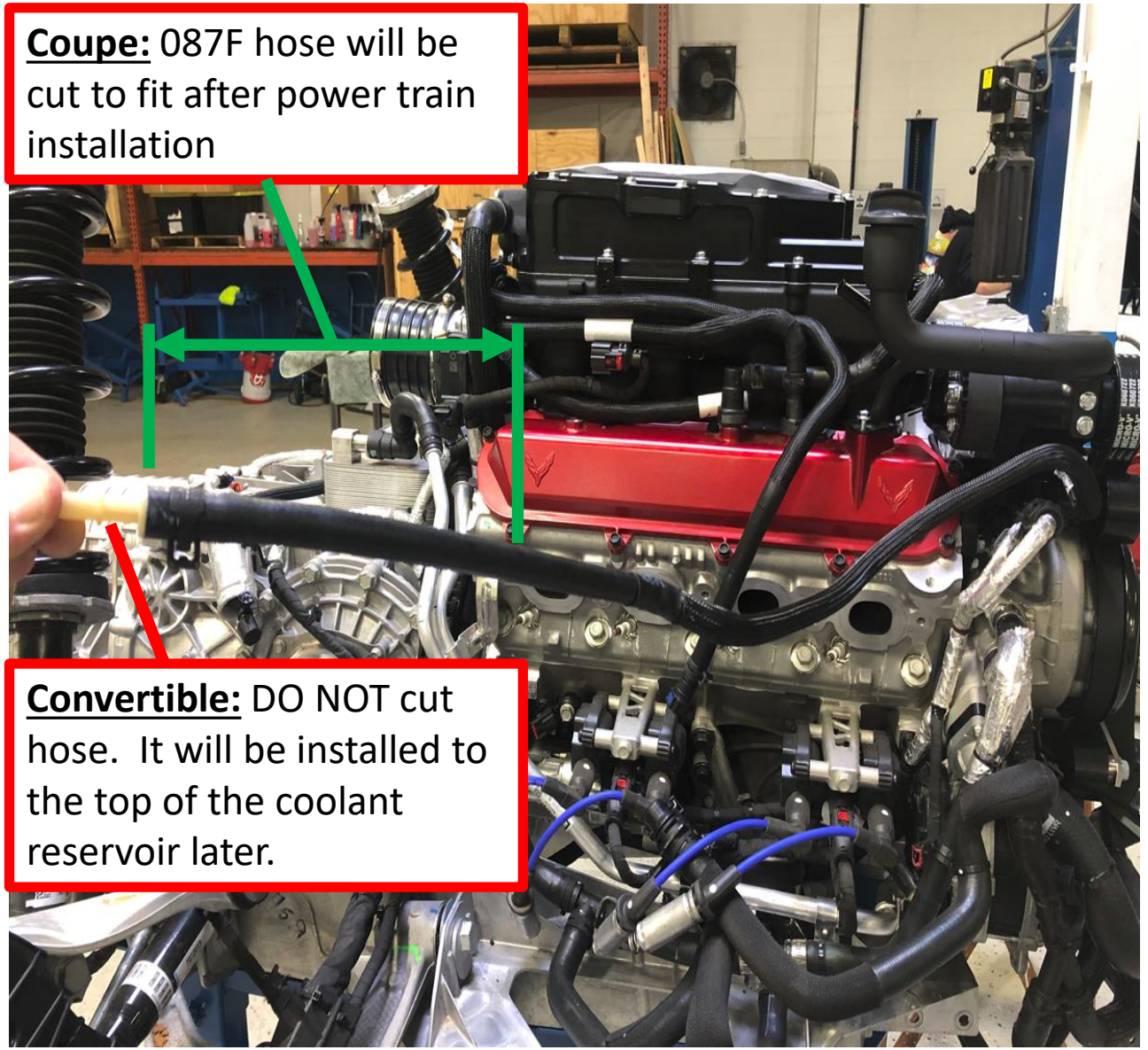


087F Coolant Bleed Hose

Coupe Only: the 087F hose will be cut to fit after power train has been installed back in the vehicle. Set male connector aside.

Convertible Only: the 087F hose will be installed onto the top of the factory coolant reservoir after the power train has been re-installed. It does not need to be shortened.





Purge Valve and Hose

Install the purge valve and fastener (harvested from the OE intake) into the port on the LH side of the throttle body adaptor.

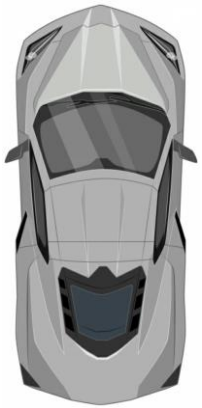
Torque the purge valve fastener 10Nm.

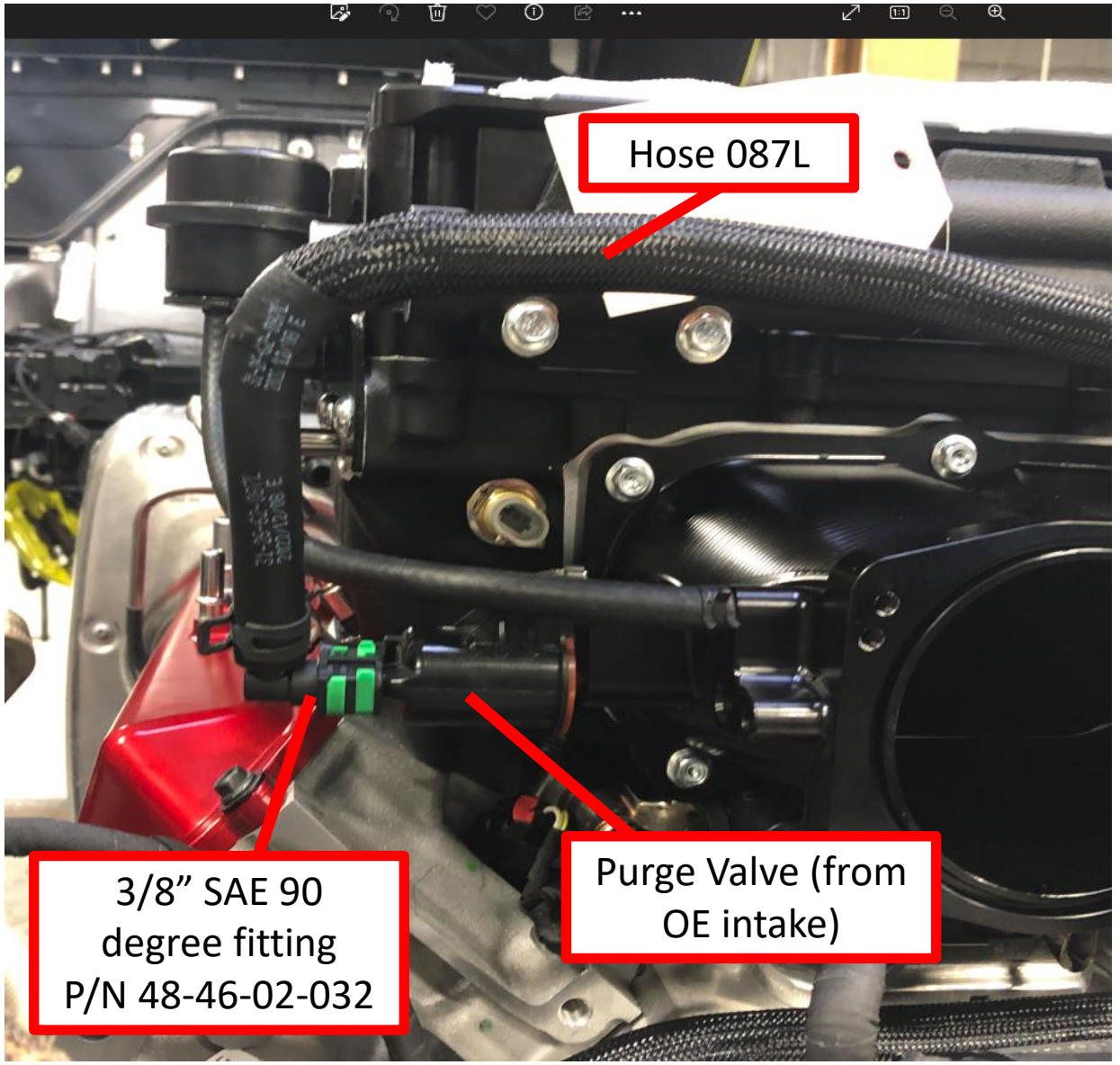
Re-install the purge valve electrical connector.

Select Hose P/N 31-26-62-087L. Install a 3/8” constant tension clamp onto each end.

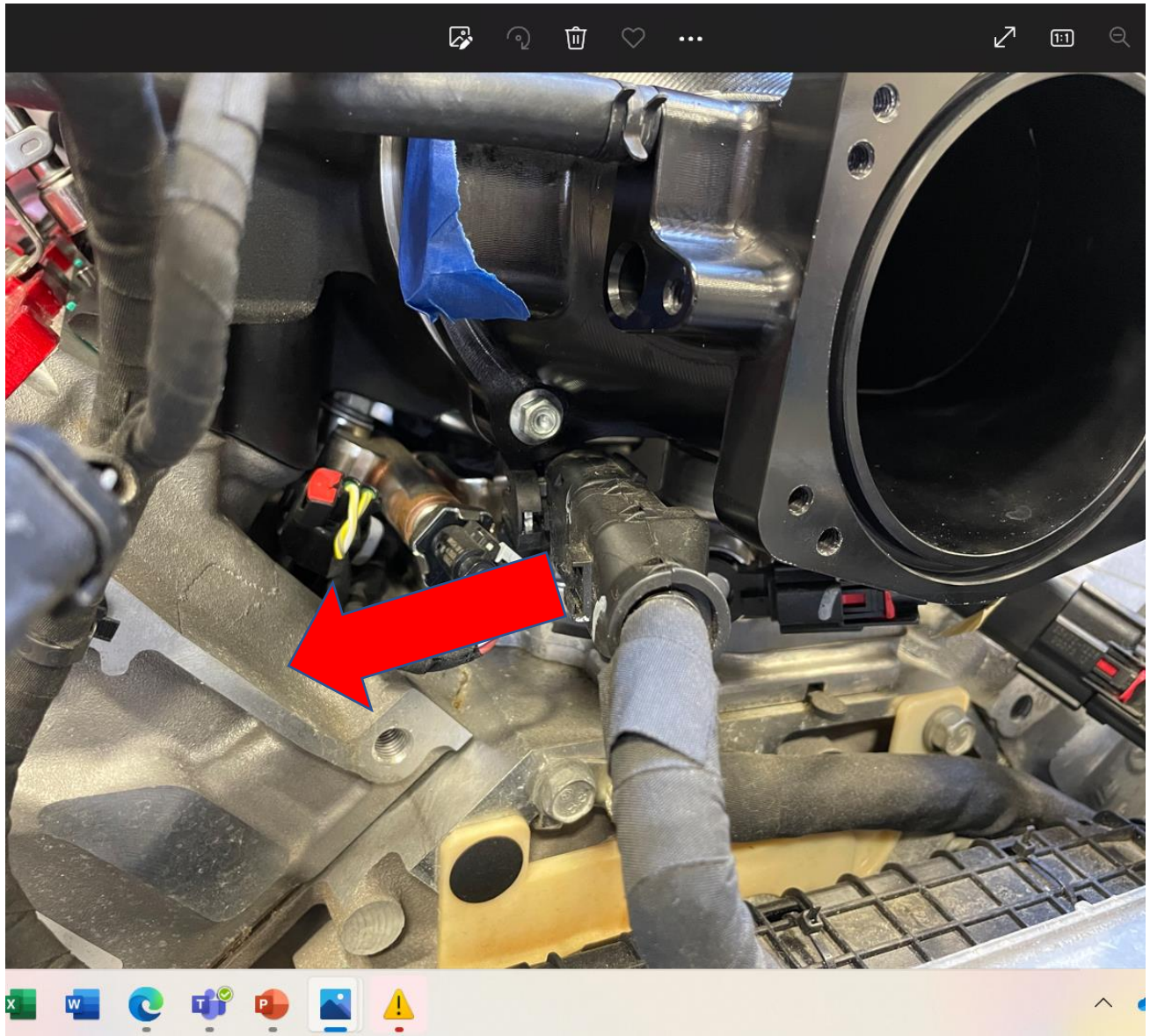
Install a 3/8” 90 degree SAE fitting P/N 48-46-02-032 from the kit onto Hose 087L. The 90 degree fitting goes on the end of the hose shown in the photo.

Install the 087L hose sub-assembly onto the purge valve nipple. Engage the lock on the fitting to secure it. Route the hose per the diagram on pages 121 - 128. The opposite end of this hose will be installed onto a body line connection at a later step.





Bend hardshell connector away from LH rear side of throttle body adaptor as necessary.

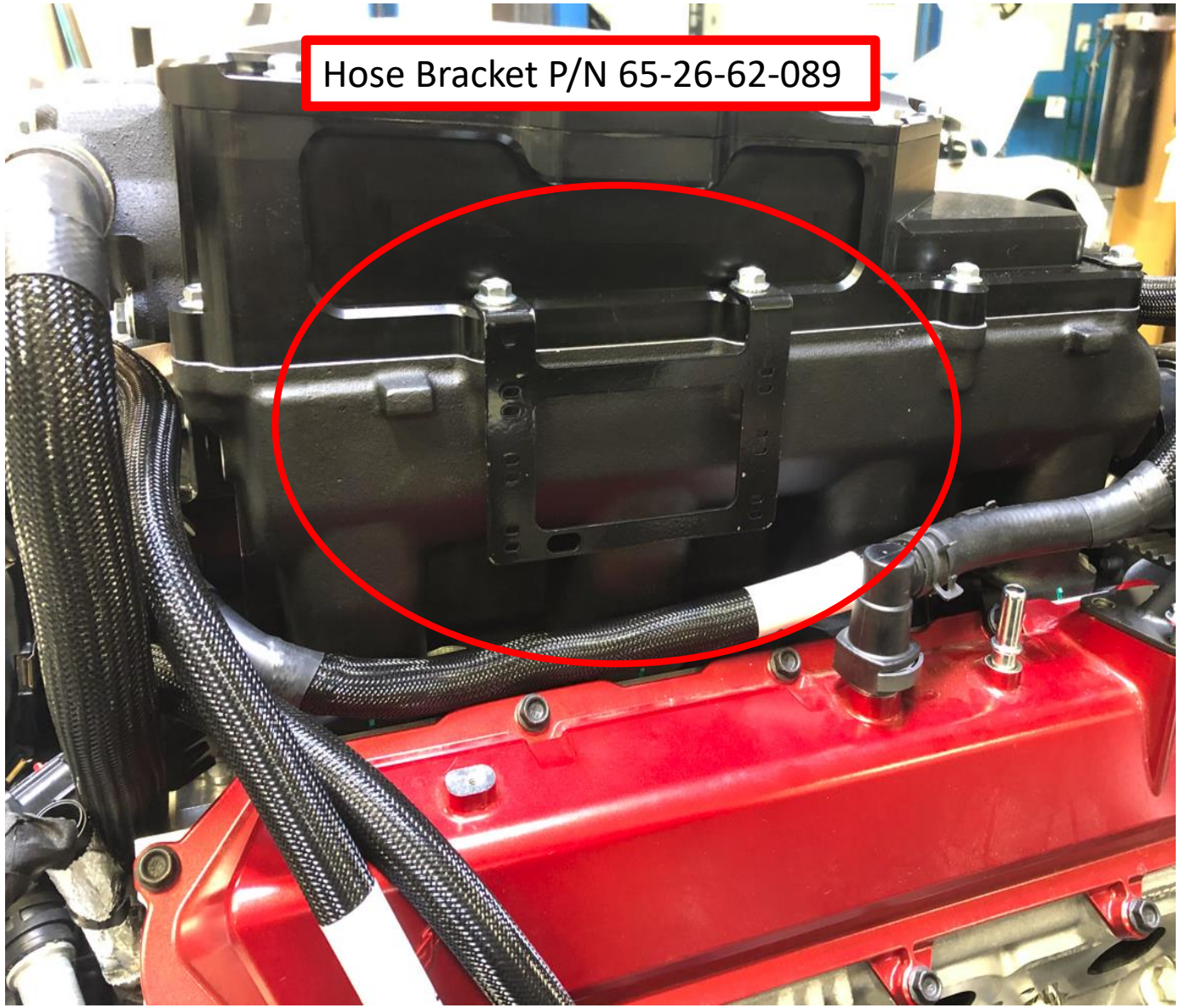


Remove (2) SC cover fasteners from the RH side of the supercharger, in the locations noted in the photo.

Pre-install zip ties into Hose Bracket P/N 65-26-62-089

Install the hose bracket to the RH side of the supercharger, then re-install the 2 fasteners.

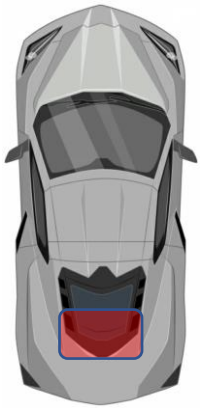
Torque the fasteners 25Nm.

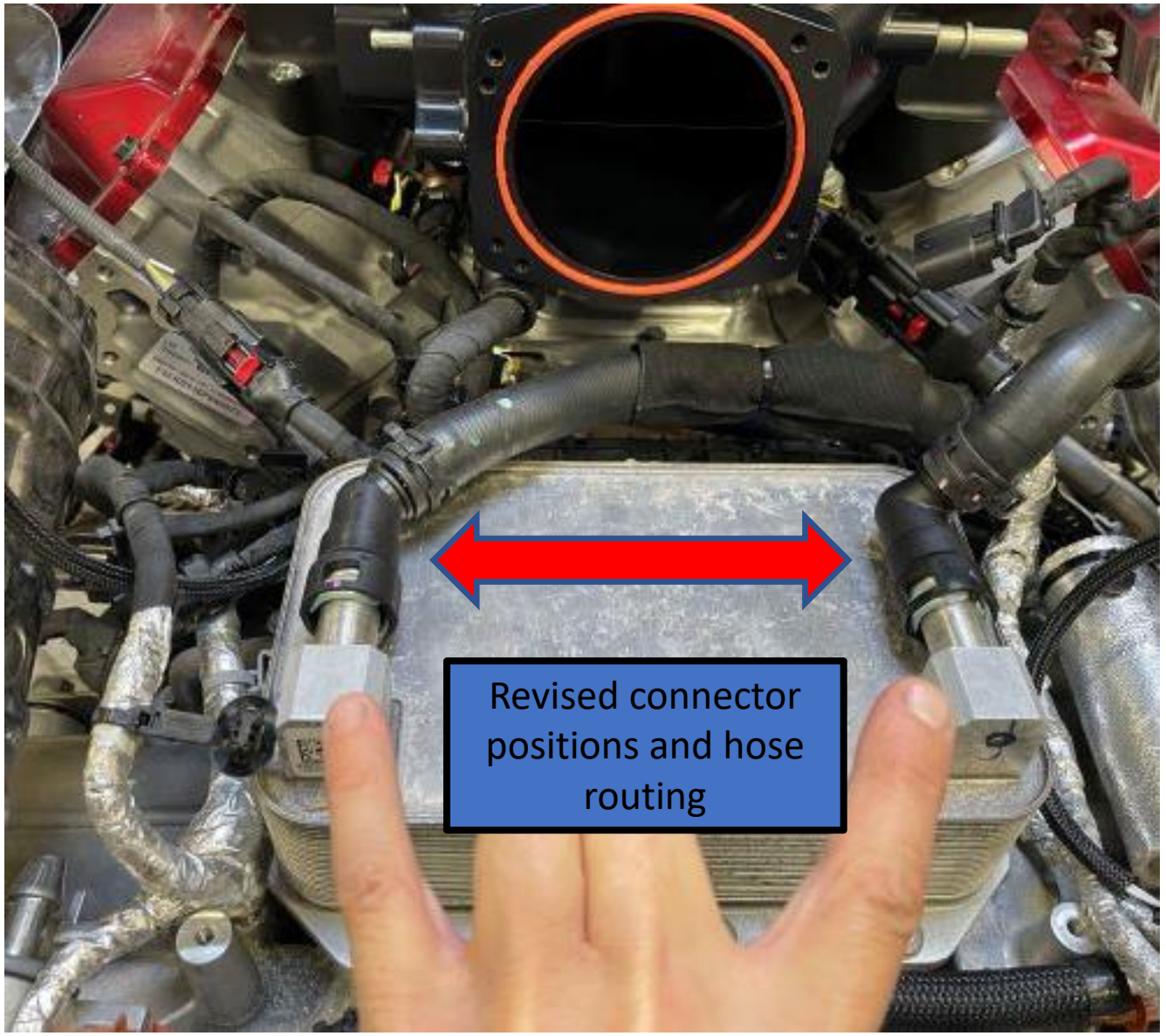


Trans Cooler Fittings / Line Routing

Remove both trans cooler fittings and swap them side for side.

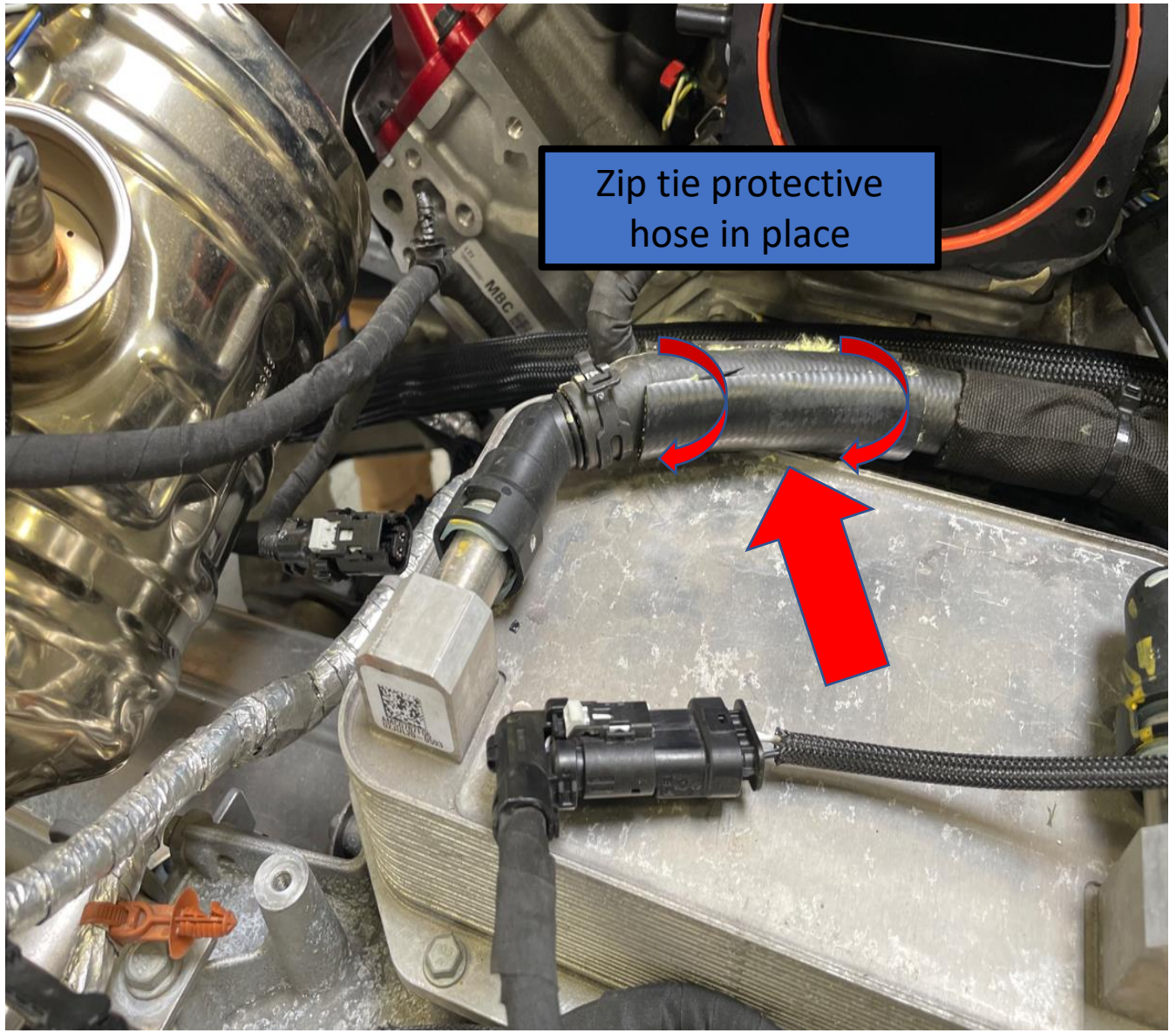
Re-install constant-tension clamps over hose connections.



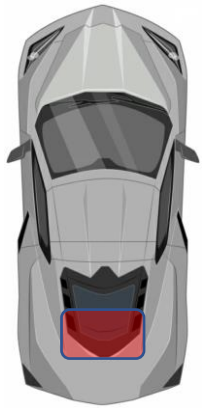


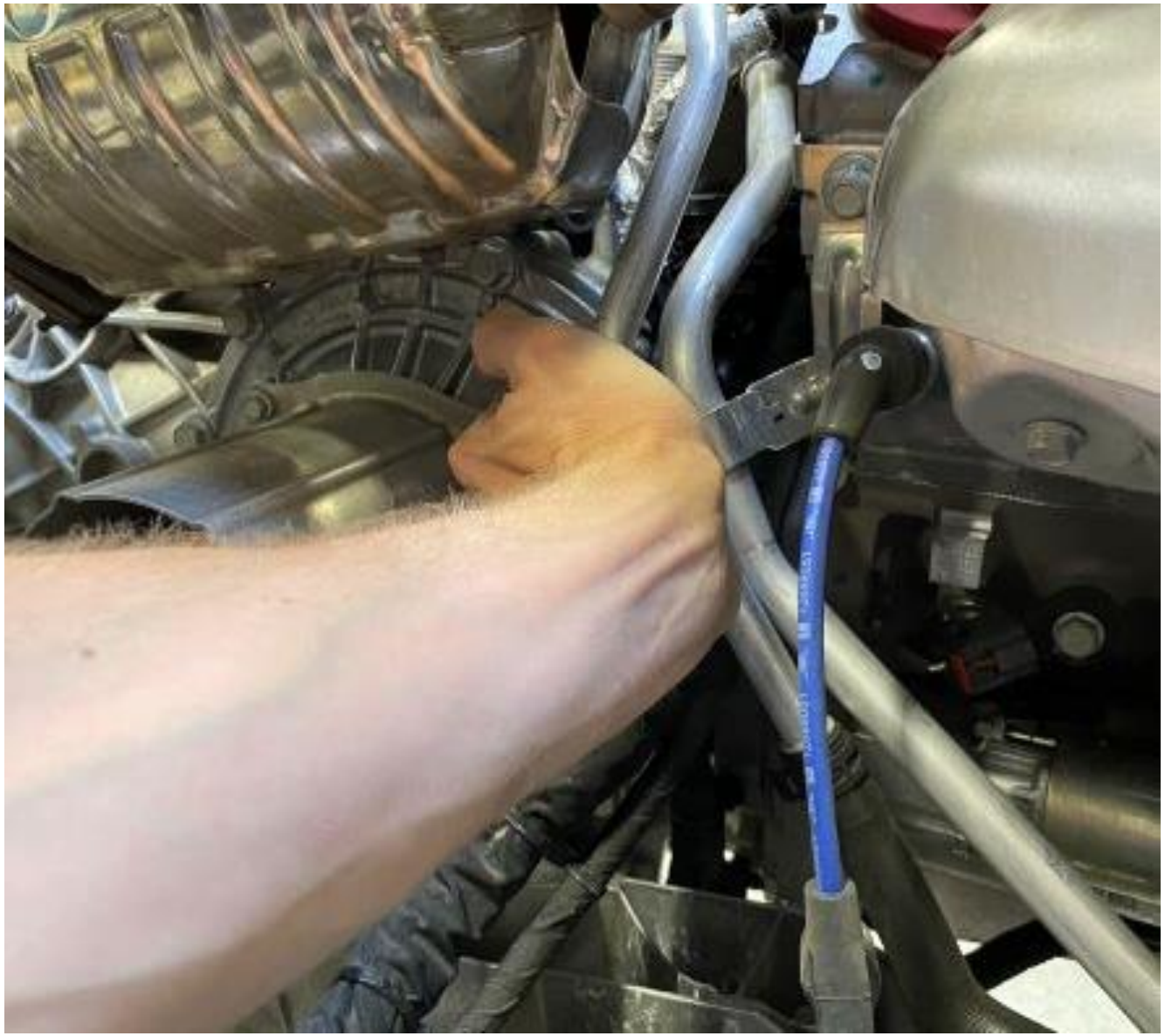
Add a 4 inch piece of rubber hose (not included in kit) between LH trans cooler line and trans cooler to protect the hose from abrasion against the cooler.

Zip tie both ends to the OE hose.



Bend trans cooler lines inboard toward engine.





Pre-install (4) long zip ties through holes in Oil Reservoir Bracket P/N 65-26-62-088.

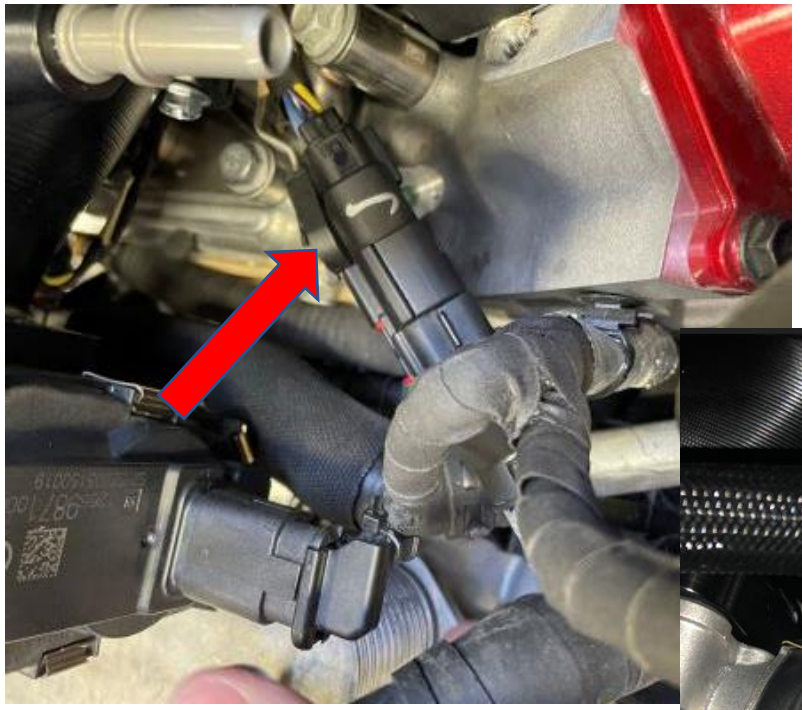
Install coolant hose bracket to dry sump tank at LH front of engine using the original fasteners in the positions shown in the photo.

Remove wiring harness @ RH rear of engine from the mounting bracket.

Disconnect the harness @ hard shell connector and loop it in between the two trans cooler lines.

Re-connect the hard-shell connector.

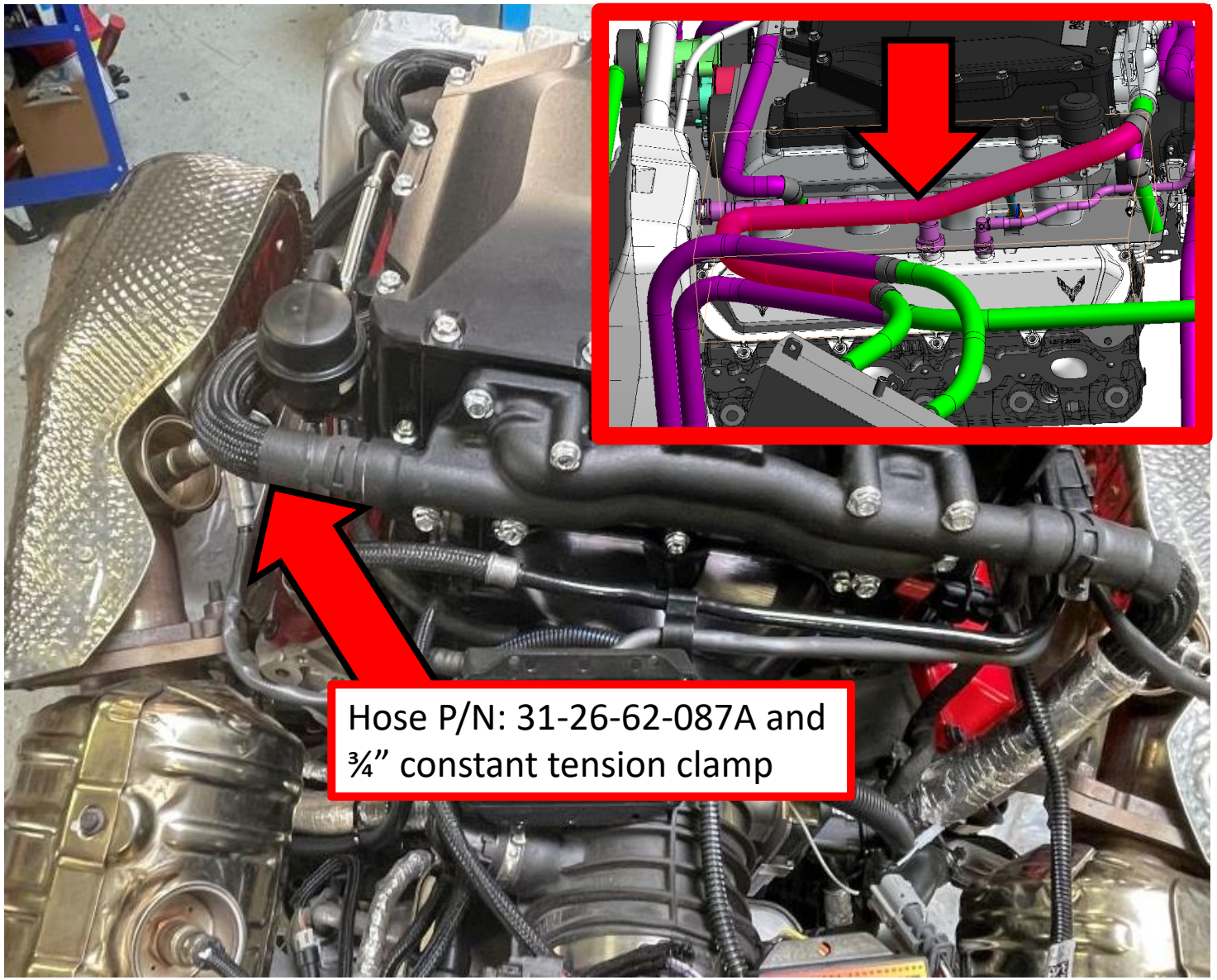
Ensure oil cooler hoses are not kinked.



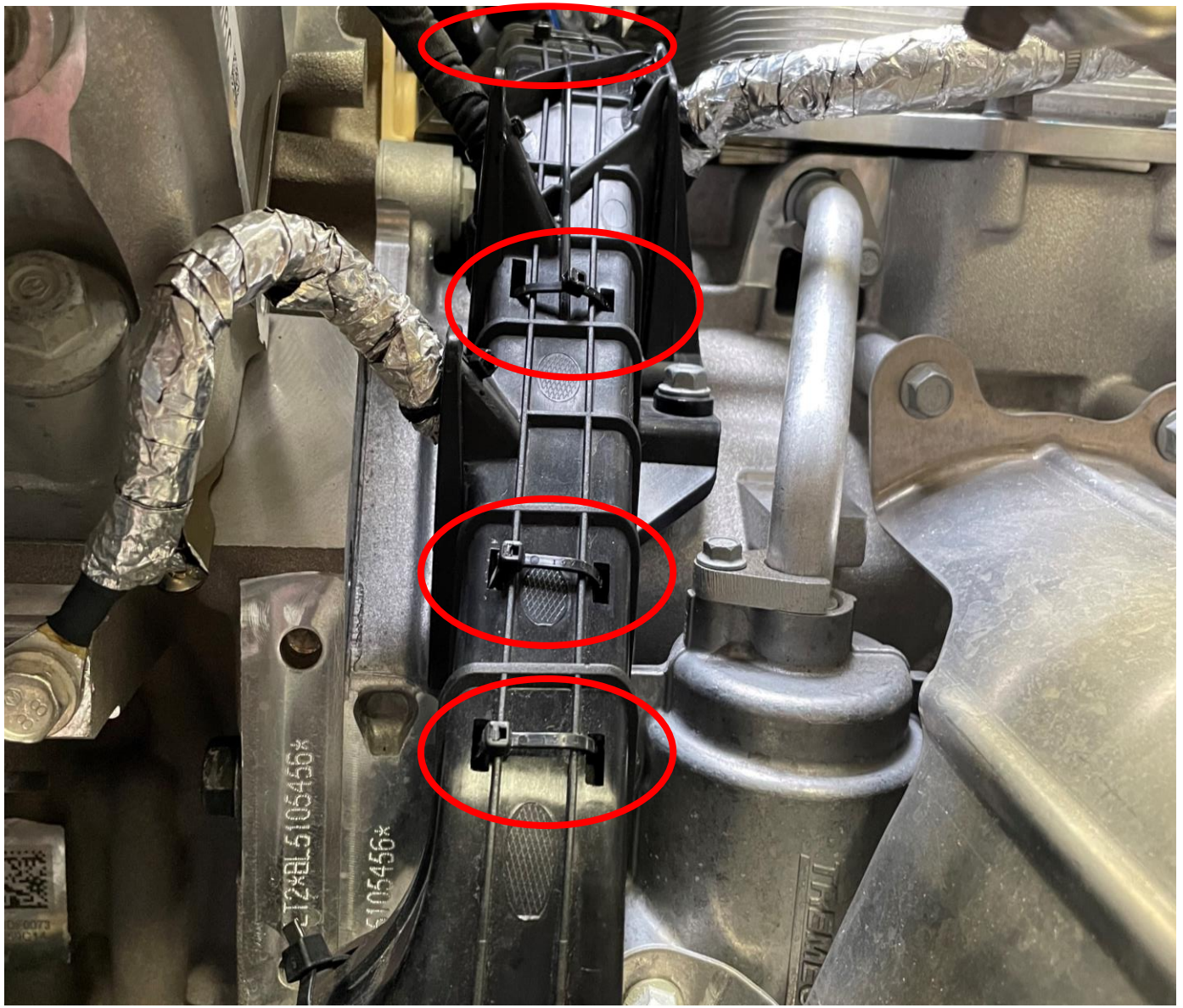
Install and route the LH CAC hose at the rear of supercharger.

Hose **31-26-62-087A** installs onto the LH (drivers) side port at the rear of the supercharger. Secure the hose using a ¾” constant tension clamp.

Route the LH 087A hose along the LH side of the supercharger toward the front of the engine. The opposite end of this hose will connect to the low temp radiator (forward connection) after the powertrain has been re-installed in the vehicle.



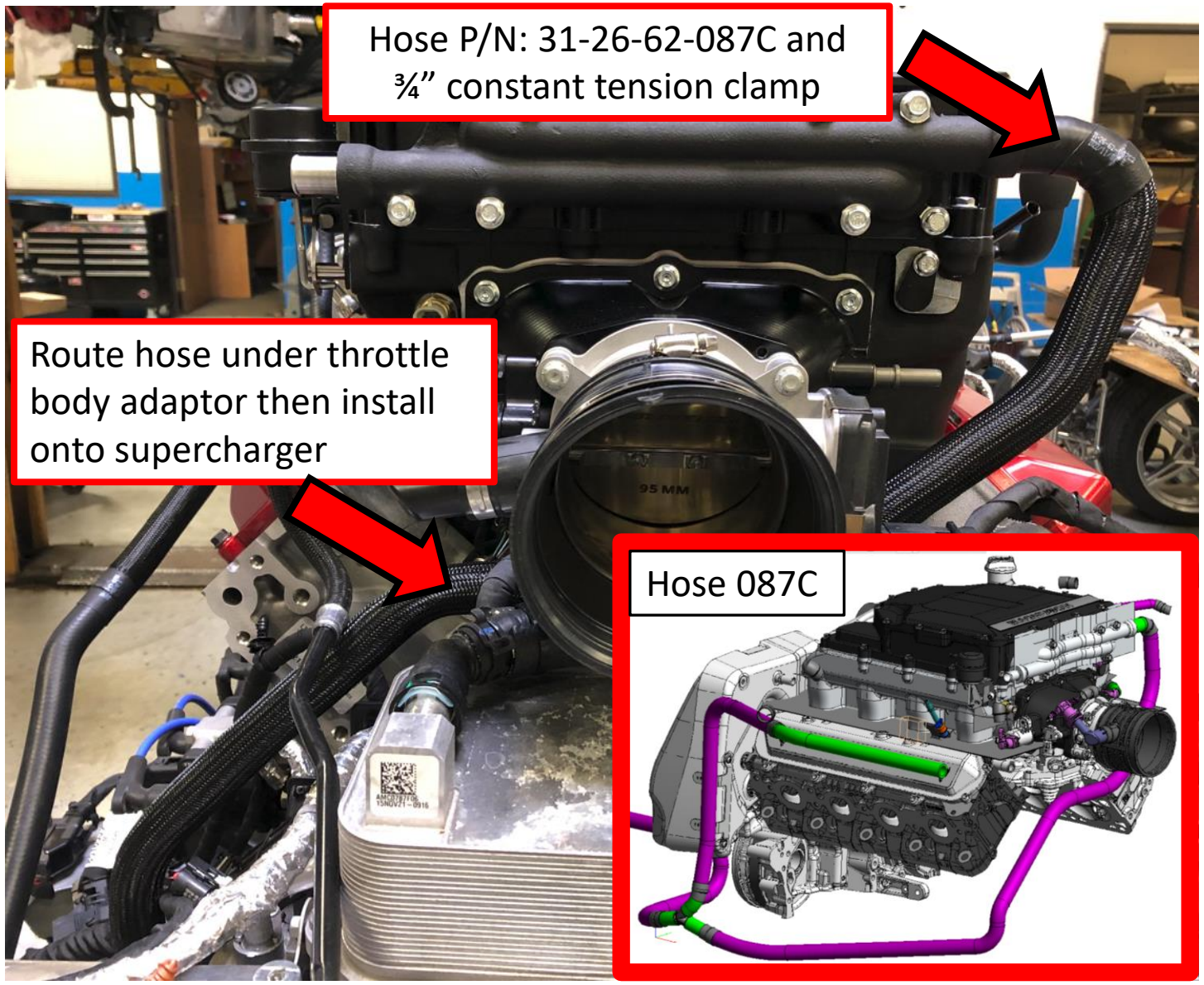
Zip ties secure the wiring harness inside a plastic trough at the back of the engine. Trim the tops with flush cut pliers so they do not stick up and rub on the coolant lines.



Install and route the RH CAC hose at the rear of supercharger.

Hose **31-26-62-087C** installs onto the RH (passenger) side using a ¾” constant tension clamp.

Route the hose under the throttle body adaptor and over to LH front corner of the engine. The opposite ends will connect to the underbody coolant tank and to the fill bottle inside the engine compartment after the powertrain has been re-installed in the vehicle.

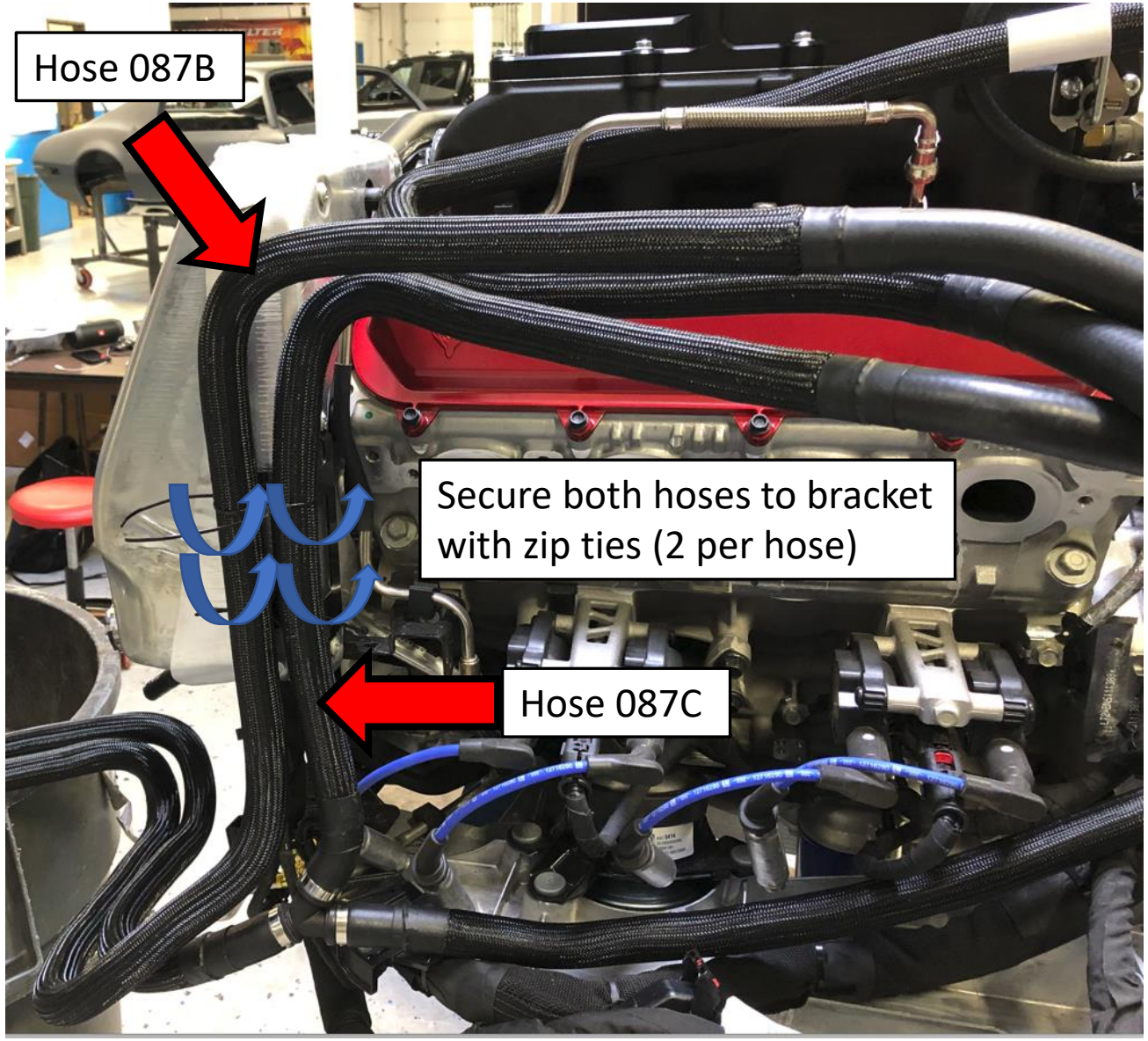


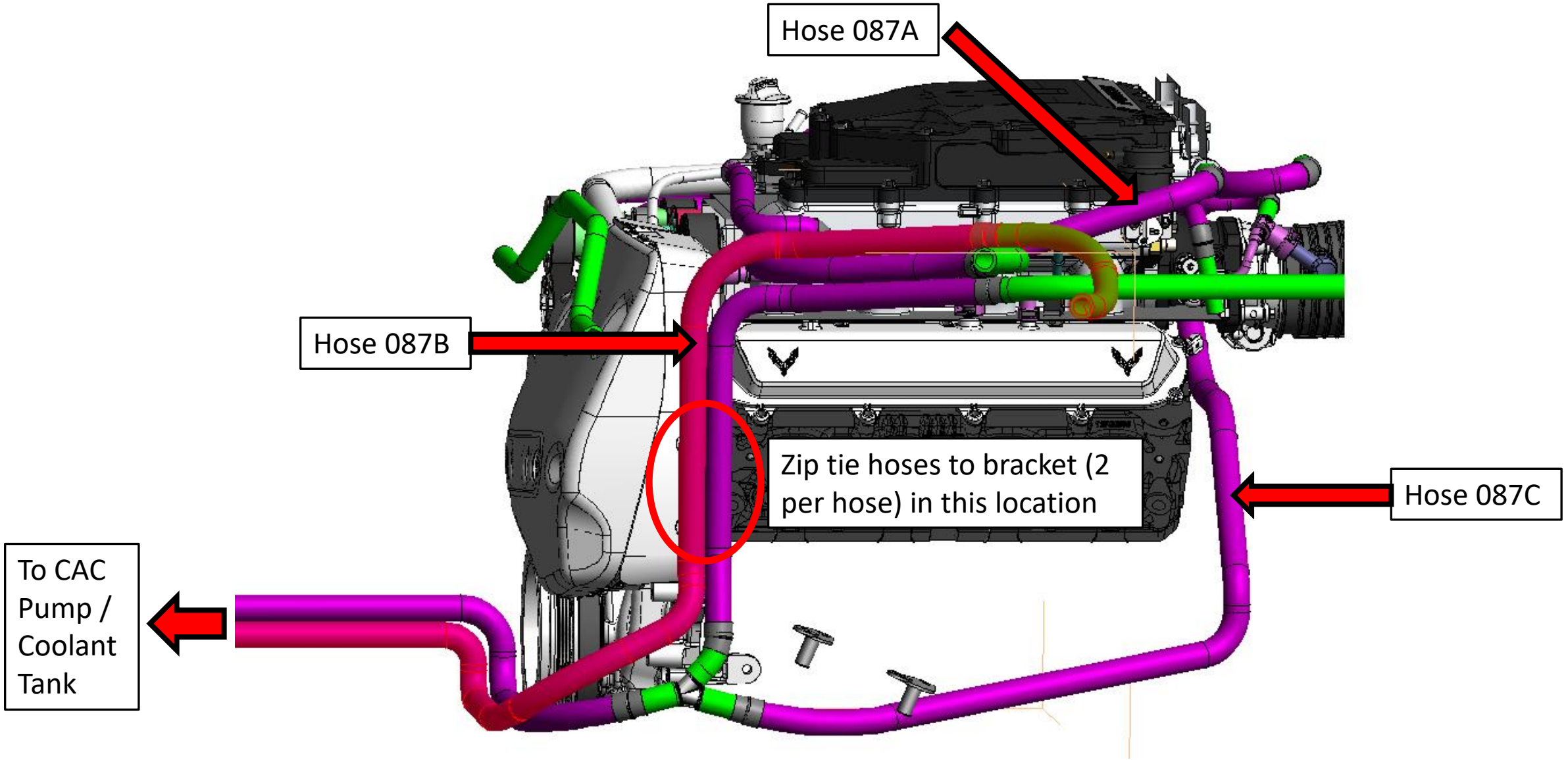
Use (2) zip ties to secure hose 087C to the rear most position of the previously installed dry sump tank bracket.

Select Hose 087B and secure it to the forward position of the dry sump tank bracket using (2) zip ties.

This hose will install between the rear most low temp radiator connection and the intercooler pump under the vehicle.

Hose routing detail can be found on the following slide.




Hose 087A
Hose 087B
Zip tie hoses to bracket (2 per hose) in this location
Hose 087C
To CAC Pump / Coolant Tank

Select the revised Lingenfelter ETB P/N L270046914 and FAST 146004 o-ring.

Install the o-ring to the supercharger inlet adaptor. Install the revised ETB using the original fasteners from the OE ETB.

Torque the fasteners in a criss-cross pattern to 12 Nm.

Re-install the ETB electrical connector, ensuring that it is fully seated and the lock has been cycled on the hardshell connector.

Remove the OE MAP sensor (PN 12711681) from original intake and install to the LH side of throttle body adaptor.

Secure the sensor to the adaptor using an M6 X 1 - 25mm long fastener P/N 71-06-10-025, from the supercharger kit.

Torque the sensor bolt to 12 Nm.

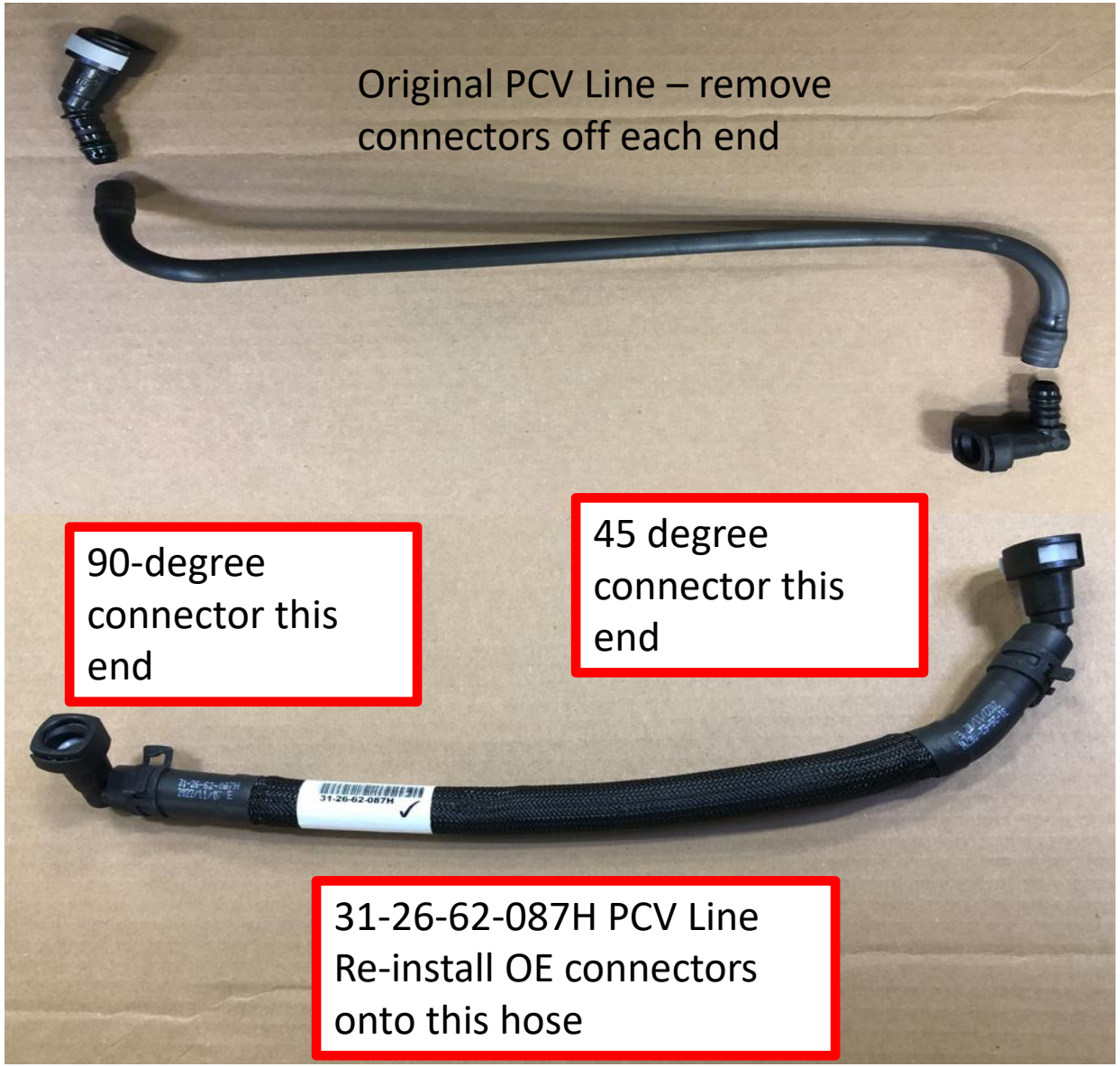
Re-install the OE MAP sensor plug into the sensor, ensuring the blue tab has slid to the locked position

Carefully cut the hose ends off the original PCV line with a knife, ensuring you do not cut the o-ring that is internal to the barbed fitting.

Select new PCV line P/N 31-26-62-087H.

Install 3/8” clamps on each end then re-install the original hose ends as shown in the photo. Secure the connectors to the hose with the clamps.

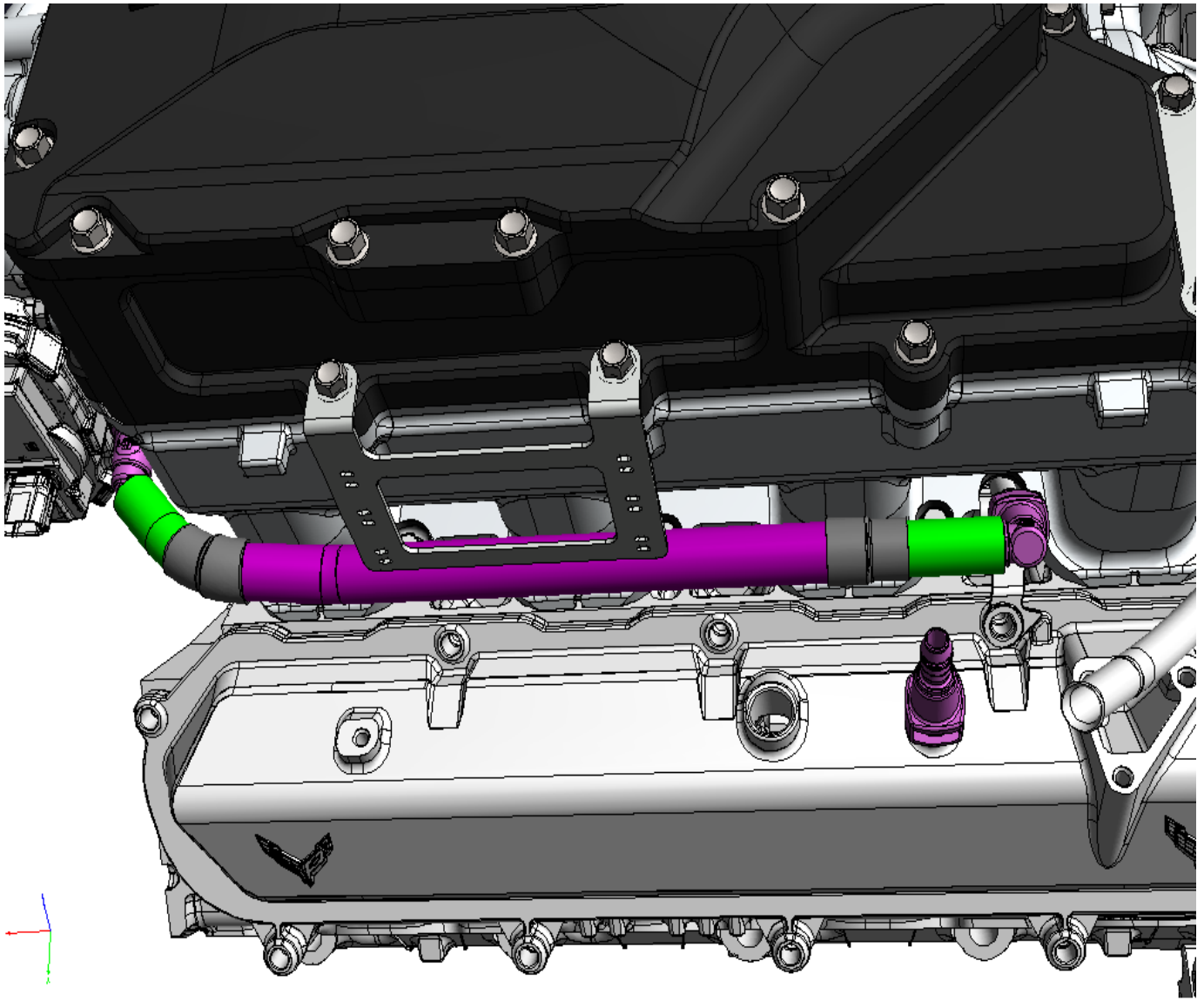
Orient the hose ends and install onto the engine as shown in the following slide.



087H PCV hose orientation as shown

(45-degree fitting connects to the fitting on the throttle body adaptor.

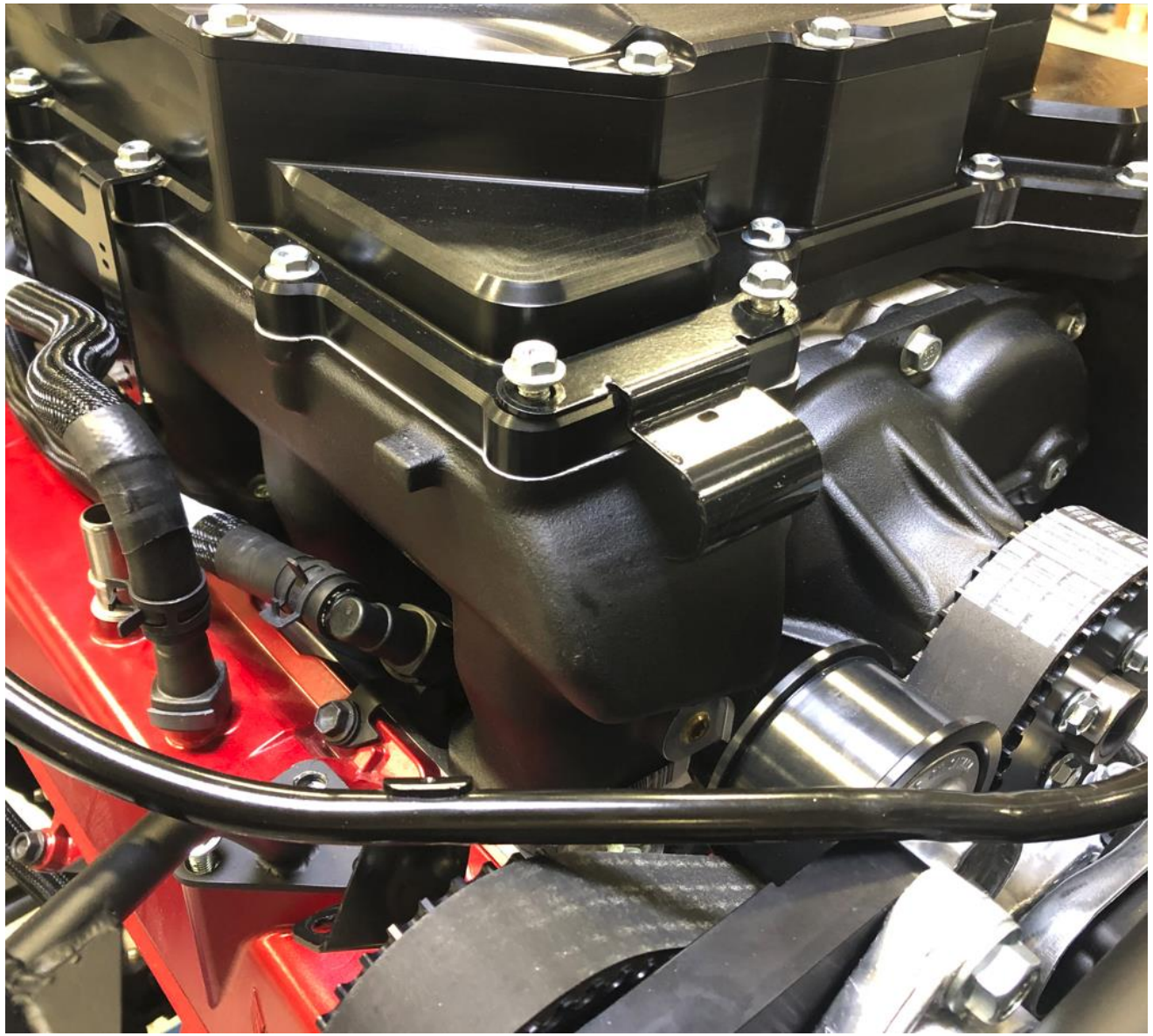
90-degree fitting connects to hose in between cylinder 2 and 4 intake ports.



Remove (2) fasteners from the RH front corner of the supercharger cover.

Install PCV Crossover Hose bracket P/N 65-26-62-090 onto the corner of the cover then pre-install the original (2) fasteners.

DO NOT TIGHTEN THE FASTENERS - the revised PCV hose assembly will be tucked under this bracket during installation in a subsequent step).

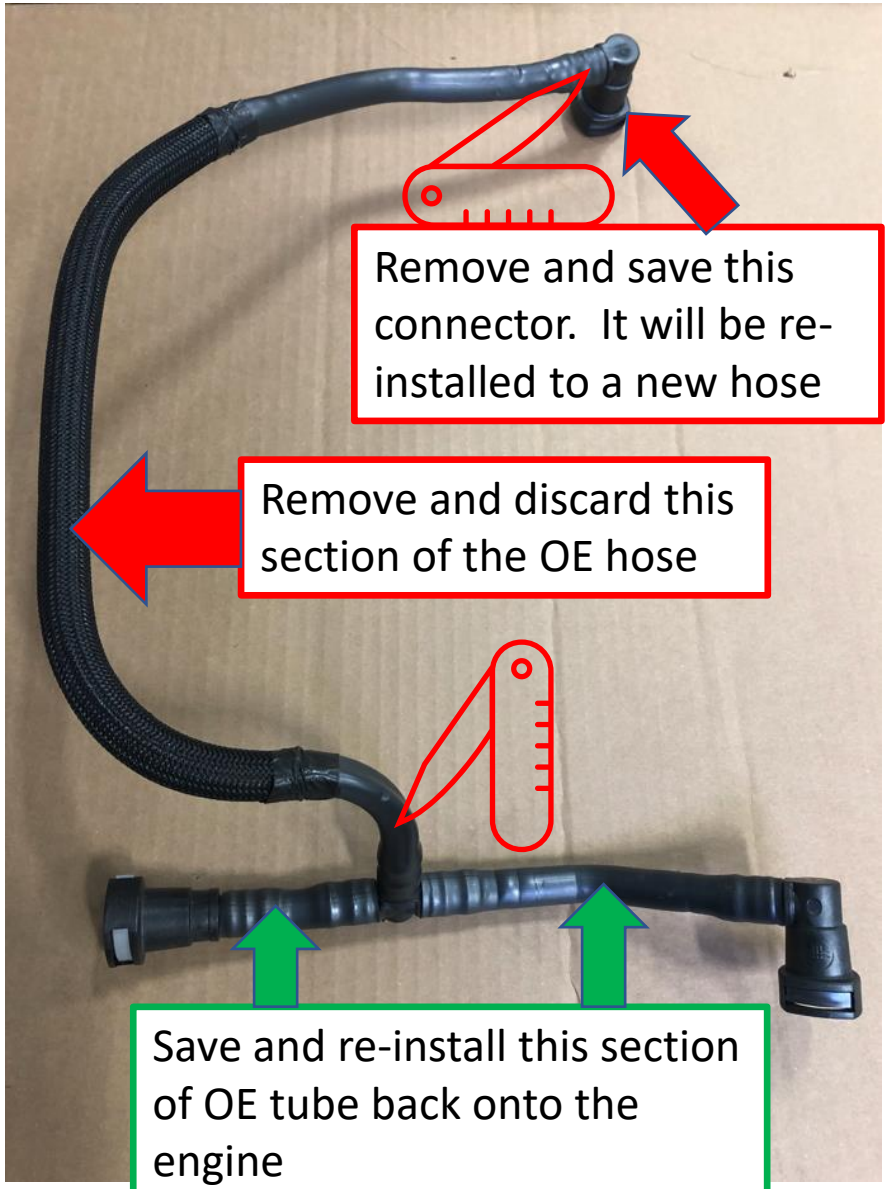


PCV Tube Fabrication:

Carefully cut the 90-degree quick connector off the factory PCV tube assembly as shown in the photo.

Carefully cut the opposite end of the hose off the T connector. Discard the section of OE hose.

Re-install the remaining section of the factory tube that has the T connector, back onto the engine, between the dry sump tank and the LH valve cover, with the T facing up and out at a 45-degree angle.



Select Hose 31-26-62-087J.

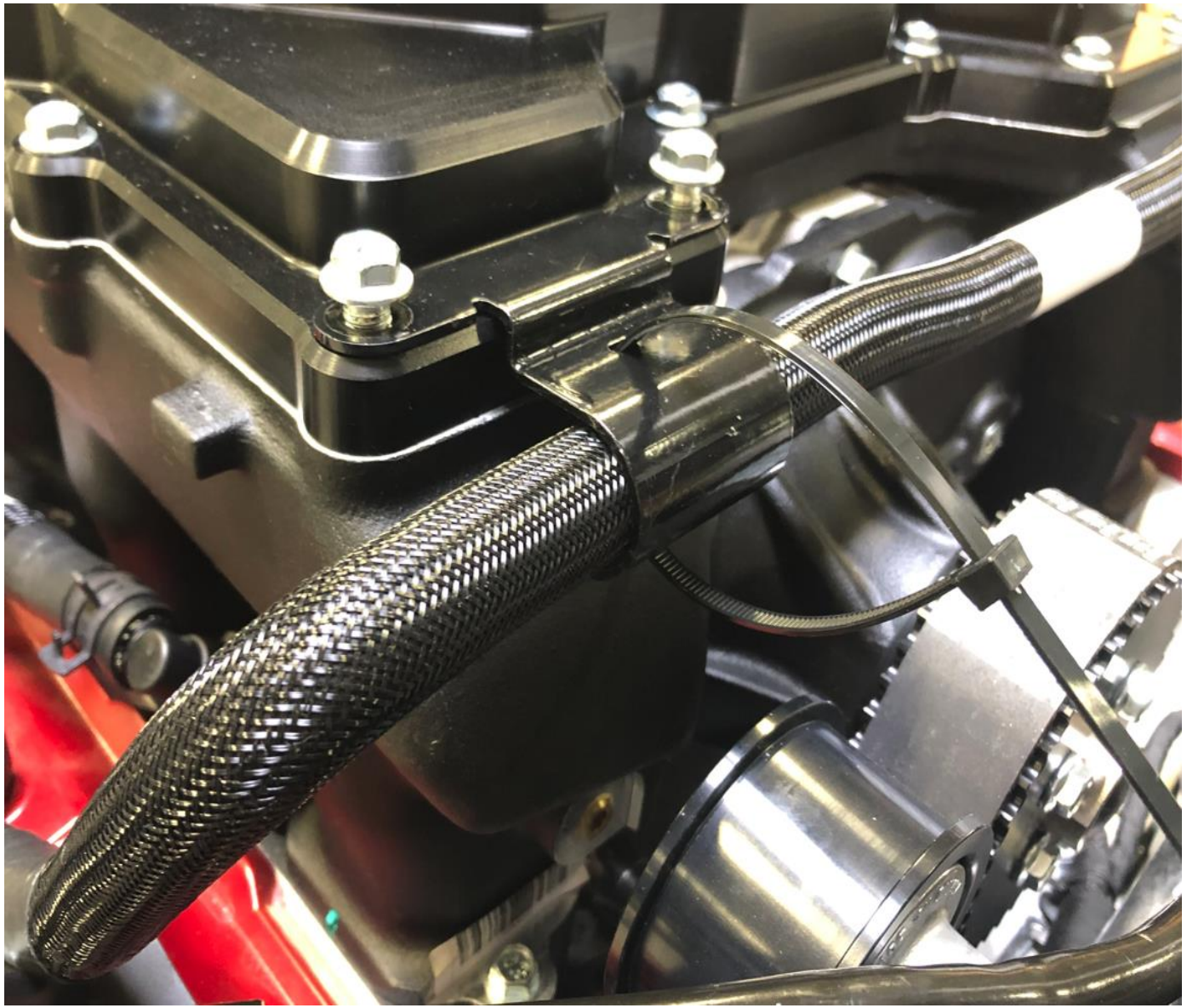
Install a ½” constant tension clamp onto the hose then install the hose onto the Tee fitting of the OE PCV line that goes between the dry sump tank and the LH valve cover.

Tuck the 087J PCV hose under the previously installed bracket.

Loop a zip tie through the bracket and around the hose.

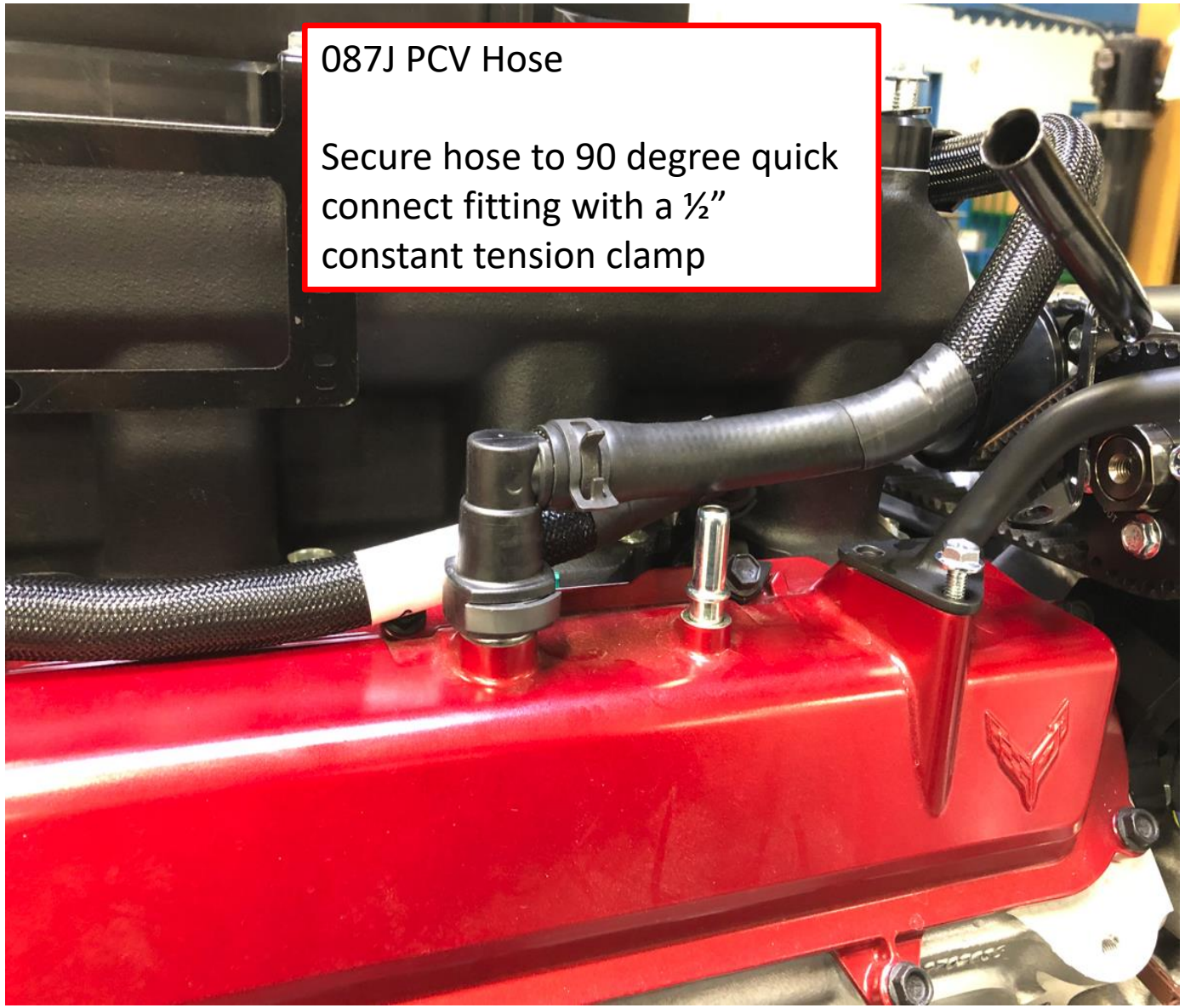
Rundown and tighten the SC cover bolts 25Nm to secure the bracket.

Secure the 087J hose to the bracket using the zip tie. Cut off any excess material.



Route the opposite end of the 087J hose around the RH front corner of the supercharger, and toward the PCV connector on the RH valve cover.

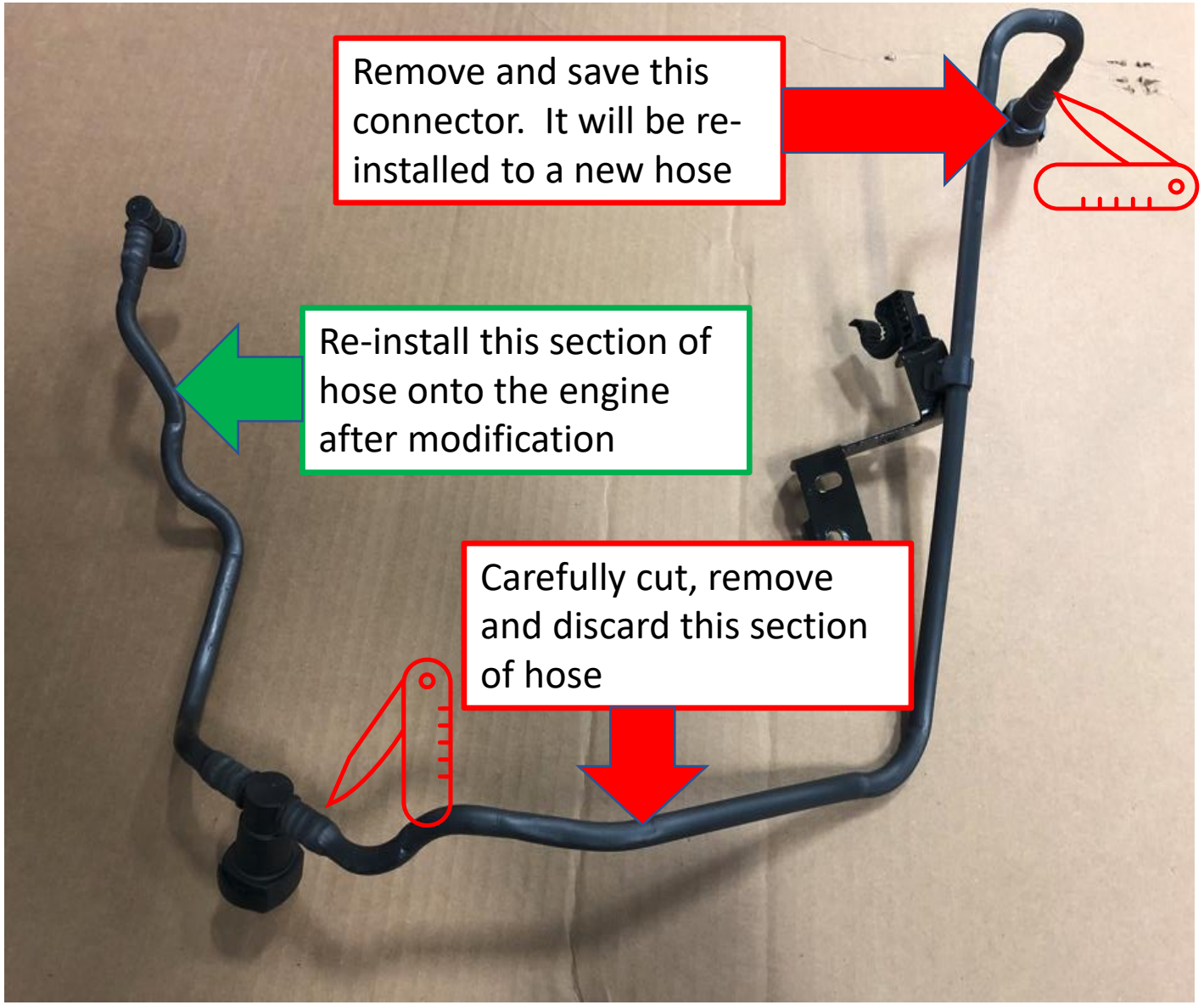
Install a ½” constant tension clamp over the end of the hose, then install the 90-degree quick connector harvested from the OE PCV hose, onto the end of the087J hose. Secure the hose using the constant tension clamp.



PCV Fresh Air Hose Assembly Modification

Cut and remove the hose from the RH side of the Tee connector as shown.

Cut and remove the straight quick connector from the opposite end of the hose as shown.



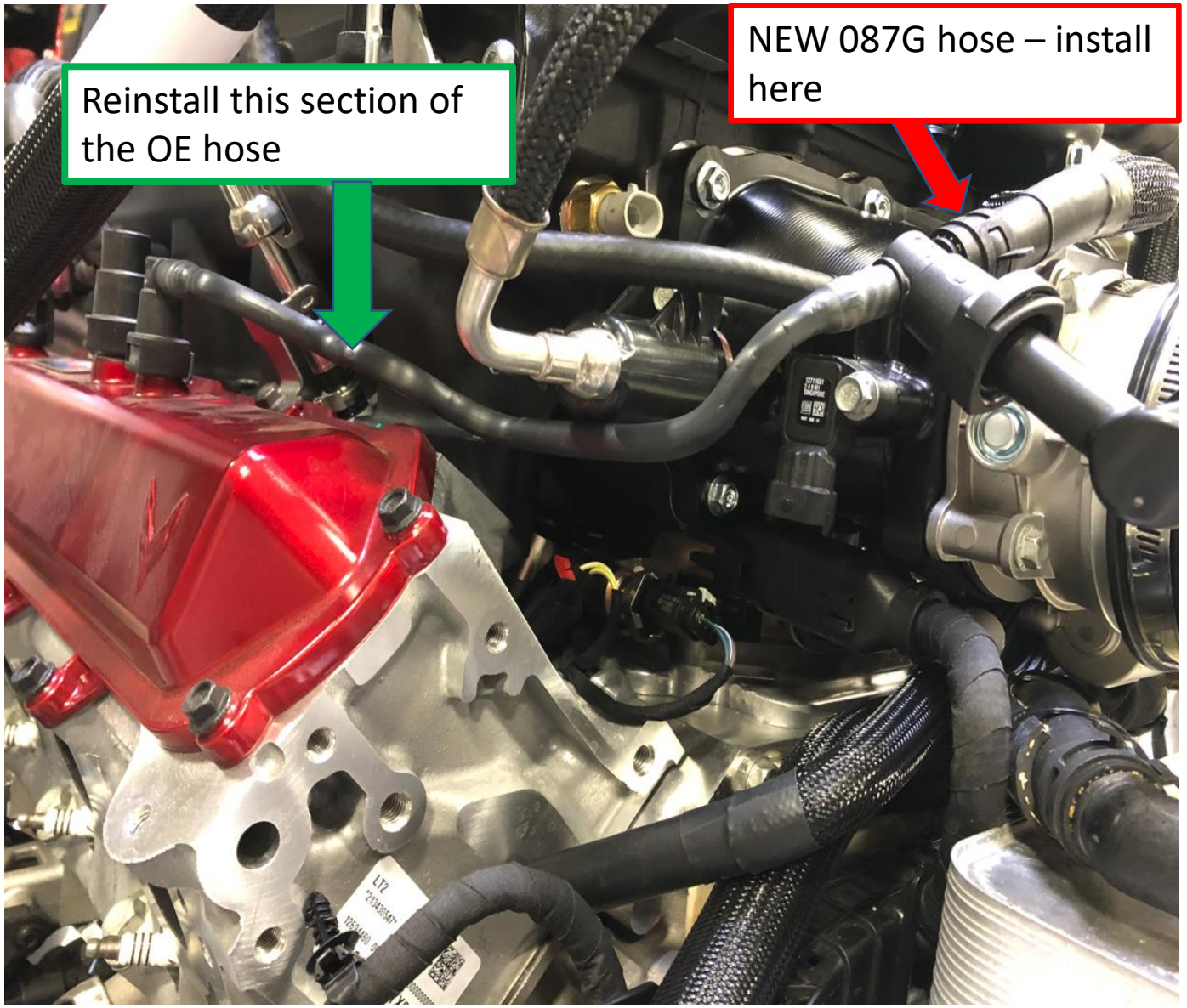
PCV Fresh Air Hose Assembly Modification

Re-install the original section of the fresh air hose assembly back onto the engine, between the LH valve cover and the rubber throttle body adaptor fitting as shown.

Select hose 31-26-62-087G and route it between the Tee connector and the fitting on the passenger side valve cover as shown.

Install 3/8” constant tension clamps onto both ends of the hose, then install the straight quick connector previously removed onto the opposite end at the valve cover.

*Hose routing overview on next slide



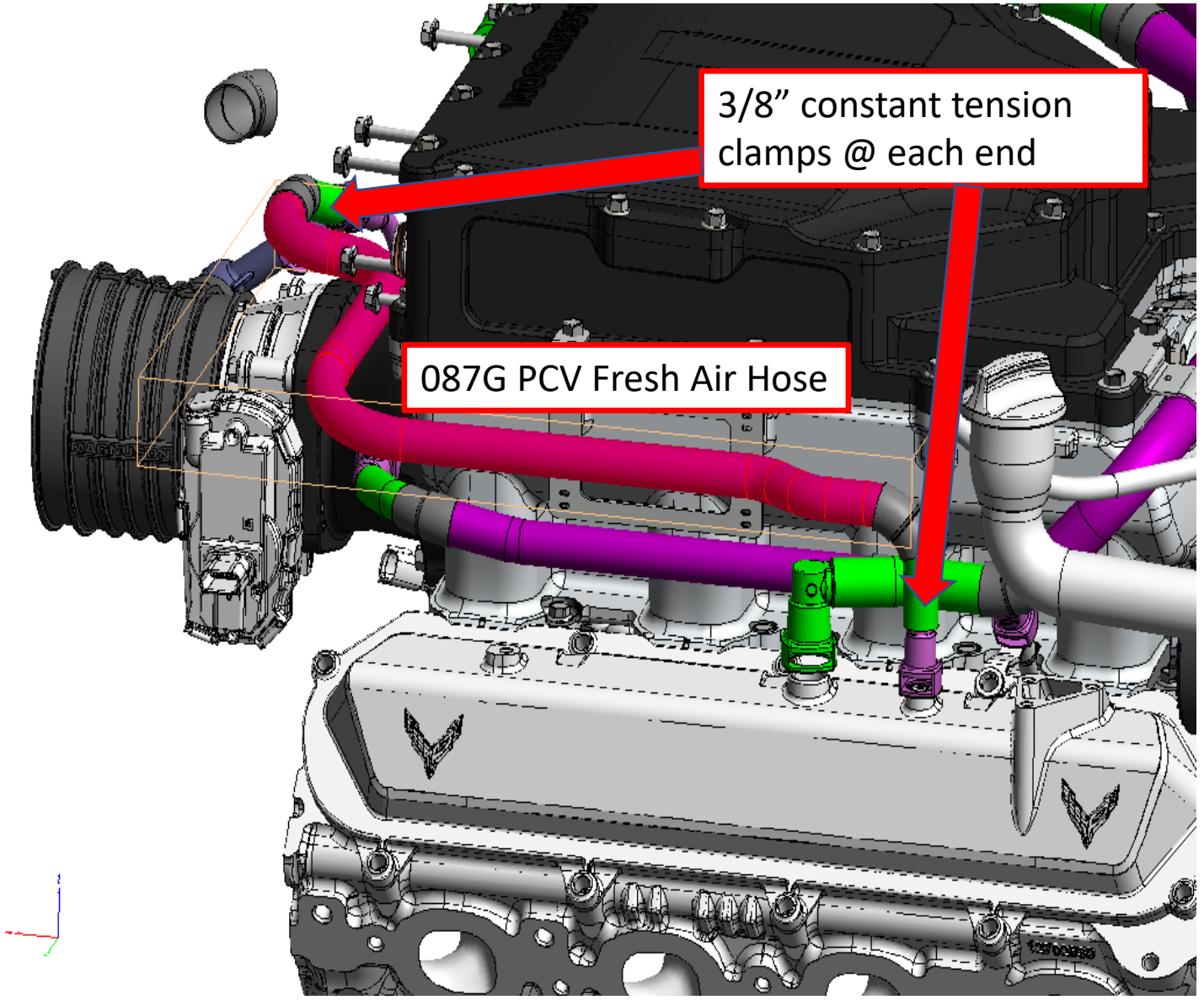
087G PCV Fresh Air Hose Routing Overview

Install 3/8” constant tension clamps at both ends of the 087G hose.

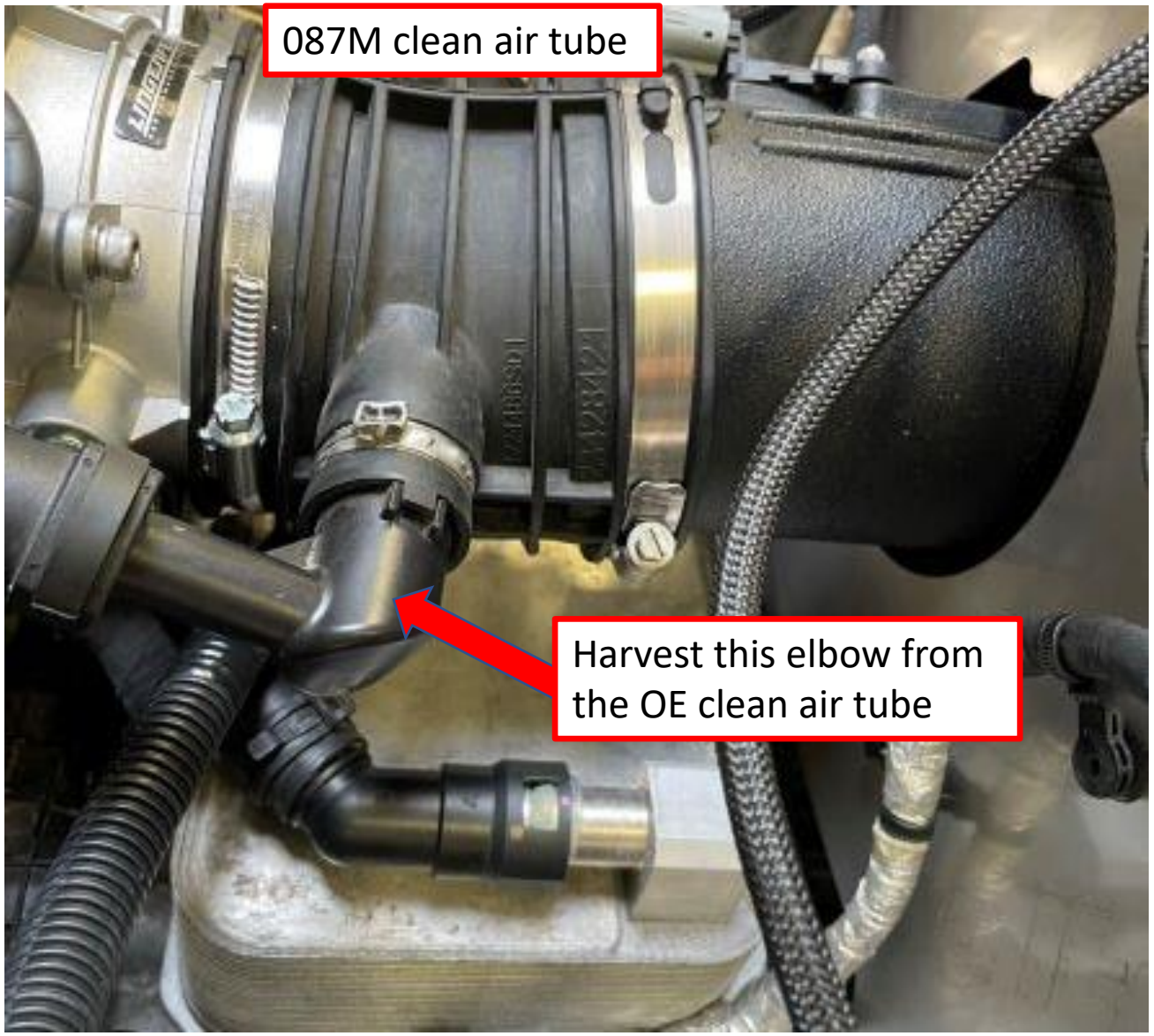
Install this hose onto Tee fitting at throttle body adaptor.

Install the female quick connector harvested from the OE hose assembly onto the opposite end of the 087G hose.

Slide constant tension clamps over hose ends to secure the fittings at each end.



If LPE ETB has been installed, harvest the OE plastic 90 degree elbow from the OE clean air tube and re-install/orient it onto the new Magnuson Clean Air Tube P/N 31-26-62-087M. Secure it with an Oetiker clamp from the kit, install it to the ETB and tighten the gear clamp.



Select the billet reservoir adaptor from the kit. Harvest the o-ring from the original oil fill tube and install it onto the adaptor.

Lubricate the o-ring with oil and install the adaptor into the top of the dry sump tank.

Install a Gates Powergrip heat shrink tube P/N 32948 over the end of the adaptor where it connects into the dry sump tank.

Lift the heat shrink tube up approx. 1/8” to center it over the joint then heat shrink it over the joint between the billet adaptor and factory reservoir.

Select the 1” diameter 90-degree section of hose from the kit. Install a #16 gear clamp from the kit over the hose then install the hose onto the reservoir adaptor as shown. Tighten the clamp securely.

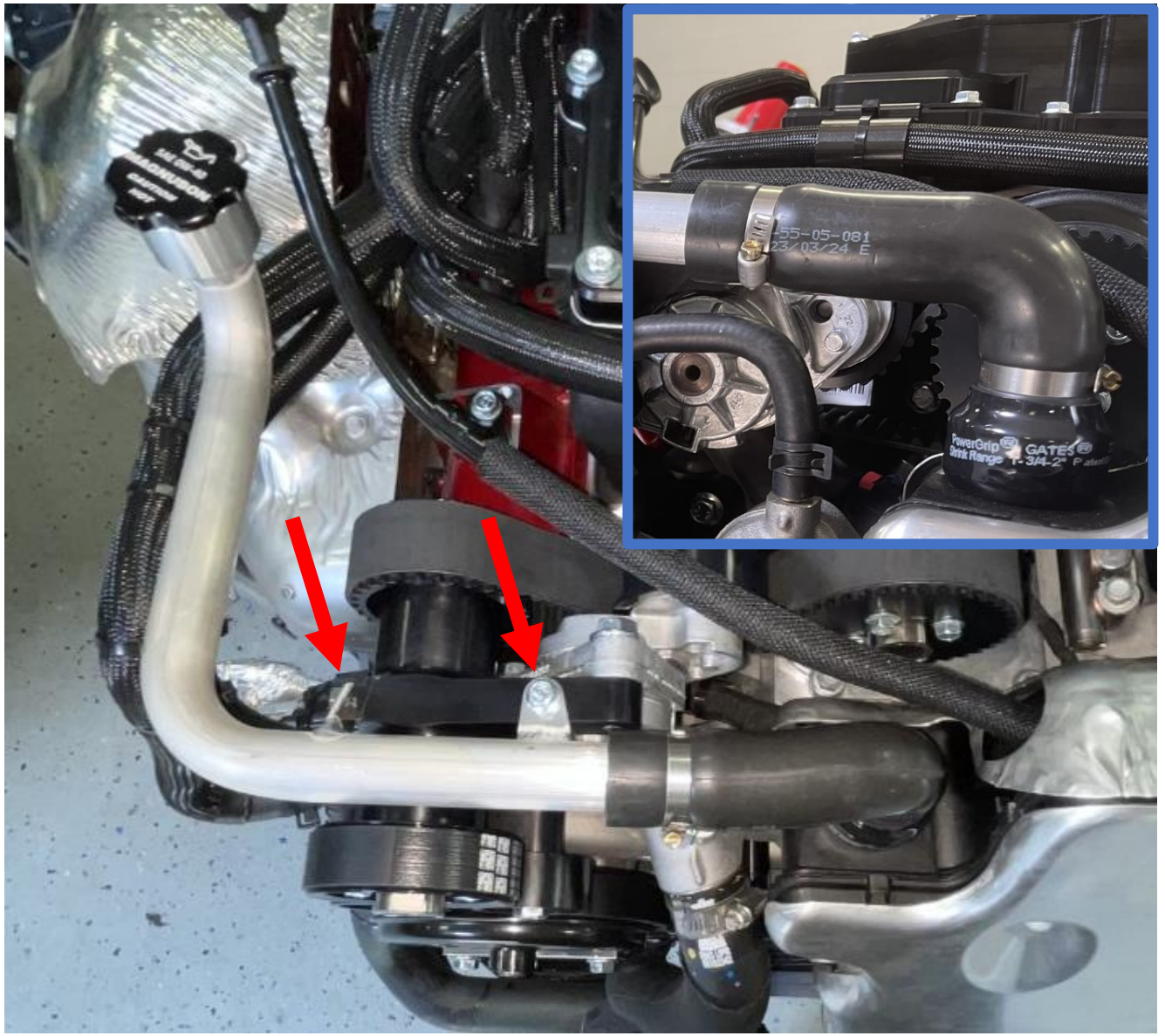
Select the oil fill tube PN 35-26-62-089 from the kit.

Slip another #16 gear clamp over the end of the hose then install the oil fill tube as shown. Position it so that the bolt holes in the tube align with those in the jackshaft bracket.

Select (2) M6 X 16mm long fasteners, apply blue Loctite, hand-start and zero-torque them through the oil fill tube brackets into the jackshaft bracket.

Torque both M6 fasteners 12 Nm.

Position the gear clamp over the tube to hose interface then tighten it to secure the hose.



Carefully bend the OE dipstick tube up in the areas shown to allow it to be installed into the dry sump tank and also fit above the 1 1/2” standoff P/N 69-05-00-007 which installs into the front of the RH valve cover.

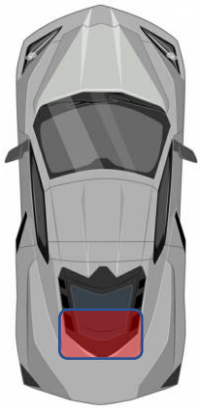
Ensure it does not come into contact with any of the supercharger pulleys after it has been installed.

See next photo for final installation.

Select the 1 1/2” stand-off P/N 69-05-00-007 from the kit and install it between the oil dipstick tube bracket and the RH valve cover.

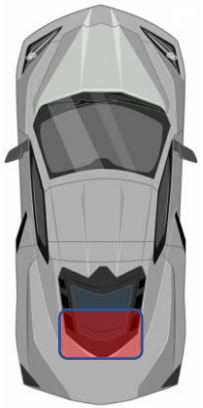
Install (1) M6 X 50mm long fastener P/N 71-06-10-050 through the oil dipstick tube bracket, stand-off and into RH valve cover in the hole shown.

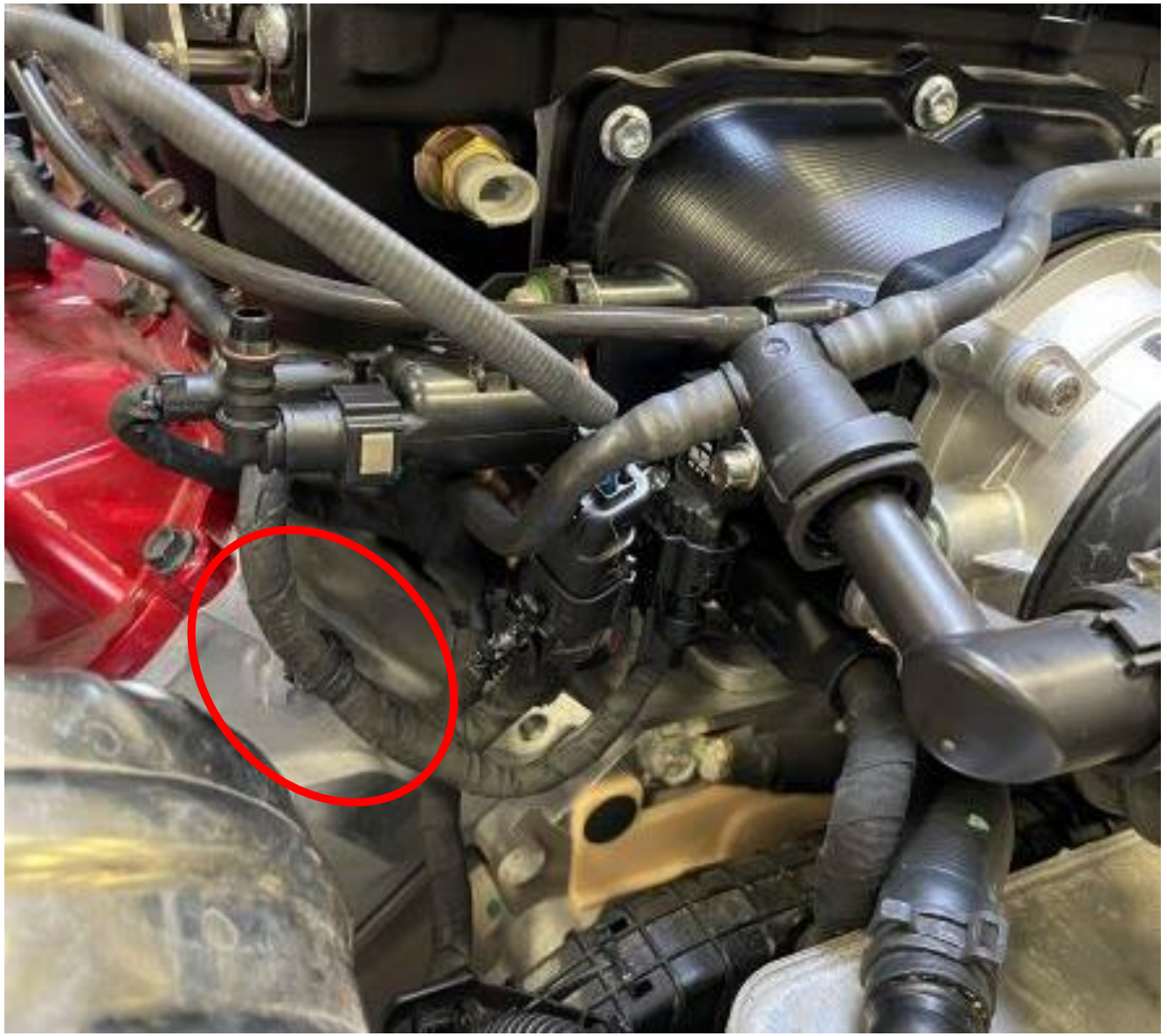
Torque the fastener 12 Nm.



Install push pin for LH oxygen sensor wiring harness takeout into the rear of the LH cylinder head.

Loop the harness as required, ensuring it is away from the exhaust system.





Install Halltech airbox and sensors onto rear of engine.

Install heat shields to Halltech airbox.

Install sensor onto top of airbox.

Install retention clips to top of airbox (LH / RH sides)

Install oxygen sensor harness takeouts onto airbox retention clips.

087K Fuel Tank Vent Crossover

Remove OE crossover line from the front of the engine compartment.

Carefully cut the quick connectors off both ends of the OE crossover line using a razor blade.

Carefully remove the silver reflective heat shielding tape from the OE crossover.

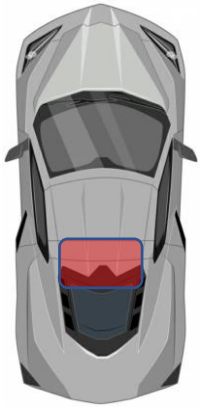
Select the revised pre-formed cross-over hose P/N 31-26-62-087K. Slide a 5/8” constant tension clamp over each end of the new pre-formed hose.

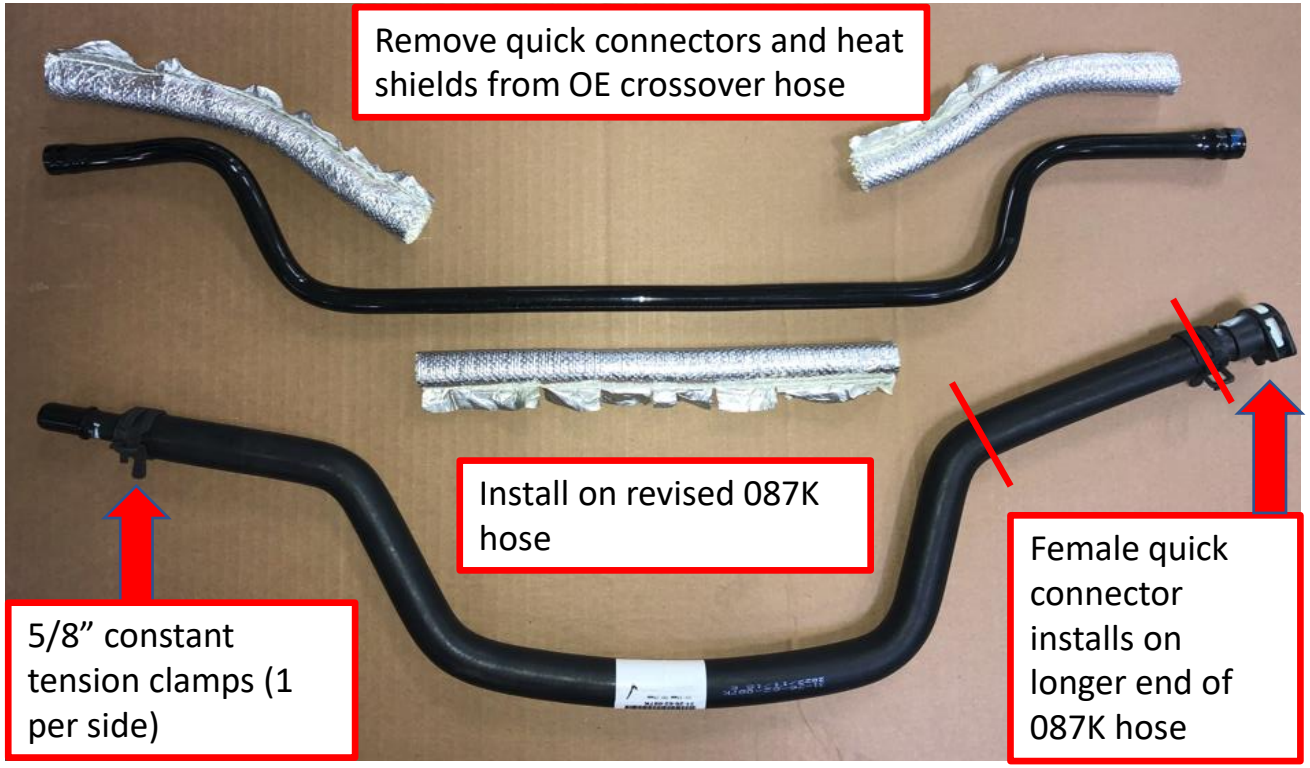
Install OE connectors to the revised pre-formed hose. **The female connector goes on the side which has a longer leg (see photo).

Install the OE heat shield over hose.

Install revised hose assembly back onto the vehicle ensuring the connectors lock into place.

Zip tie the hose in place.





087K Fuel Tank Vent Crossover

Remove (2) black plastic clips that secured the OE crossover to the firewall.

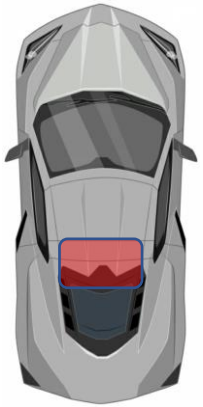
Install a zip tie through the holes on each aluminum bracket. These will be used to secure the new 087K crossover hose to the panel.

Install the revised hose assembly into each quick connector ensuring it locks into place.

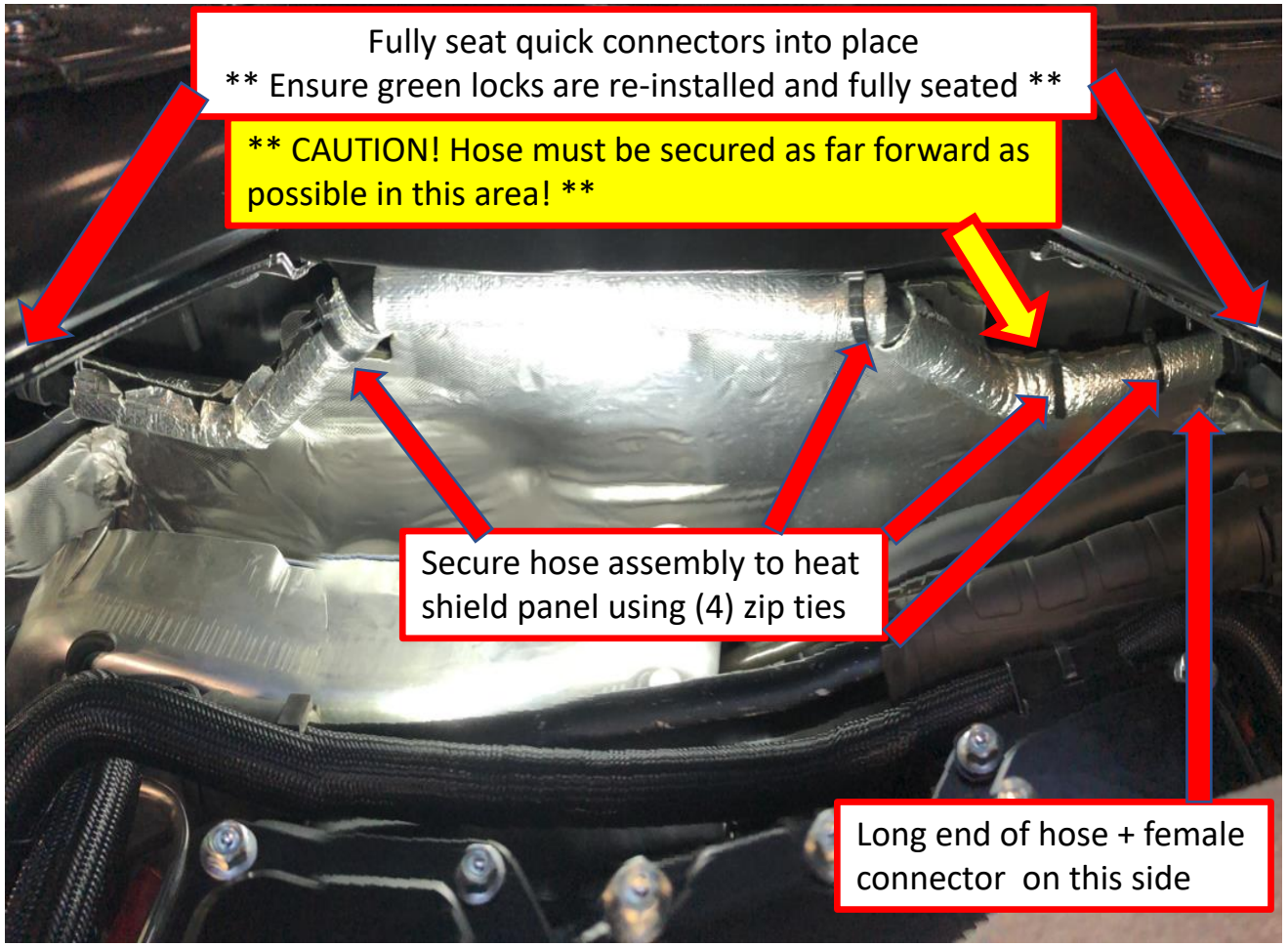
Install the green locks into each connector.

Punch holes in the heat shield panel as necessary then fasten the hose to the heat shield using 4 zip ties. Trim the zip ties.

IMPORTANT: this hose must be secured as far forward as possible to ensure it does not rub on the pulleys.



087K Fuel Vapor Hose Installation



087E Hose (Convertible ONLY):

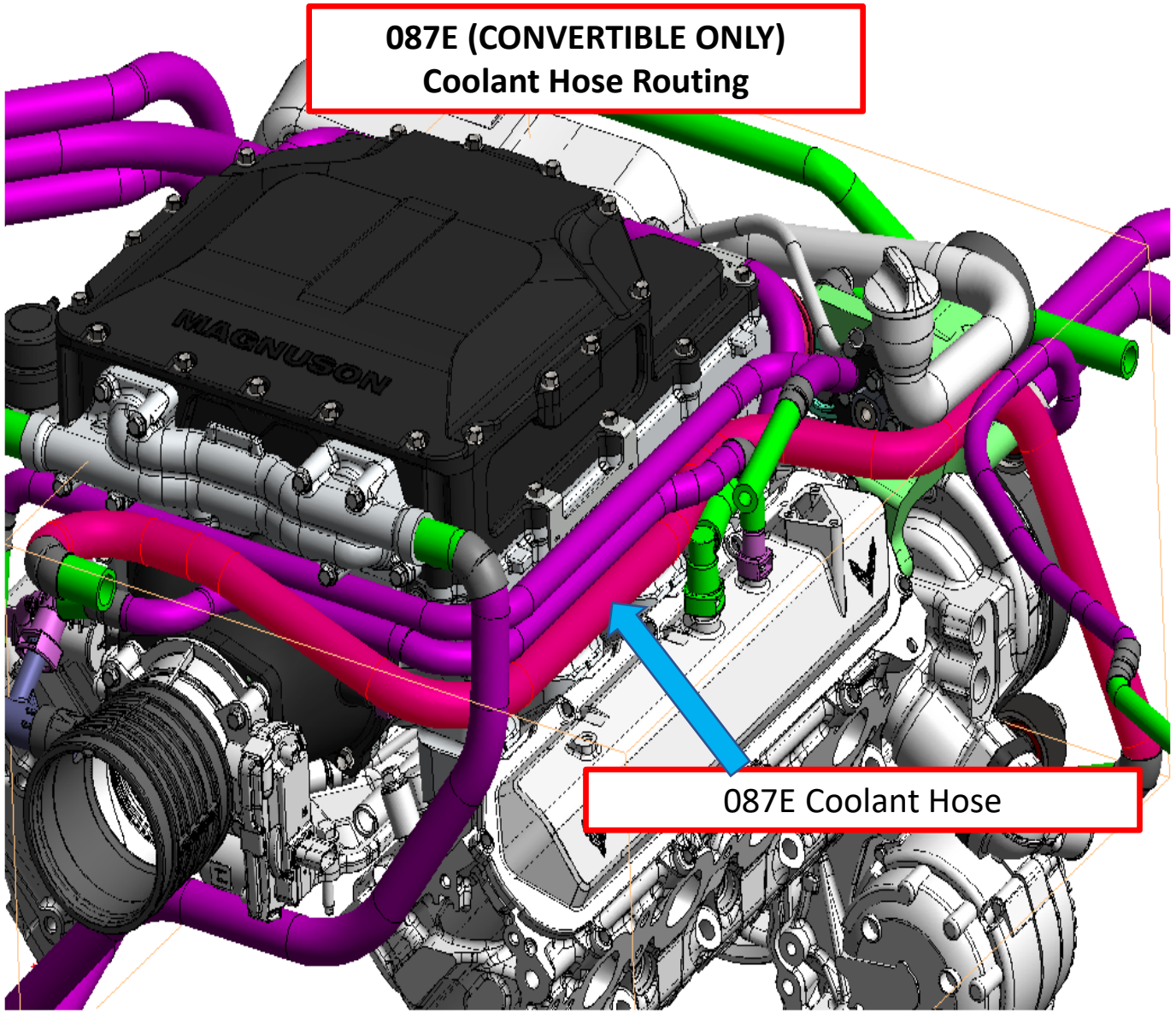
Route coolant hose 087E along RH side of engine as shown.

Pre-install a ¾” constant tension clamp to each end.

Install the 087E hose to the factory connector by the water pump @ RH front of engine.

Apply a constant tension clamp to hose.

The connection point at the opposite end will be made in a subsequent step.

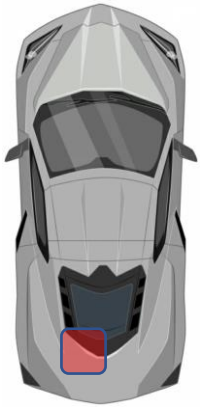


If removed for draining purposes, re-install coolant hose to line @ bottom of engine and apply constant tension clamp.

<u>Convertible Only</u>: Apply blue Loctite to (4) black button head screws included in the kit. Fasten the supplied mounting bracket to the fill reservoir using the screws.

Locate the factory-installed riv nuts on the LH side of the rear structural panel inside the engine bay. Install the fill reservoir sub-assembly into this location using the supplied M6 fasteners.

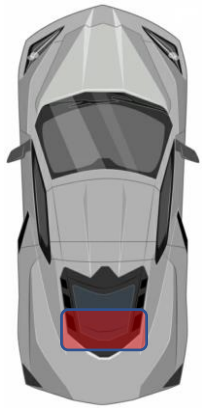
<u>Coupe:</u> the fill reservoir will be installed in a subsequent step. Disregard this page.



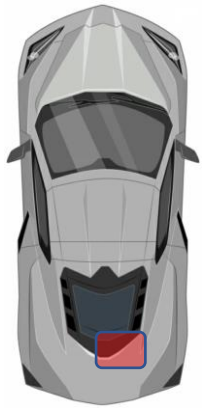
Note: Pre-Production fill reservoir shown (production model similar)

<u>Convertible Only</u>: Remove the under tray from the coolant de gas bottle.

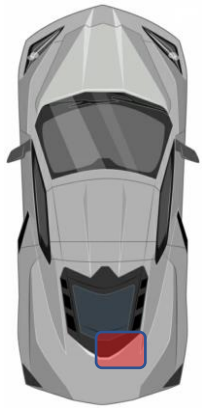
The following slides will detail modifications required to be made to the tray to alleviate contact with the supercharger hoses.

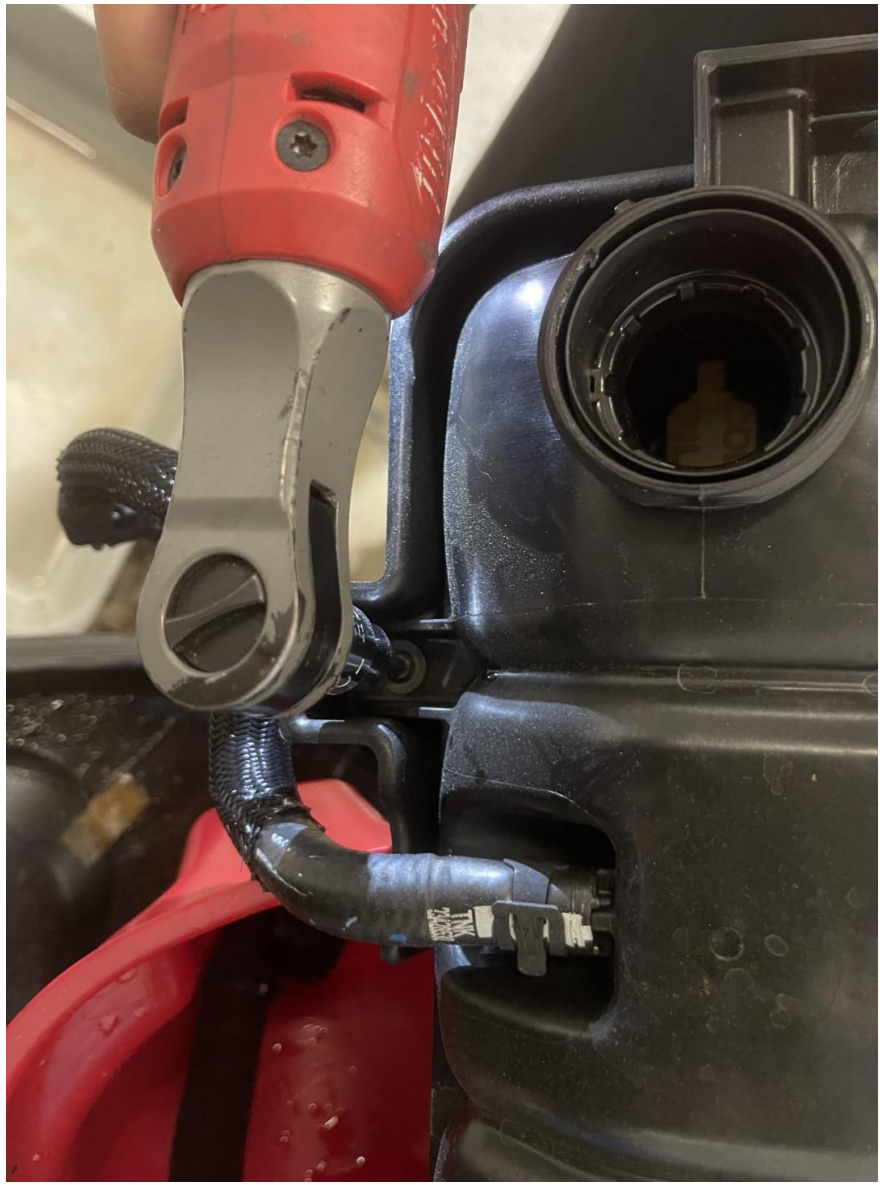


Remove (1) Torx fastener securing the reservoir to the tray from underneath.

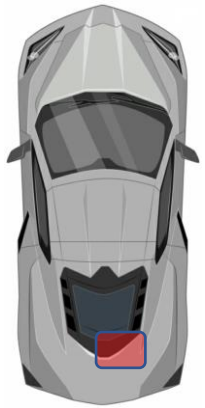


Remove (1) Torx fastener securing the reservoir to the tray from the top.



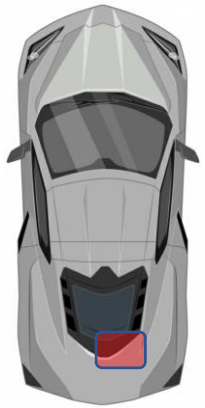


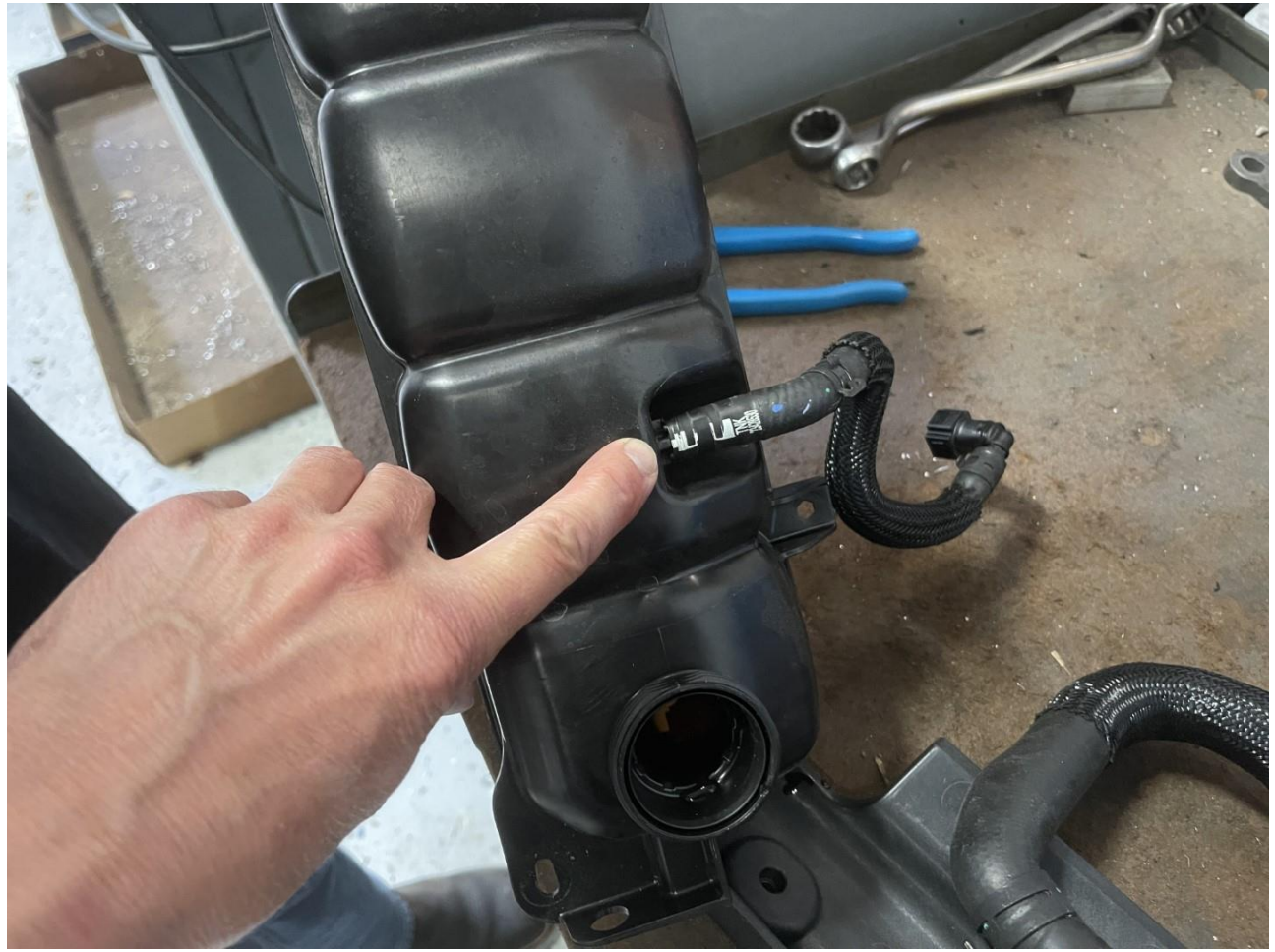
Remove the factory hose from the reservoir.



Remove the reservoir from the vehicle.

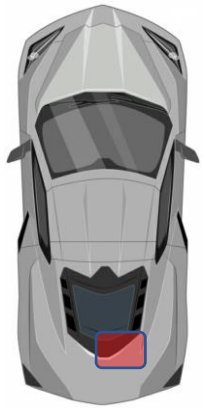
Remove the hose from the top of the reservoir as shown. It will not be re-used (the 087F hose will attach to this port after the power train has been re-installed).





Remove the factory hose from the reservoir in the location shown.

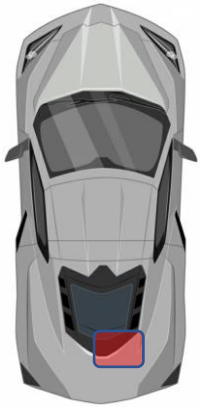
This hose will not be re-used.



Remove the drip tray from the vehicle.

Using a band saw or cut off wheel, carefully remove the section of plastic shown in the photo.

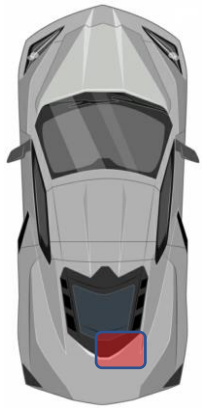
Radius and blend the edges as required to eliminate any sharp edges.

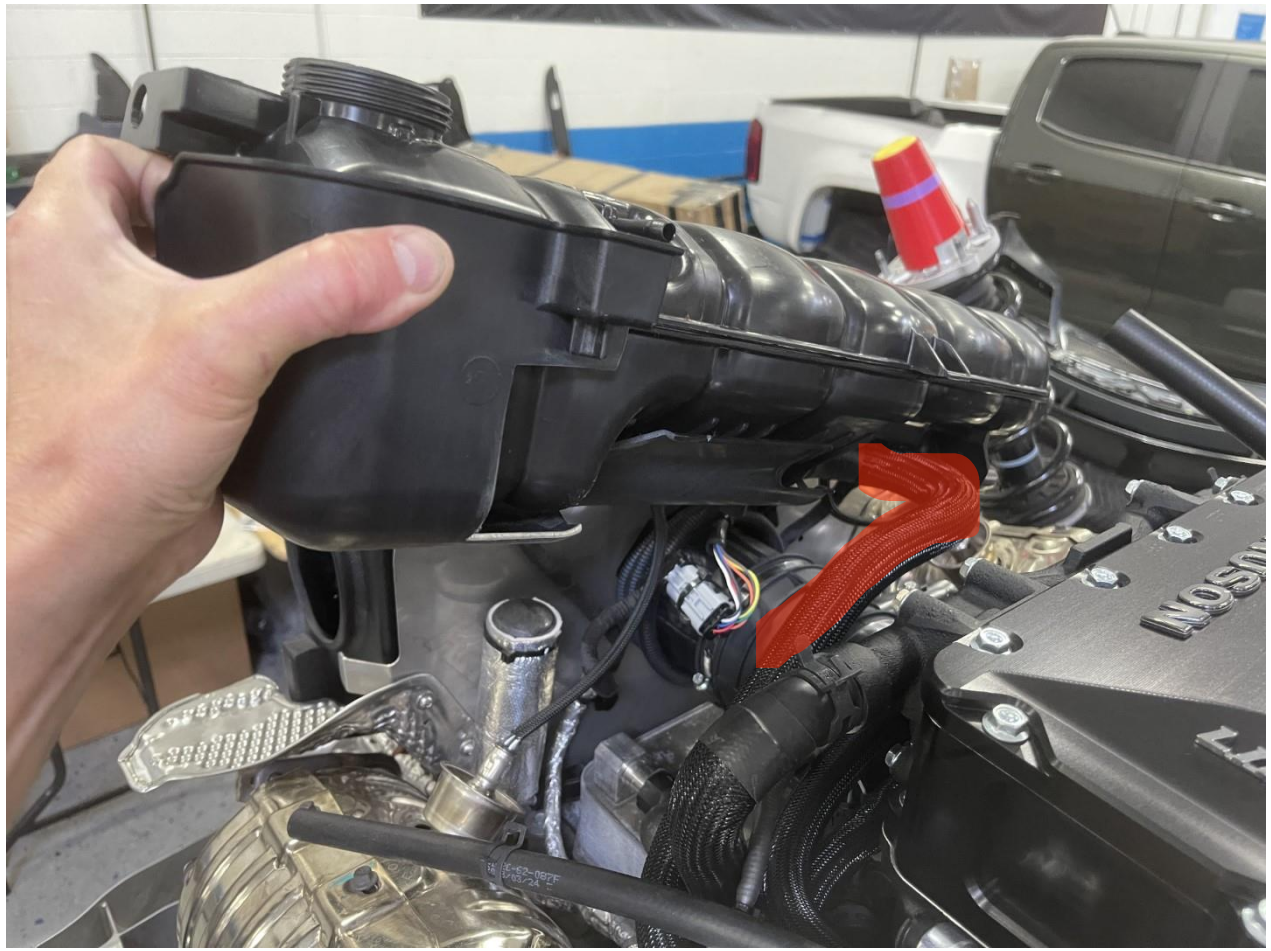


Reinstall the modified drip tray back onto the factory coolant reservoir, securing it using the original Torx fasteners.

Route and connect the 087E hose (highlighted in red) to the bottom port of the coolant reservoir, securing it with a ¾” constant tension clamp from the kit.

Lay the reservoir sub-assembly on top of the throttle body for now, it will get re-installed into the vehicle when the power train is re-installed.





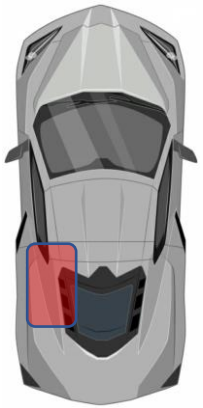
Remove stock fan/shroud mounting assembly from inside LH rear wheel well.

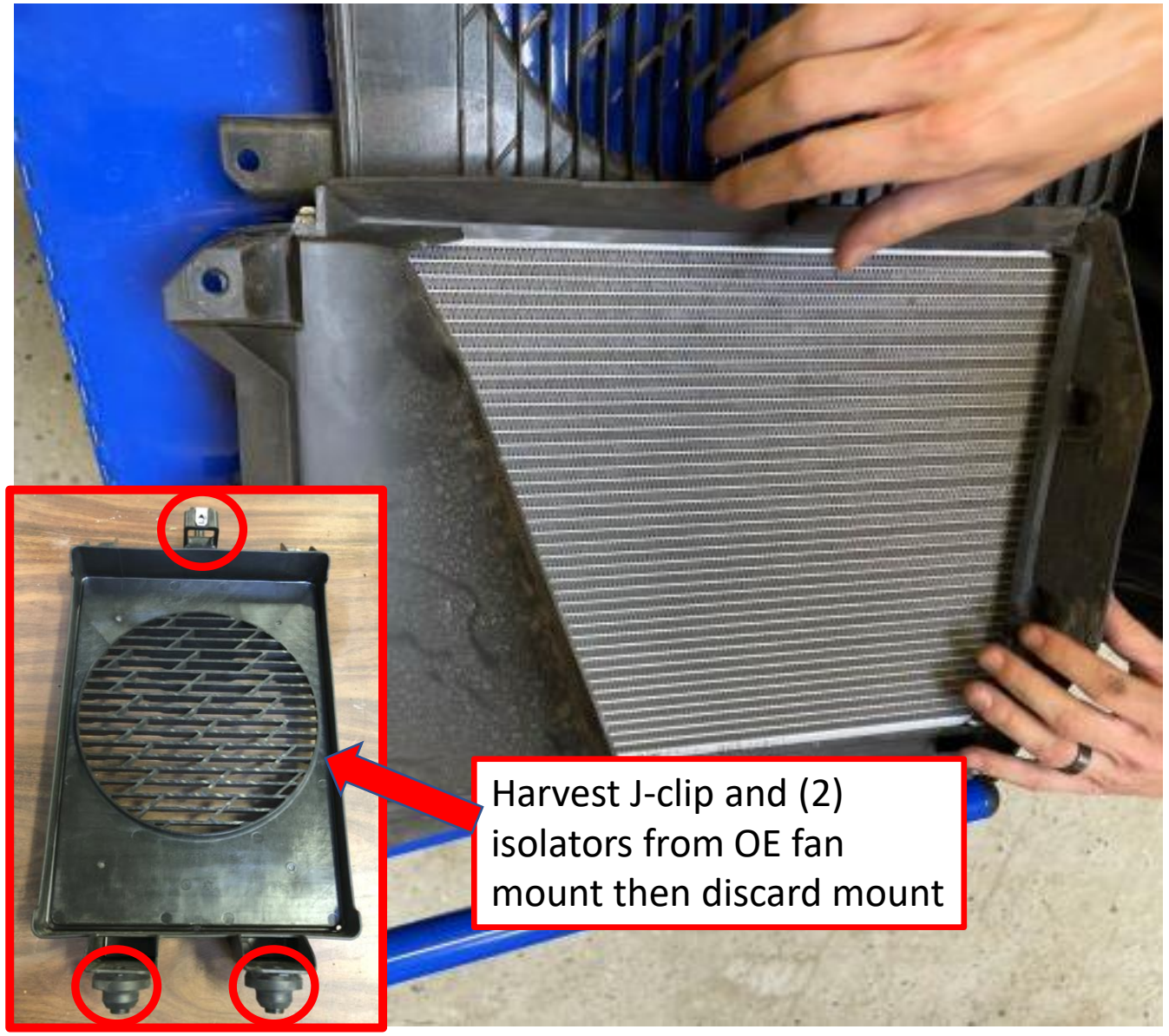
Remove the fan and shroud from the mount by removing (1) fastener and (2) push pins.

Remove J-clip and (2) rubber isolators from the OE fan mount (see inset photo).

If using an OE radiator, install the shroud to the front side and re-fasten it using the OE hardware.

If using aftermarket (Magnuson) radiator P/N 68-01-00-198, install the J-clip onto the upper radiator mounting tab, install (2) OE isolators onto the lower radiator pins, then install the OE shroud to the rad as noted above.

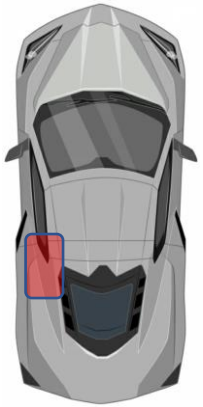


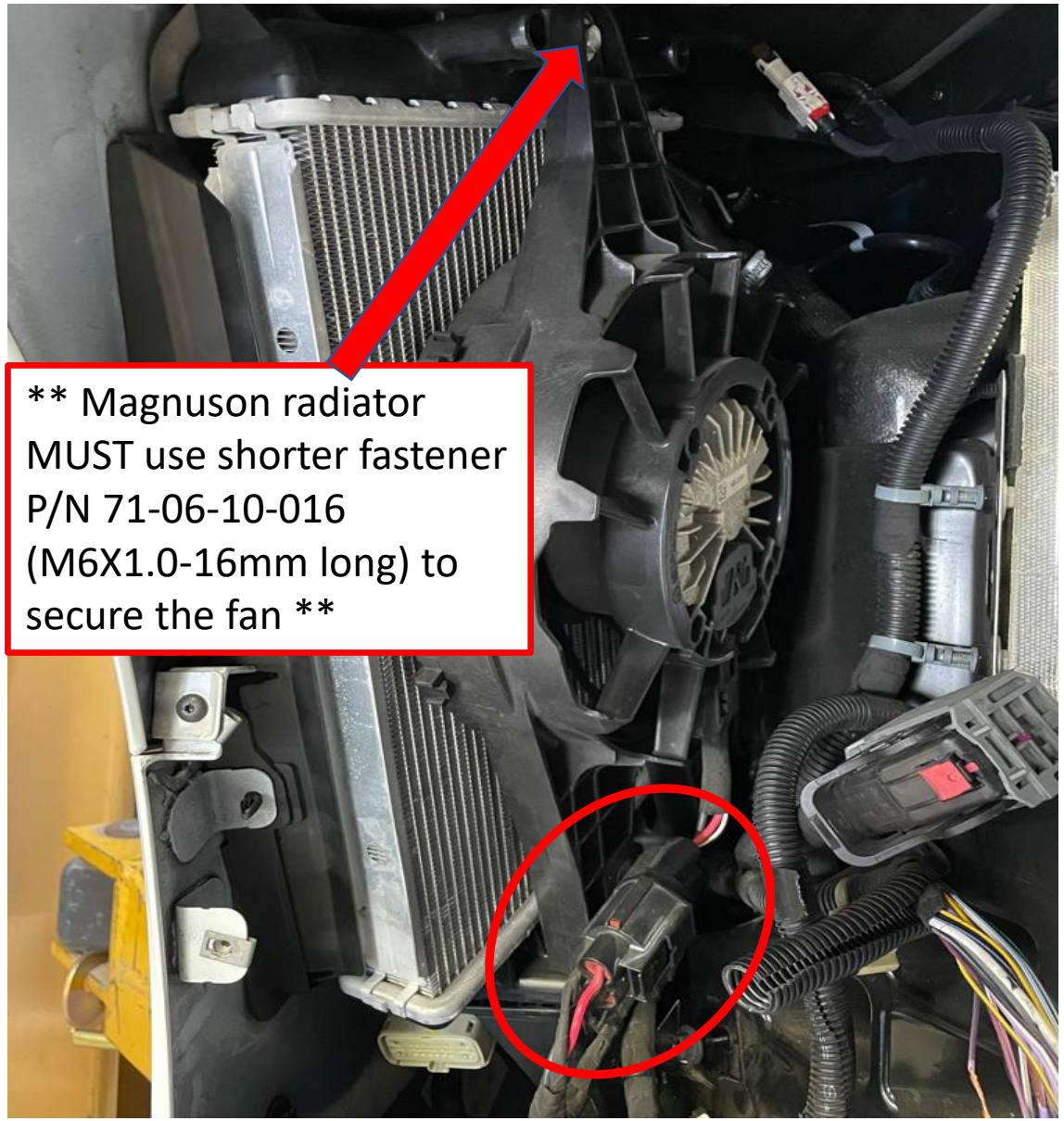


Re-install the new rad/shroud assembly into LH wheel well. Fasten it using the OE hardware.

Install the fan onto the rad. **Note: if using the Magnuson radiator, the OE fan fastener MUST be replaced with a shorter M6 fastener** (16mm long) from the kit (Fastener P/N 71-06-10-016) or it will contact the radiator tank.

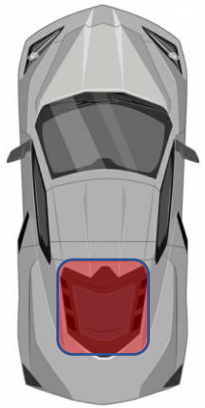
Re-connect the fan electrical plug.

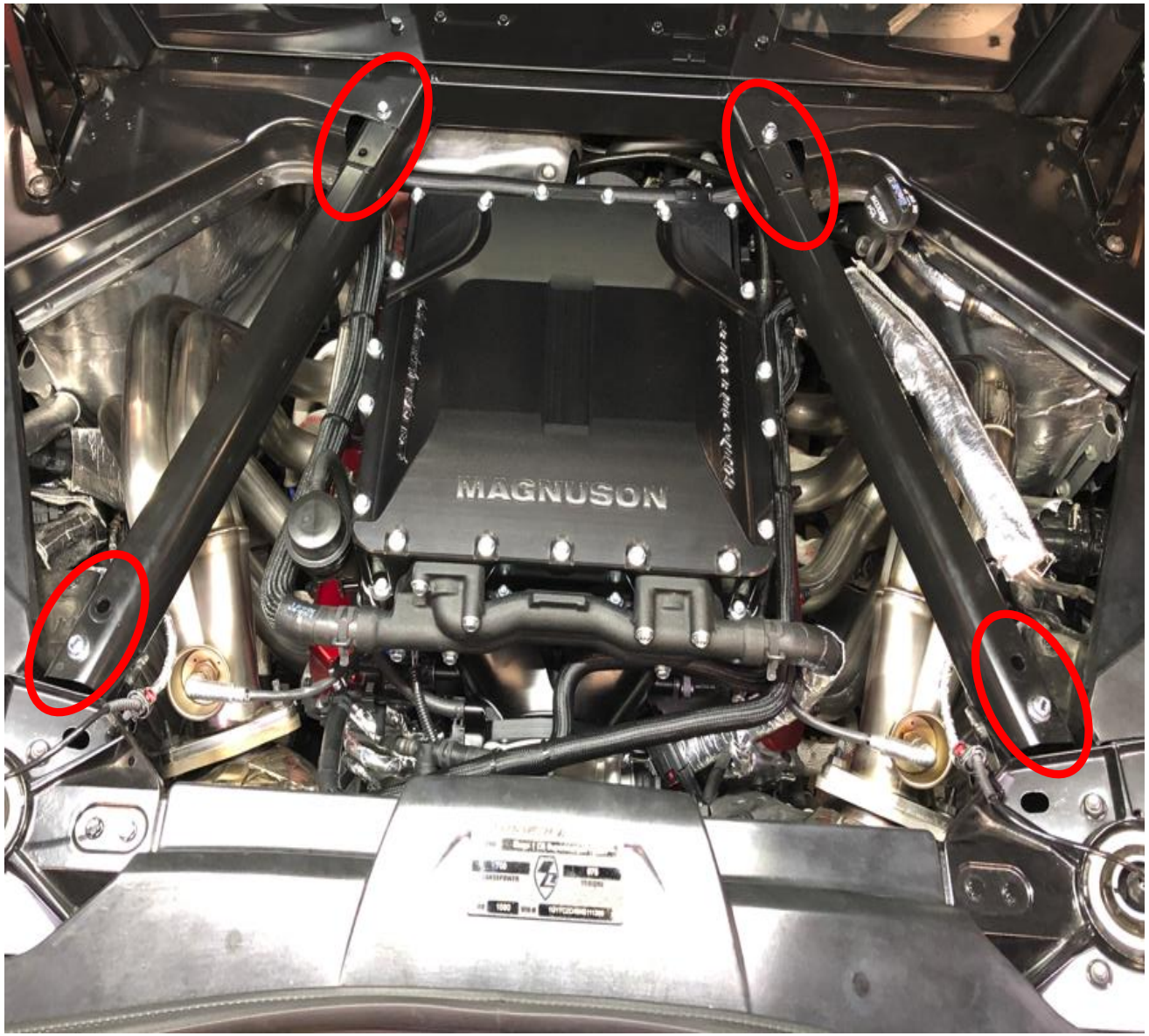




Remove OE brace bolts and replace with P/N 71-08-12-060 (8 places).

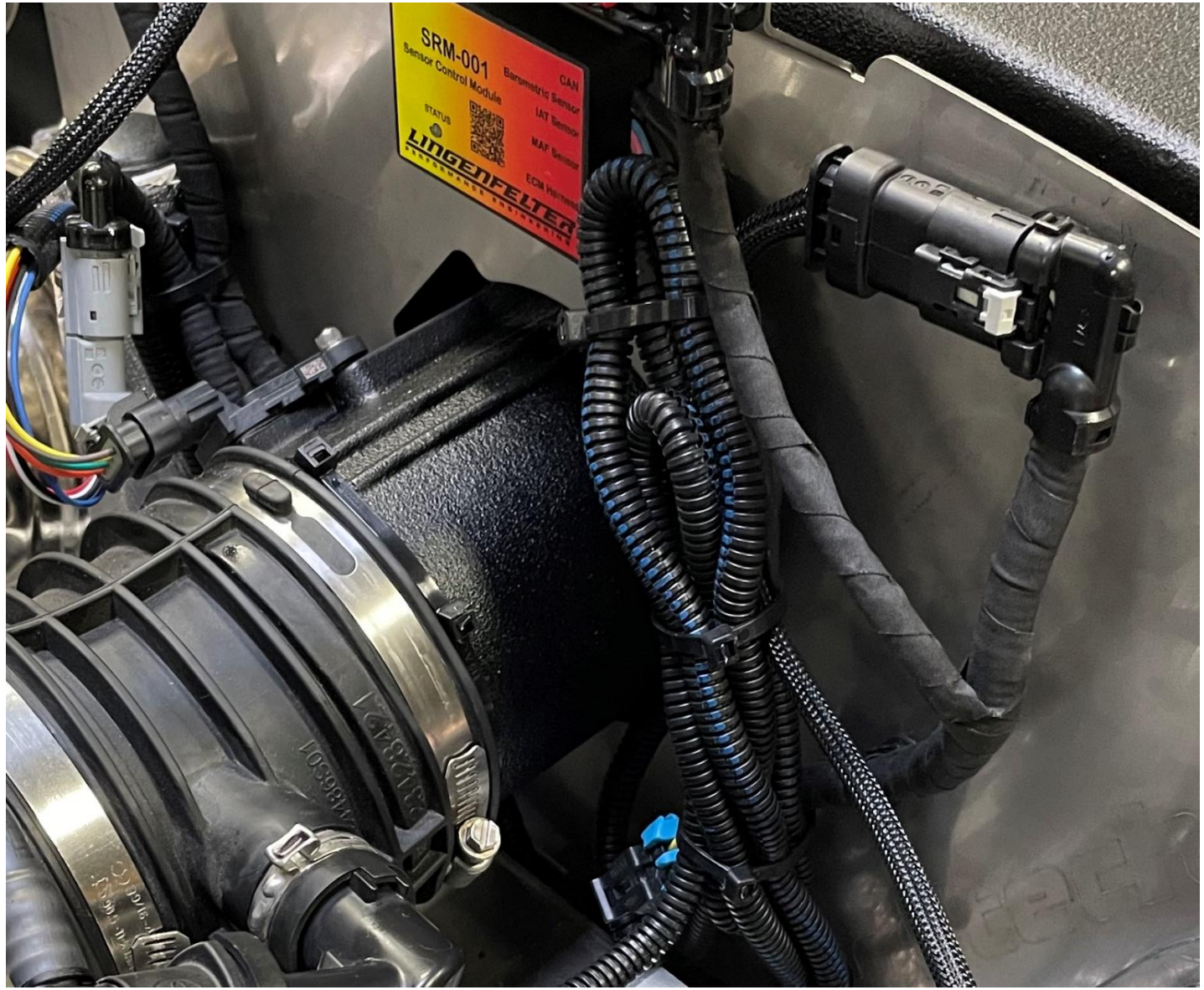
Torque 22 lb. ft.



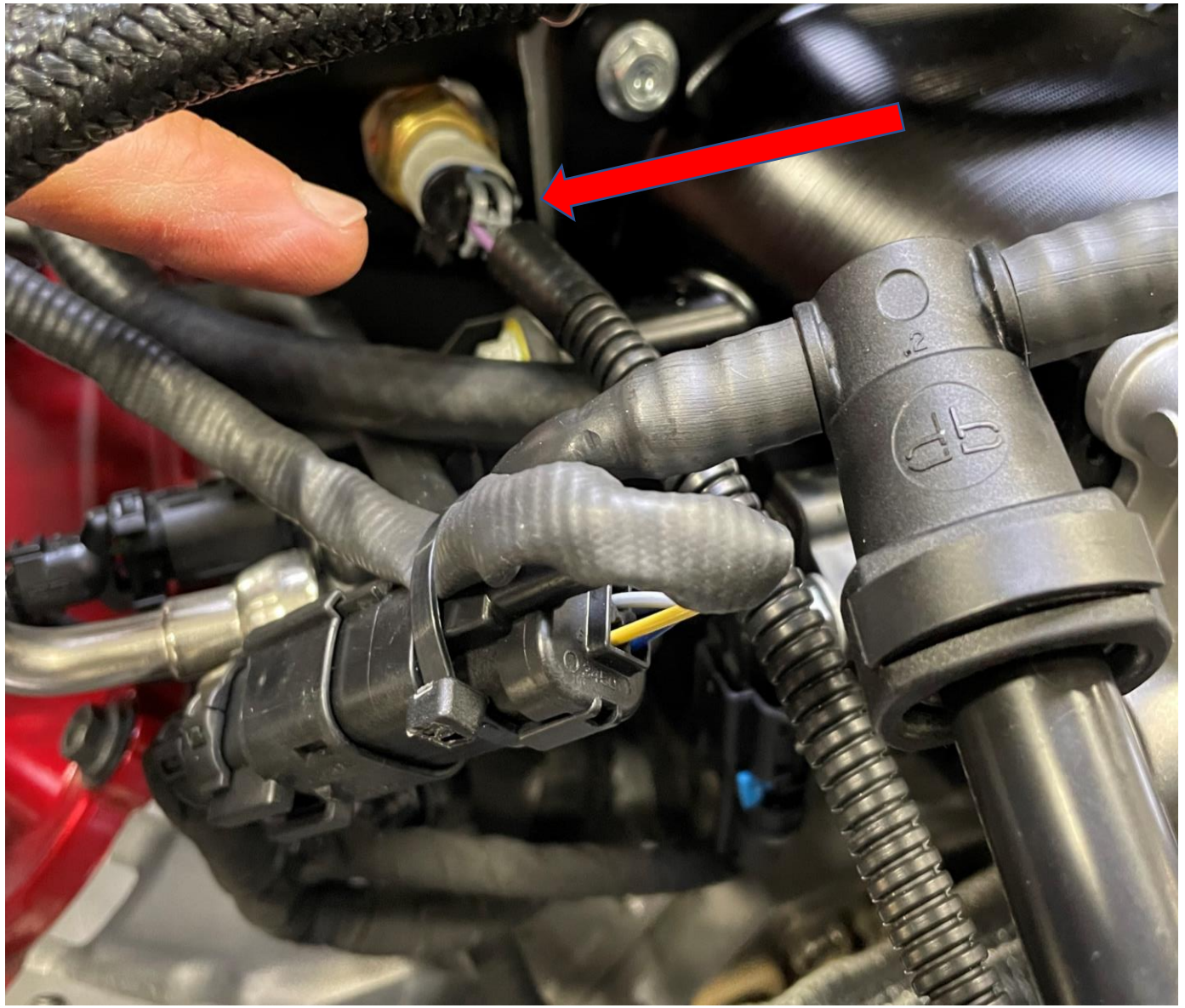


Mount Lingenfelter SRM-001 controller to the front of the airbox using double-faced tape.

Once all wiring connections have been made, zip tie any extra wiring together by the air inlet.

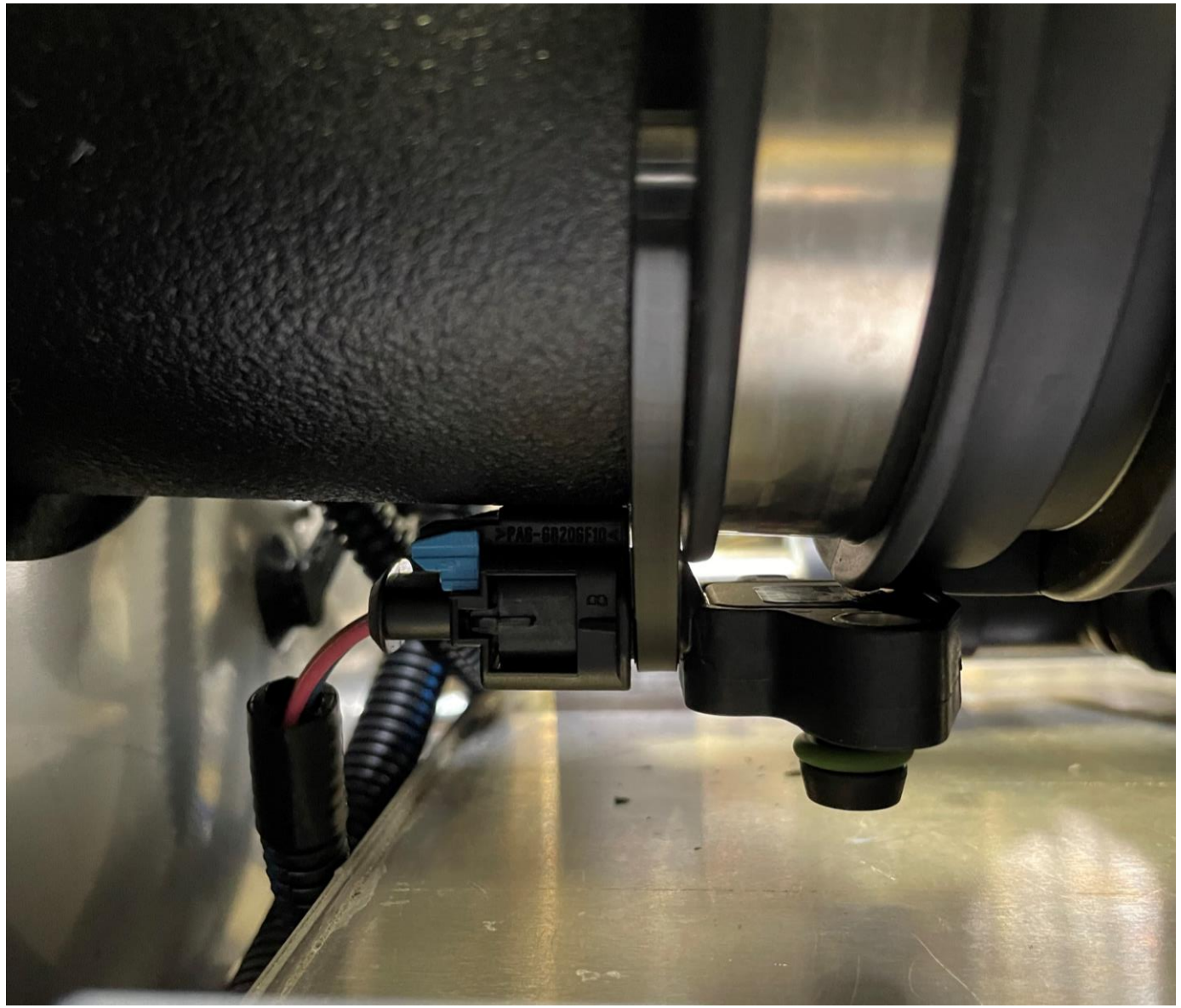


Connect IAT wiring pigtail from SRM001 to gold colored sensor by supercharger inlet.



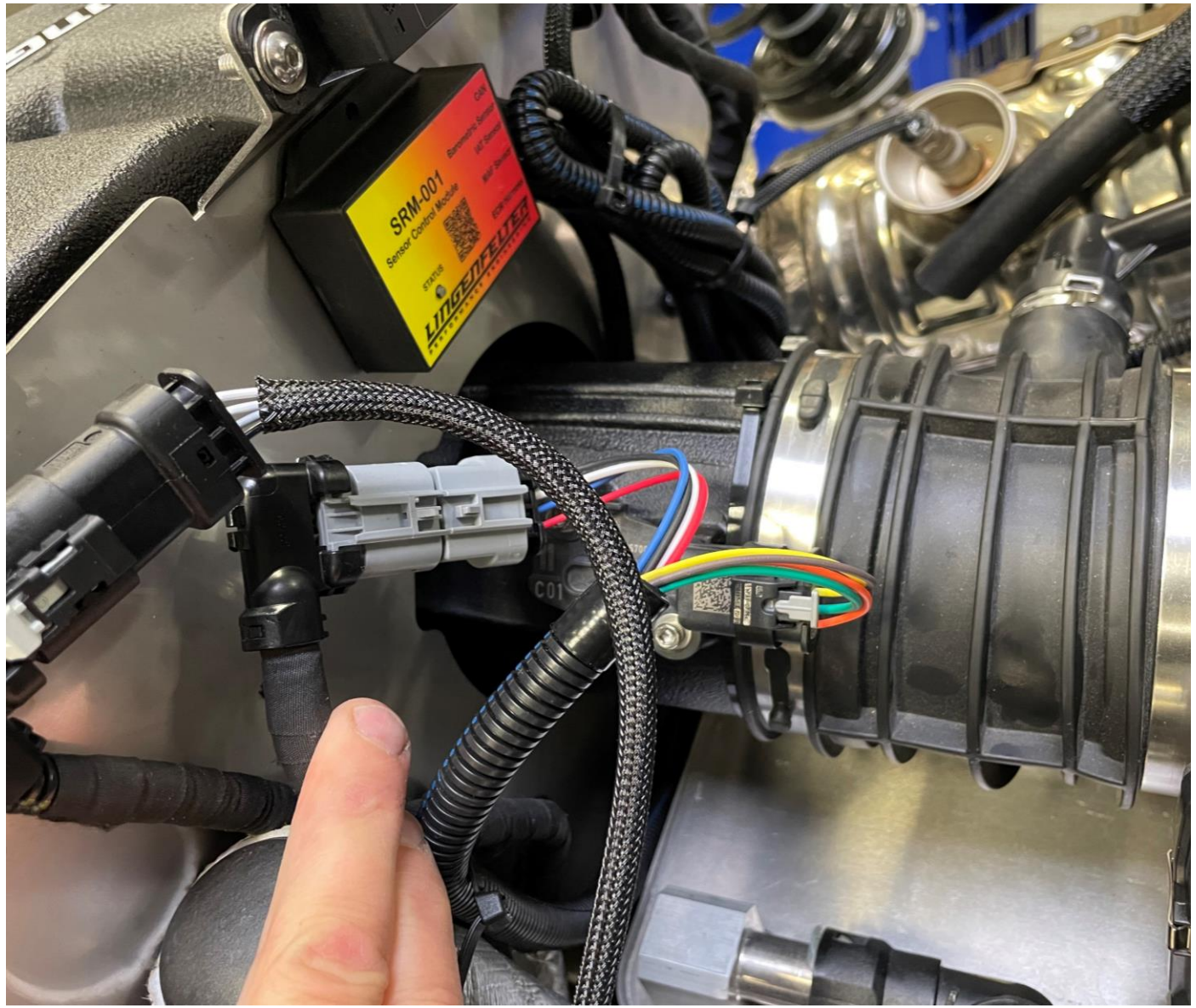
Select and verify GM MAP sensor P/N 12711681 from kit. Zip tie this sensor to the underside of inlet tube securely.

Connect wiring pig tail from the SRM001 Lingenfelter box to this sensor.



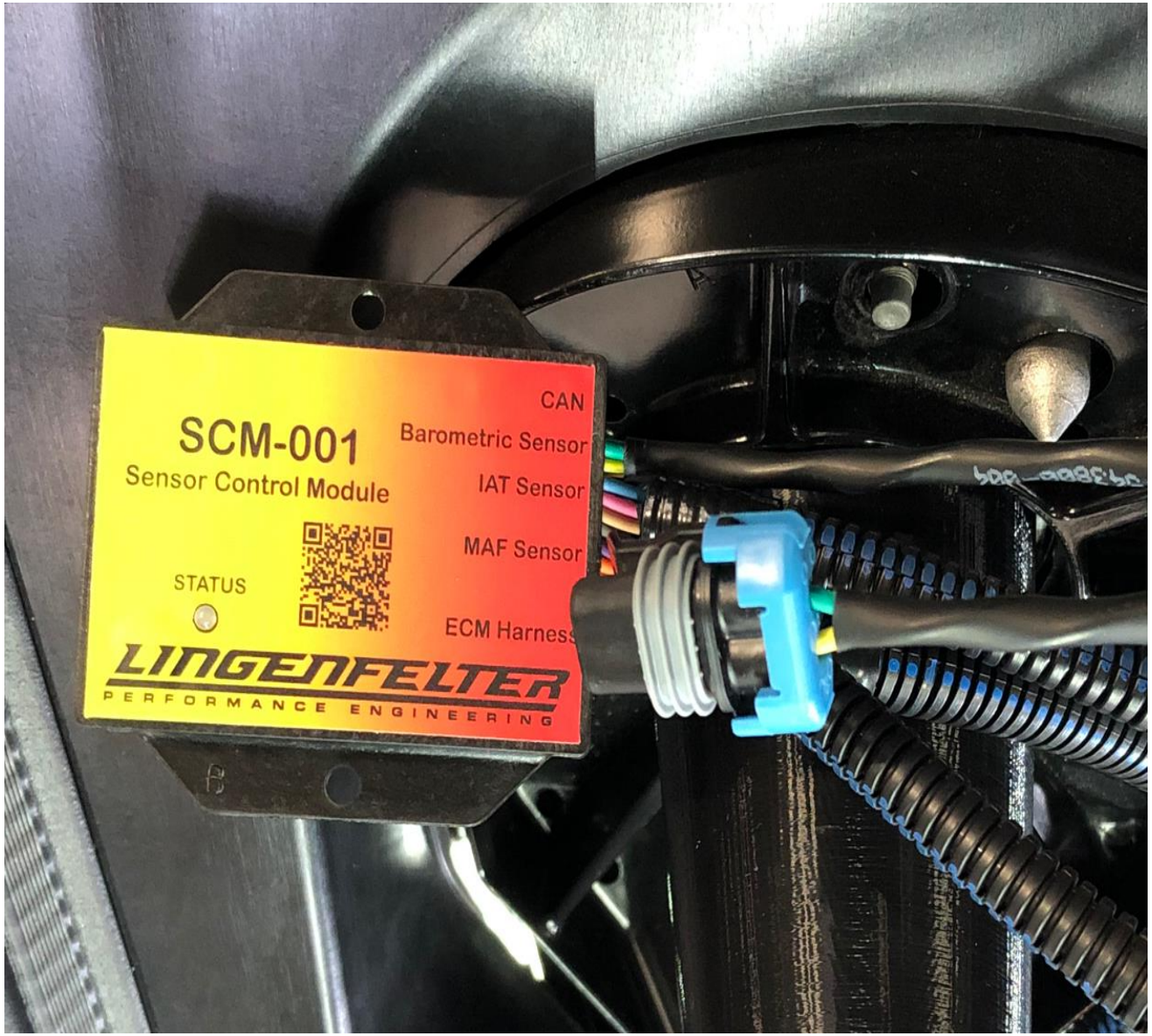
Connect the yellow/brown/orange/ green pigtail to the MAF sensor in the air inlet.

Connect the blue/black/white/red pigtail to the OE harness connection.

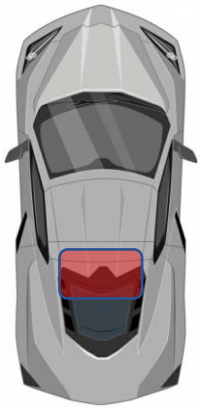


If a CAN harness takeout is present in the SCM-001 module, it will not be connected. Tape or heat shrink the connector so moisture will not corrode the terminals.

Zip tie the CAN takeout to the other wires, ensuring it does not contact the exhaust.



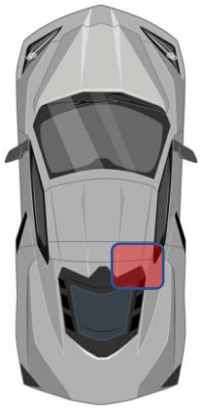
If A/C system was evacuated and opened, install new A/C bulkhead o-rings @ 2 underbody connection points.

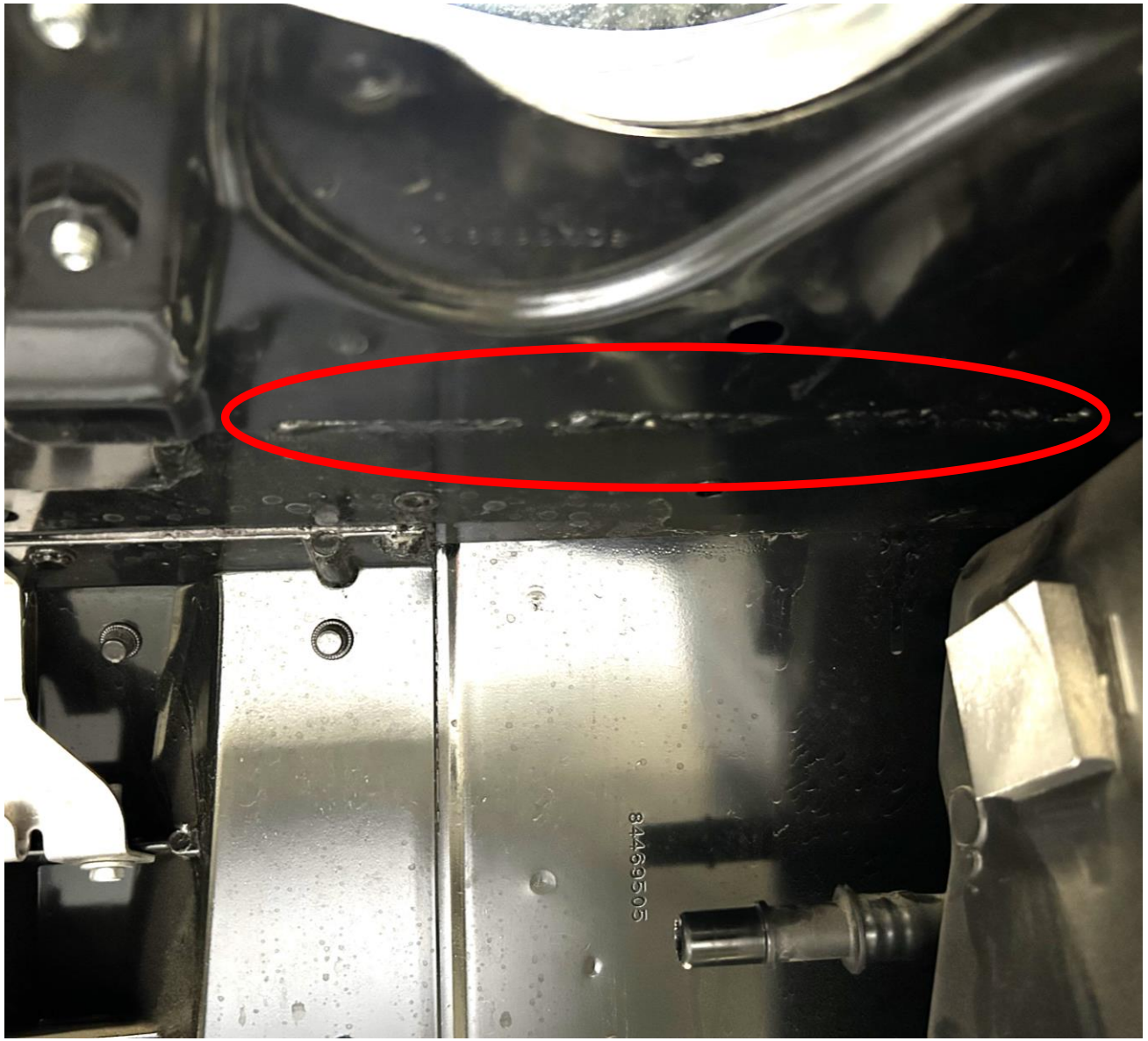


IMPORTANT: Prior to re-installation of power train, inspect the underside of the welded body structure at the right-hand front corner of the engine bay for excess, low-hanging frame weld.

Metal to metal contact may occur between the welded zone and the oil fill tube as the engine moves during hard acceleration.

Modify the oil fill tube if necessary, or metal finish ONLY the excessive low-hanging portion of the weld, ensuring there is sufficient clearance to prevent hard contact.





Powertrain Re-Installation

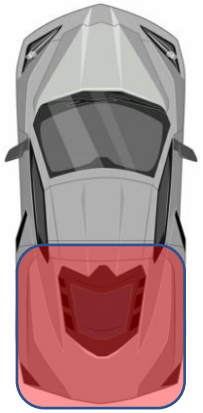
Re-install powertrain into vehicle. Using the aid of (4) helpers, carefully lower the vehicle down onto the sub-frame, ensuring nothing gets pinched or damaged.

Note: if A/C compressor was removed, it must be installed as the body is lowered to within ~ 6 inches of the power train. Install a new A/C compressor stretch belt at this time (GM P/N 12660187).

Convertibles: re-fasten the factory coolant reservoir back into the vehicle at the appropriate point as the body is lowered back onto the power train.

Lower the vehicle to contact the sub-frame; use a long tapered drift pin to align the (4) holes in the sub-frame with those in the vehicle.

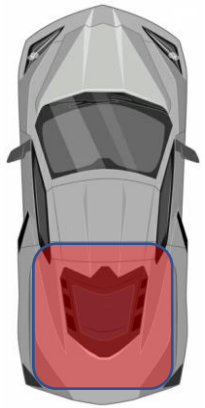
Ensure all fasteners are torqued to the specifications noted on page 4, 5 and 6 of this document.

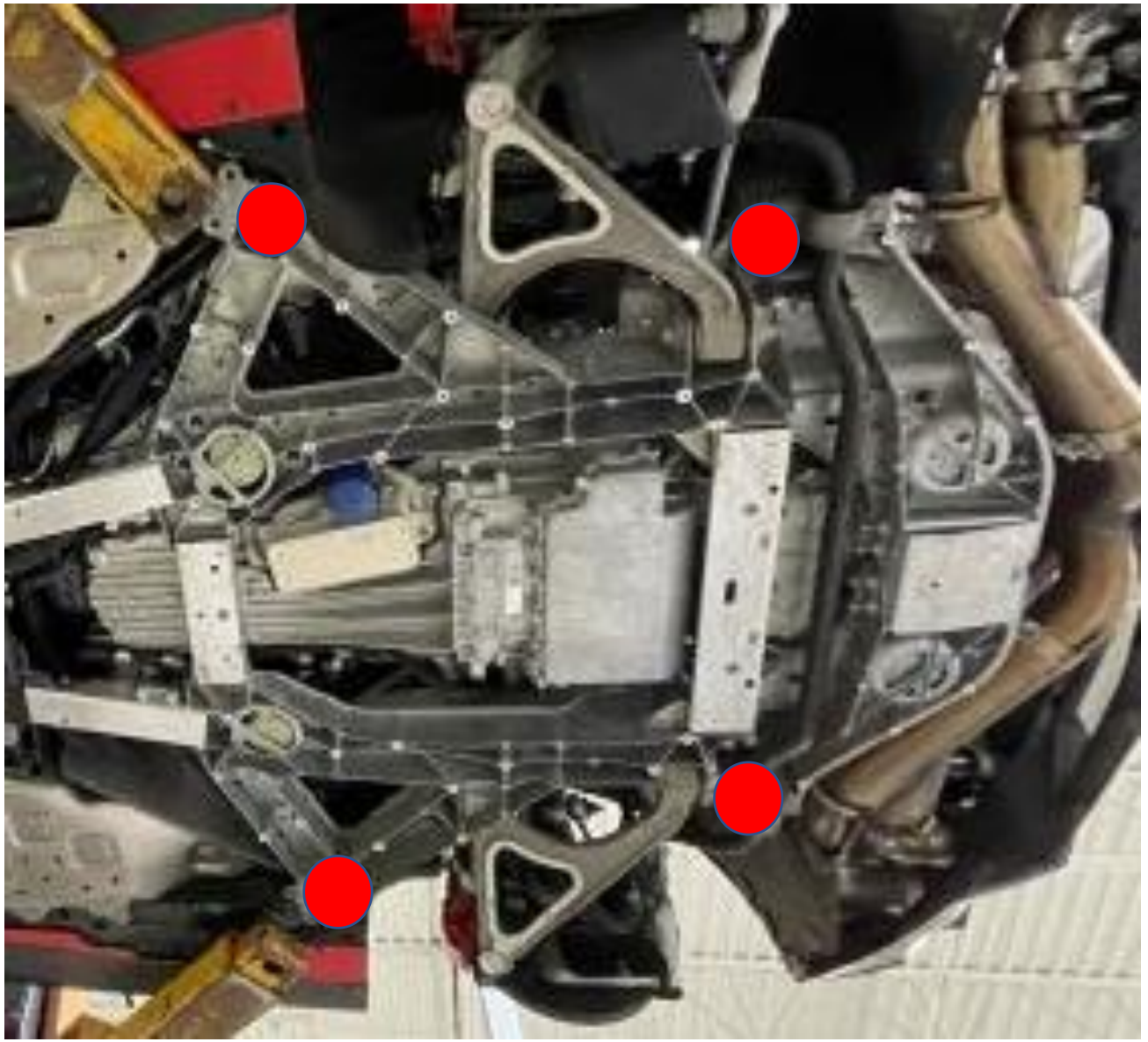


Apply blue Loctite to (4) body bolts and hand-start in all locations.

Torque (4) main body structure bolts to 118 ft. lbs.

After bolts are installed and torqued, the fixture can be removed from the sub-frame and moved out of the way.





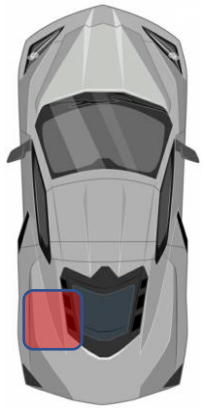
C8 Coupe only:

Open the attached PDF document "*Fill Resv Template 5.pdf*".

Ensure your print settings are set to Actual Size before printing. Use calipers or a ruler to verify the 105mm reference dimension is actual size on the printed copy.

Place the template into the recessed area of the fiberglass panel on the LH side of the engine, with the arrow pointing toward the front of the vehicle. It can be taped in place to secure it.

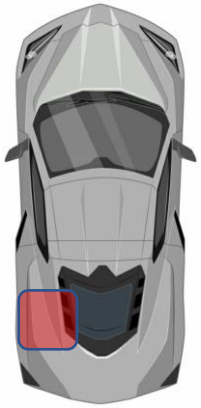
While holding the template stationary, use a 11/64" drill to pre-drill the holes through the body panel. Finish drill the 4 outer holes with a 15/64" drill.

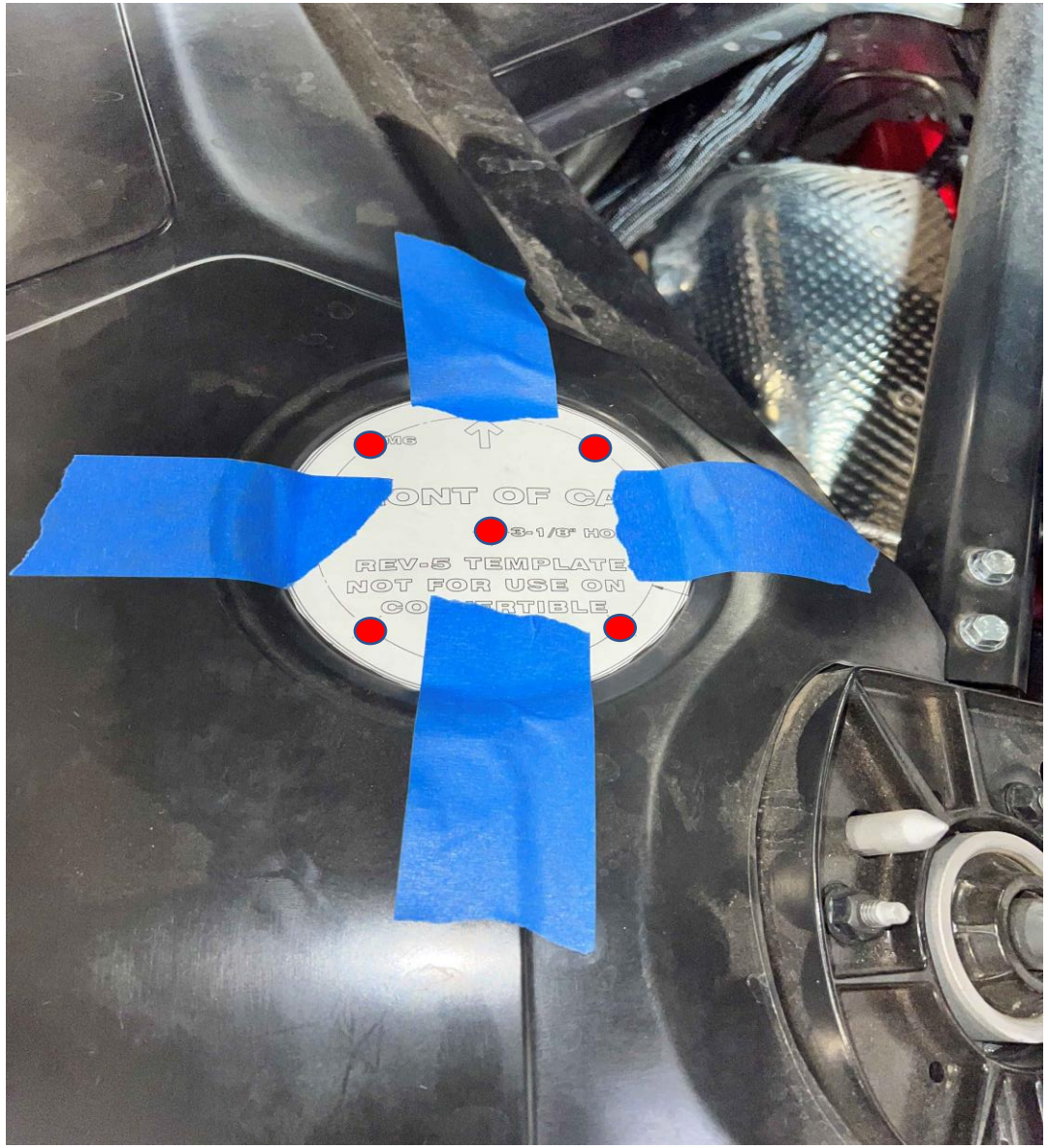


C8 Coupe only:

Place the template into the center of the recessed area in the fiberglass panel on the LH side of the engine, with the arrow pointing toward the front of the vehicle. It can be taped in place to secure it.

While holding the template stationary, use a 11/64” drill to pre-drill all 5 holes through the body panel. Finish drill the 4 outer holes with a 15/64” drill.

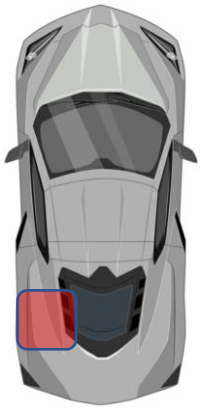


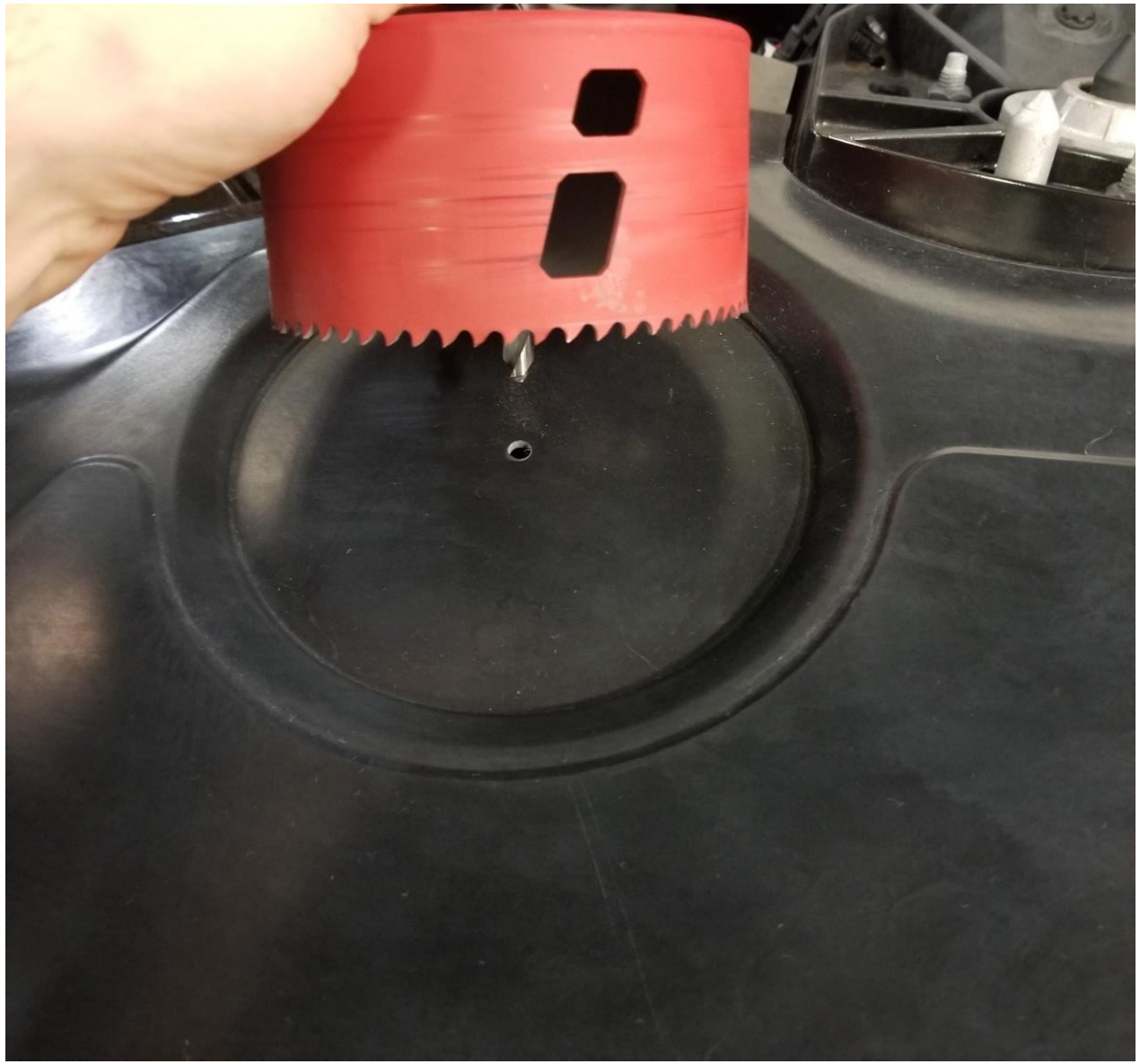


Using a 3 1/8” hole saw, cut a hole in the center location as shown.

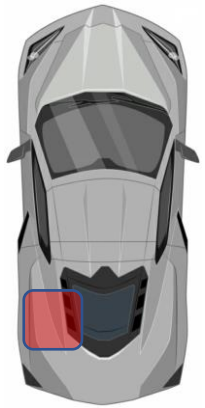
Use a vacuum while cutting to minimize airborne dust.

Sand the circumference of the hole as necessary to smooth out the surface.





<u>C8 Coupe:</u> apply blue Loctite and install (4) threaded hex adaptors PN 77-89-06-012 into the rivet inserts in the fill reservoir bracket as shown.

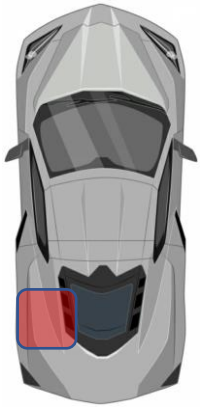


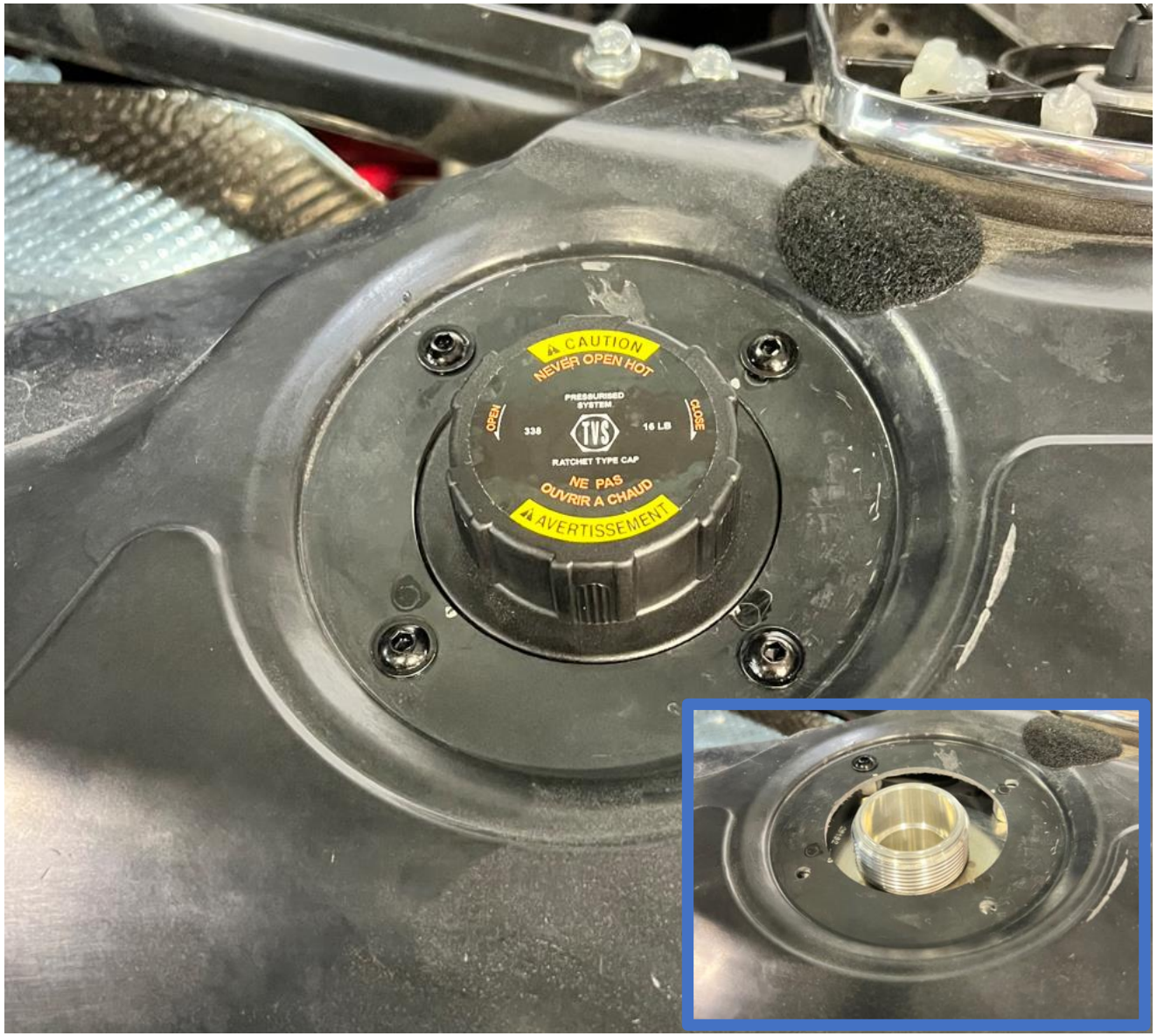
<u>C8 Coupe:</u> Pre-install the fill reservoir cap onto the reservoir then install the reservoir sub-assembly from inside the LH rear wheel well with the hose nipples pointing toward the front.

Center the reservoir cap in the hole then secure the reservoir to the vehicle body using (4) black button head fasteners PN 72-06-10-021.

Apply blue Loctite to the fasteners prior to installation.

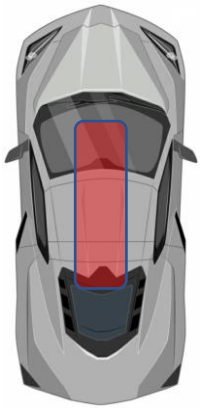
Ensure the reservoir cap does not contact the edge of the fiberglass panel. Grind or sand the hole as necessary so the gap is uniform around the circumference of the cap.





Intercooler Tank Vent Hose Sub-Assembly

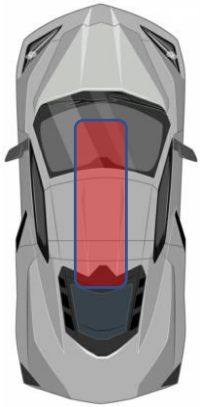
Cut a 5 inch long section of 3/8” coolant hose from the supplied 10 foot section.

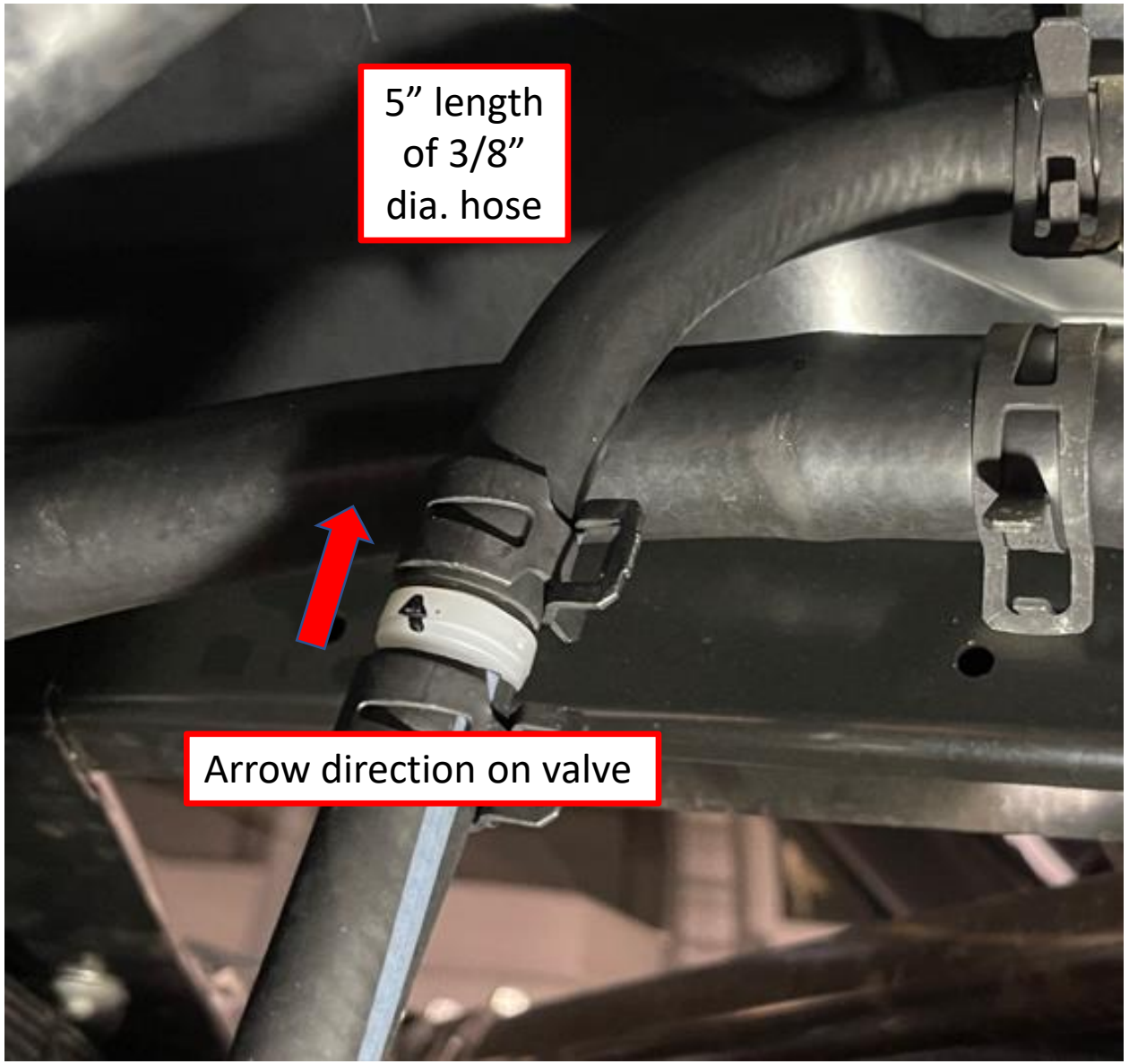


Intercooler Tank Vent Hose

Install the hose onto the check valve P/N 68-12-57-107, ensuring the arrow on the valve is pointing TOWARD the hose end.

Secure the hose to the valve with a 19mm constant tension clamp from the kit.



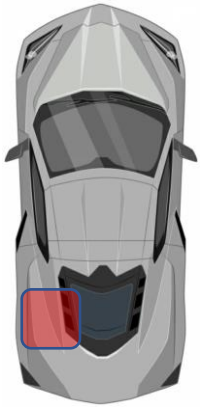


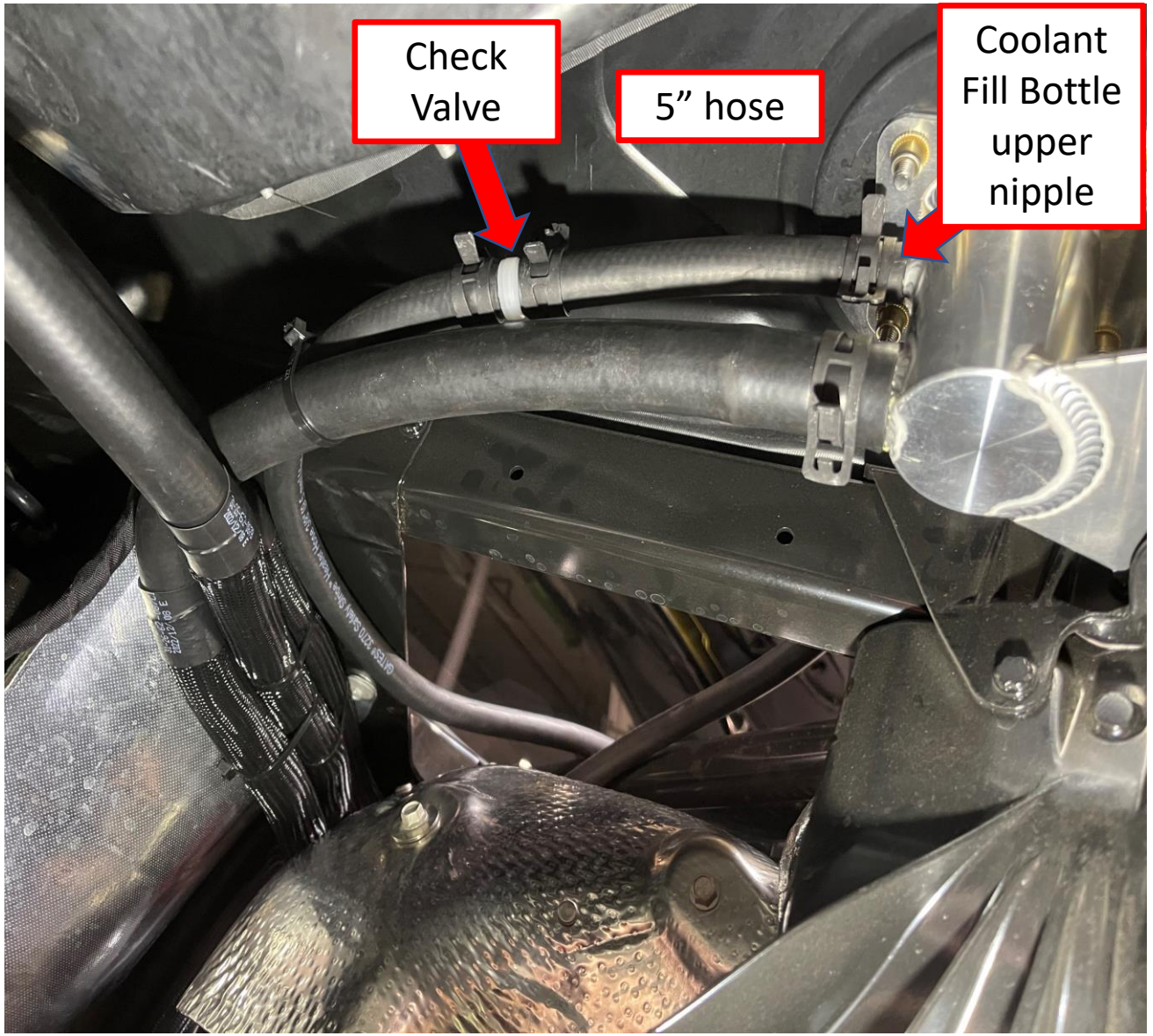
Working from inside the LH rear wheel well, route the remaining length of 3/8” coolant hose together with the other ¾” hoses, inboard and down toward the tunnel. Secure it to the other hoses with zip ties, ensuring it is routed away from the exhaust system.

Install the check valve / hose sub-assembly that was fabricated in a previous slide onto the end of the long coolant bleed hose. Secure the hose to the check valve with a 19mm constant tension clamp from the kit.

The opposite end of the 5” hose installs onto the upper nipple on the coolant fill bottle. Secure the hose to the bottle with another 19mm constant tension clamp.

Ensure the hose does not dip and has a constant upward travel towards the reservoir. Zip tie/secure as necessary.

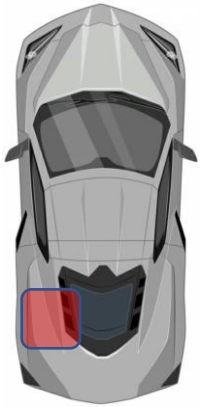


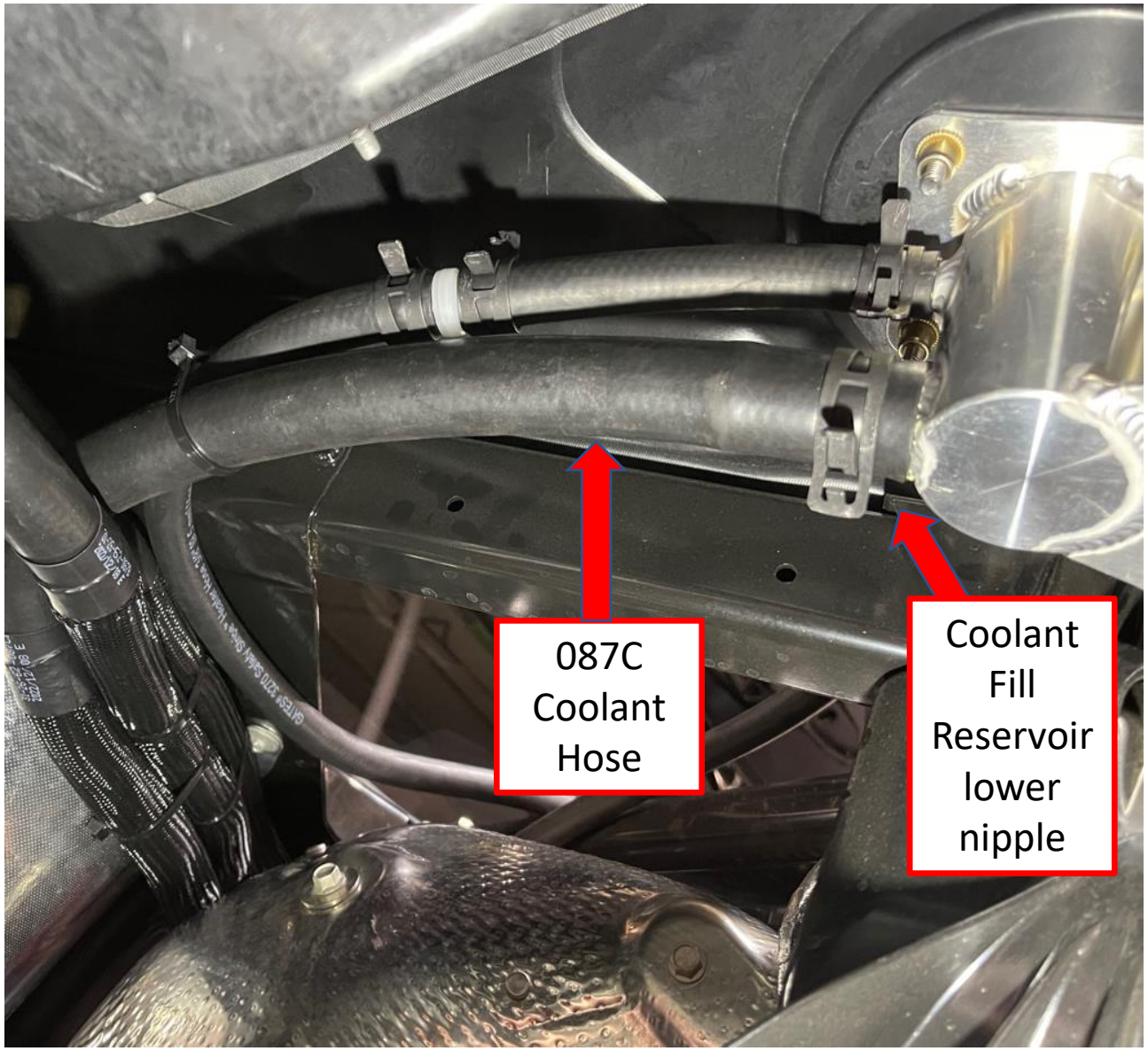


Install a 27mm constant tension clamp onto the end of coolant hose 087C then route and install the hose to the lower nipple of the fill bottle. Cut the hose to length if necessary.

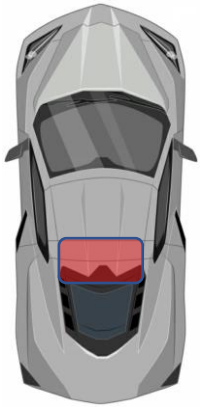
Secure the hose using the clamp.

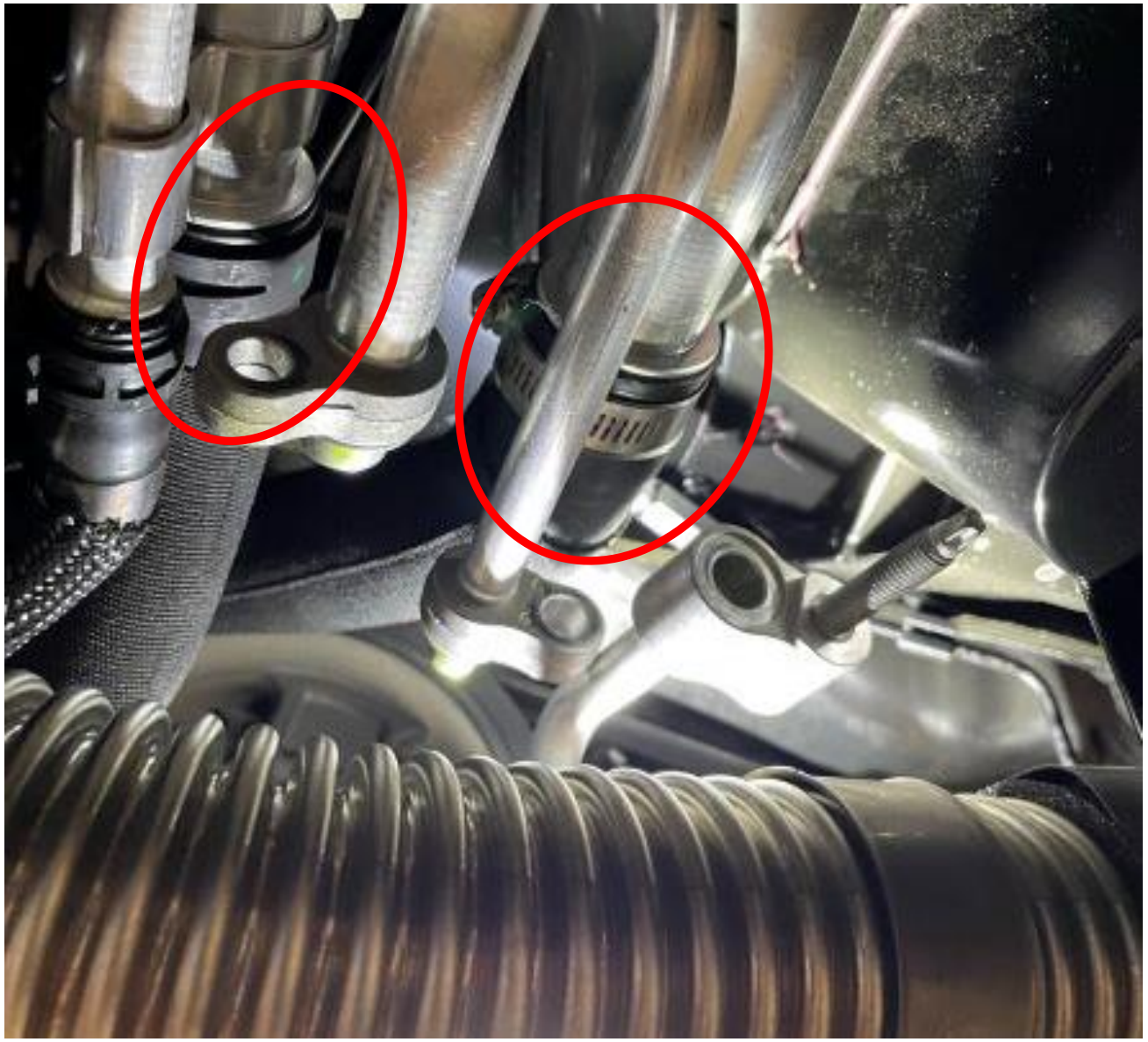
Zip tie the hoses together as shown.



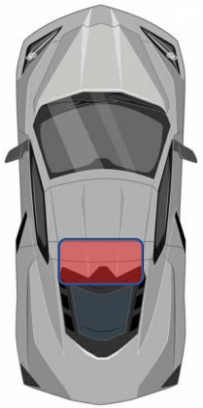


Re-install (2) main coolant lines in tunnel. Tighten (1) gear clamp and install (1) constant tension clamp @ main coolant tube connections.



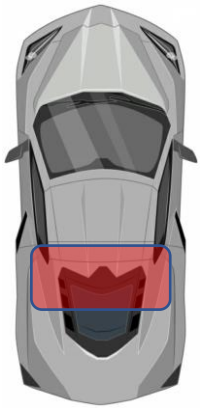


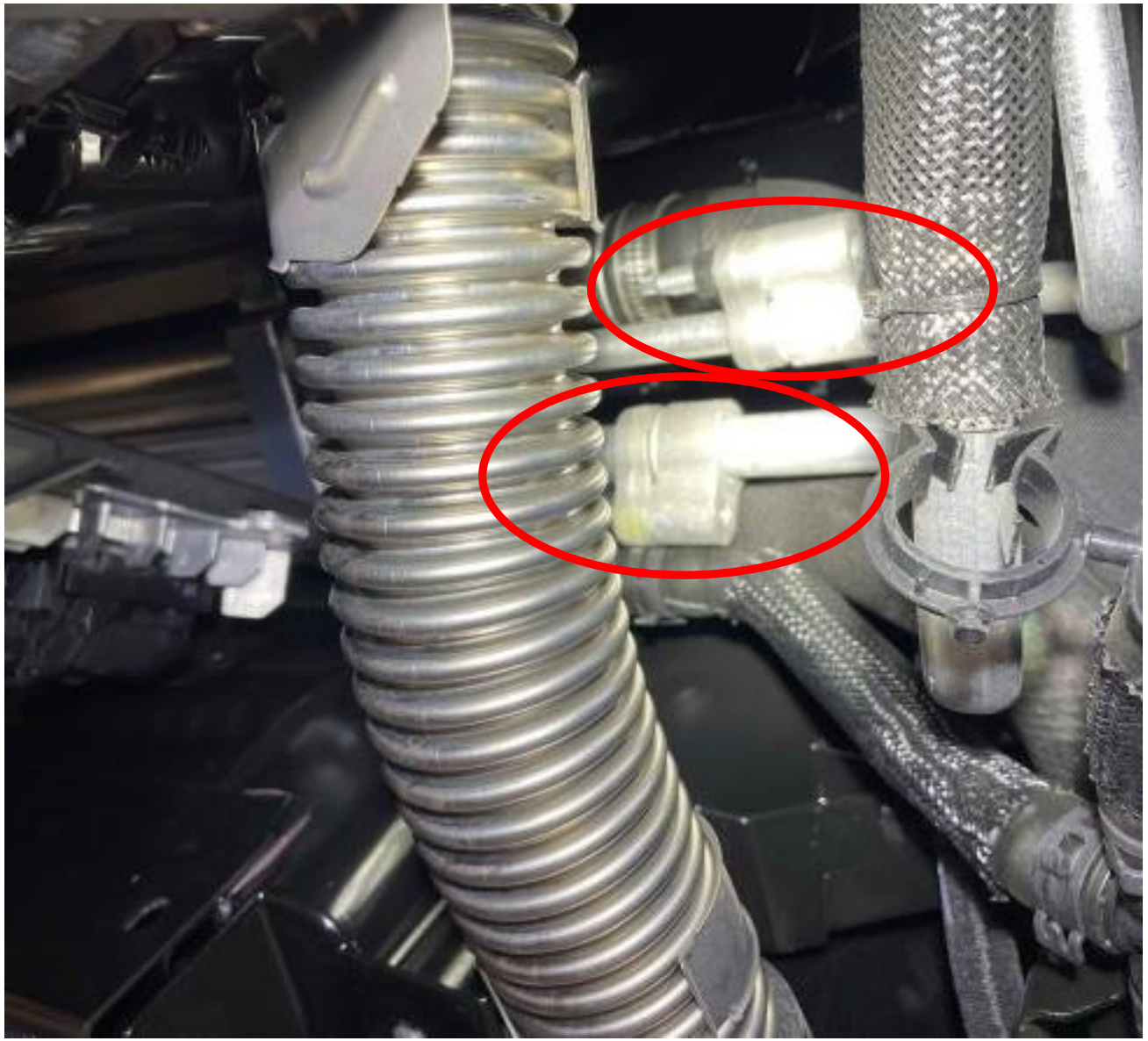
Re-connect rubber hose @ small aluminum tube. Fasten constant tension clamp.



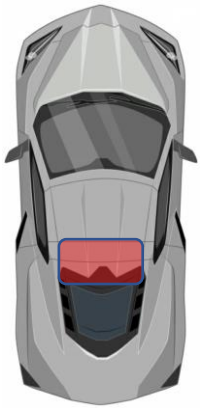
Re-secure and tighten (2) AC tube connection nuts above the fuel crossover tube (if A/C lines were split).

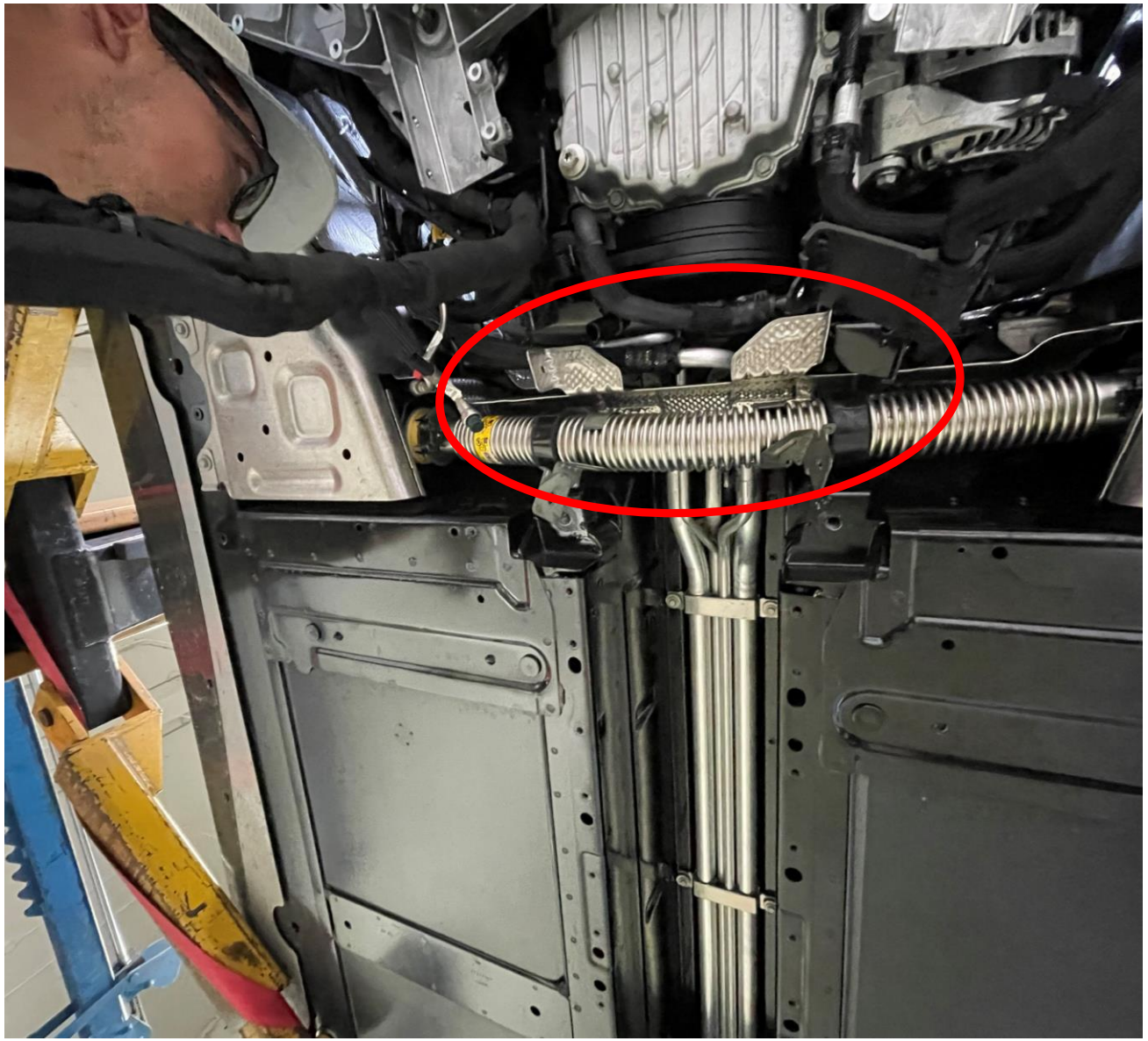
Torque 16 ft. lbs.



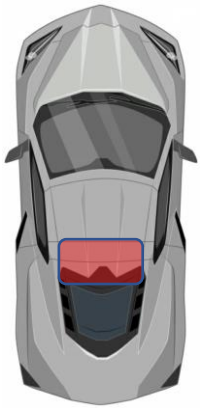


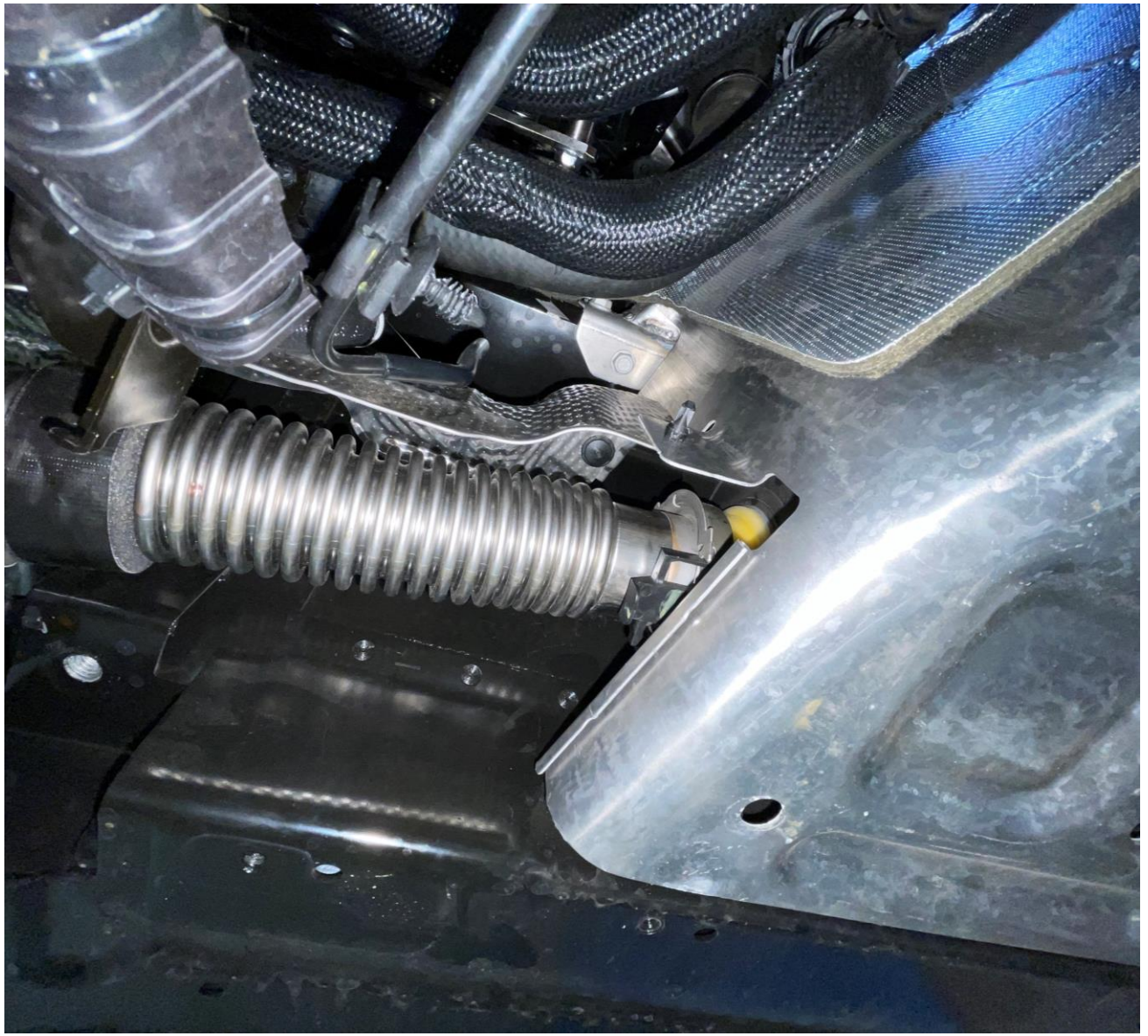
Pre-install fuel cross-over heat shield up into tunnel.





Install crossover heat shield push pins through heat shield into aluminum fuel tank shield.



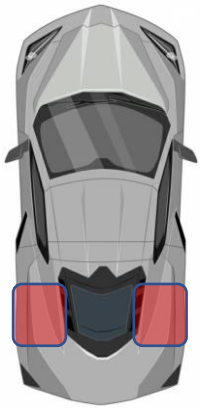


Apply Loctite and install LH / RH upper control arm bolts (4 per side). Longer bolts go in the outside locations.

Washers go between the control arm mounts and the frame.

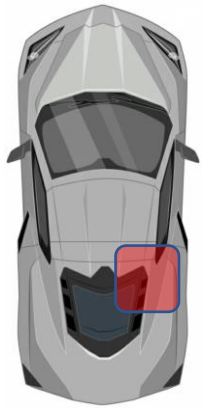
Use a floor jack and piece of wood under the rotor to pre-load the rear suspension and allow the upper control arm bolts to go in easier. HAND-START THE BOLTS, ENSURING YOU DO NOT CROSS-THREAD THEM.

Torque control arm bolts to 44 ft. lbs.



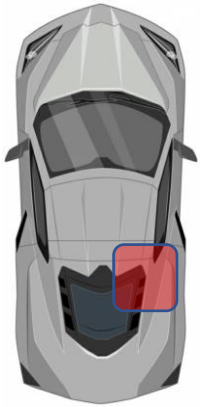
Convertible only: Re-install (2) nuts securing fuel line above RH exhaust manifold.

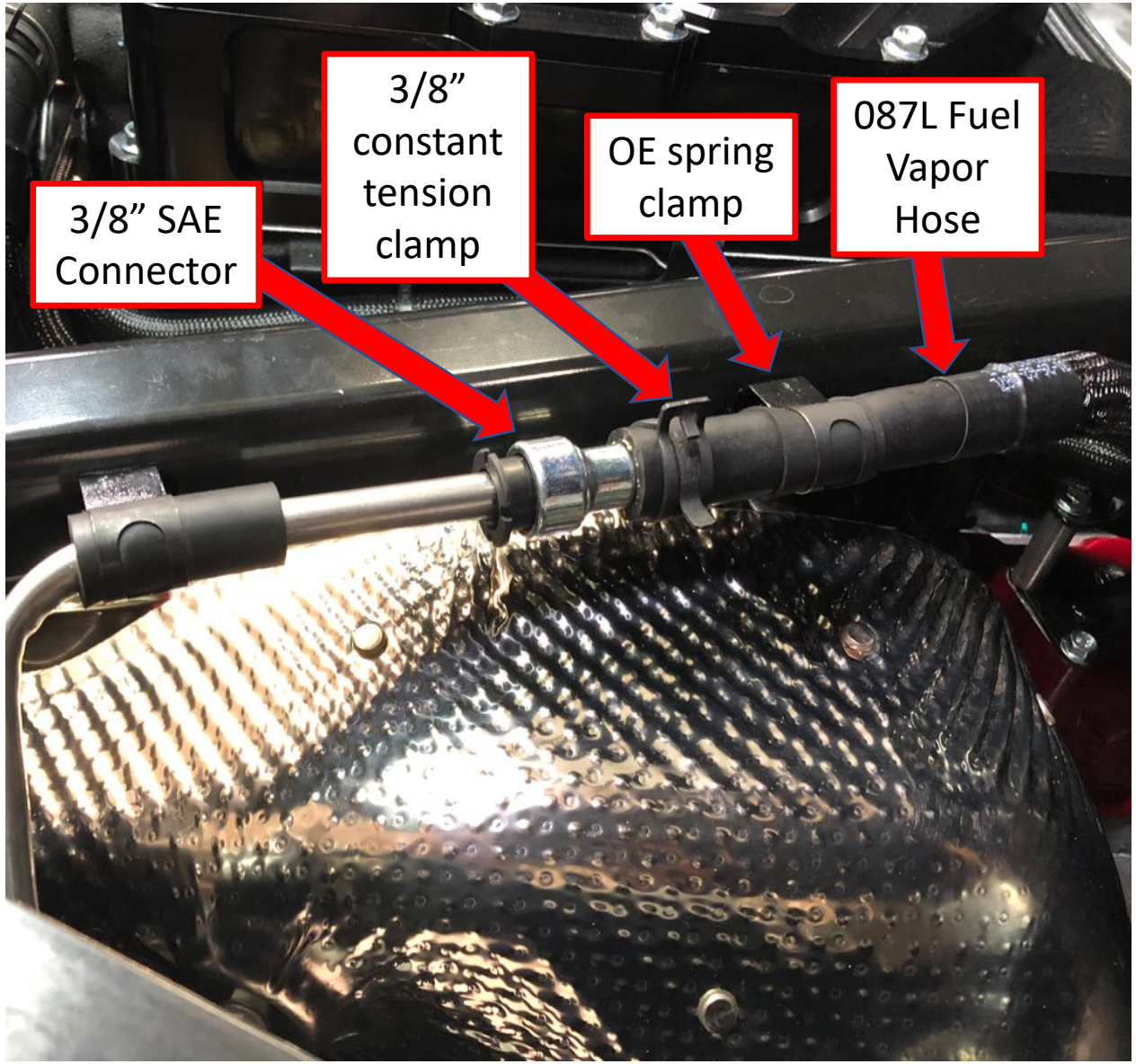
Torque 10 Nm.



Install the 3/8” SAE connector found in the kit, (PN 48-46-00-072), onto the end of the 087L fuel vapor hose. Secure the connector with a 3/8” constant tension clamp then install the hose sub-assembly onto the vehicle side male tube as shown.

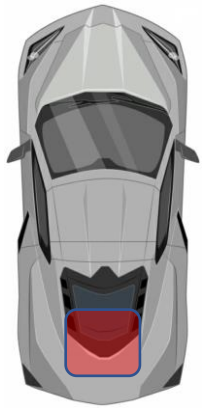
Harvest the spring clamp from the OE fuel vapor hose and install it over the 087L hose, then into the brace as shown.



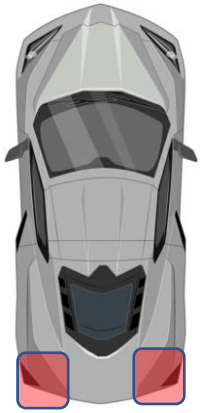


Convertible Only: Route and install the 087F coolant hose onto the top port of the factory reservoir. Secure it using a constant tension clamp.

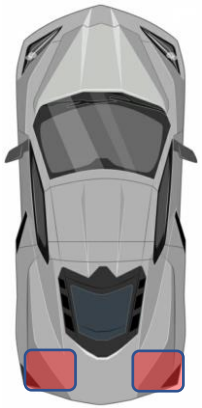
Secure the 087F hose to the bracket on the RH side of the supercharger using zip ties.

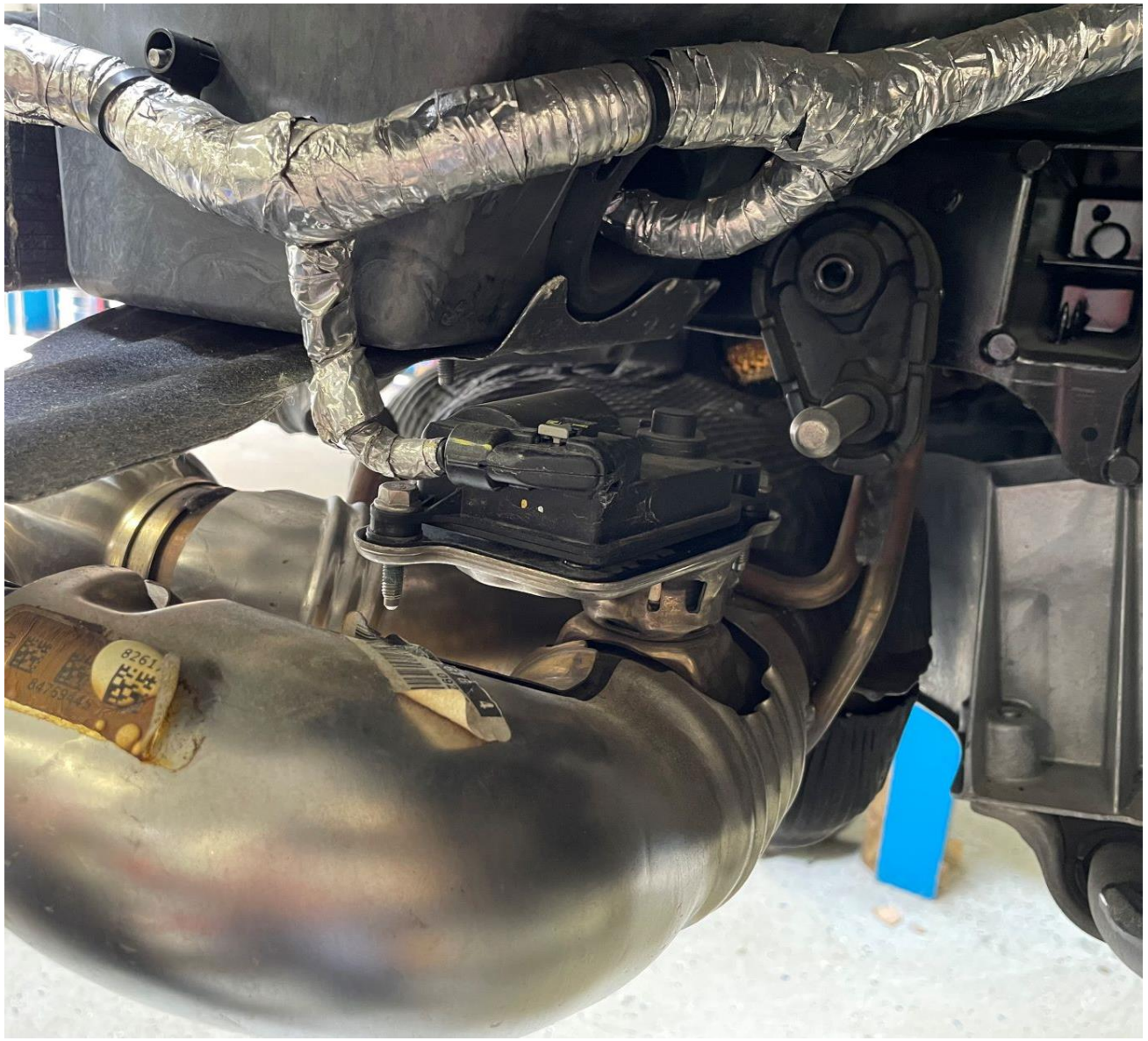


Lubricate and re-install rubber exhaust hangers on LH / RH sides.



Reconnect NPP exhaust valve connectors @ LH / RH valves (if vehicle is equipped).

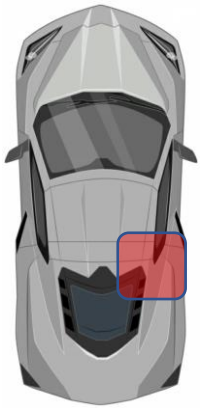


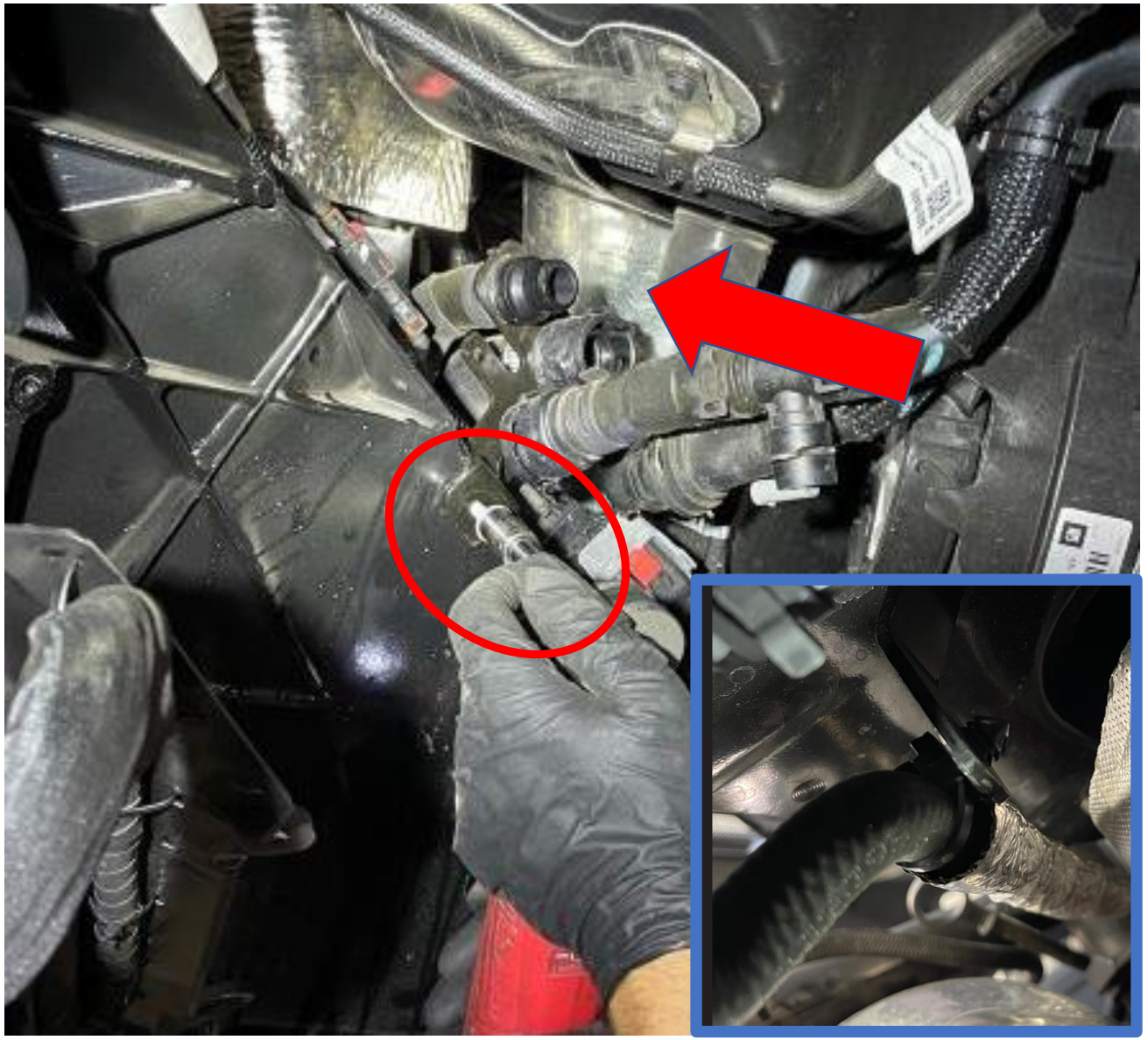


Reinstall (1) fastener @ coolant line bracket.

Pull coolant lines back outside the frame and re-attach.

Re-fasten fur tree connector.





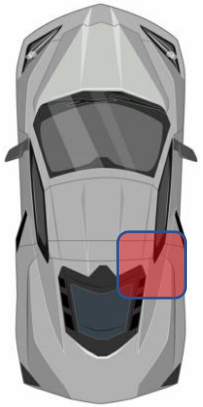
Coupe: find the end of the previously installed 087F coolant hose and route it toward the female quick connector located in the front of the RH wheel well.

Cut the hose to length as required, then install the OE factory male connector that was previously harvested, onto the end of the 087F hose. Harvest the OE silver heat shield from the OE hose and install it over the 087F hose so it is located by the exhaust system, then install a 5/16" constant tension clamp to secure the male connector to the hose.

Connect the 087F hose sub-assembly to the OE 90-degree female connector.

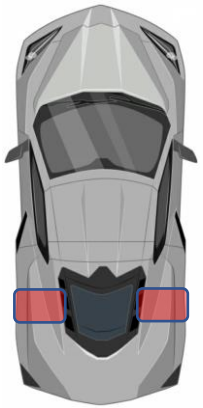
Zip tie the 087F hose to the bracket and along the firewall to secure it as necessary.

Ensure the hose does not come into contact with any rotating or hot parts.

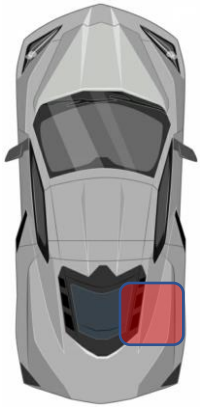


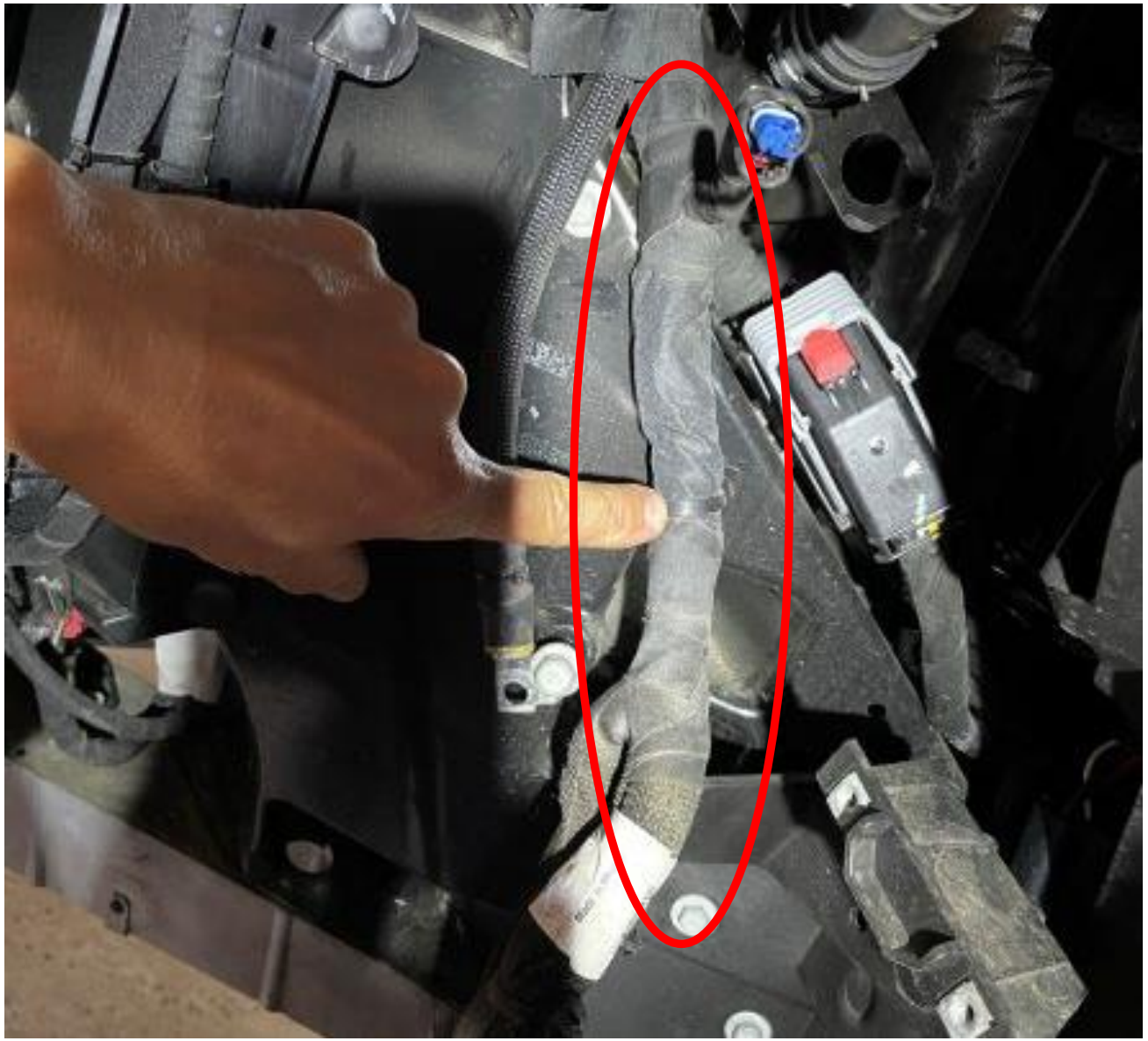
Re-install LH / RH crash blocks in front of upper control arms.

Torque 10 Nm.

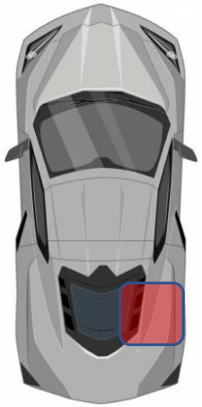


Inside the RH rear wheel well, re-secure fur tree connectors holding the main harness bundle to the bracket, frame structure and the coolant line bracket.



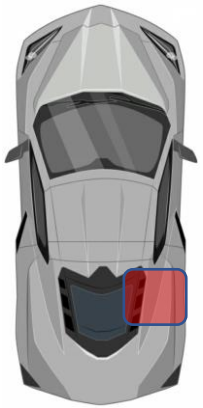


Inside RH rear wheel well: Install hardshell connector into thermostat sensor.

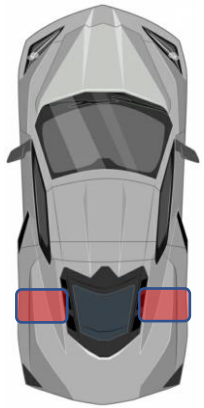


Inside RH rear wheel well, re-install fastener securing chassis cable ground.

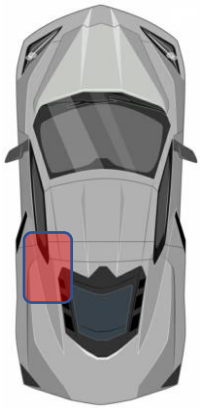
Re-install plastic harness bracket securing ground cable to chassis.



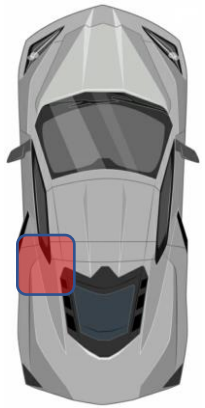
Re-connect LH / RH wheel speed sensor and accelerometer (if equipped) pigtails at connection points in front of the rear calipers.



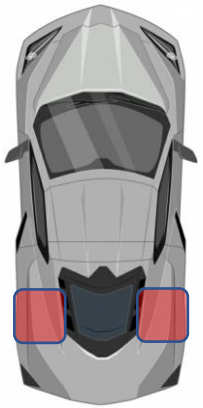
LH side: Re-install (2) fur tree connectors holding plastic harness bracket to frame.



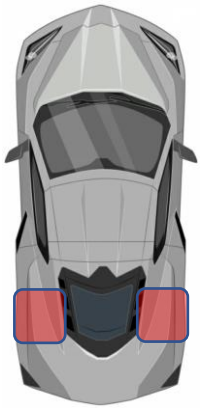
Re-install (2) bulkhead connectors inside LH rear wheel well.



Re-connect LH / RH parking brake harnesses to chassis retention points.

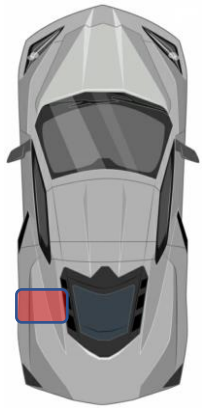


Re-install hard shell connectors @ LH / RH parking brake solenoids.



Re-install FTZM module into LH fender.
Re-install all bracket fasteners.

Re-connect electrical connector to FTZM module.

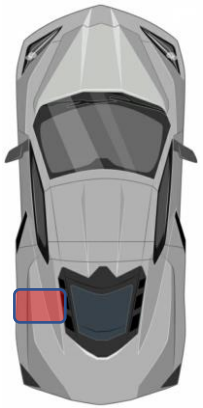


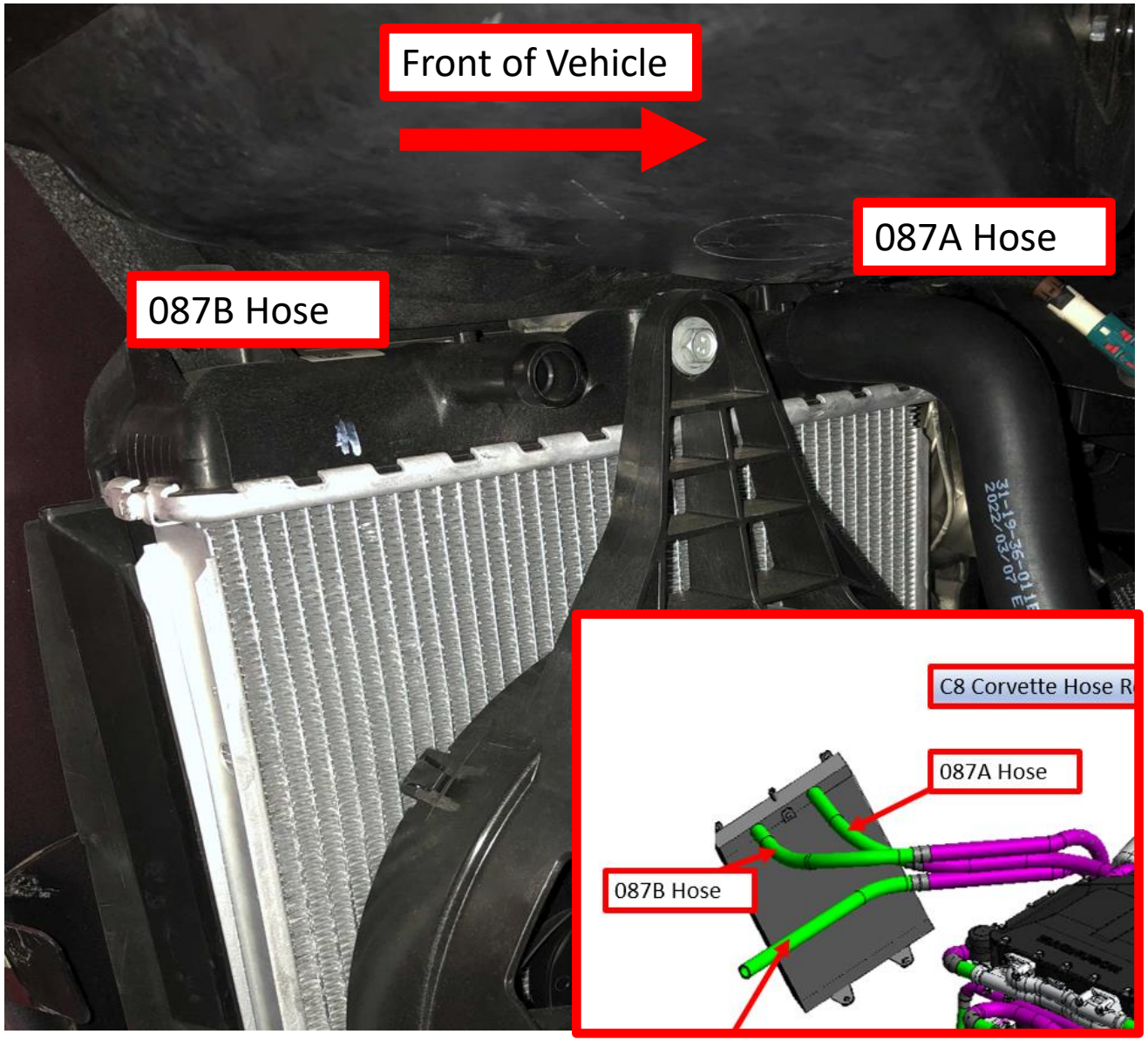
Inside the LH wheel well: route, secure and install the 087A and 087B hoses onto the Low-temp radiator and secure with ¾” constant tension clamps.

Note: the hoses can be trimmed to length as needed to help keep them away from the exhaust heat shields.

Note: Hose 087A installs onto the front fitting.

** **Convertible models:** see following slide for unique hose routing and installation detail **





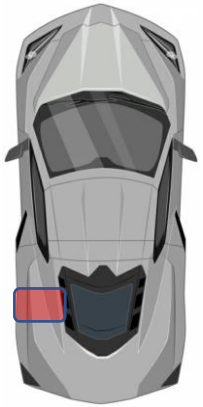
CONVERTIBLE MODELS ONLY:

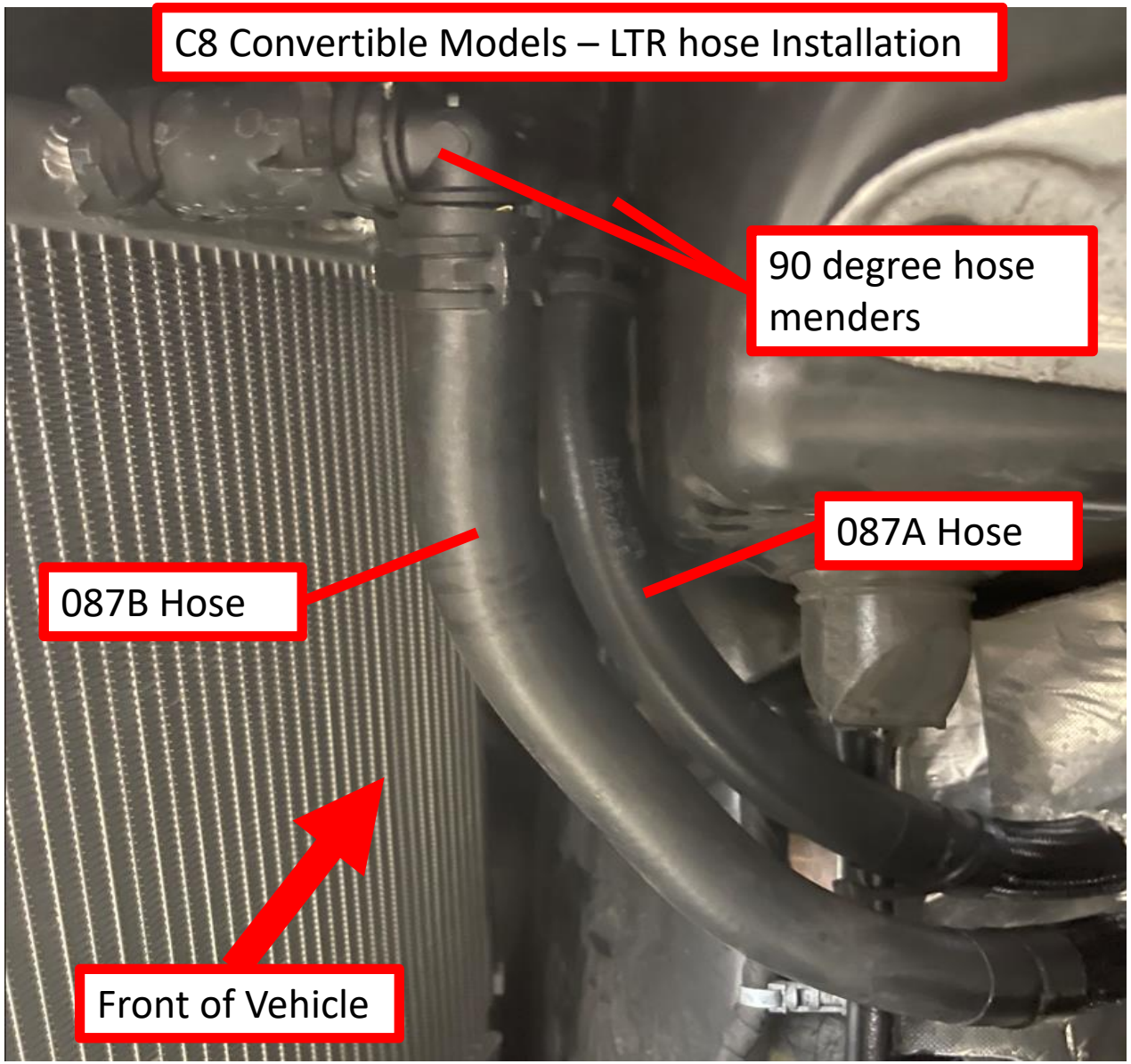
Install a ¾” constant tension clamp and 90 degree mender from the kit to the end of the 087A and B hoses. Secure the clamps in place.

Cut (2) short pieces of leftover ¾” hose approximately 3 inches long. Secure each hose to the opposite end of the 90 degree mender, then install the hose sub-assemblies onto the low-temp radiator, securing them with ¾” constant tension clamps.

Note: Hose 087A installs onto the front fitting.

See the following slide for convertible hose routing detail.





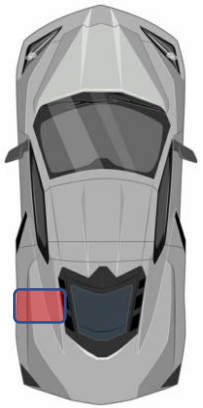
CONVERTIBLE MODELS ONLY:

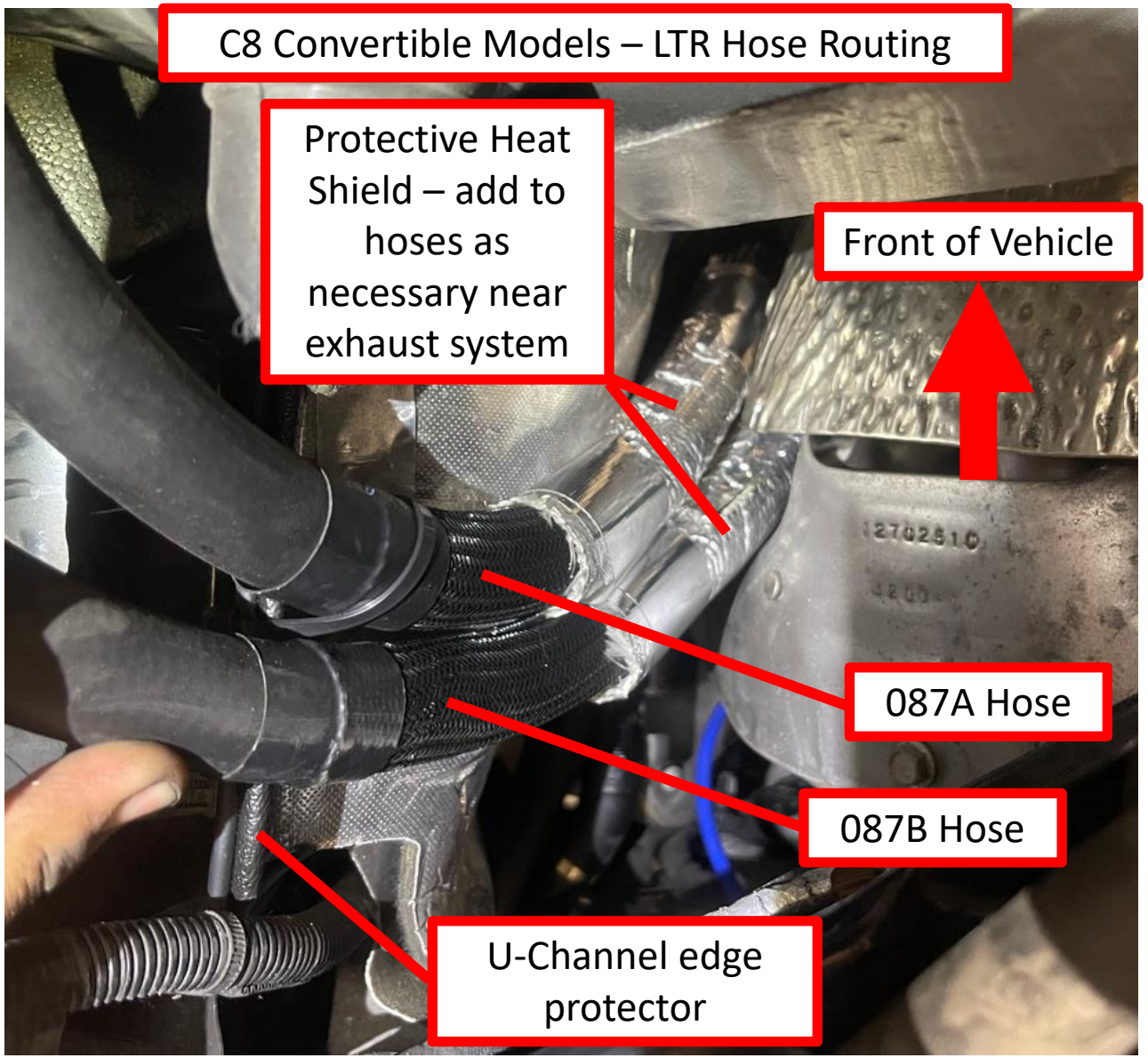
Route the 087A and B hoses as shown.

Install heat shielding material in any areas that come in close proximity to the exhaust system as needed to protect the hoses from excessive heat.

Install the piece of protective U-channel molding from the kit to the sharp body edge as shown to keep the hoses from chaffing.

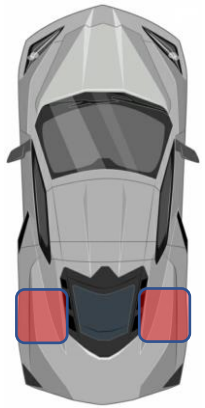
Tuck the hoses as close to the fire wall as possible. Use zip ties as necessary to hold them in place.



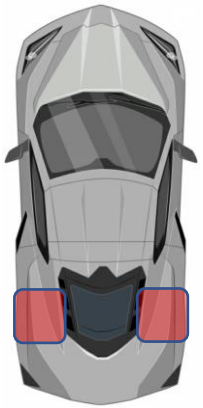


Re-install LH / RH rear calipers.

Apply blue Loctite and torque caliper bolts 118 ft. lbs.

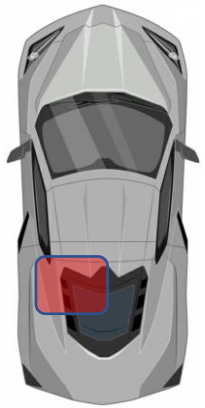


Re-install brake line bracket fasteners into LH / RH control arms.

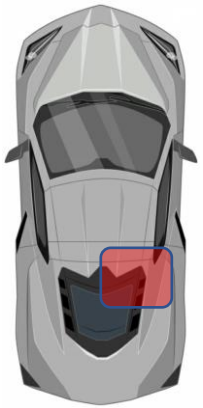


Re-connect the fuel line at LH side by tunnel.

Re-install the lock.

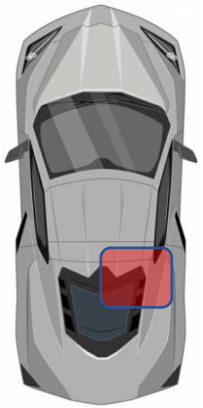


Re-connect B+ fur tree connector into the bracket by the alternator.

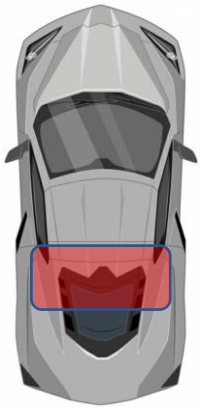


Re-install and tighten (2) nuts securing the positive battery cable to the alternator.

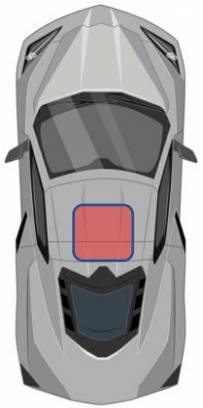
Re-connect the positive battery cable cover @ alternator.

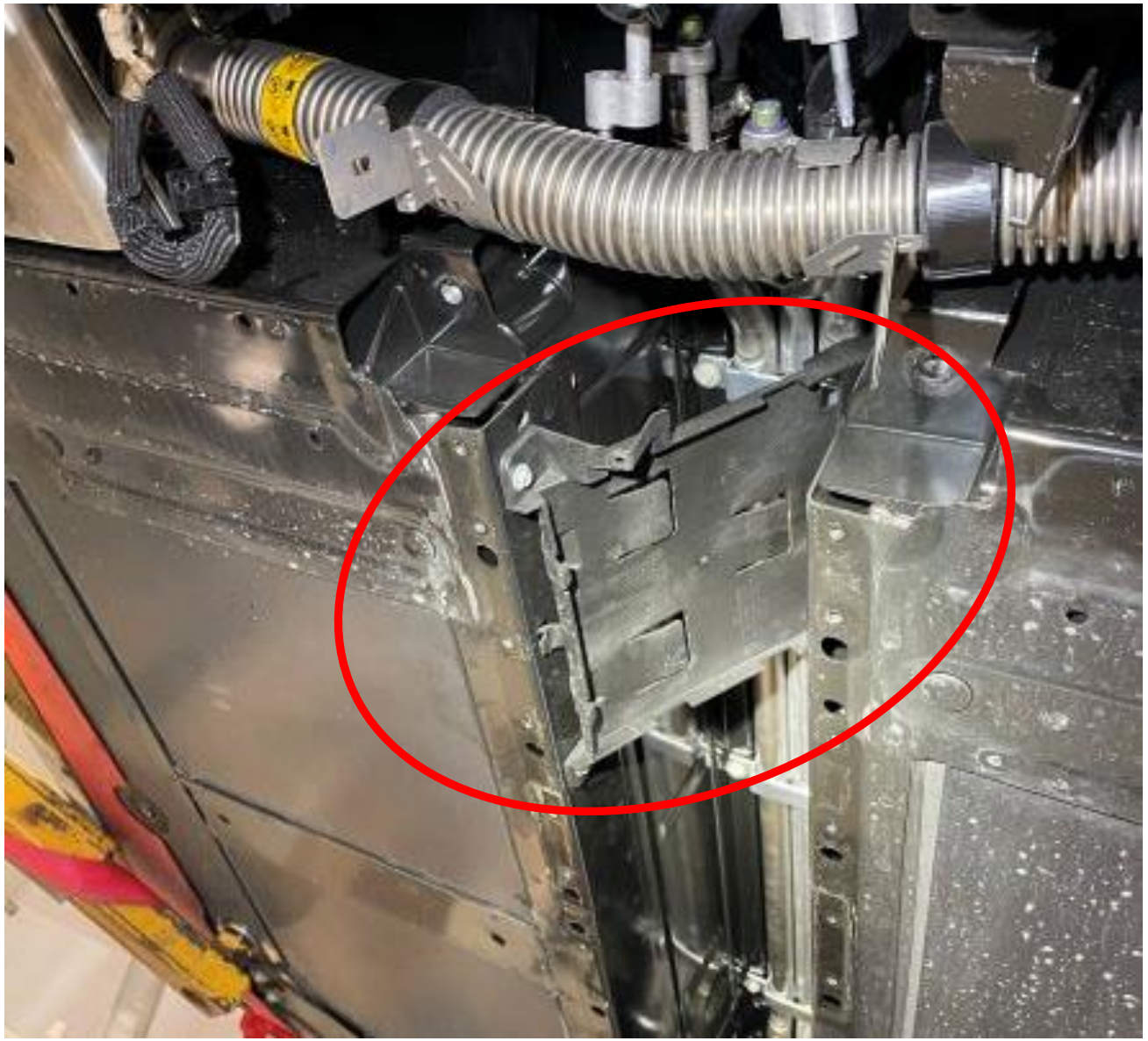


Re-connect hardshell connector @ A/C pressure sensor



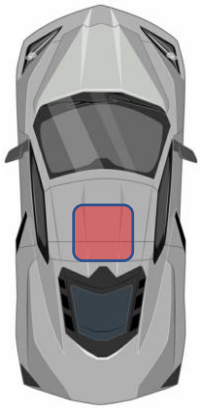
Re-install the ECM bracket into the tunnel.



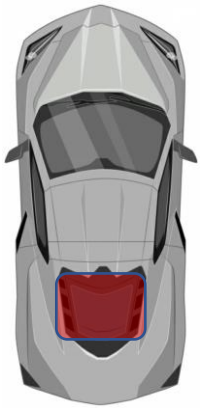


Re-install the ECM into the bracket.

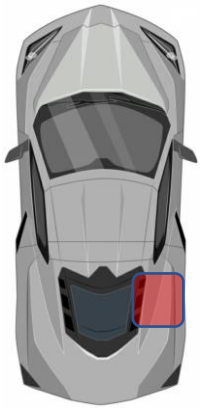
Re-connect (4) electrical connectors @ ECM.



Ensure coolant line connection has been made and constant tension clamp has been installed by alternator.

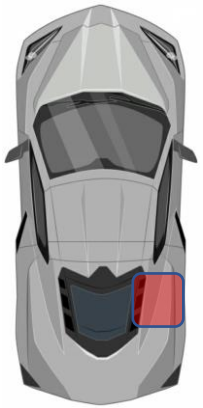


Inside RH fender, ensure the radiator drain plug has been installed and tightened.

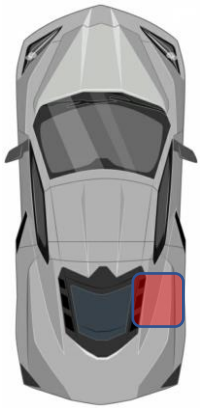


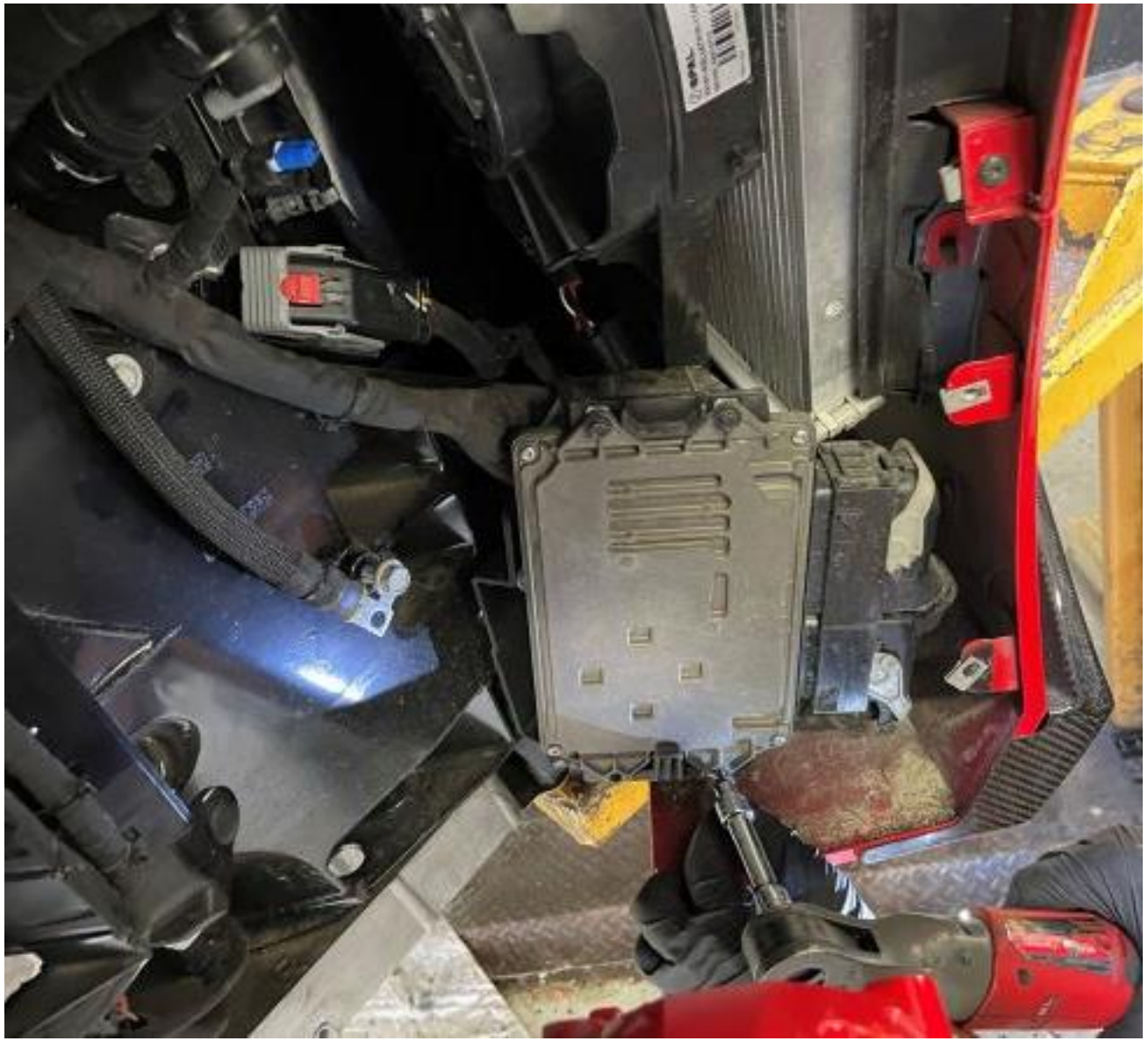
Re-install the TCM bracket then install/tighten the fasteners securing the bracket to the vehicle.

Re-install the wiring harness fur tree connectors into the plastic TCM bracket.

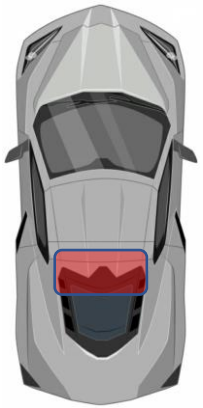


Re-connect the Trans Control Module (TCM) electrical connectors.





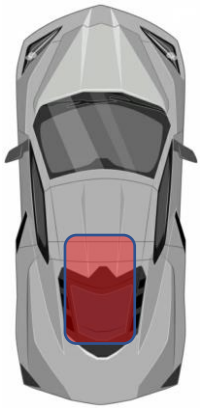
Re-install LH and RH brake lines into plastic holders at cradle.

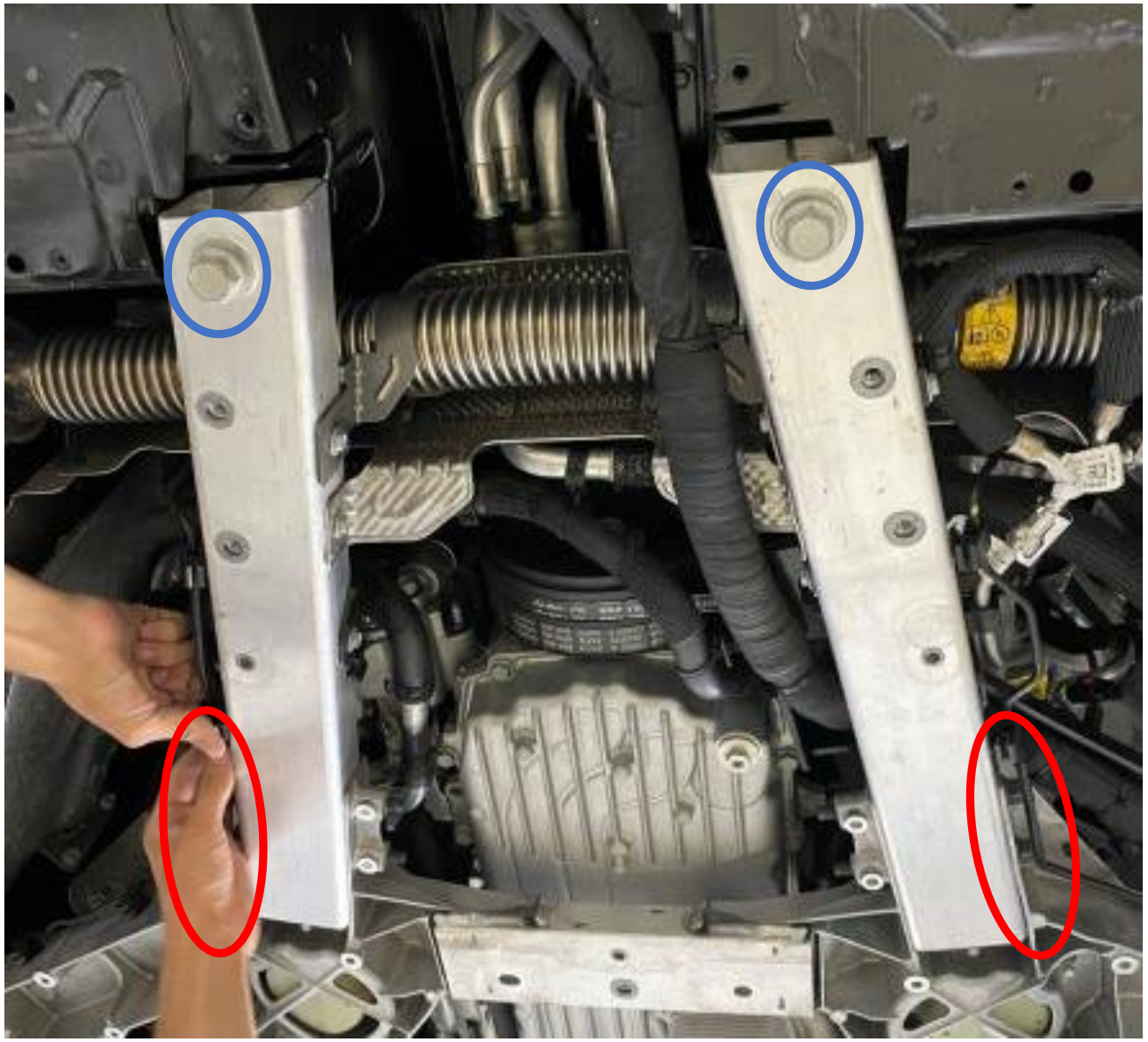


Apply blue Loctite to all bolts.

Re-install the LH and RH frame braces into the vehicle. Re-install and zero torque all frame brace bolts. Pre-torque all horizontal bolts (red circles) 43 ft. lbs. then apply + 100 degrees final angle.

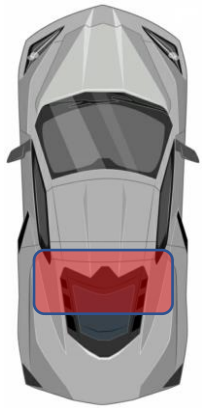
Large vertical bolts (blue circles) are to be pre-installed and run up to within ½ inch of contact with brace. They will be final torqued to 118 ft. lbs. after the underbelly covers have been installed.

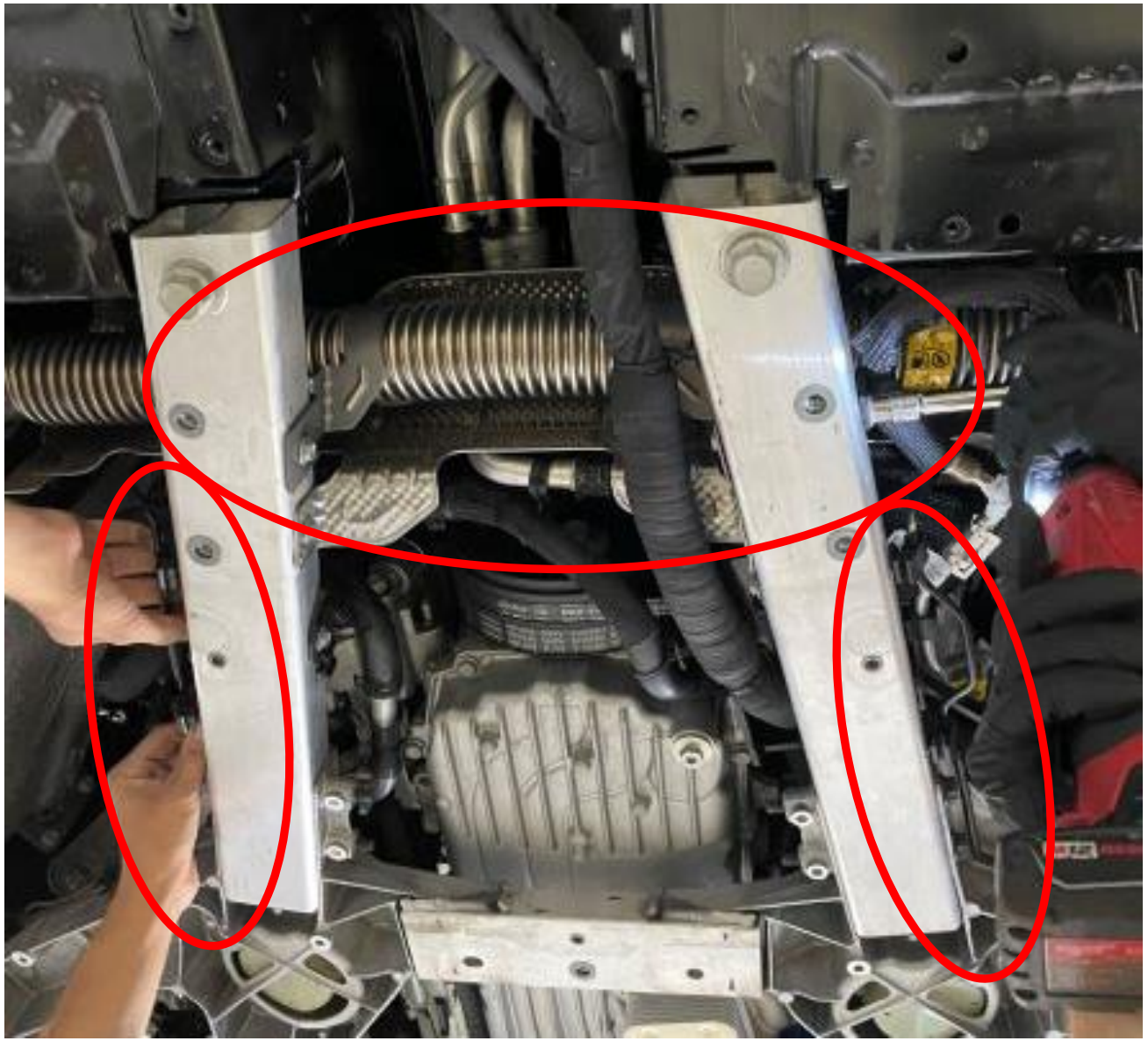




Re-install fasteners holding the brake line brackets and heat shields into the LH and RH aluminum frame braces by the fuel cross-over.

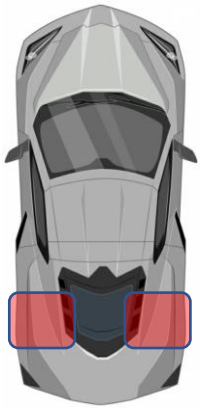
Re-install (4) push pins securing the fuel cross-over heat shield.





Install and torque upper shock mount nuts 22 ft. lbs. (3 per side) on LH / RH sides.

Re-connect mag ride sensors and clip sensor to the bracket on the vehicle.

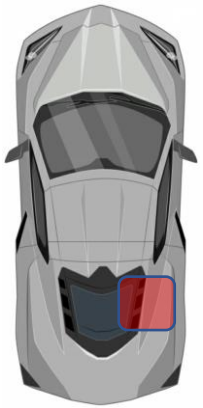


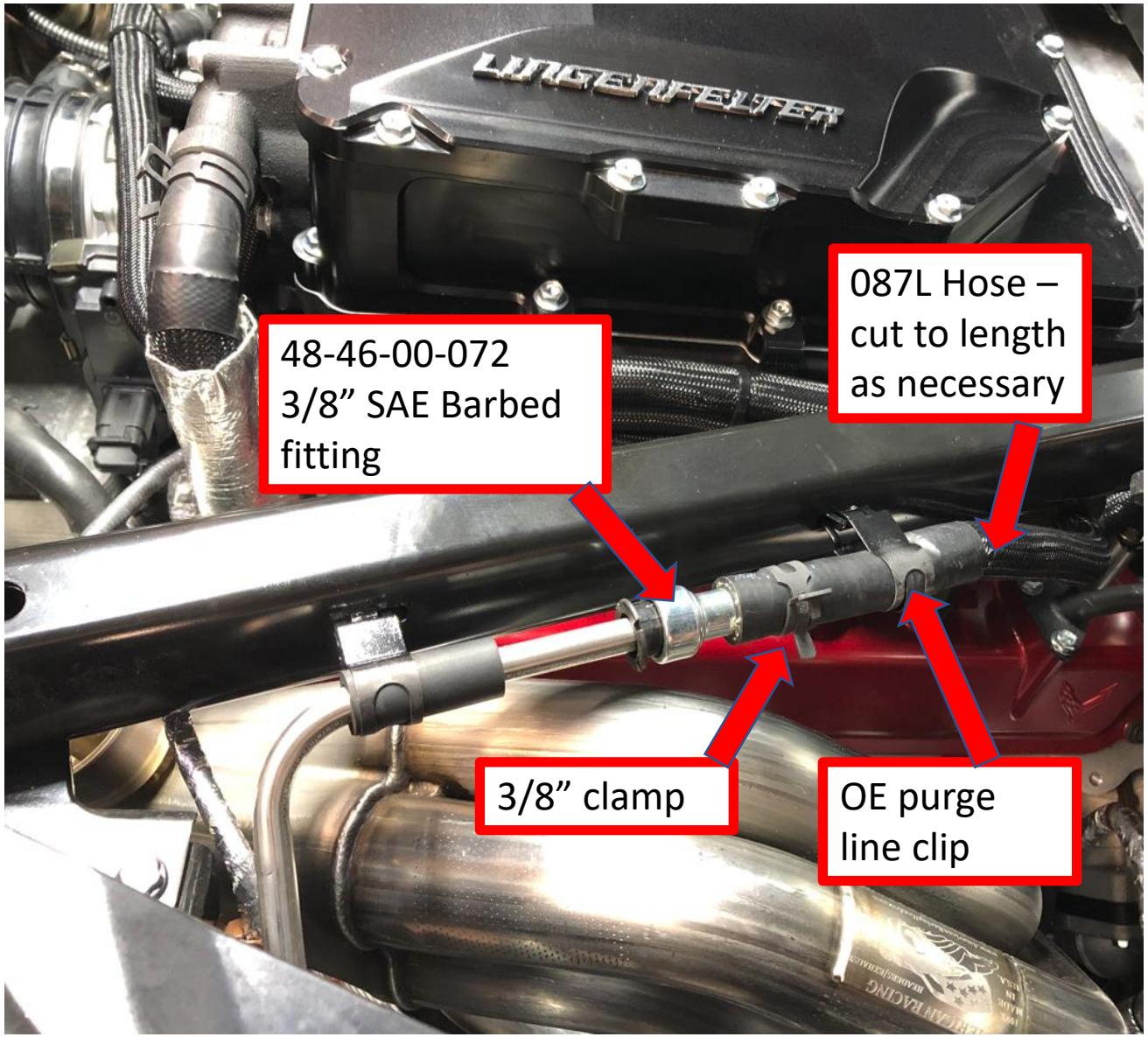
Route the 087L fuel vapor line along the RH engine brace, toward the OE connection point at the frame brace.

Cut the 087L hose to length as necessary, then install a 3/8” constant tension clamp over the hose, followed by a 3/8” SAE metal barbed fitting (P/N 48-46-00-072).

Slide the clamp up the hose to secure the barbed fitting.

Re-install the purge line clip to the body brace.

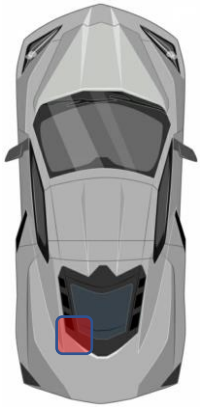




Convertible Only:

Route the 087E hose across the back of the supercharger as shown. Ensure it is attached and clamped to the bottom port on the LH side of the factory reservoir.

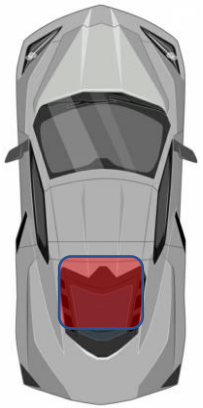
Use zip ties to secure the hose along the RH side of the supercharger.



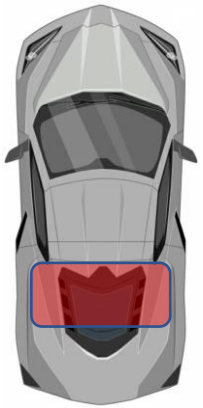
Convertible Only:

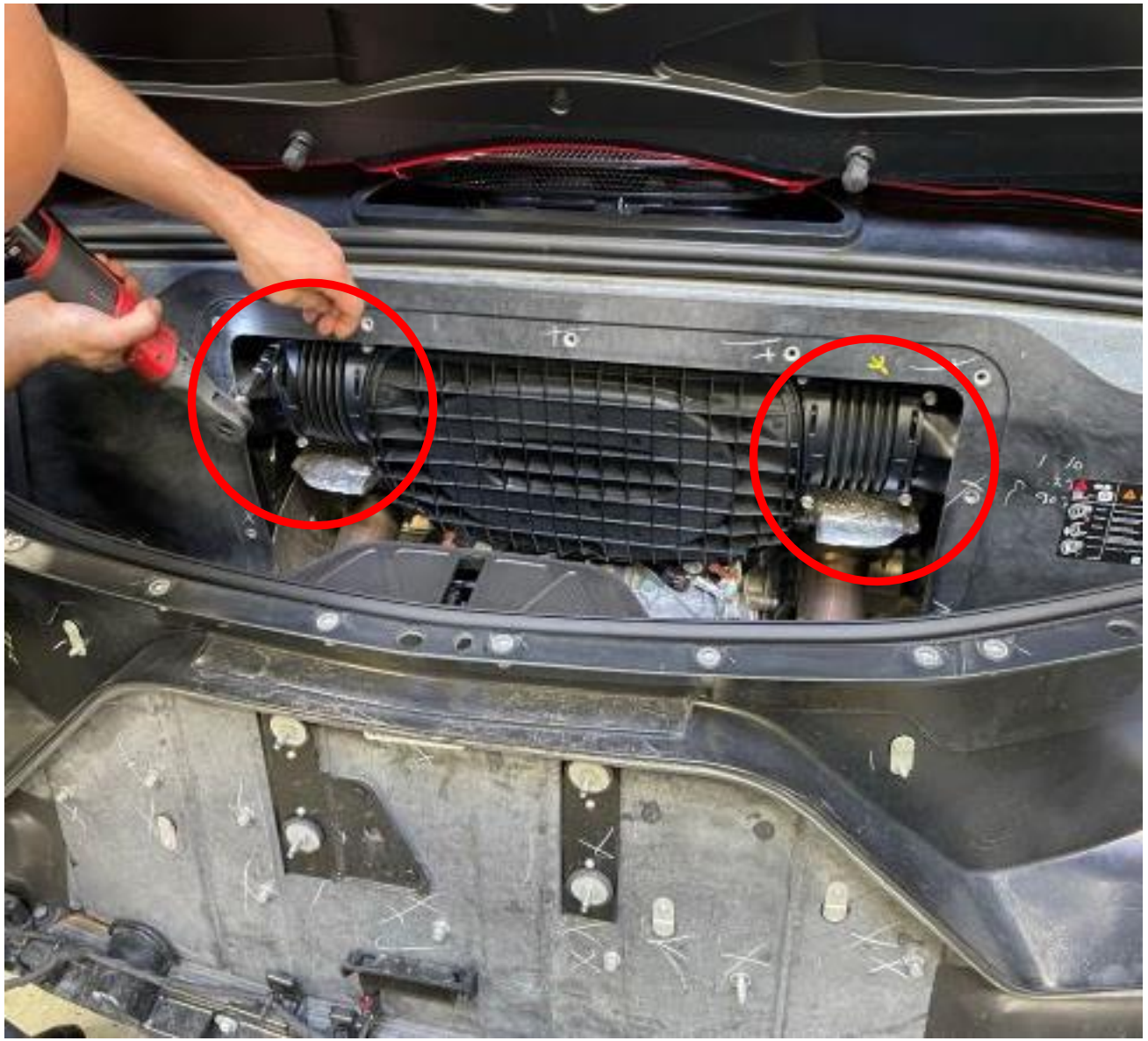
With a helper, re-install the closure cover.

Re-install the fasteners around the perimeter of the engine access cover.



Re-install the LH / RH air inlet ducts (4 fasteners per side) and tighten the fasteners.

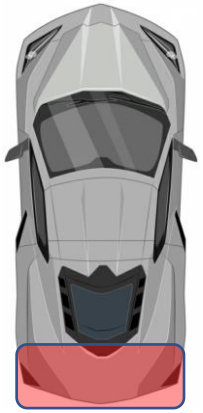




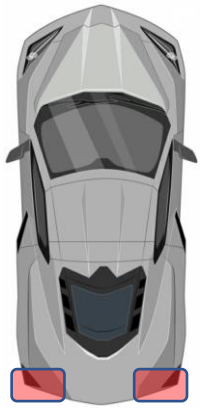
With help from a second person, gently lift and begin to re-install the rear fascia onto the vehicle.

Re-connect (3) electrical connectors between body and rear fascia.

Install (2) rear fascia screws loosely to hold it in place.

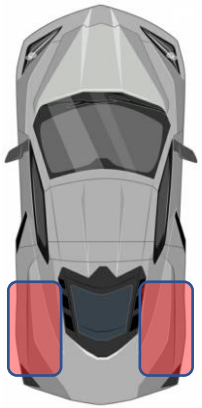


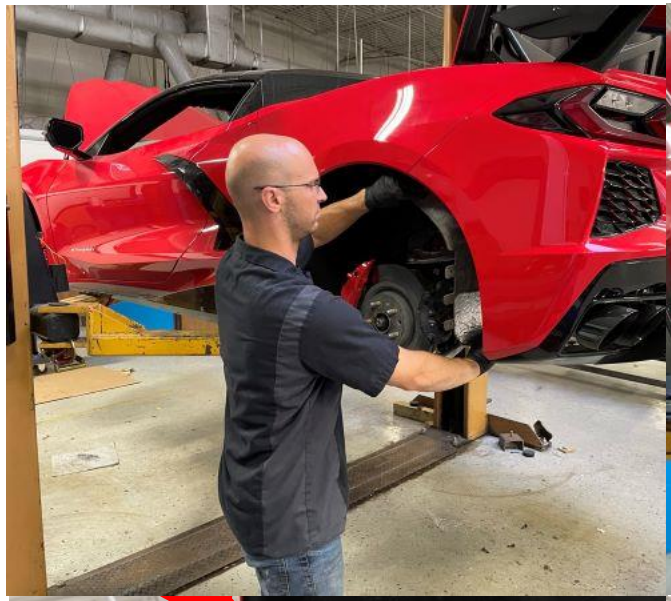
Facing rearward from inside each rear fender, locate and re-install the fasteners attaching the rear fascia to the LH / RH fenders @ rear upper corners.

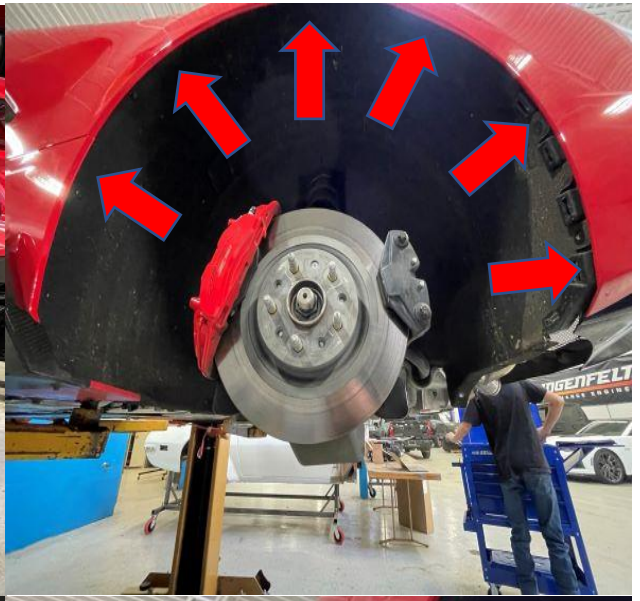


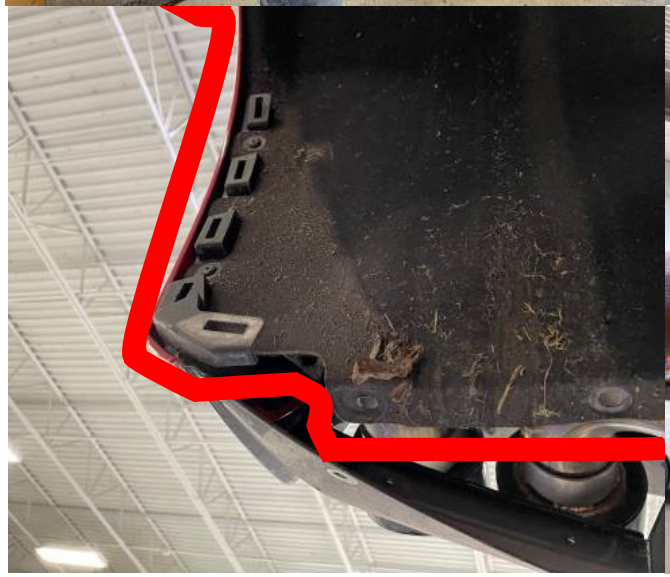
Re-install the LH / RH rear inner fender panels. Secure using the original Torx T15 screws. Torque 2.5 Nm. Install push pins.

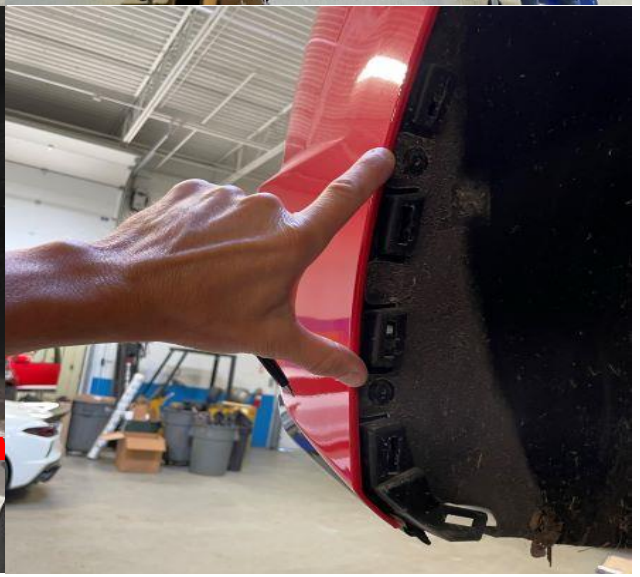
Re-install the plastic rock guards onto the LH / RH rear corners of wheel wells (bottom right photo).



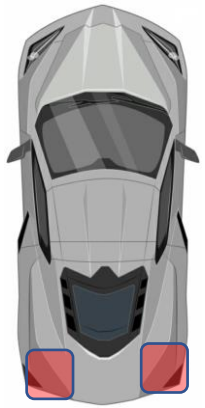




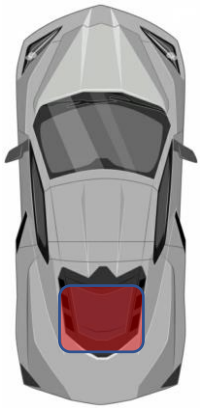


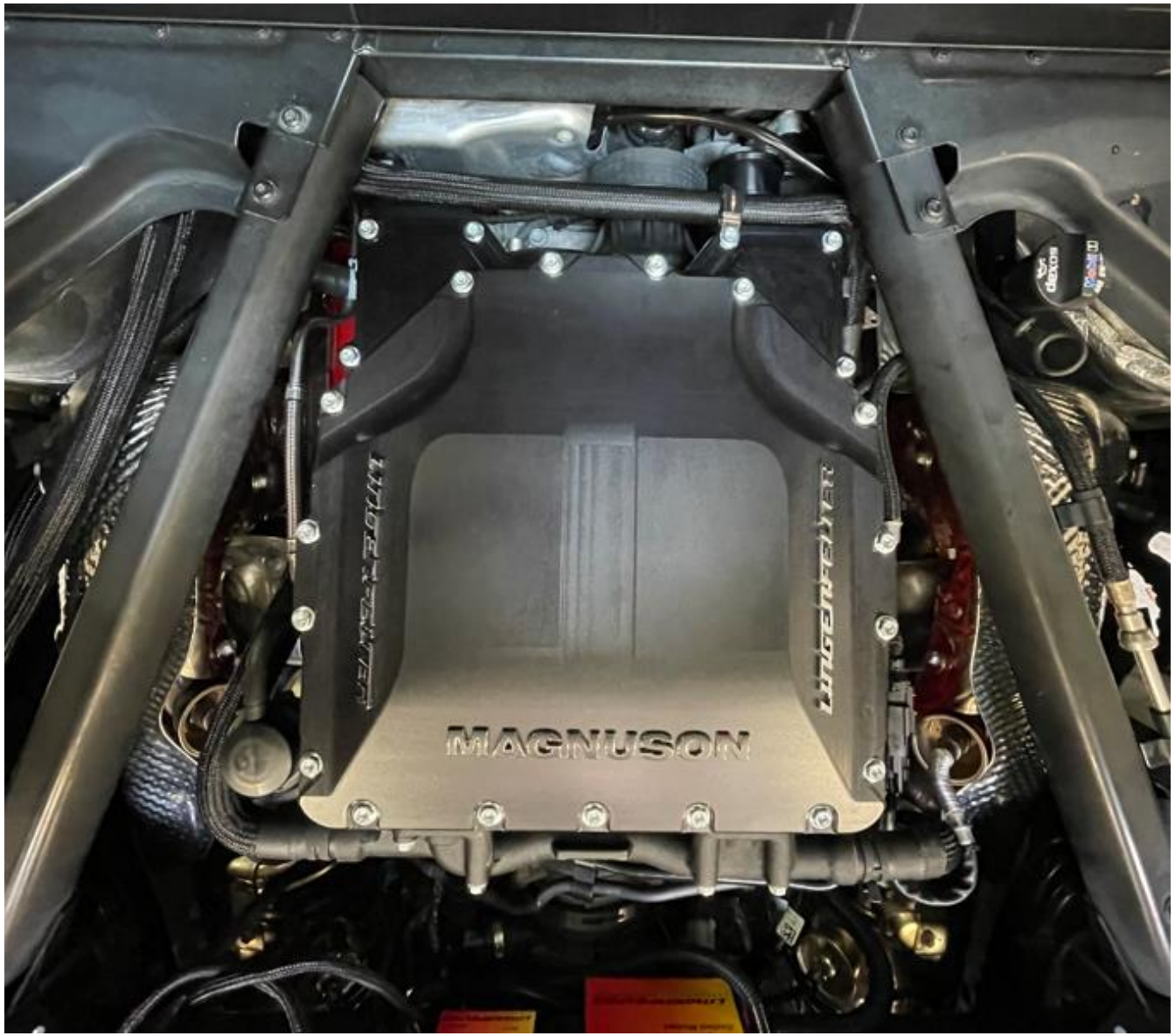


Re-install fasteners in upper LH / RH corners securing rear valence to rear fenders

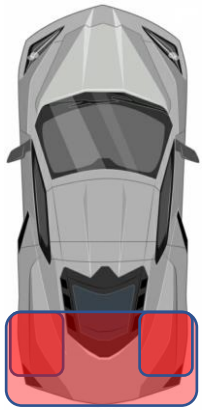


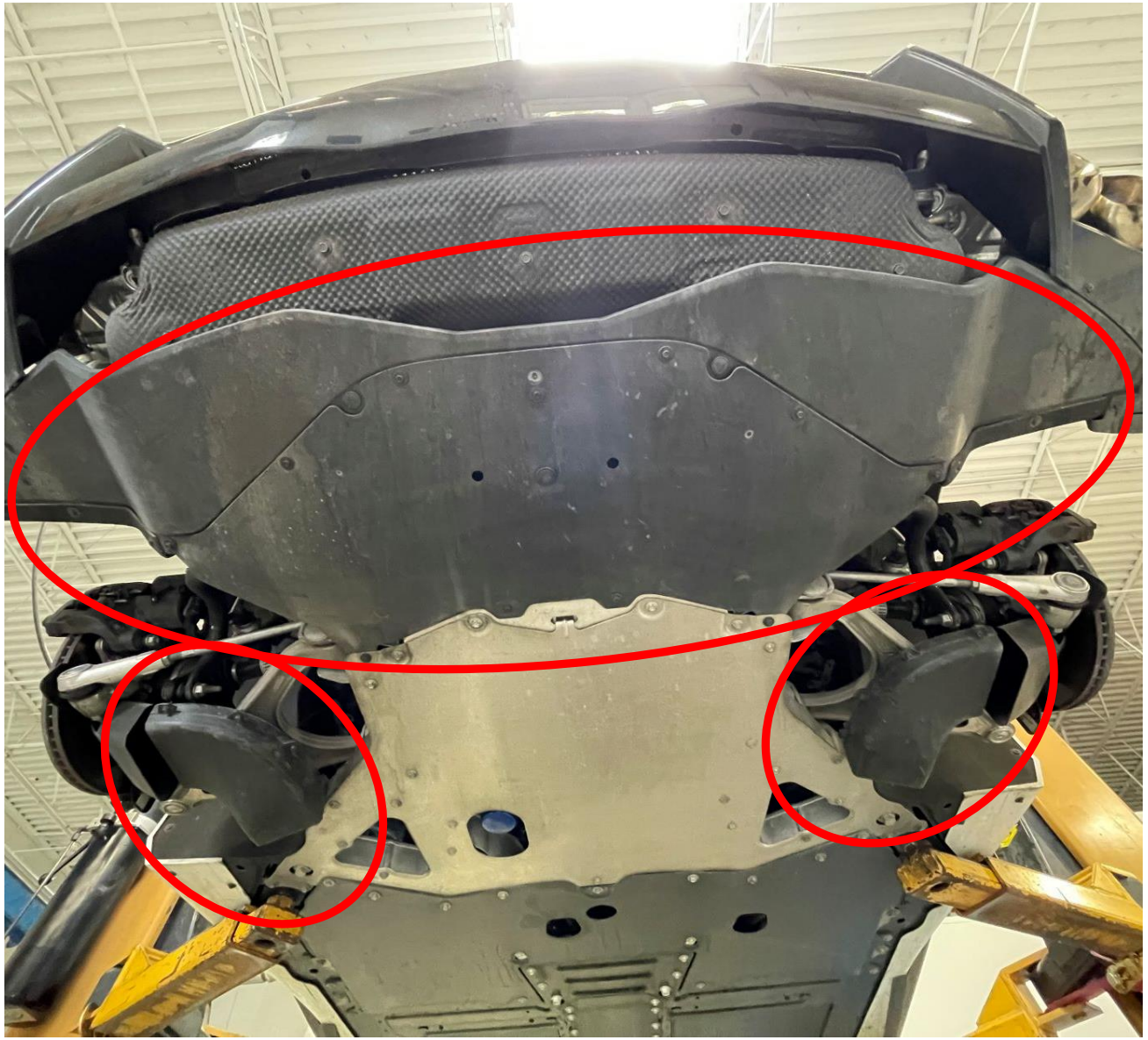
Clean supercharger lid with iso, then apply (2) Lingenfelter badges and (1) Magnuson badge in the locations shown, ensuring they are centered and parallel, as shown.





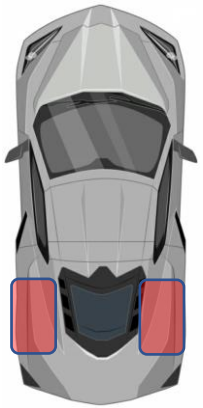
Re-install rear lower under body valence and rear brake cooling ducts, if applicable.





Re-install rear wheels.

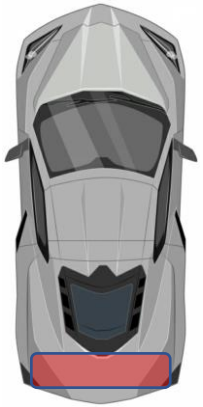
Torque lug nuts to 140 ft. lbs.



Re-install shims (as applicable per original OE installation) and screws around perimeter of rear upper valance.

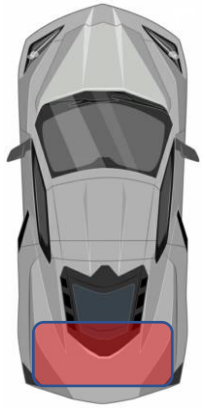
Torque screws 2.5 Nm.

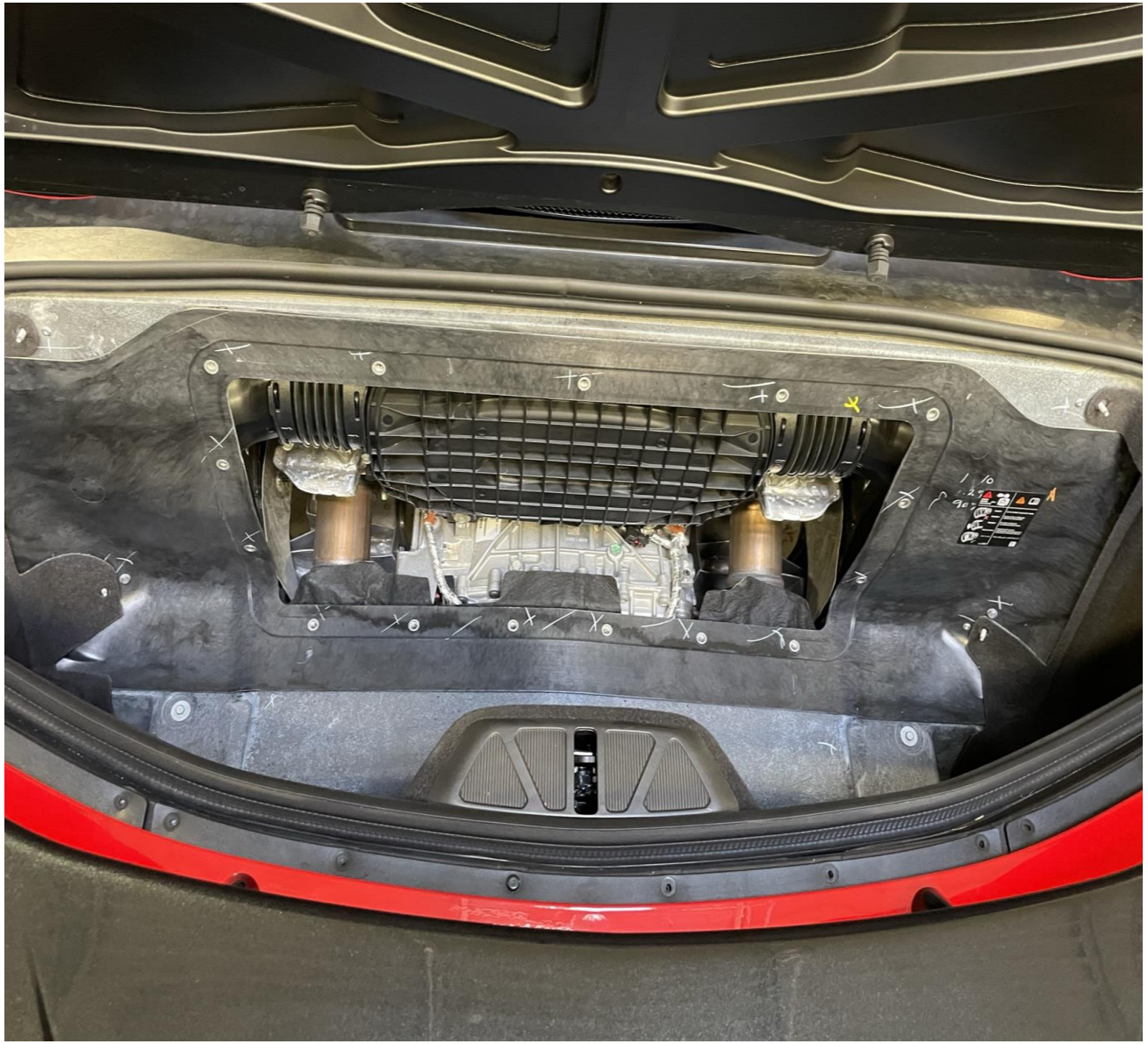
Remove grease pencil markings made during removal process noting shim locations.



Re-install front closure panel then install and tighten fasteners around perimeter of panel.

Re-install carpet in trunk.





Charge Air Cooler (CAC) Pump Electrical System

The following slides detail the electrical upgrades required to support the operation of the CAC electrical pump

Intercooler Relay Harness Modification:

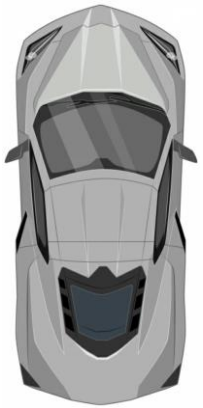
Find relay harness assembly P/N 82-55-80-077 inside bag 3.

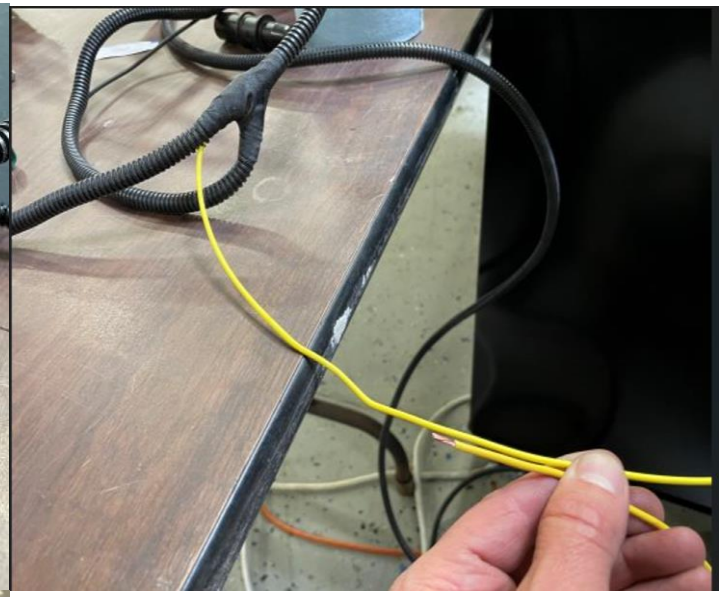
Install the 15A fuse inside the hose holder.

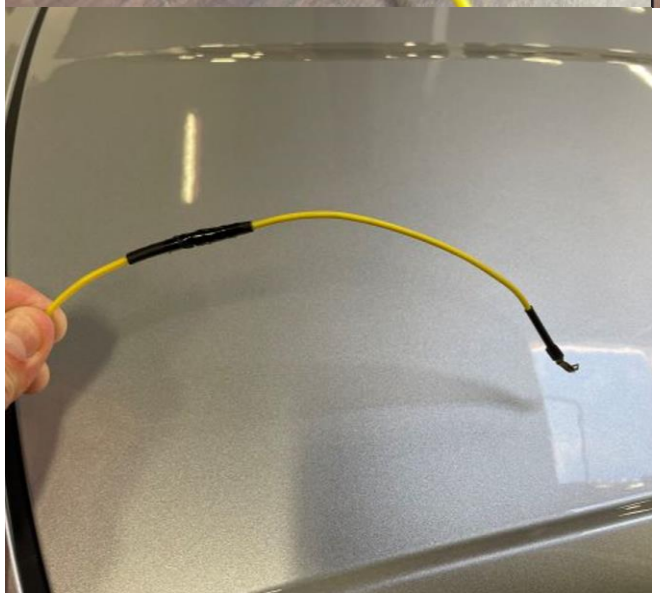
Pull the yellow wire out of the existing convolute and cut the existing fuse tap lead off.

Add 6.5 feet of additional yellow wire to the existing harness. Solder and heat shrink the connection, then install the supplied convolute tubing over the yellow wire.

Re-install the fuse tap lead to the end of the 6.5 foot wire extension and solder/heat shrink the end.





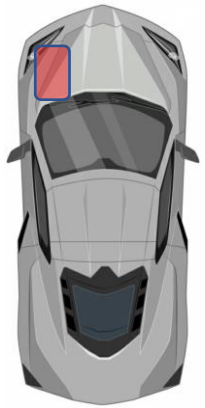


Install intercooler pump relay and fuse under hood in the area shown.

Add convolute tubing to all wires then tape ends with Tesa or electrical tape.

Secure both components with a nut then route all wiring behind the battery and down toward the tunnel.

Raise the vehicle and continue with installation on the following slide.



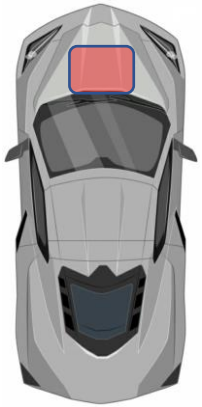
Route the positive and negative CAC pump relay wires up into the battery compartment.

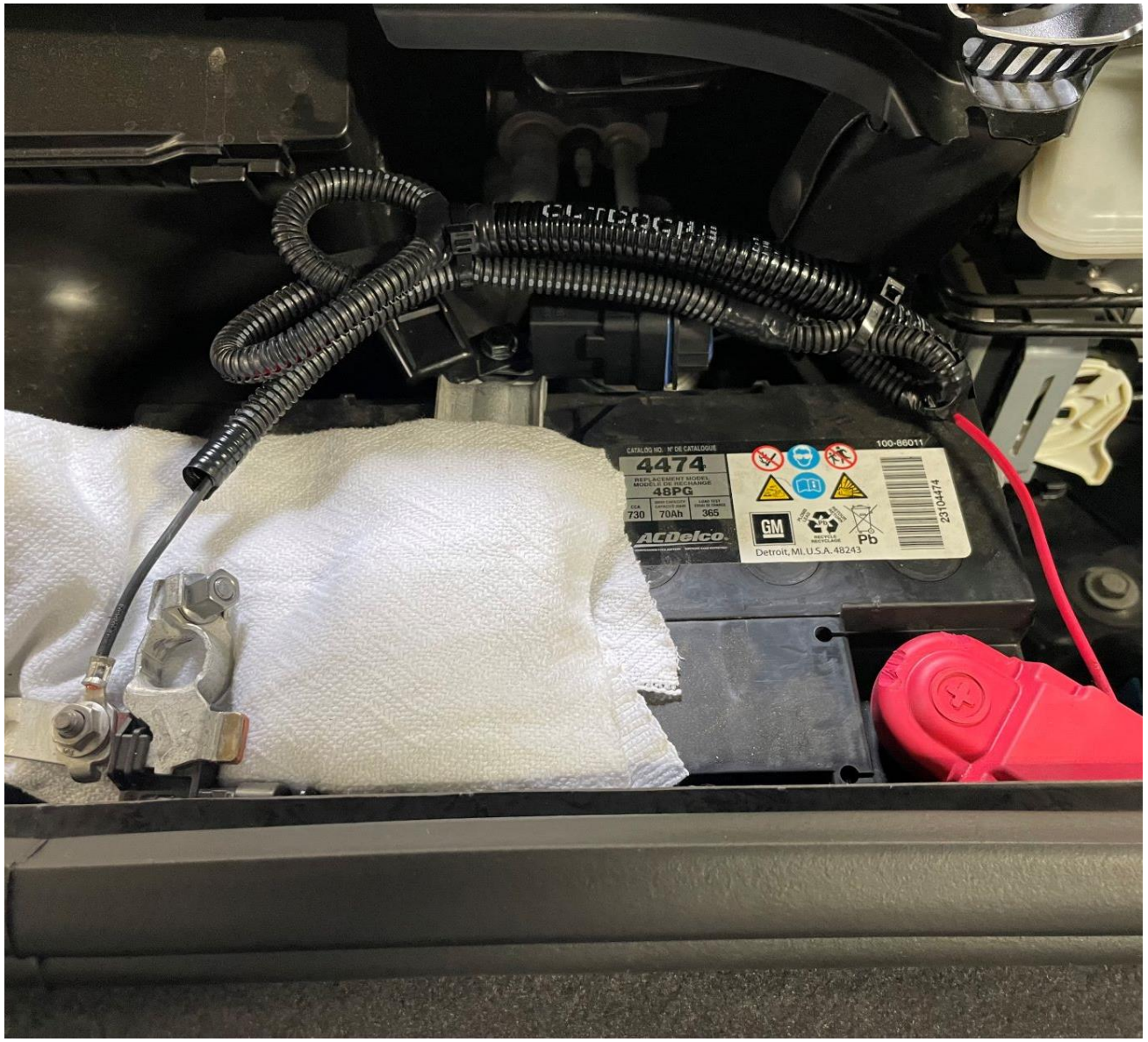
Crimp ring terminals onto the positive and negative wires (if not installed).

Fasten the red (+) wire to the red positive battery terminal by installing an M6 flanged nut from the kit to the factory stud.

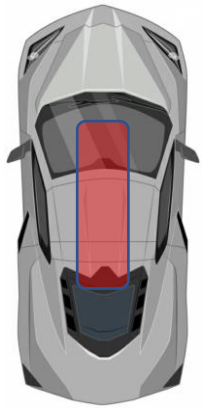
Remove the factory nut from the negative (black) battery terminal then install the black wire onto the stud and re-secure with the factory nut.

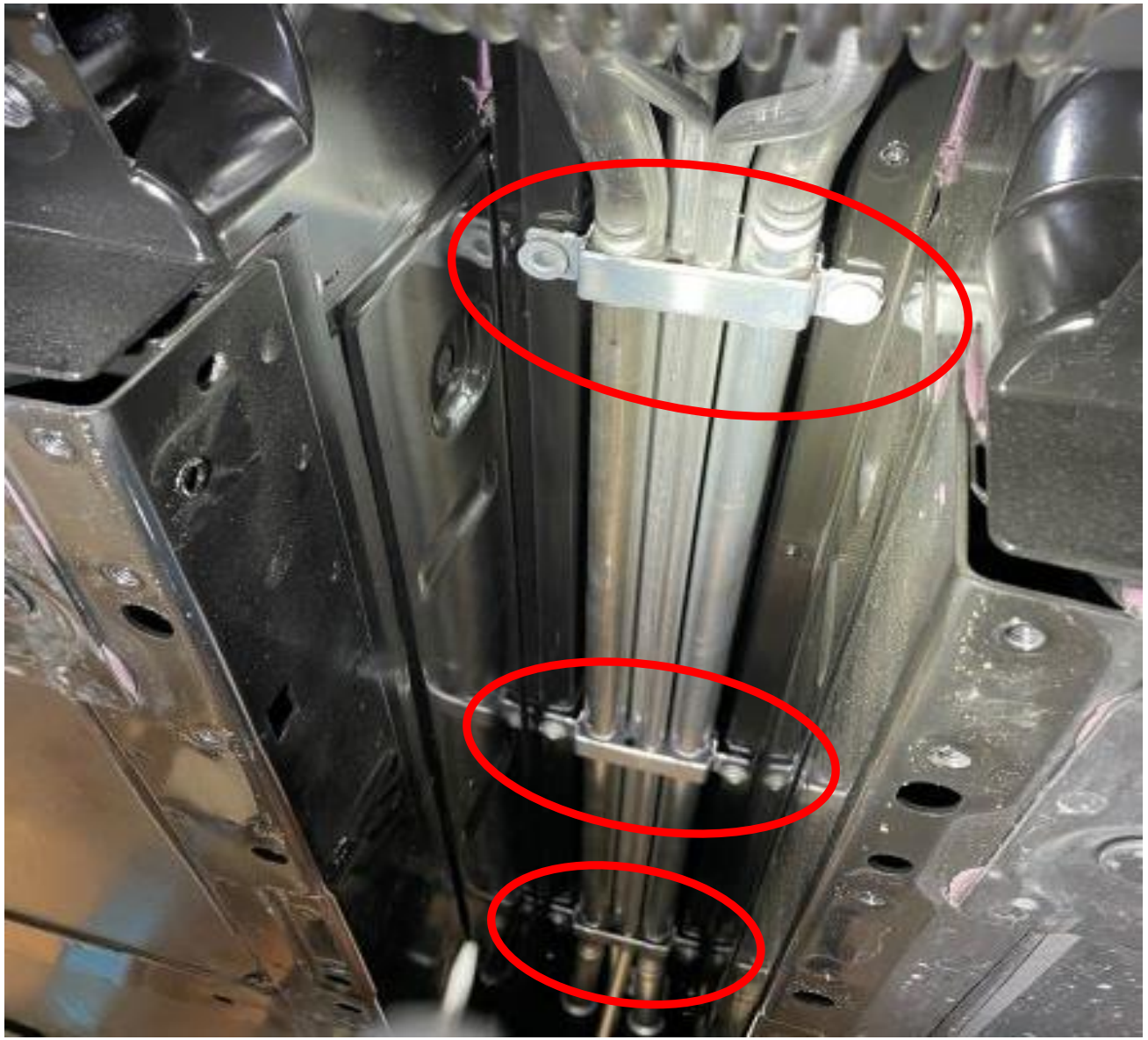
Install wire loom over the red and black wires and secure as necessary with zip ties.





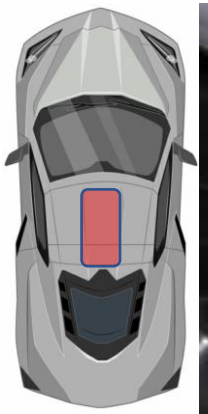
Ensure the (3) tunnel tube brackets are installed. Re-install into top of tunnel as necessary.

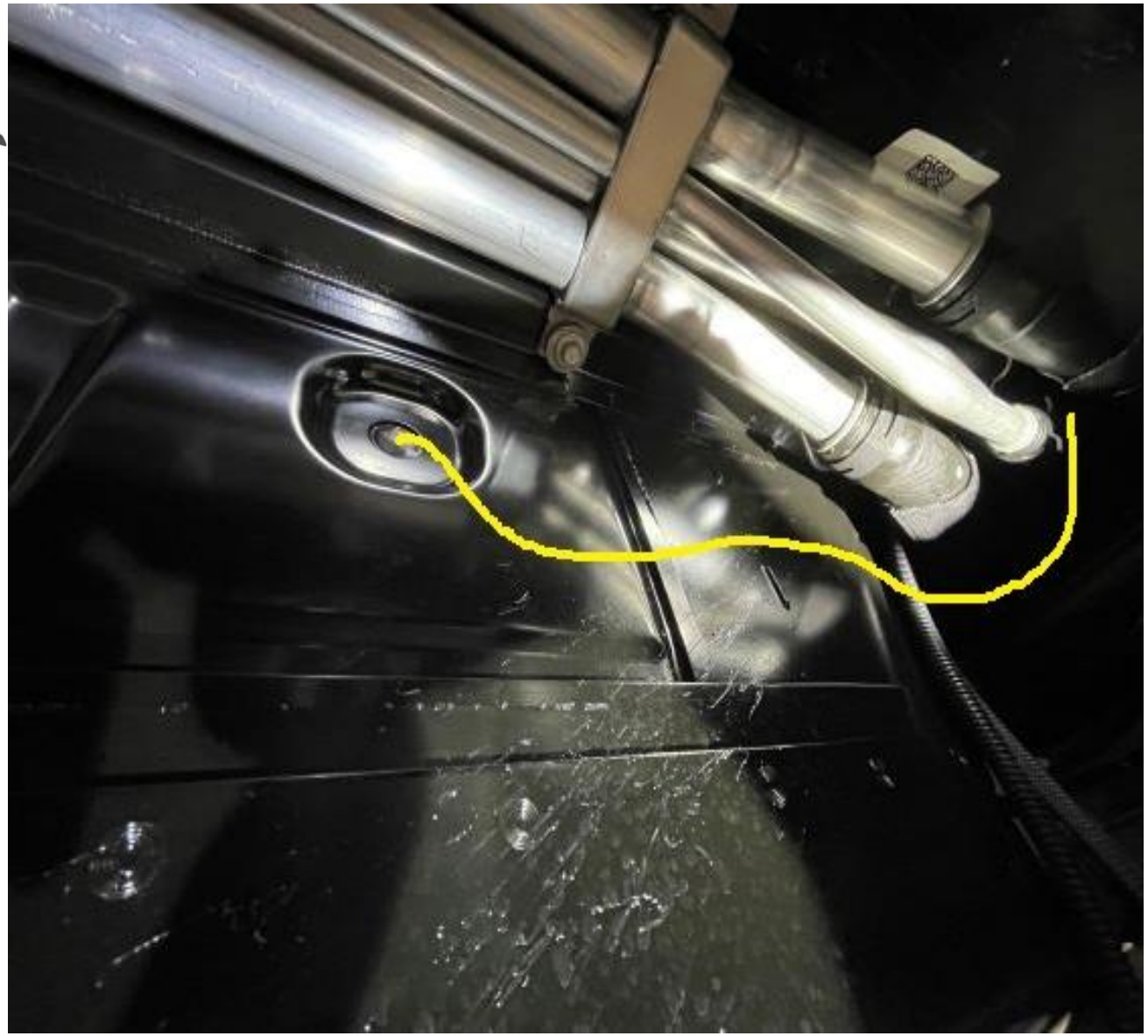




Route the yellow wire down through the tunnel and into the body plug located along the LH vertical face of the tunnel.

Zip tie the wire along the coolant lines ensuring it does not rub on any sharp surfaces.





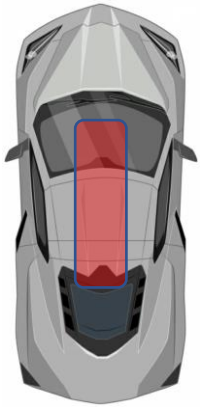
Tunnel Reservoir (Intercooler Tank) Sub-Assembly

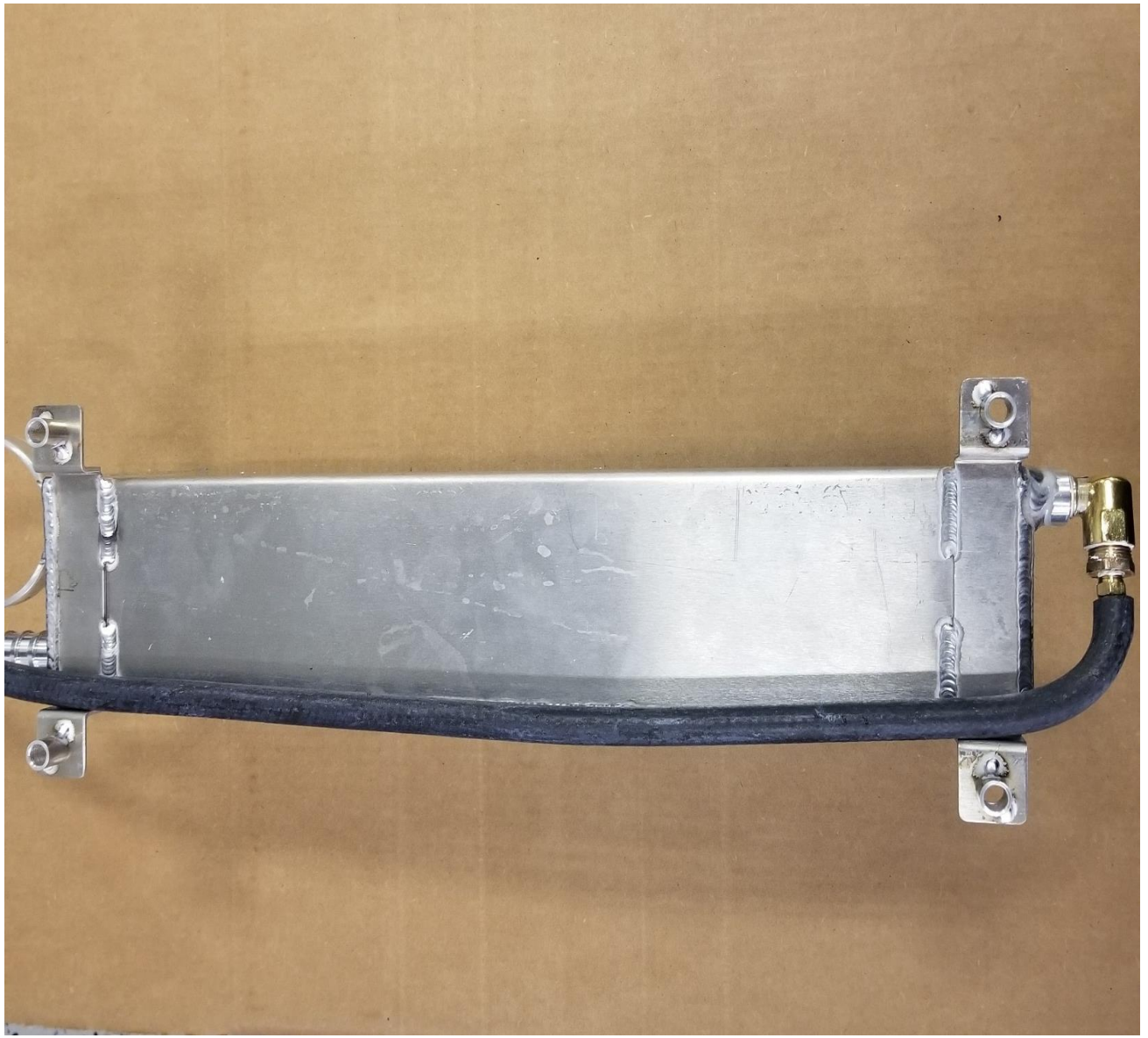
Select Tunnel Reservoir P/N 68-01-03-083.

Apply pipe sealant and install a 1/8” NPT to 3/8” barb fitting P/N 48-46-00-009 onto the reservoir.

Install the remaining 9 ½ foot long piece of 3/8” hose onto the intercooler tank barbed fitting and secure with a 3/8” constant tension clamp.

Route the hose along the top of the tank as shown below.

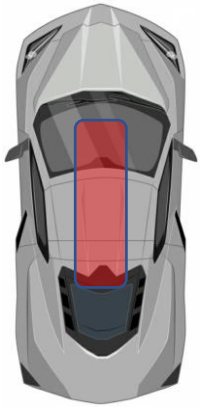


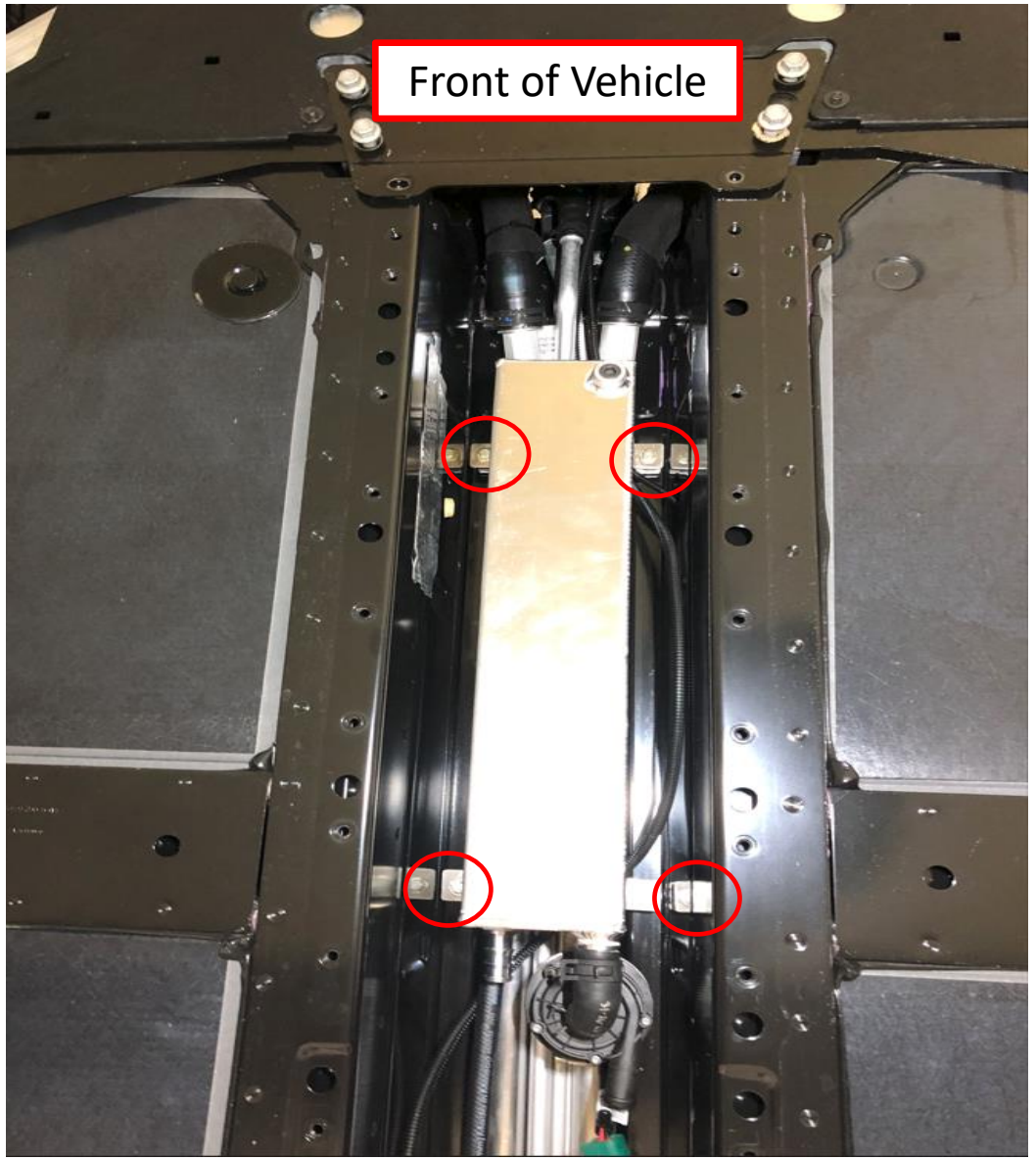


Route the intercooler pump wiring harness and the coolant bleed hose above the tank, toward the back of the car, in between the intercooler tank stand offs. Ensure the wiring and coolant line do not become pinched as you install the tank into the vehicle.

Apply blue Loctite and secure the tank to the vehicle using the original fasteners.

Secure the hose and all wiring in place with zip ties. Loop any extra length of wire in front of the reservoir and secure to the OE tunnel tubes with a zip tie.





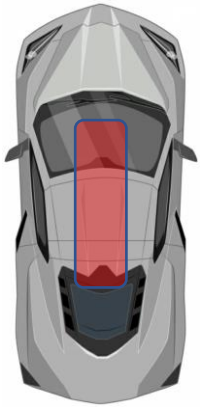
Install intercooler pump P/N 68-14-59-005 onto rear of tank using worm gear clamp P/N 48-46-10-018, with the pump oriented as shown in the photo.

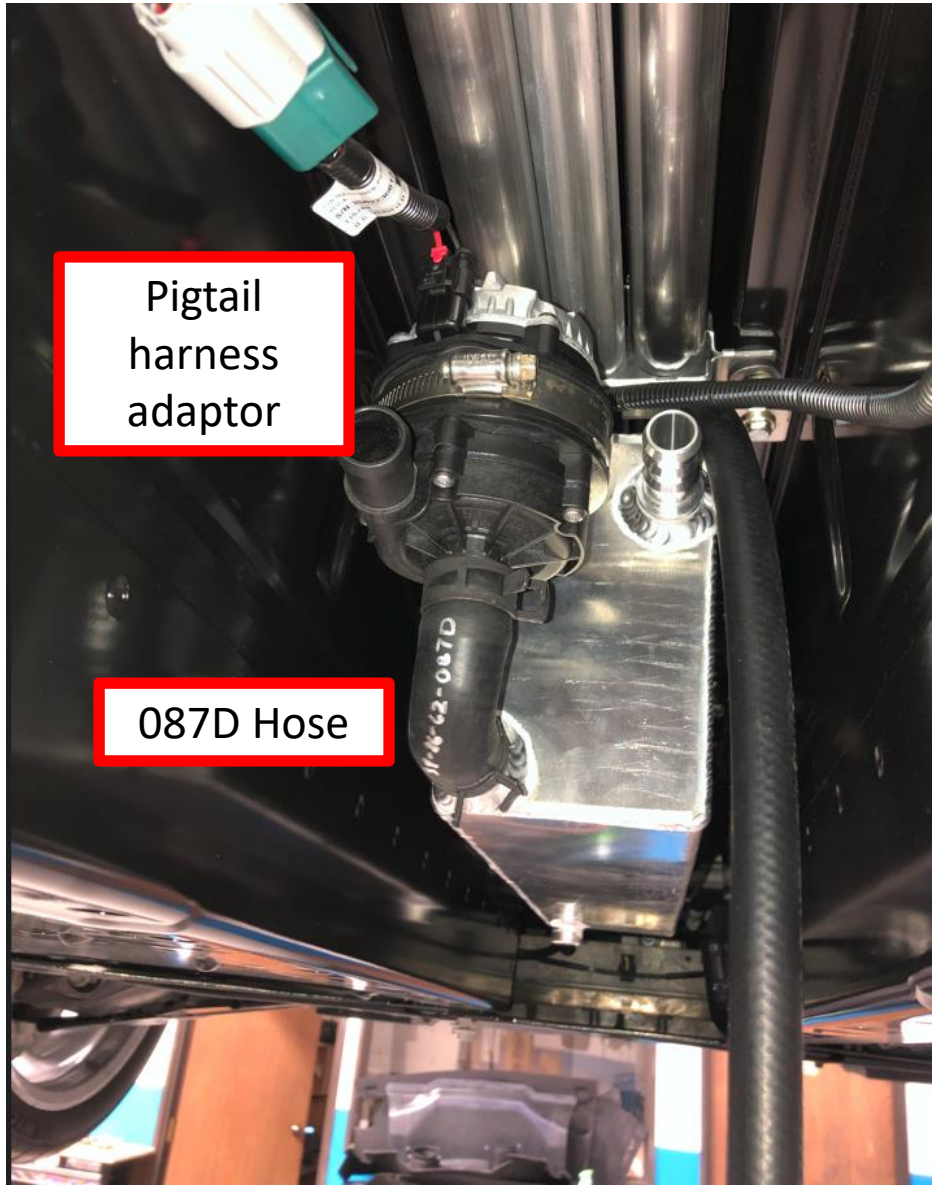
Tighten the clamp securely over the rubber isolator.

Install ¾” constant tension clamps over both ends of Hose P/N 31-26-62-087D, then install the hose between the pump and tank as shown. Slide the constant tension clamps toward the hose ends to secure the hose to the tubes.

Select wiring harness pigtail adaptor P/N 82-55-80-087 and connect it to the pump, then connect harness P/N 82-55-80-077 to the adaptor.

Secure the pump wiring with zip ties along the tunnel as required.

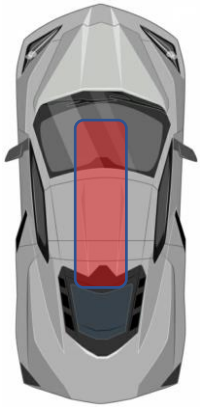


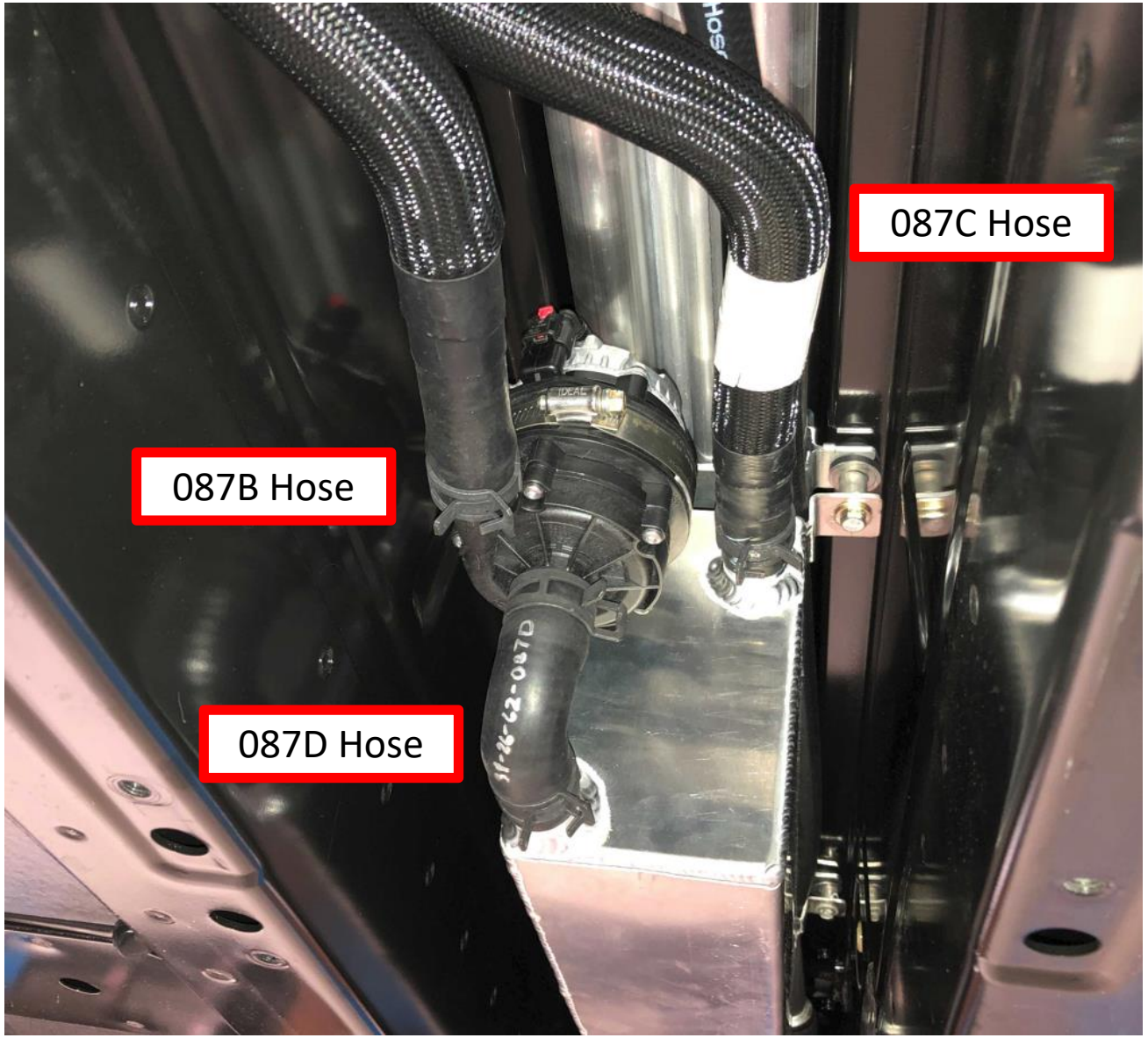


Route, secure and install hoses 087B and 087C toward the intercooler pump and reservoir. Cut the hoses to length as necessary for proper fitment within the tunnel.

Hose 087B installs onto the intercooler pump. Secure with a ¾” constant tension clamp.

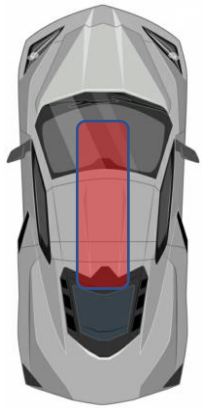
Hose 087C installs onto the intercooler reservoir. Secure with a ¾” constant tension clamp.

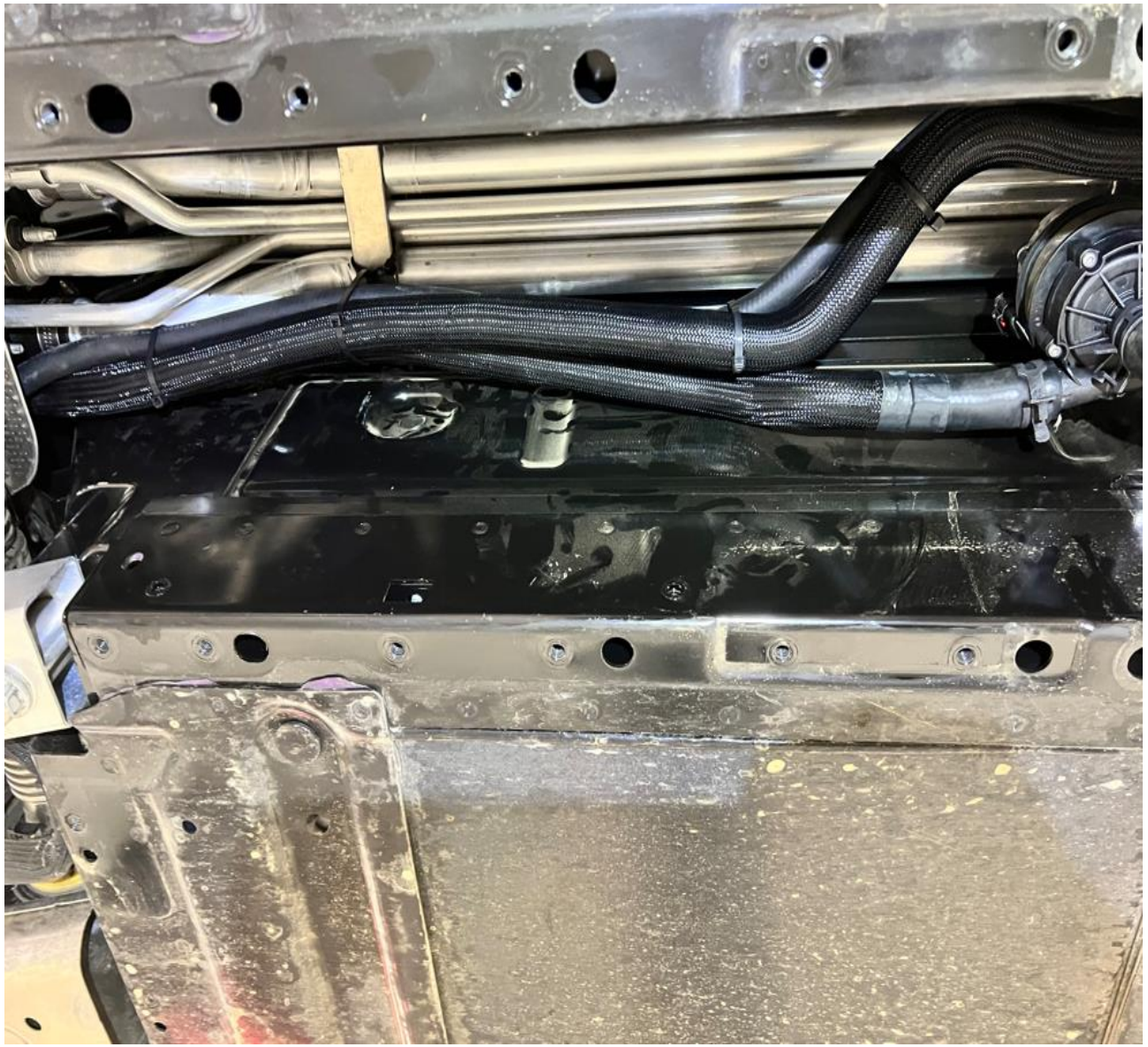




Secure the intercooler pump hoses to the factory tubes by using zip ties along the length of the tunnel as shown.

Ensure none of the lines rub on any mating components.



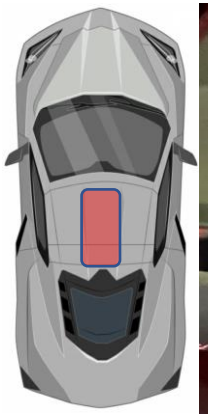


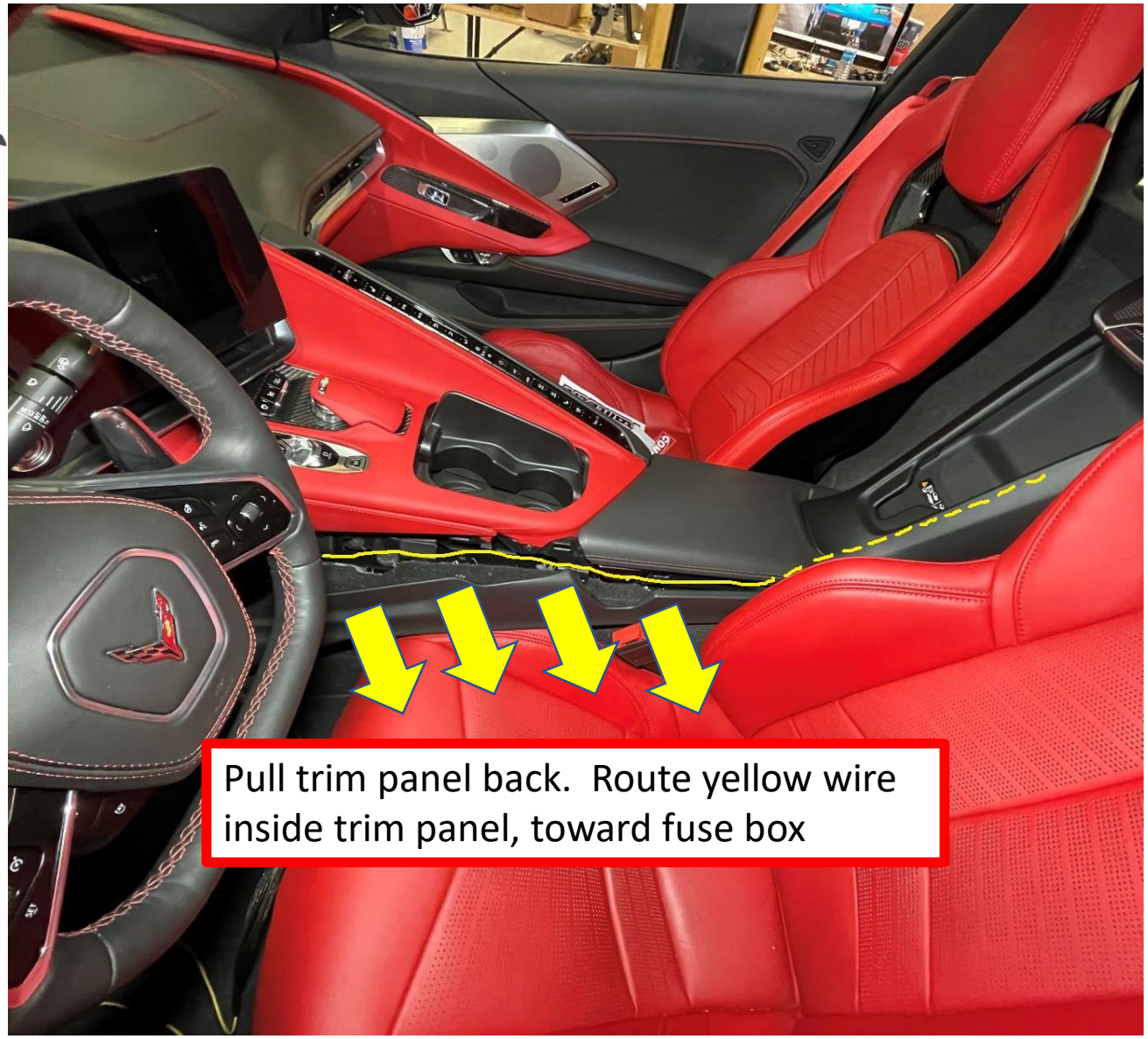
Working from inside the vehicle:

Pull the LH side console trim panel outward toward the drivers' seat to gain access for routing the yellow wire.

Find the yellow wire that was pushed through the tunnel in the earlier step.

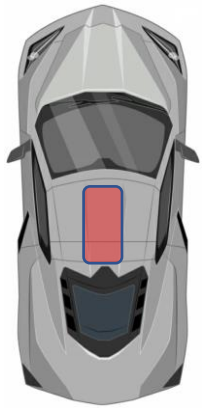
Install convolute tubing over the yellow wire, tape the ends then carefully route the yellow wire rearward inside the trim panel toward the fuse box located below the center speaker.





Locate the rear compartment fuse block in between the seats.

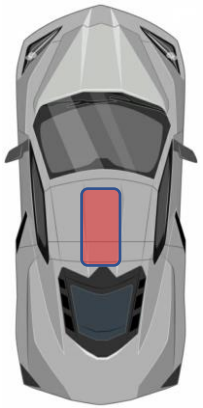
Remove the cover and set aside. It will need to be modified in the following slides.

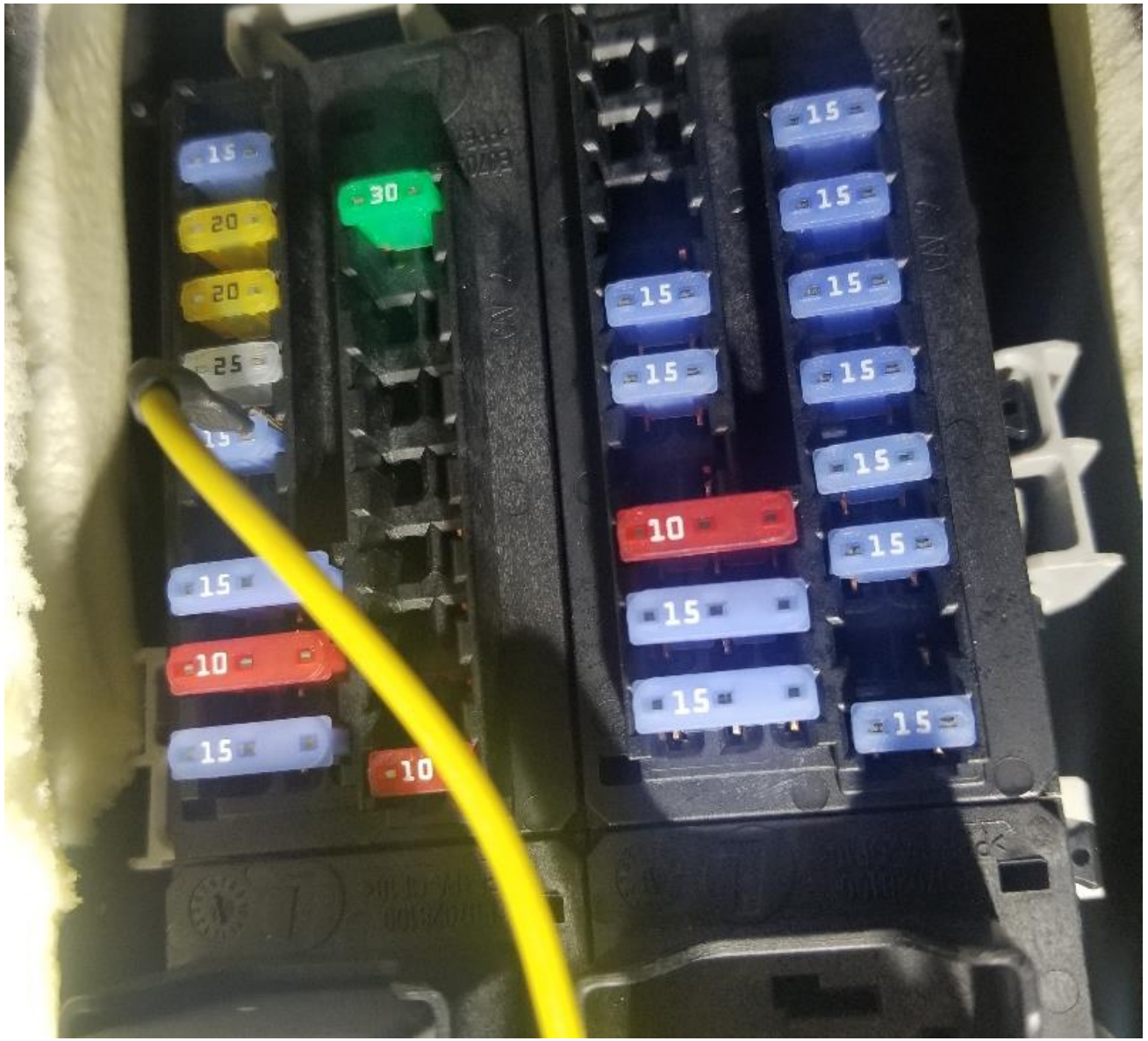


The rear compartment fuse block is in the rear of the vehicle in between the seats.

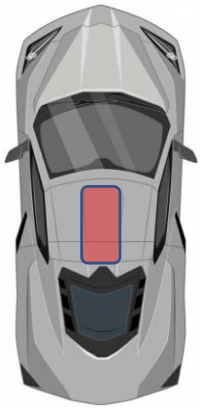
Remove the 15A fuse at location 35 (ECM/MAF/02/AC feed) then install the fuse tap for the CAC pump into the inboard side of the fuse at this location.

Re-install the original fuse into the fuse block tap.



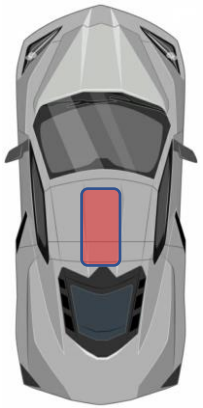


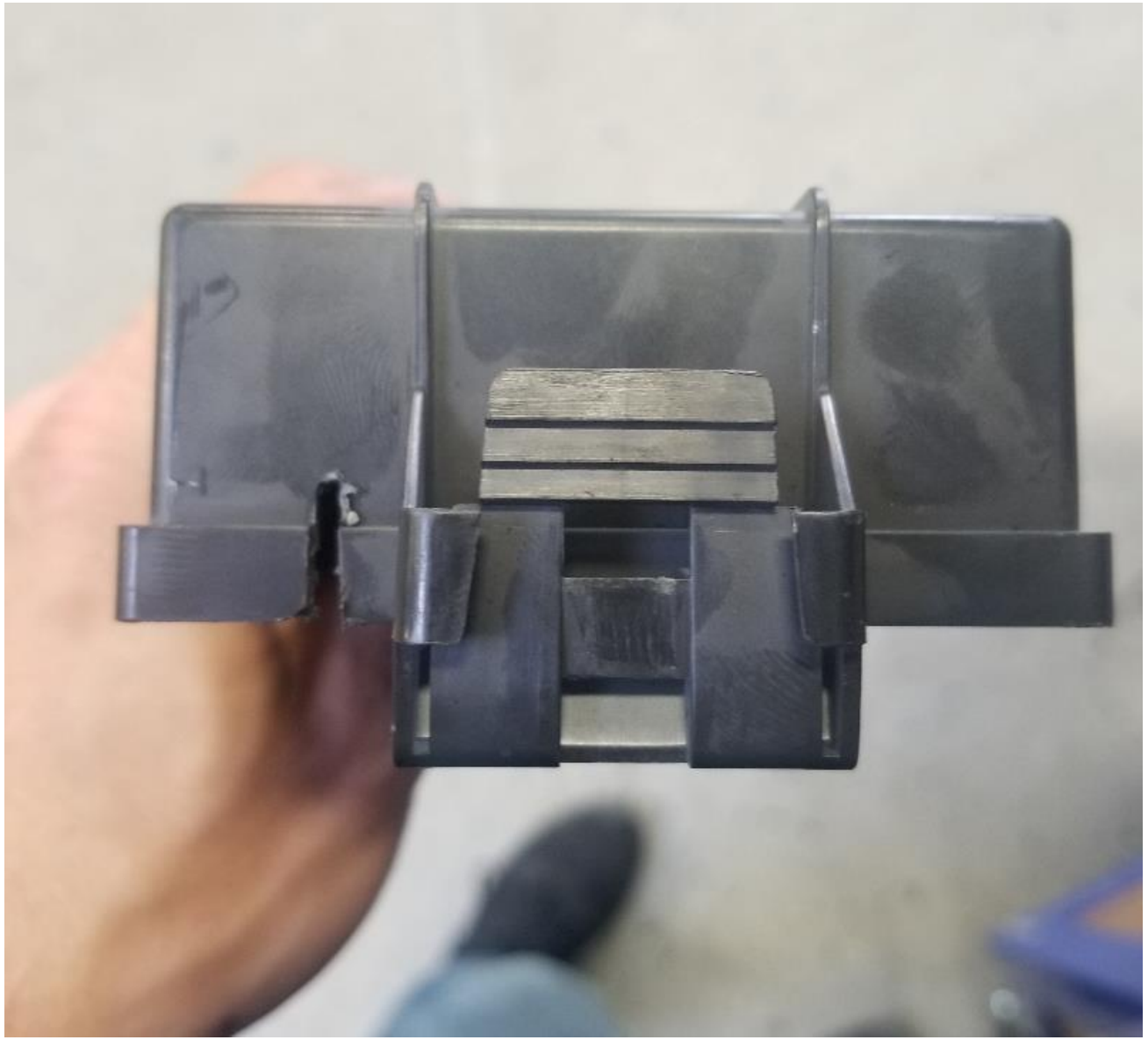
Carefully route the CAC pump wire through the fuse box as shown.



Grind a notch in the fuse box cover in the location shown to allow the CAC pump wire to pass through.

Re-install the cover and all interior trim as necessary.



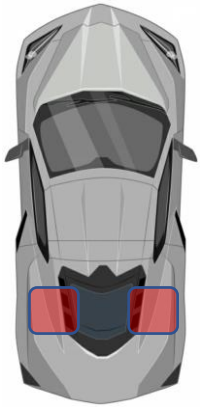


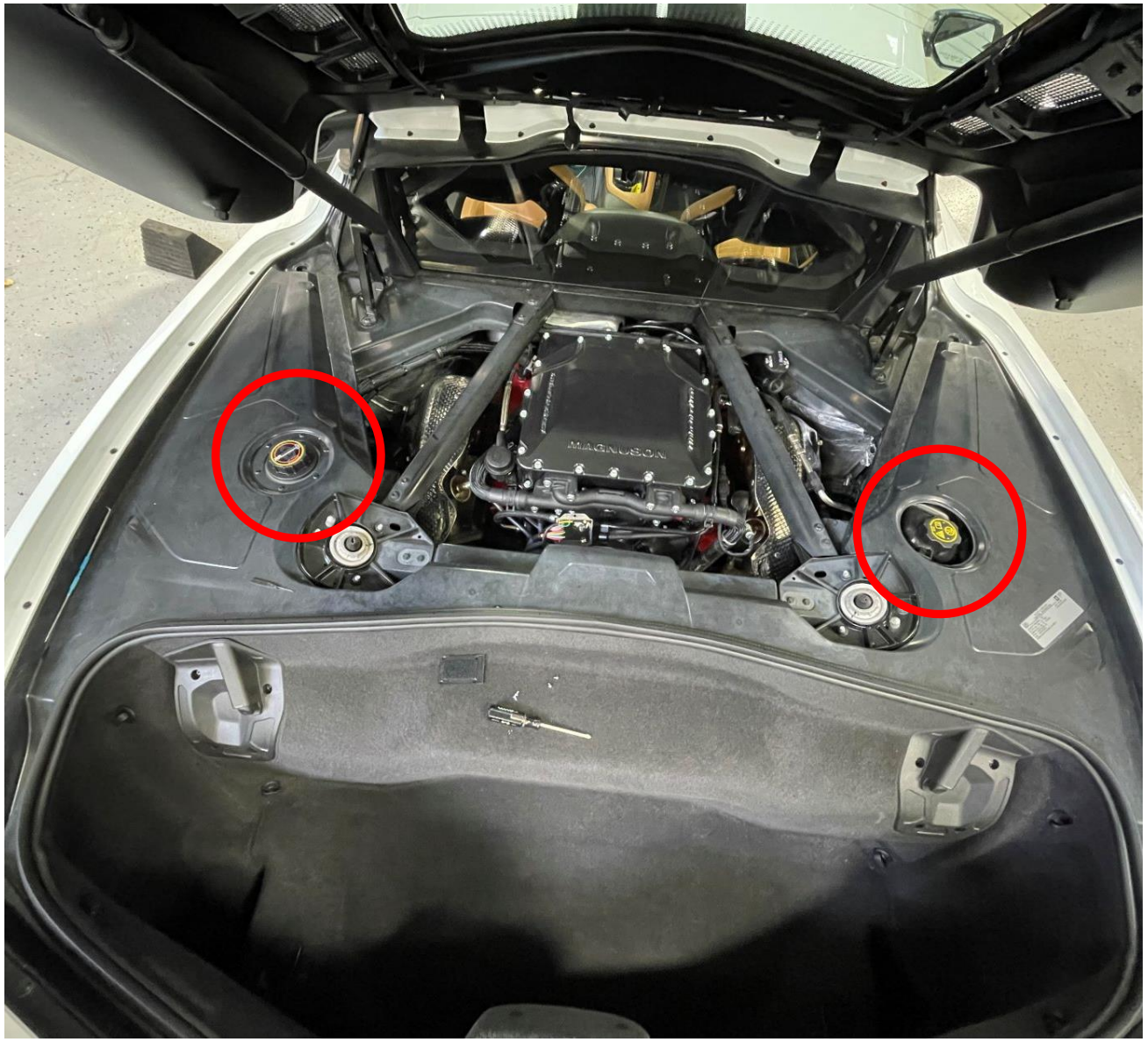
Coolant Systems Evac and Fill:

Verify all coolant hose connections then proceed to evacuate and fill the engine and charge air coolant systems using Snap-On SVTSRAD272A vacuum/fill tool.

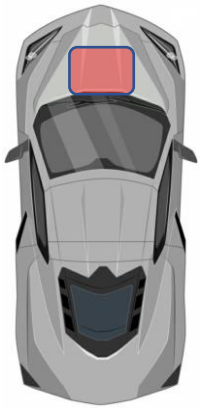
Fill the engine and CAC coolant systems with AC Delco Dexcool 50/50 Premix Antifreeze (GM P/N 10-5027 or 12378390).

IMPORTANT: the engine and charge air coolant systems MUST be vacuum bled in order to remove sufficient trapped air. Failure to use vacuum bleeding equipment may result in engine damage due to entrapped air.





Verify battery cable connection is clean, re-connect and tighten the negative battery cable under the hood.



Road test / dyno the vehicle then inspect the entire under carriage for leaks before installing the under body panels.

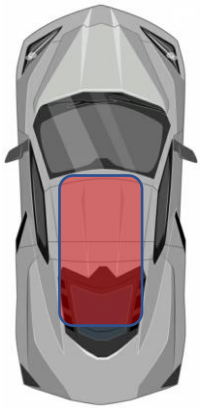
Working from under the vehicle, re-install (4) under body panels in the center of chassis, in the order shown in the photo.

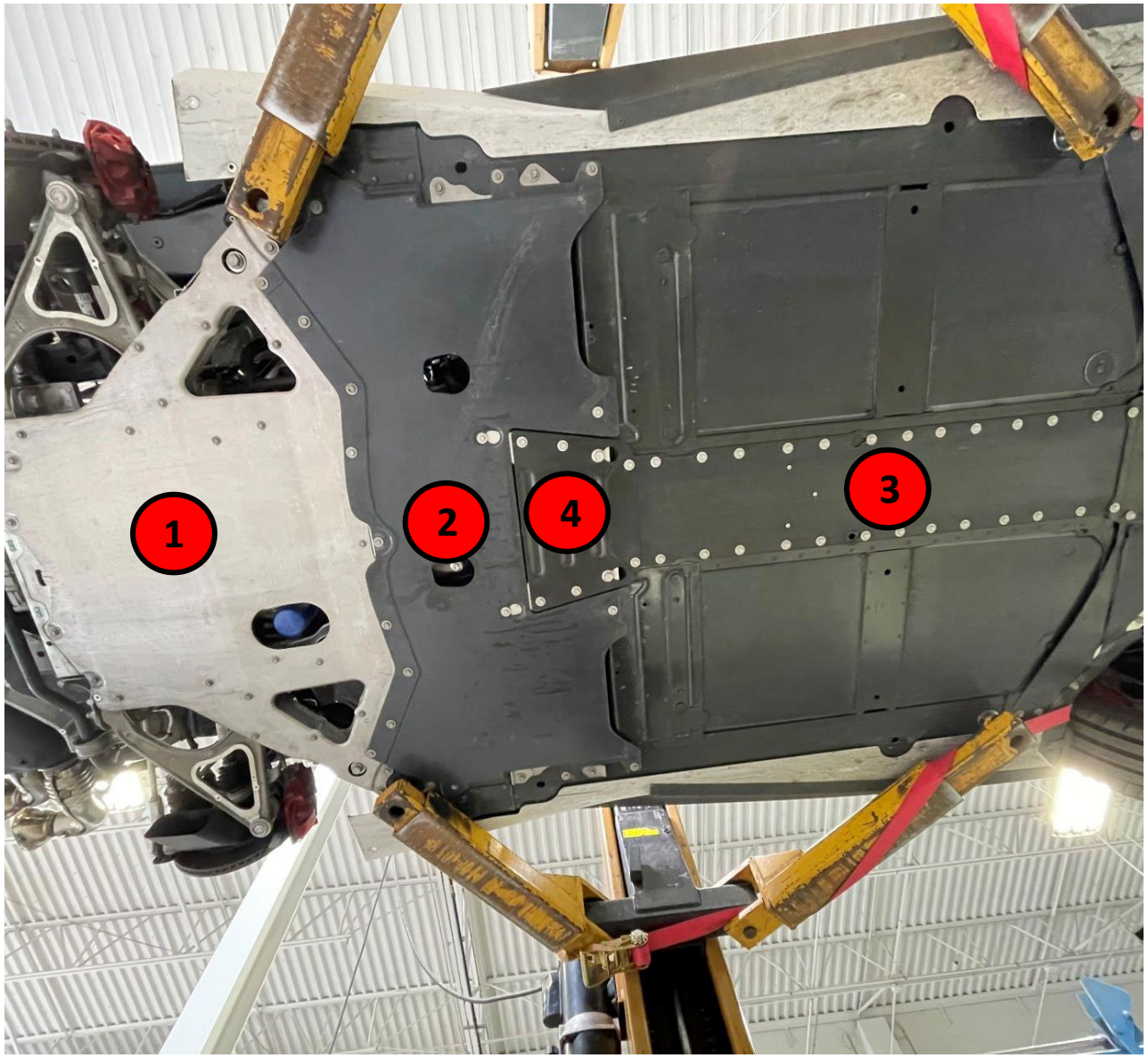
Torque under body bolts, starting from the center and working your way outboard to the ends.

M6 bolts are torqued to 80 in. lbs..

M8 bolts are torqued to 16 ft. lbs.

Large tunnel panel reinforcement plate (steel plate) bolts are to be torque to 118 ft. lbs.



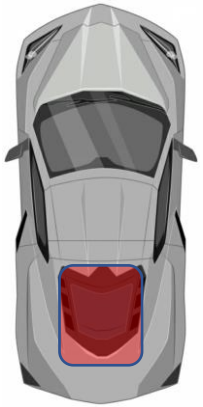


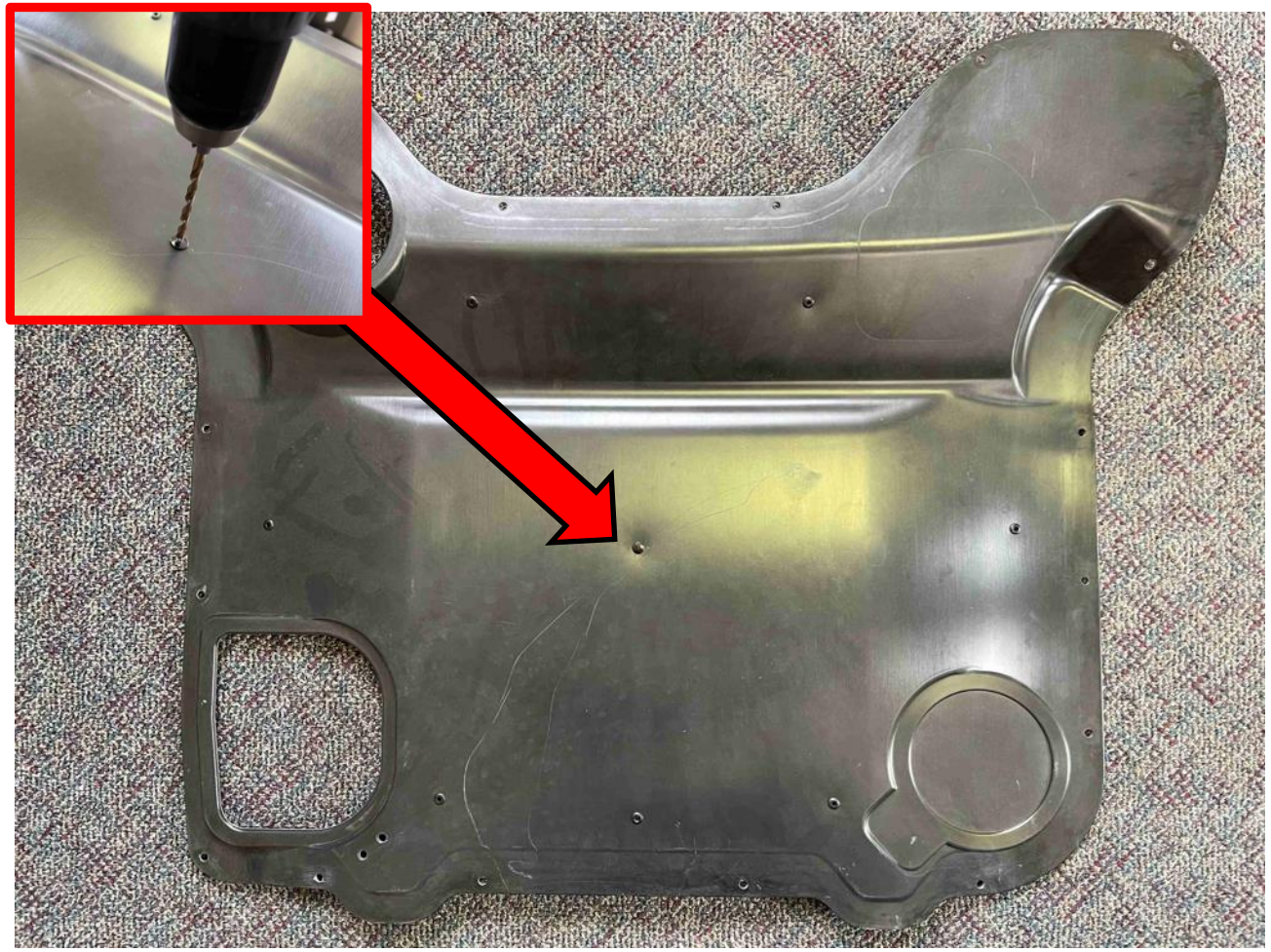
Convertible Model ONLY:

Prior to re-installation of the factory engine bay cover, the following modifications need to be made:

Drill out the factory-installed rivet in the center of the engine bay cover using a 3/16” drill

See next slide.





Convertible Model ONLY:

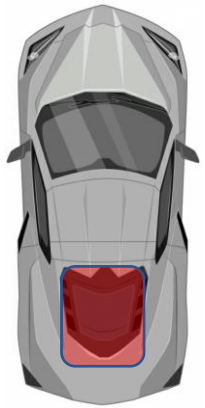
Apply red Loctite and install a barrel nut assembly and 1-inch washer from the kit.

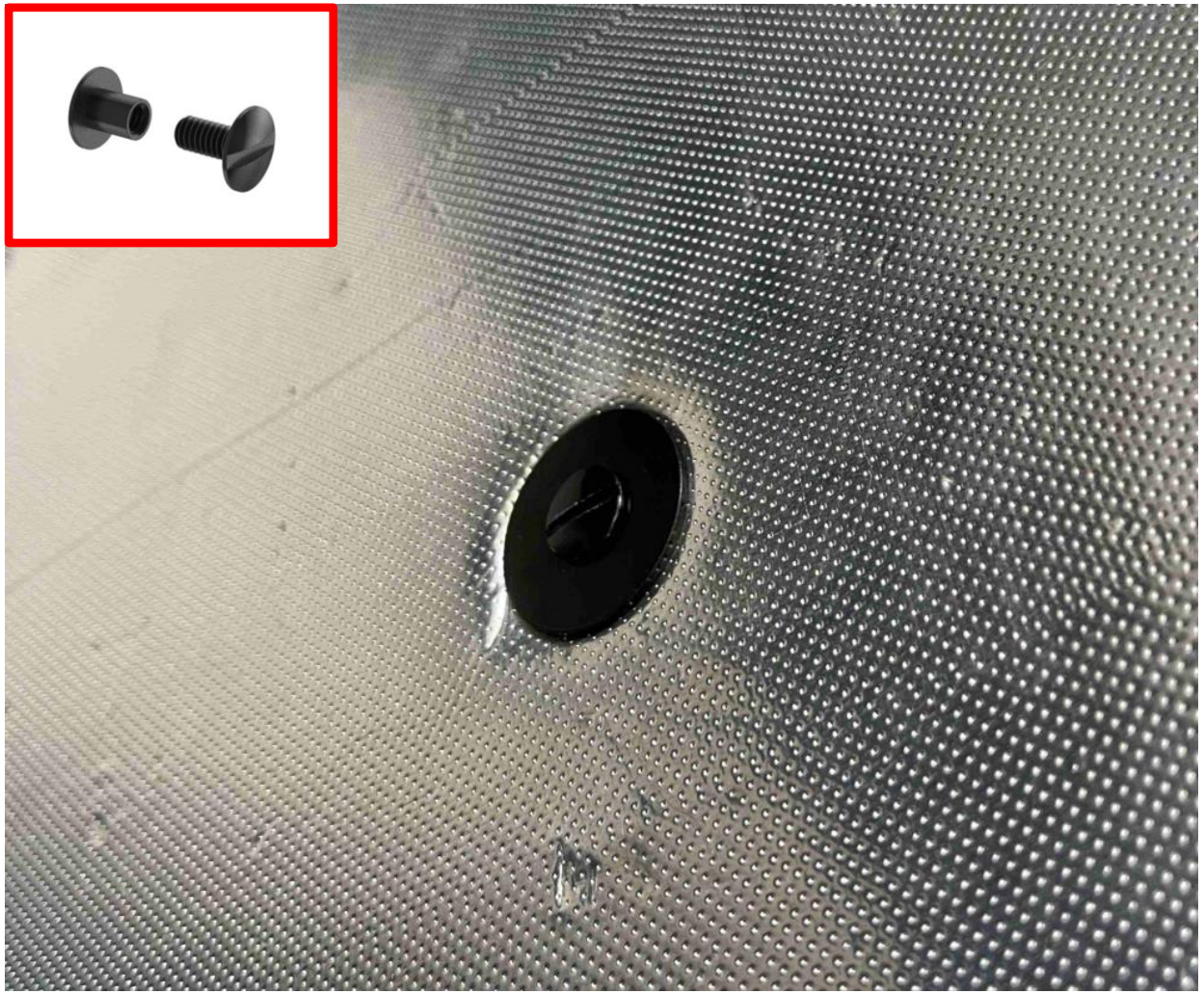
Install the nut end of the assembly into the hole from the top side of the engine bay cover.

Thread the screw/washer sub-assembly into the nut from the underside (heat shield) of the cover.

Using a flat blade screwdriver, gently tighten the screw, ensuring the washer centers and engages onto the barrel nut.

Tighten the screw only until the top surface of the washer becomes flush with the heat shield material.

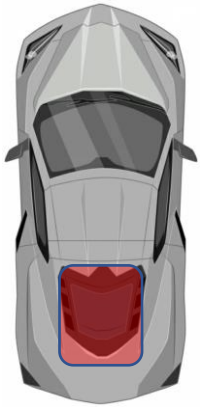




Convertible Model ONLY:

If installed, remove all badges from the supercharger lid prior to re-installation of the factory convertible engine bay cover.

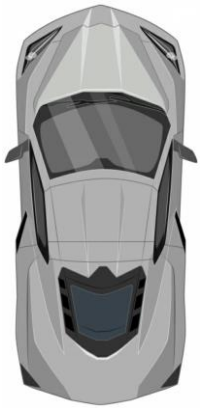
The badges have insufficient clearance to the heat shield and will result in contact during engine operation.



Make any final checks to vehicle as necessary.

Start vehicle and check for any leaks or abnormal noises.

Perform final audit checks of coolant fill levels and wheel torques before returning vehicle to customer.



Install hang tag inside vehicle notifying customer they must DECLINE any future over-the-air (OTA) software updates from GM on this vehicle.