

IAG COMPETITION SERIES AOS FOR 2017-20 WRX



Step 1/114

IAG-ENG-7282 Comp Series Air / Oil Separator (AOS) For 2017-20 WRX

Part# IAG-ENG-7282

Tools Required: Ratchet, extensions, needle nose pliers, hose cutter, snips/scissors, flat head screwdriver, hose clamping pliers

Sockets: 10mm, 12mm, 1/4" allen, 5mm allen

Wrenches: 7/8", 10mm, 12mm, 3mm allen, 5mm allen

Other: Electrical Tape

Congratulations on the purchase of your Air/Oil Separator (AOS) and thank you for choosing IAG Performance. This installation manual is intended to guide you through the modification of the factory PCV system and the installation of the IAG AOS. If you already have an aftermarket catch can or AOS installed, please consult the specific instructions for your hardware to aid in its removal. PLEASE ENSURE THE VEHICLE IS COMPLETELY COOL BEFORE STARTING THE INSTALLATION.

Step 2/114



Numbered annotations (12)

- 1 AOS Body Assembly
- 2 Coolant Hose 1 - 43"
- 3 AOS Drain and Lower Breather Hose Assembly
- 4 Wiring harness relocation bracket (2015-2016 Only)
- 5 Block Breather Hose 1/2" x 44" x 90 degree x 3" (For 2015-2016 Model Years ONLY)
- 6 Zip Ties
- 7 Vent Hose - 5/8" x 17" w/ 90 Degree Fitting (2017+ Model Years ONLY)
- 8 AOS Coolant Hose 2 - 15.5" with union fitting
- 9 AOS Breather Hose 1" x 59"
- 10 AOS Bracket
- 11 AOS Mounting Hardware
- 12 AOS Block Fitting - 3/8" NPT to 5/8"

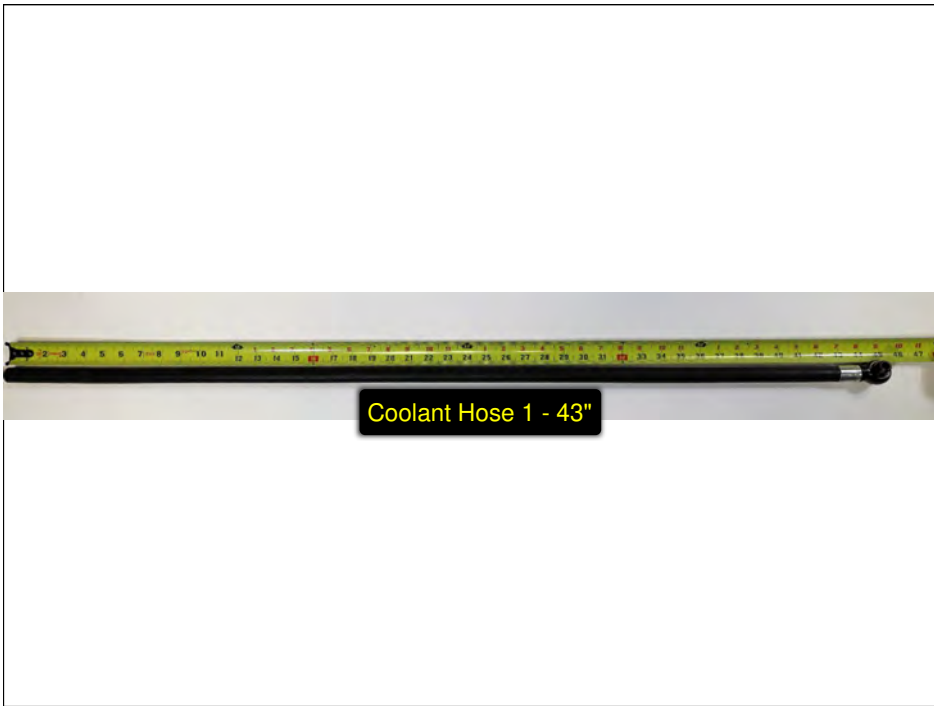
Step 3/114



Numbered annotations (6)

- 1 3/8" Nylon Insert Plug
- 2 Coolant Clamp
- 3 1/2" Band Clamp x 13
- 4 5/8" Band Clamp x 7
- 5 5/8" Vacuum Cap x 2
- 6 1/2" Vacuum Cap

Step 4/114



Step 5/114



Step 6/114



Block Breather Hose 1/2" x 44" x 90 degree x 3" (For 2015-2016 Model Years ONLY)

Step 7/114



Vent Hose 5/8" x 17" w/ 90 Degree Fitting (2017+ Model Years ONLY)

Step 8/114



AOS Coolant Hose 2 - 15.5" with union fitting

Step 9/114



AOS Breather Hose 1" x 59"

Step 10/114

Numbered annotations (7)



- 1 Connects to AOS Breather Hose
- 2 Connects to 1/2" x 44" PCV Vent Hose on 2015-2016 Vehicles. Capped with 1/2" vacuum cap on 2017+ Vehicles.
- 3 Connects to lower breather and drain hose assembly.
- 4 Connected to the Breather Hose 5/8" x 17" w/ 90 Degree Fitting. (Capped with 5/8" Vacuum Cap on 2015-2016 Vehicles)
- 5 AOS Drain. Connects to lower breather and drain hose assembly.
- 6 AOS Coolant Hose 1
- 7 AOS Coolant Hose 2

Step 11/114

Numbered annotations (1)



- 1 Disconnect the negative battery cable.



Step 12/114

Numbered annotations (1)

- 2 Remove the clips securing the engine cover.



Step 13/114

Numbered annotations (1)

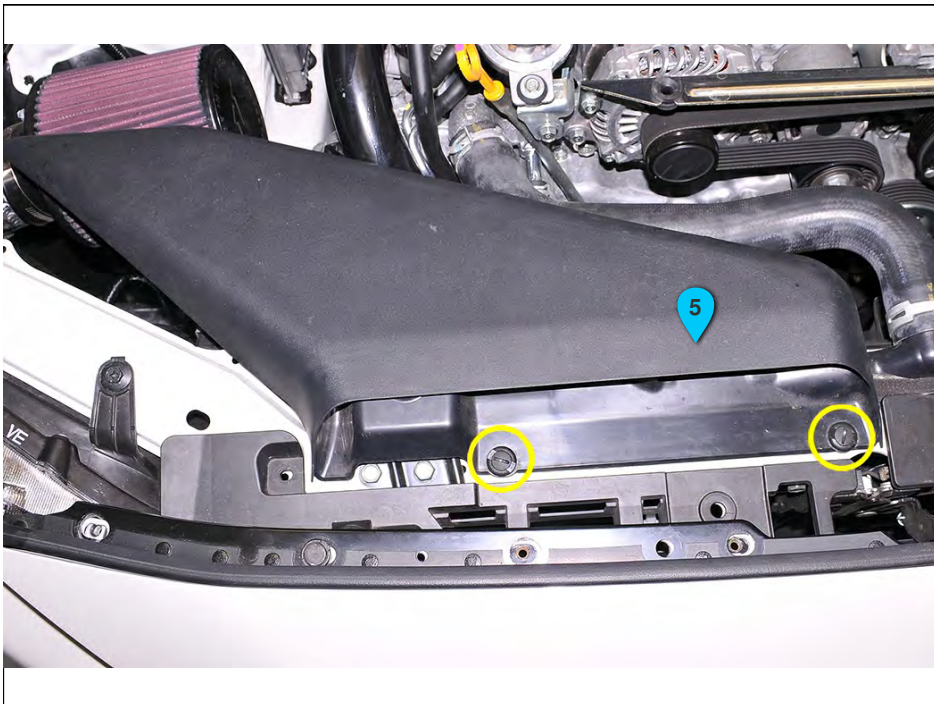
- 3 Pull up on the front of the cover to unclip it.



Step 14/114

Numbered annotations (1)

- 4 Remove engine cover.



Step 15/114

Numbered annotations (1)

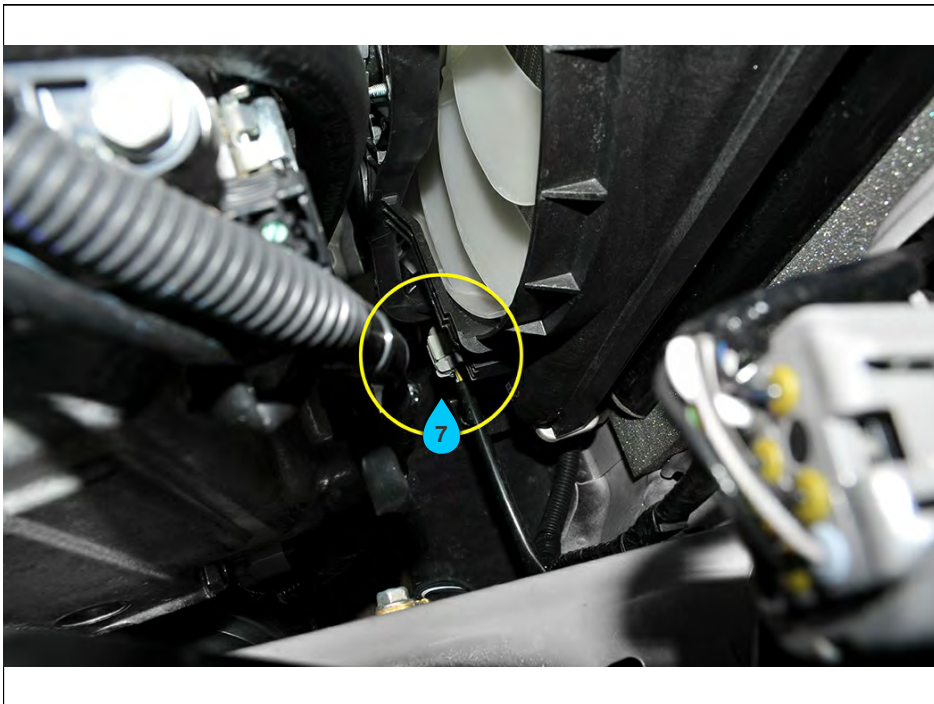
- 5 Remove hardware securing intake snorkel.



Step 16/114

Numbered annotations (1)

- 6 Remove intake snorkel.



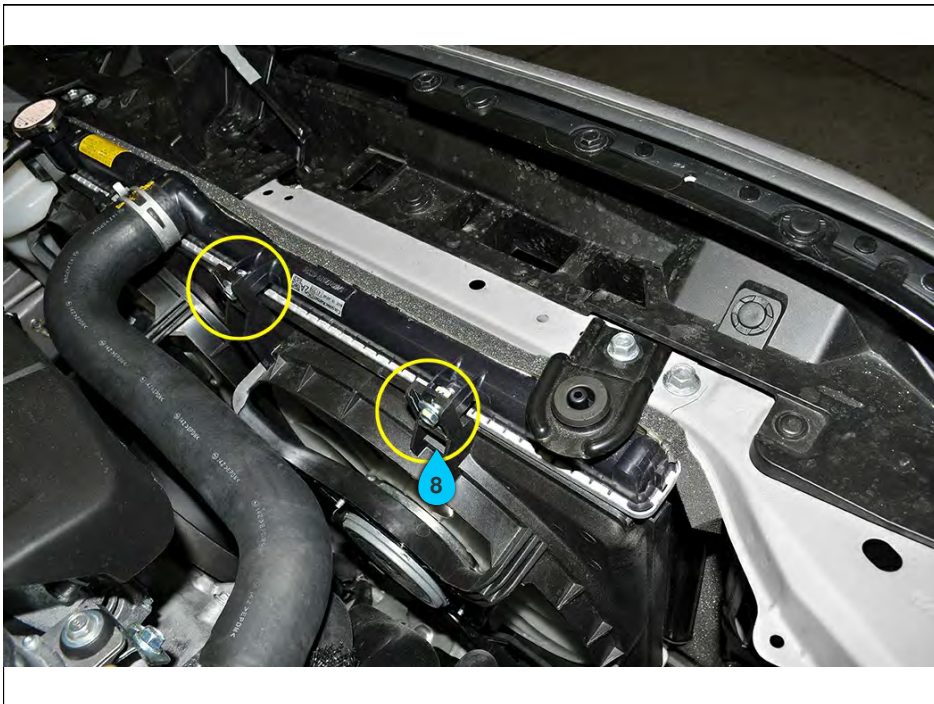
Step 17/114

Numbered annotations (1)

- 7 Disconnect passenger side radiator fan wiring harness.



Step 18/114



Step 19/114

Numbered annotations (1)

- 8 Remove hardware securing passenger side radiator fan.



Step 20/114

Numbered annotations (1)

- 9 Remove passenger side radiator fan, being careful not to damage the radiator fins.



Step 21/114

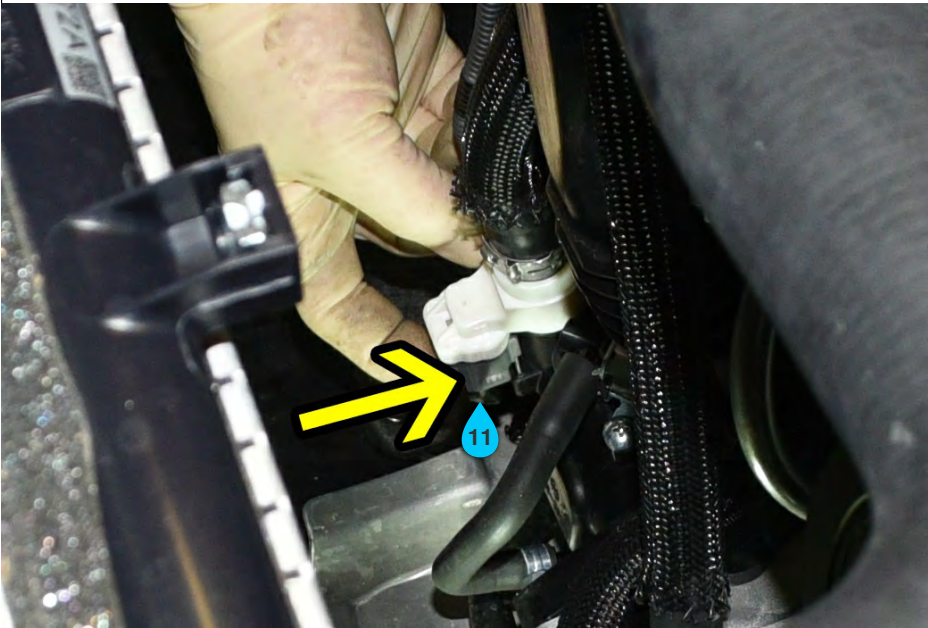
Numbered annotations (1)

- 10 Remove hardware securing charge pipe.

Step 22/114

Numbered annotations (1)

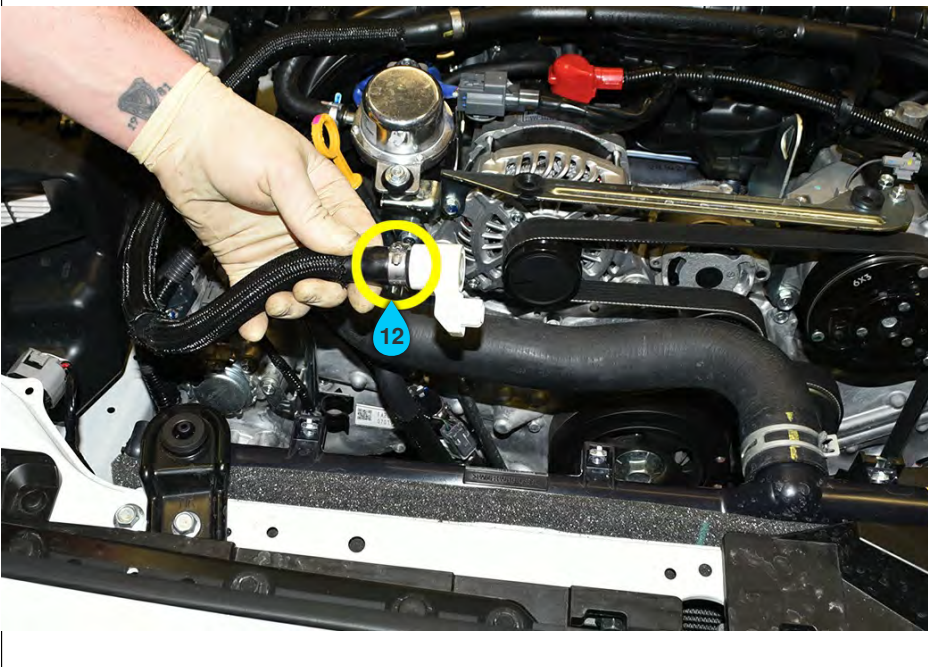
- 11 Disconnect the electrical connector here

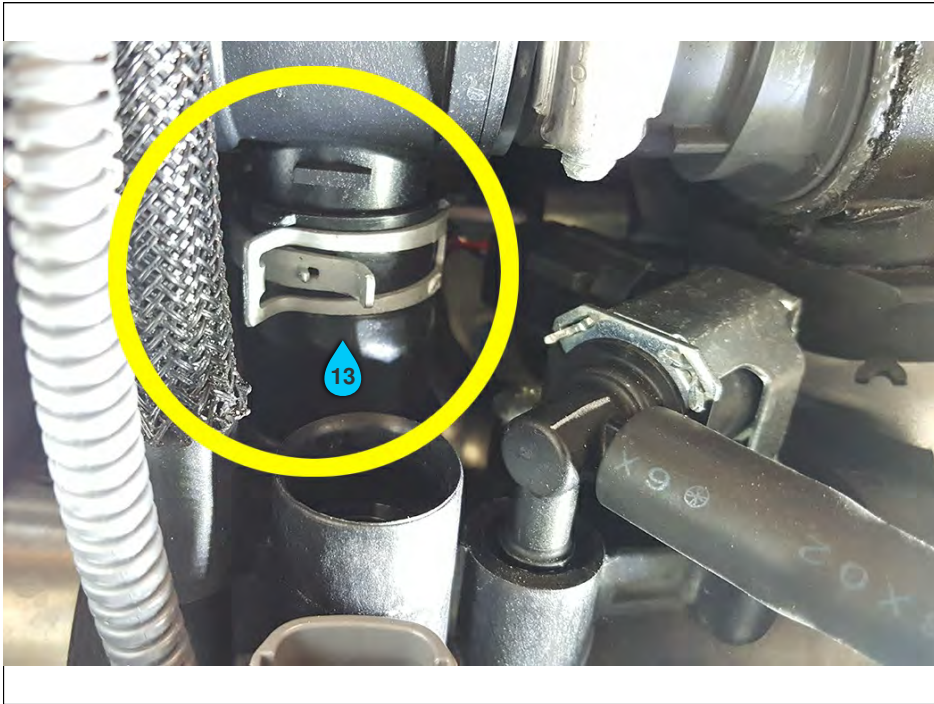


Step 23/114

Numbered annotations (1)

- 12 Using pliers, pry off the hose clamp that holds the white crankcase sensor to the turbo inlet pipe.

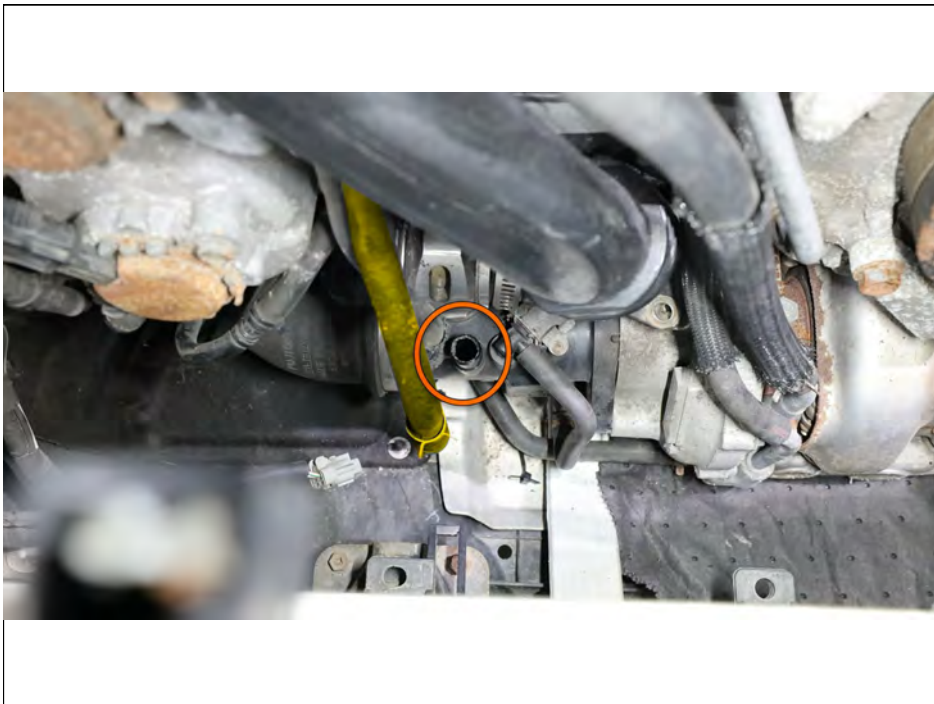




Step 24/114

Numbered annotations (1)

- 13 Loosen this clamp



Step 25/114



Step 26/114

Numbered annotations (1)

- 14 Locate the supplied 5/8" vacuum cap and clamp.



Step 27/114

Numbered annotations (1)

- 15 Remove the sensor from the hose.

Step 28/114

Numbered annotations (1)

- 16 Install the 5/8 vacuum cap on the PCV sensor



Step 29/114

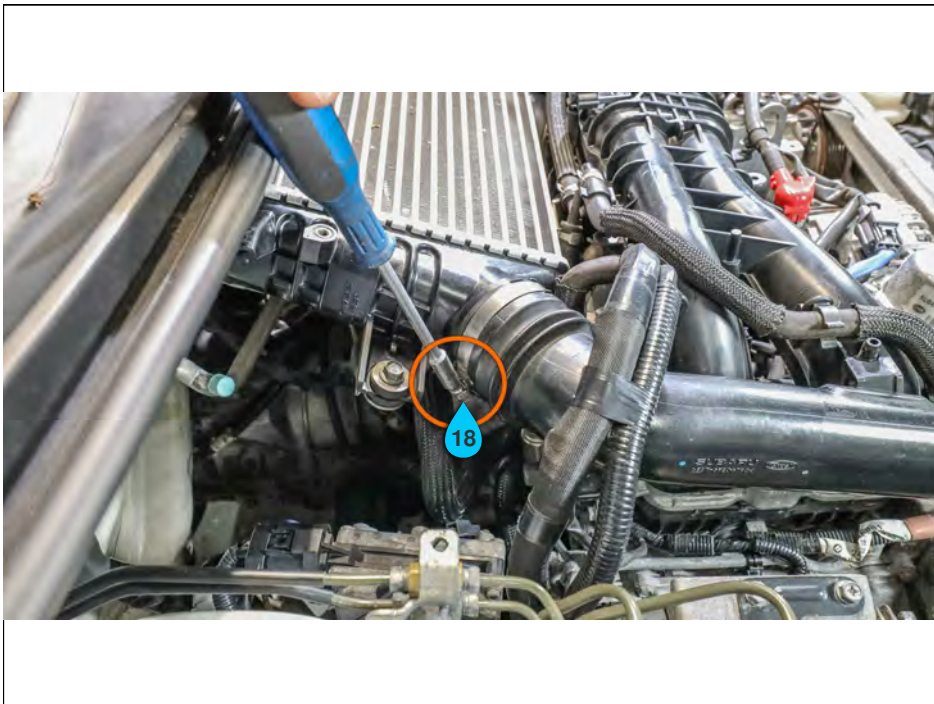




Step 30/114

Numbered annotations (1)

- 17 Reinstall the white PCV sensor, ensuring that it is fully seated and clicks into the grey connector.



Step 31/114

Numbered annotations (1)

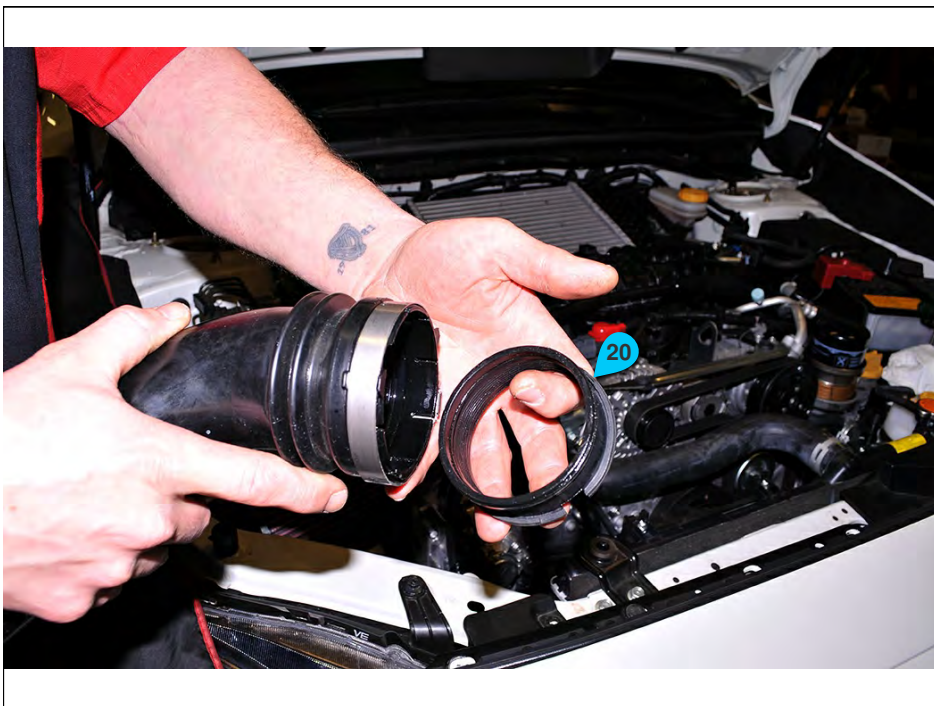
- 18 Loosen this clamp.



Step 32/114

Numbered annotations (1)

- 19 Remove the charge pipe.



Step 33/114

Numbered annotations (1)

- 20 Ensure this part stays in the charge pipe.

Step 34/114

Numbered annotations (1)

21 The spacer fits here.



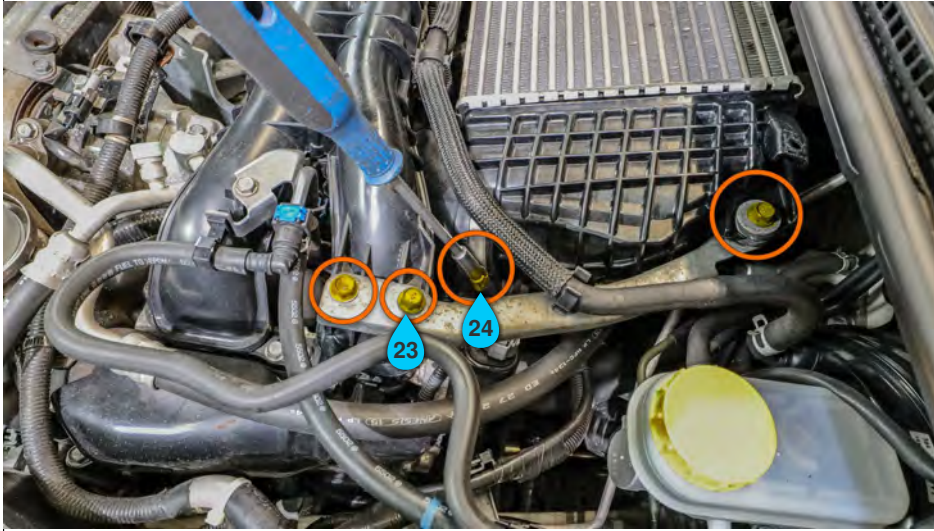
Step 35/114

Numbered annotations (1)

22 Remove this bolt.



Step 36/114



Numbered annotations (2)

- 23 Remove the 3 bolts holding the intercooler and bracket.
- 24 Loosen this hose clamp.

Step 37/114



Numbered annotations (1)

- 25 Remove the intercooler bracket.

Step 38/114

Numbered annotations (1)

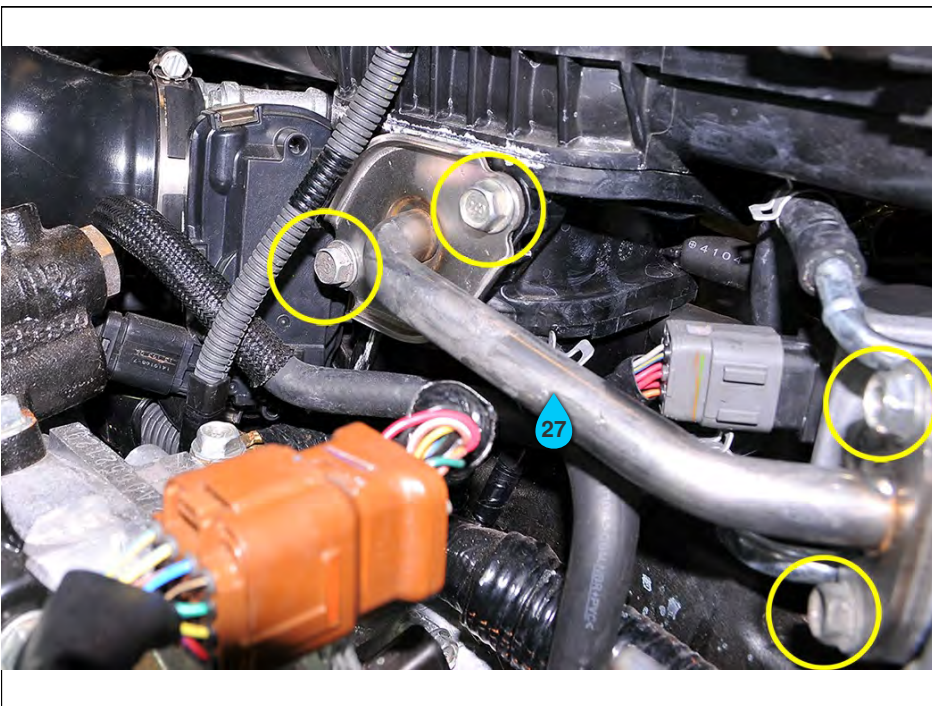
- 26 Remove the intercooler.



Step 39/114

Numbered annotations (1)

- 27 Remove the hardware securing this pipe behind the intake manifold.



Step 40/114

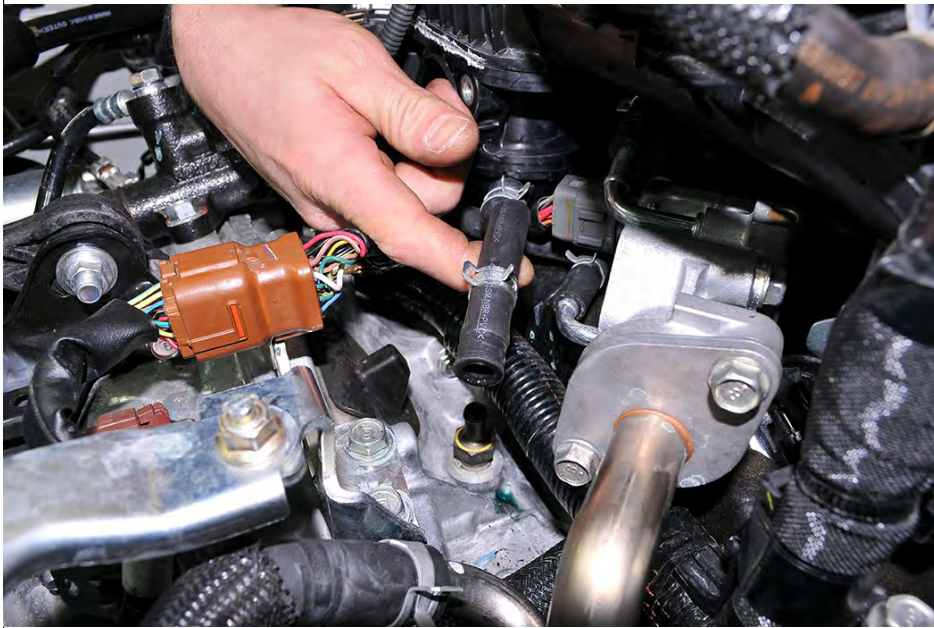


Step 41/114

Numbered annotations (1)

- 28 Loosen this clamp and disconnect this hose.





Step 42/114



Step 43/114

Numbered annotations (1)

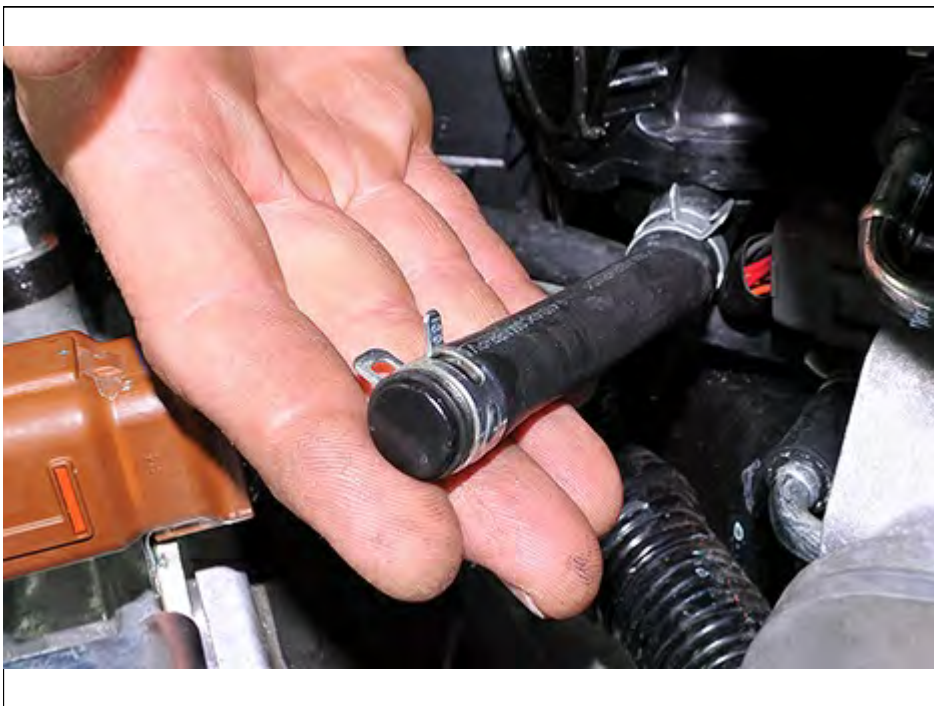
- 29** Locate the supplied vacuum cap.



Step 44/114

Numbered annotations (1)

- 30 Install the supplied vacuum cap in this hose, secured with the OEM clamp.



Step 45/114



Step 46/114

Numbered annotations (1)

- 31 Remove this fitting.



Step 47/114

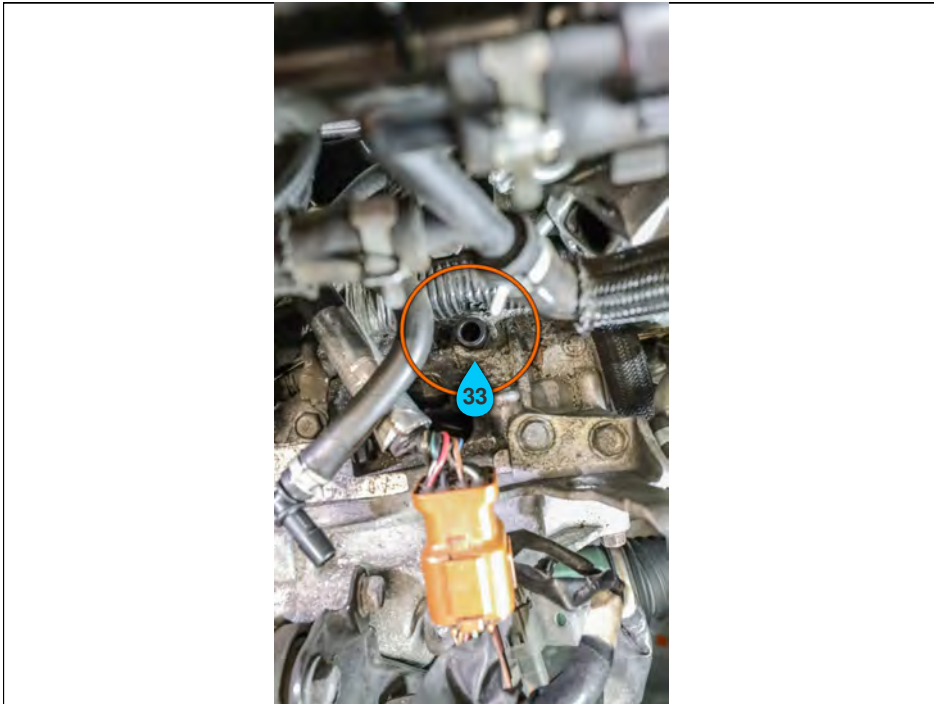
Step 48/114



Numbered annotations (1)

- 32 Locate the supplied block breather fitting.

Step 49/114



Numbered annotations (1)

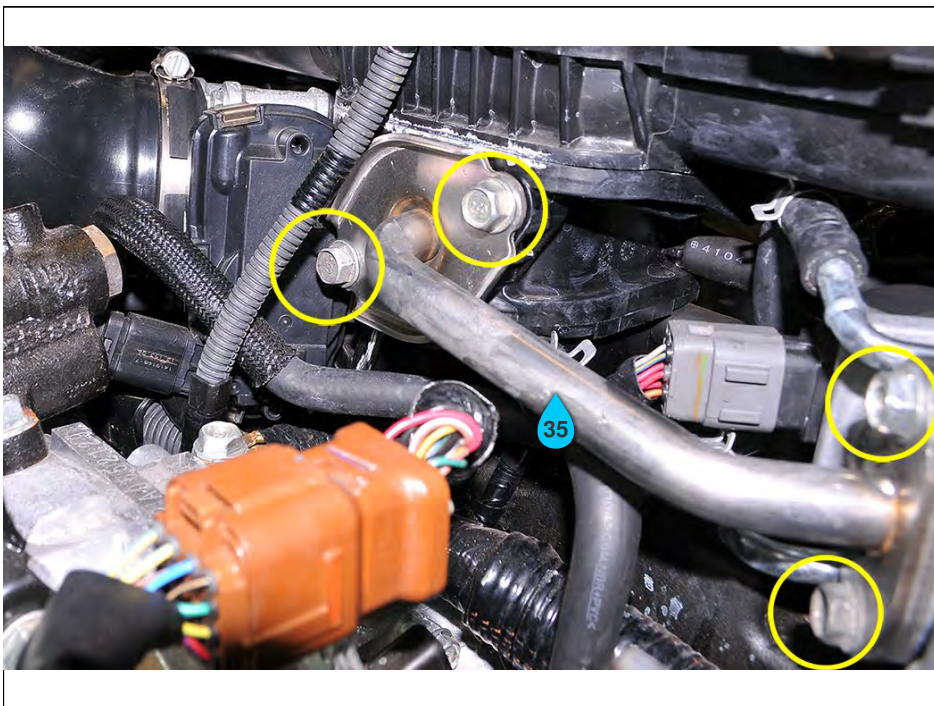
- 33 Thread the block fitting into the block.



Step 50/114

Numbered annotations (1)

- 34 Torque the fitting to 15 ft/lbs.



Step 51/114

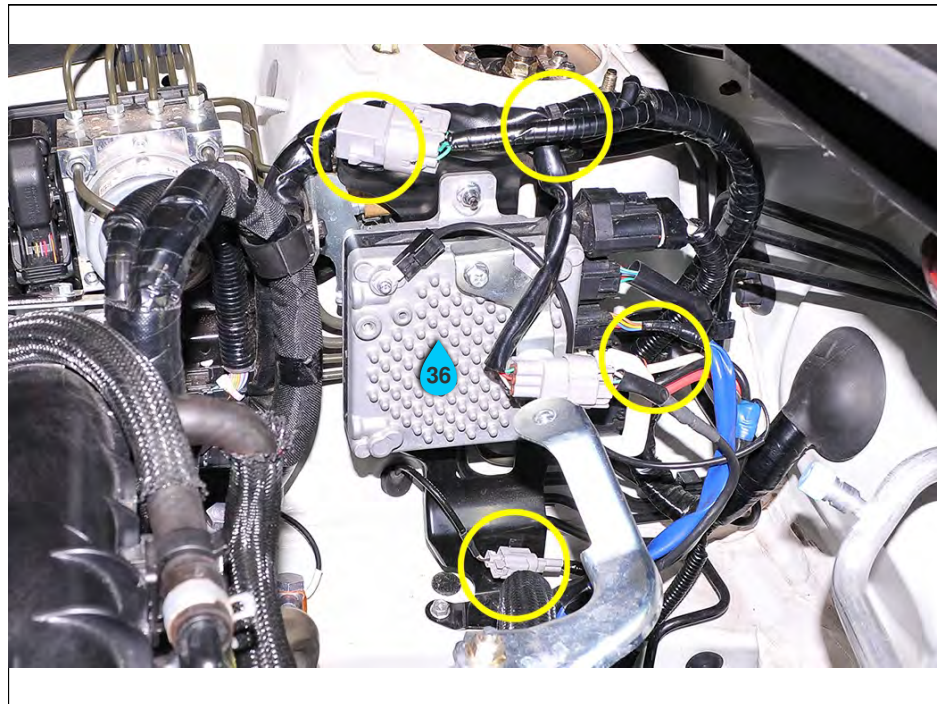
Numbered annotations (1)

- 35 Reinstall the EGR pipe, reusing the OEM gaskets and hardware.

STOP

**IF YOUR WRX WAS BUILT AFTER 4/30/17,
PLEASE SKIP TO STEP 73**

Step 52/114



Step 53/114

Numbered annotations (1)

- 36 Remove the 4 wiring harness retaining clips from the ECU mounting bracket.

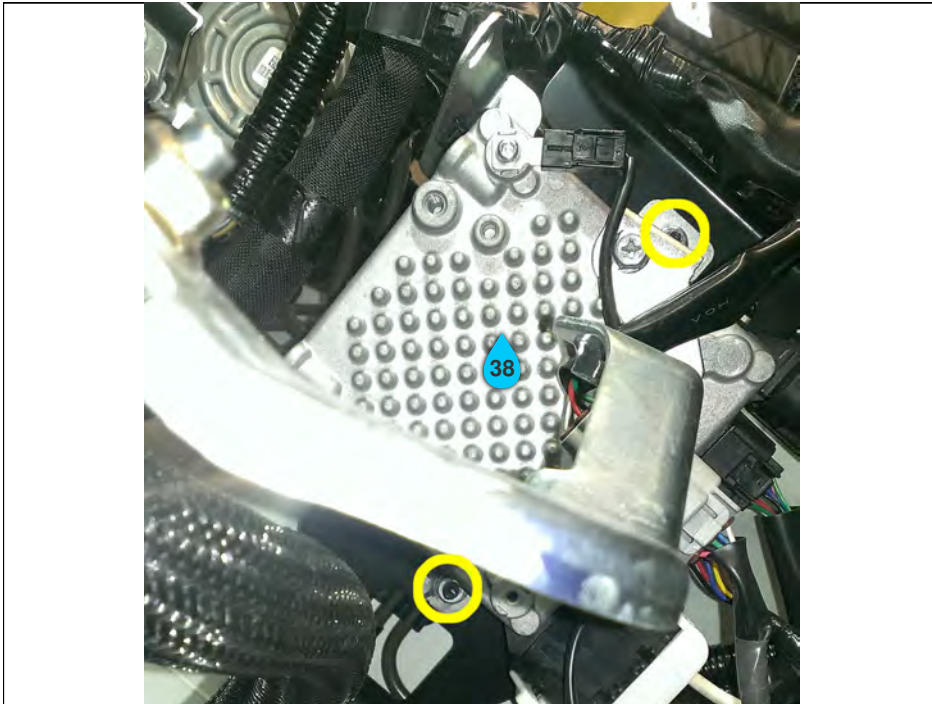
Step 54/114



Numbered annotations (1)

- 37 Use pliers to squeeze these zip ties then push them through the hole to remove.

Step 55/114

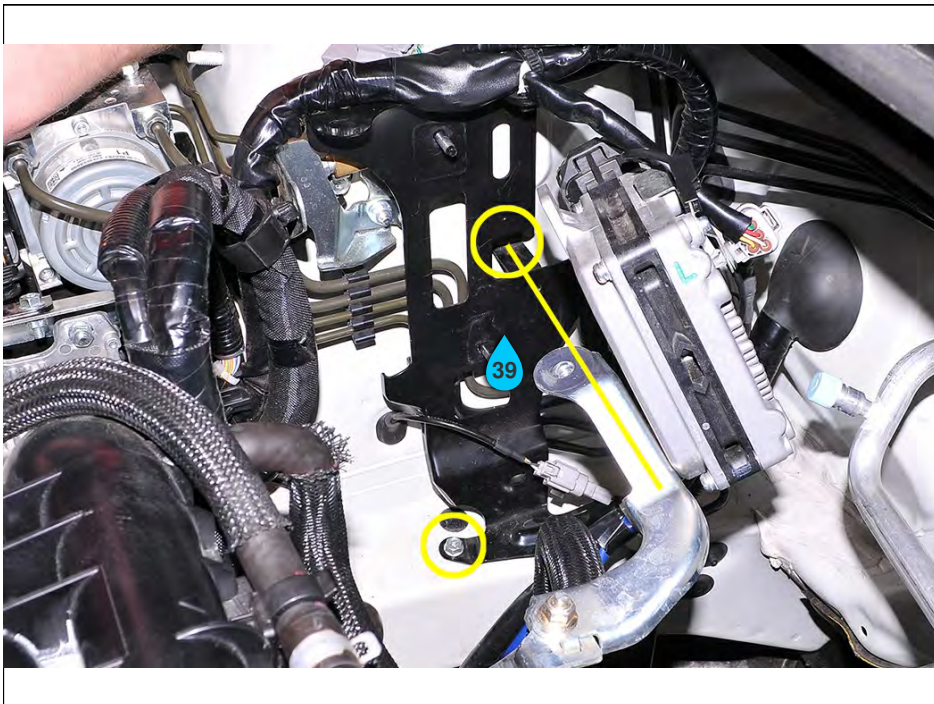


Numbered annotations (1)

- 38 Remove the two 10mm nuts which hold the ECU to the bracket. Pull the ecu free from the bracket and place it aside in the engine bay.



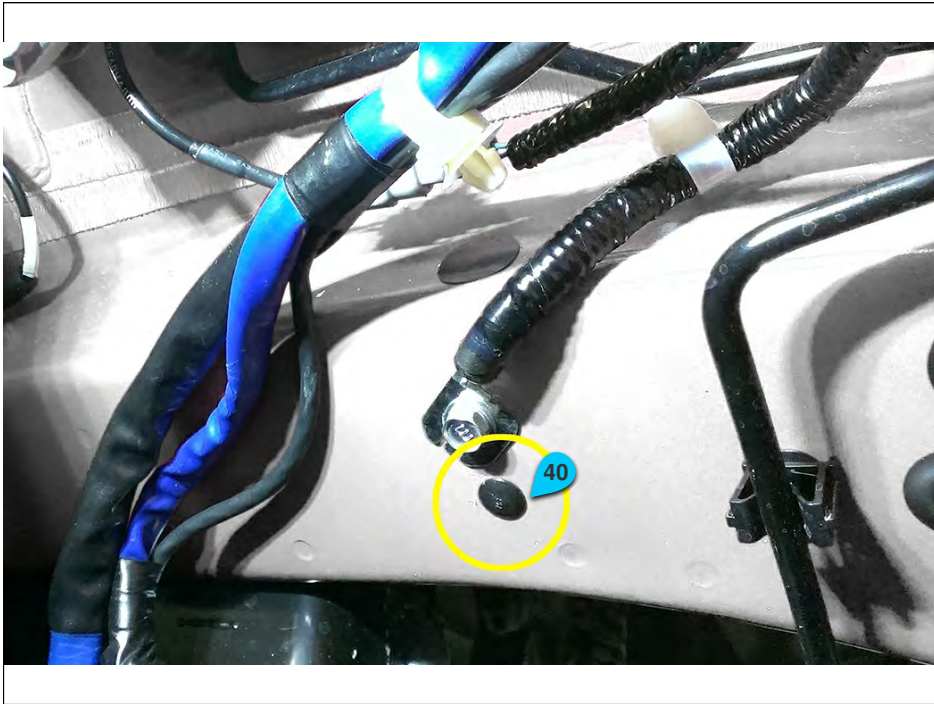
Step 56/114



Step 57/114

Numbered annotations (1)

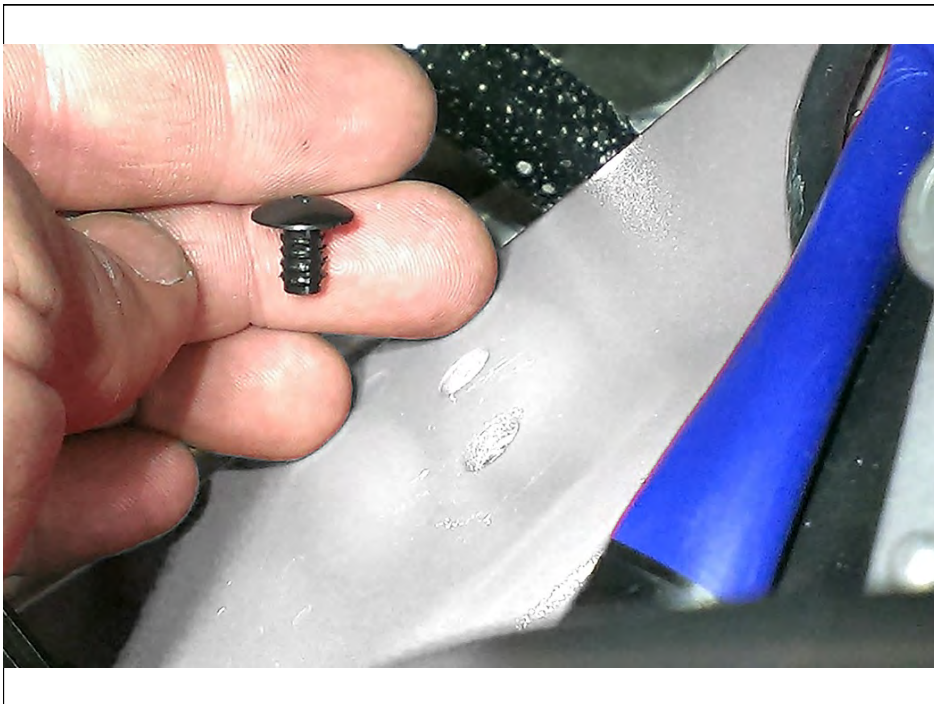
- 39 Remove the two 10mm bolts which secure the ECU bracket to the strut tower. Remove the bracket.



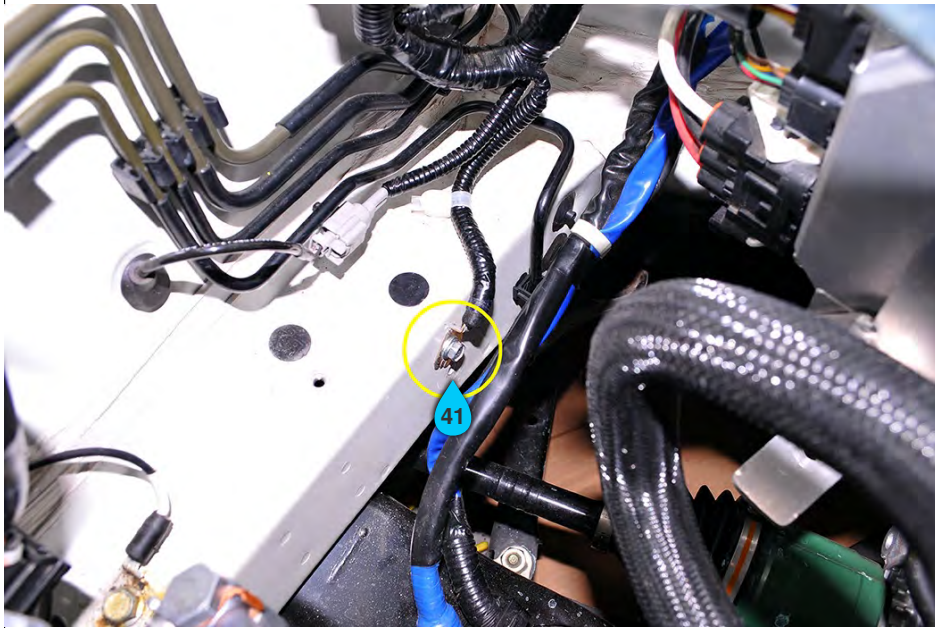
Step 58/114

Numbered annotations (1)

- 40 Remove this plug.



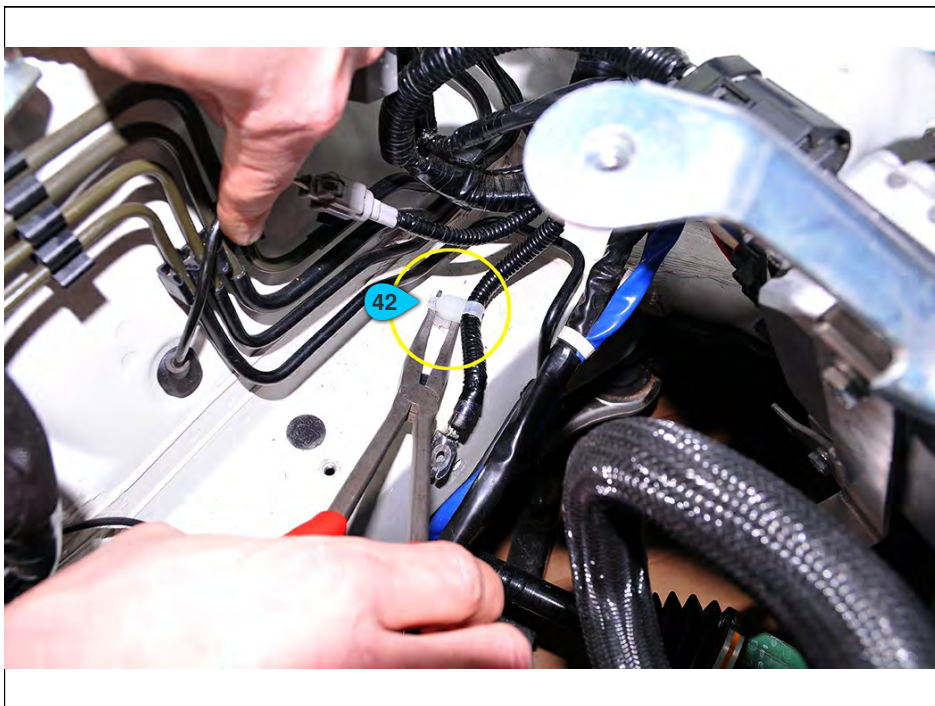
Step 59/114



Step 60/114

Numbered annotations (1)

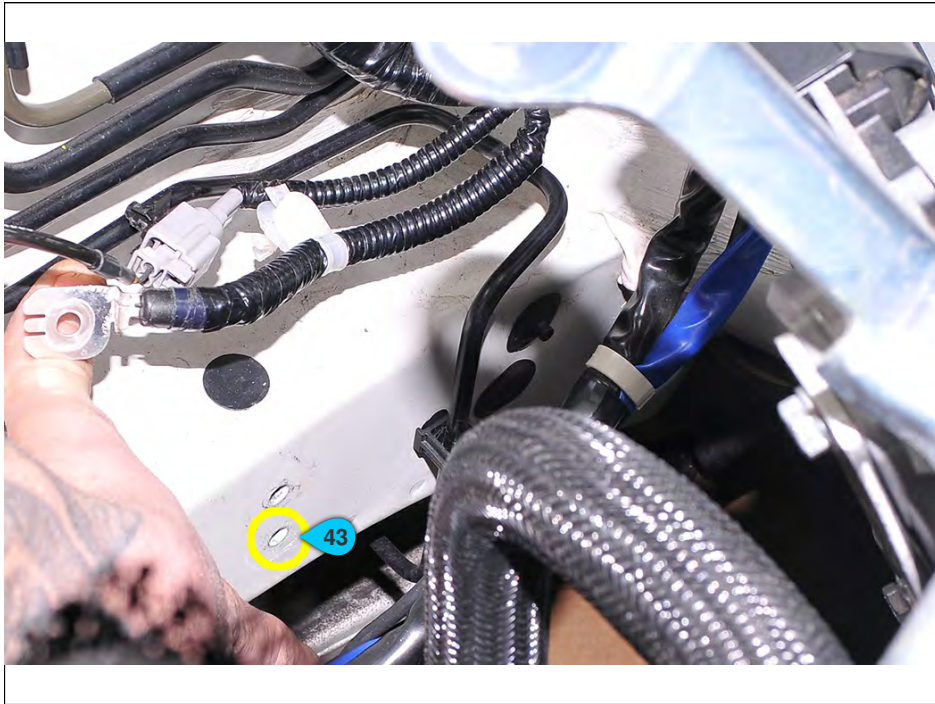
- 41 Remove this 10mm bolt.



Step 61/114

Numbered annotations (1)

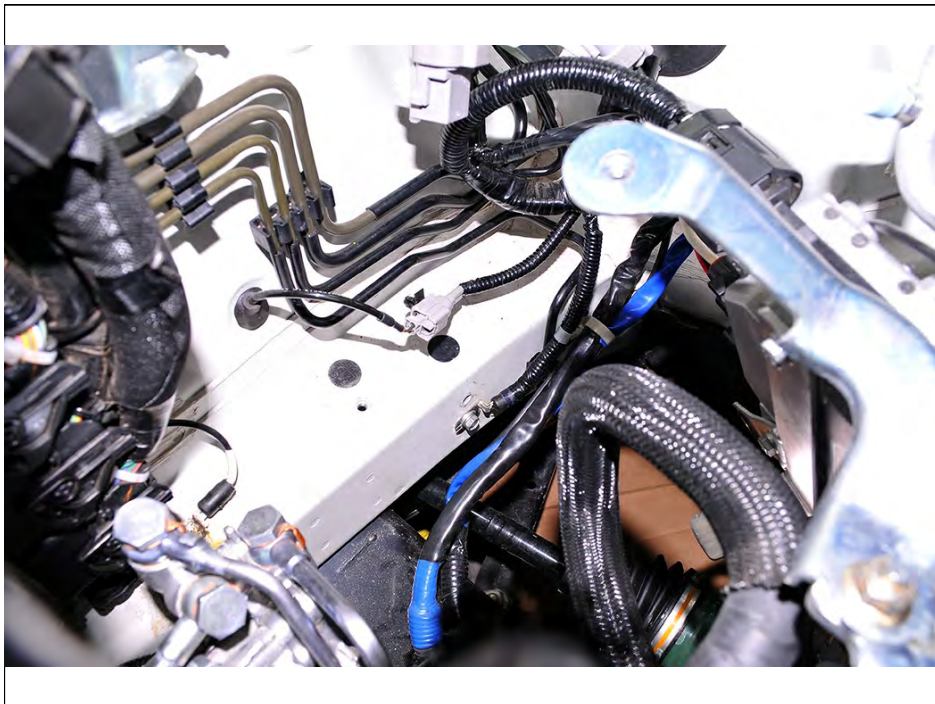
- 42 Use pliers to remove this mounting tie from the frame rail.



Step 62/114

Numbered annotations (1)

- 43 Reinstall the ground to this hole using the OEM 10mm bolt.



Step 63/114

Step 64/114

Numbered annotations (1)

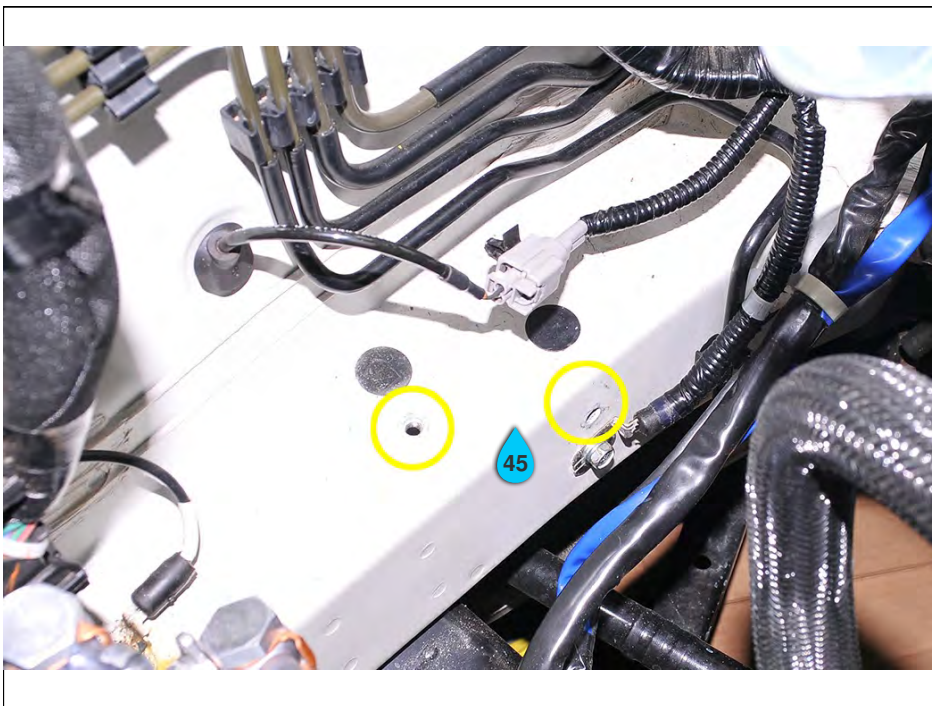
44 Locate the ECU relocation bracket.



Step 65/114

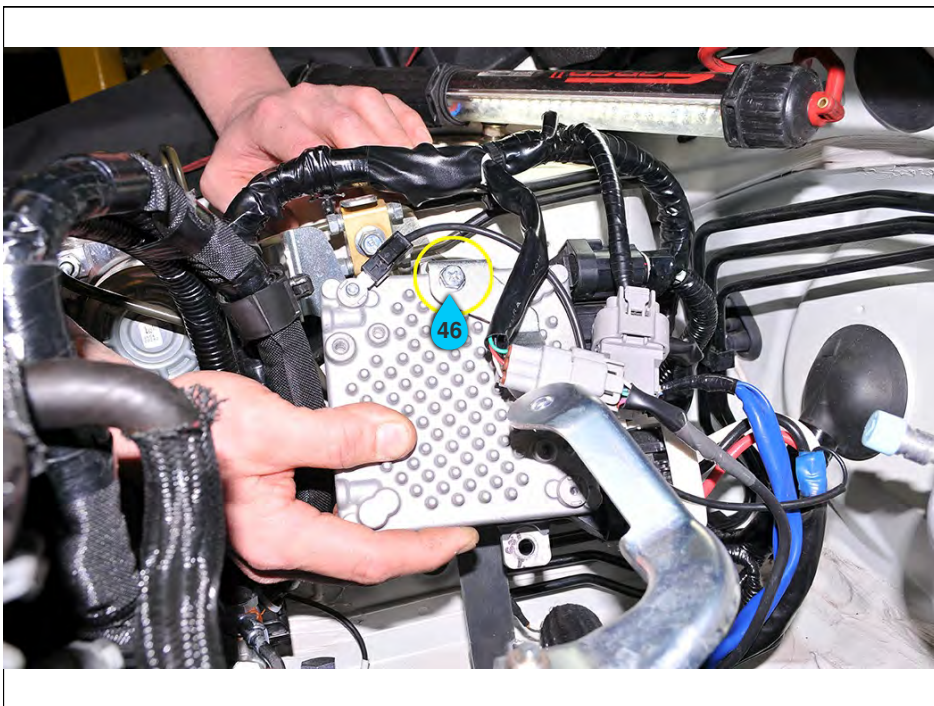
Numbered annotations (1)

45 Attach the ECU relocation bracket here using the OEM ecu bracket 10mm hardware.





Step 66/114



Step 67/114

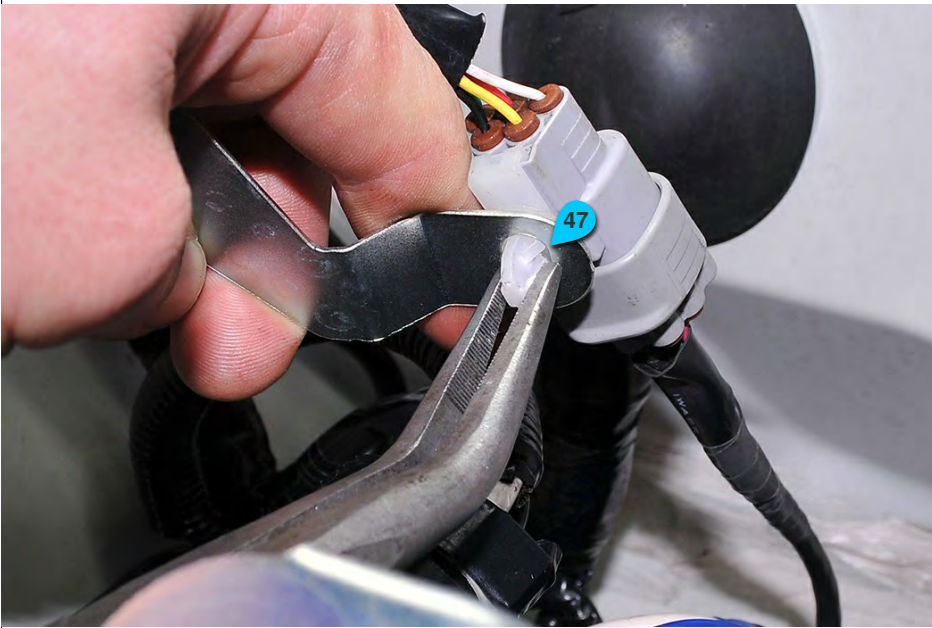
Numbered annotations (1)

- 46 Remove the 10mm bolt securing the wiring harness to the ecu,

Step 68/114

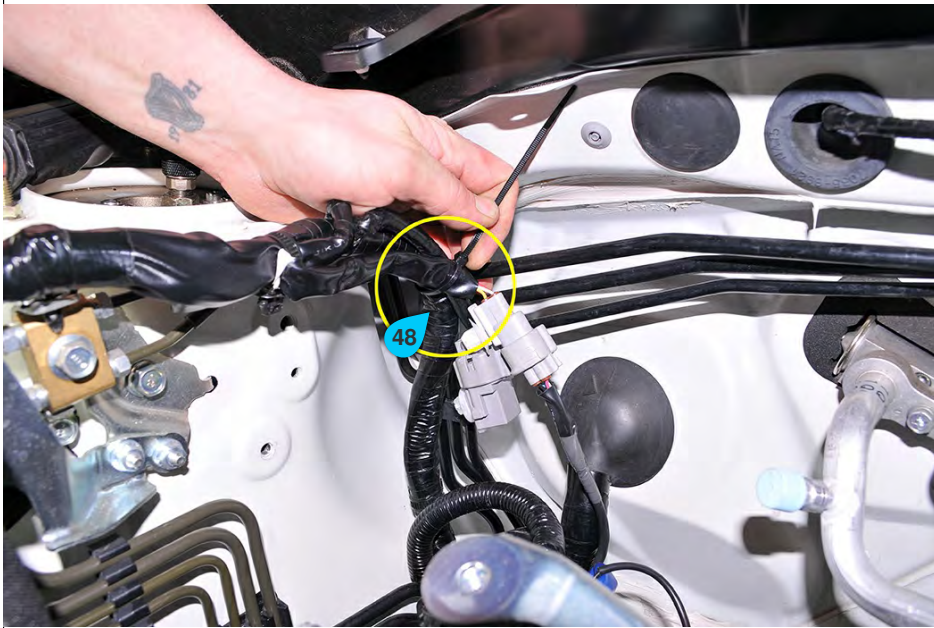
Numbered annotations (1)

- 47 Using pliers, remove the harness retaining clip from the bracket.



Step 69/114





Step 70/114

Numbered annotations (1)

- 48 Zip tie the harness here.



Step 71/114

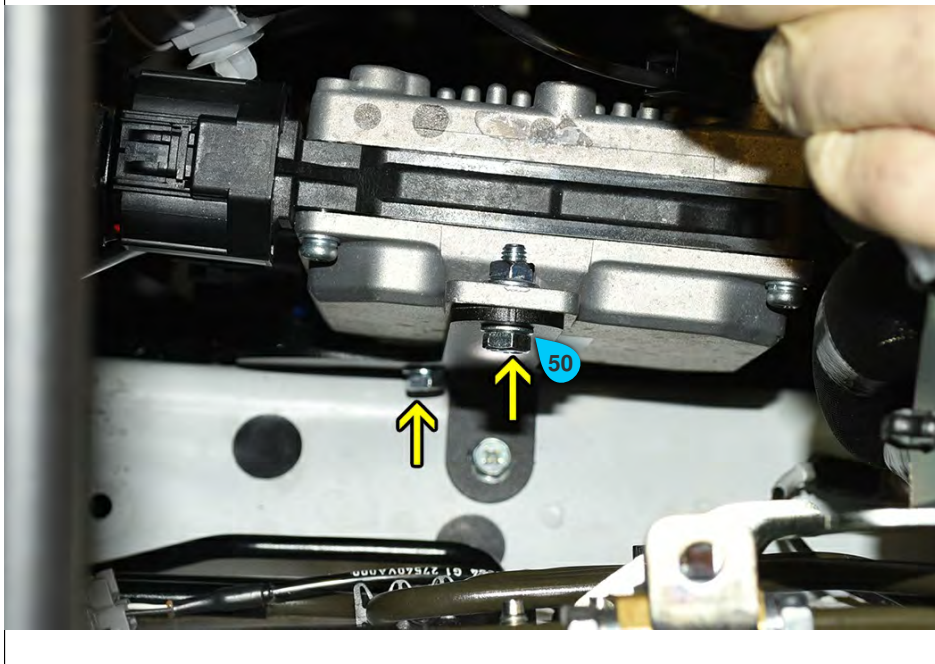
Numbered annotations (1)

- 49 Locate the supplied 6mmx15mm bolts, 6mm flat washers, and OEM ecu bracket nuts.

Step 72/114

Numbered annotations (1)

- 50 Attach the ECU to the bracket using the supplied 6mmx15mm bolts, 6mm flat washers, and the OEM nuts the secured the ecu to the OEM ECU bracket. (Make sure the bolt heads are on the bracket side.)

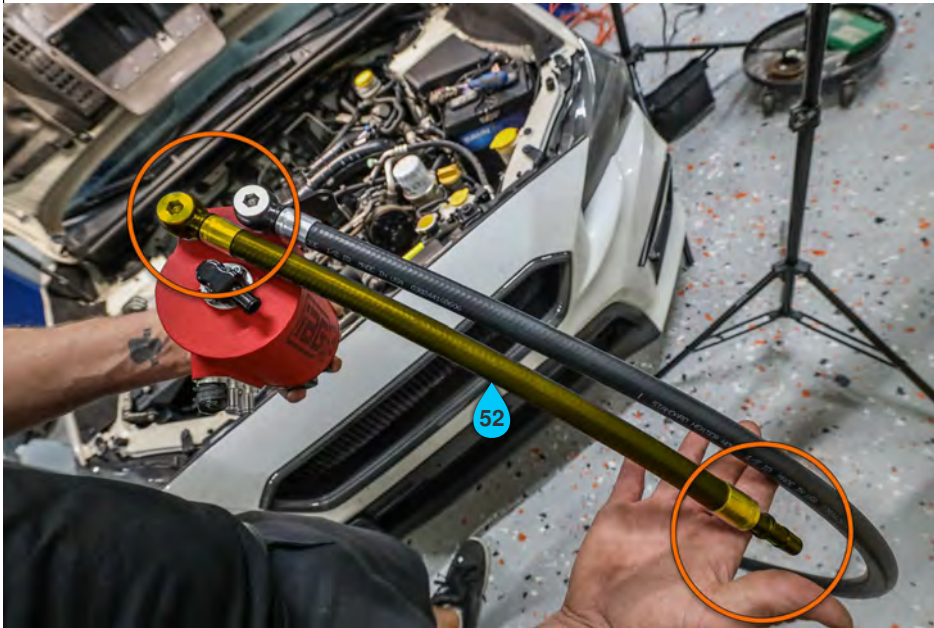


Step 73/114

Numbered annotations (1)

- 51 Locate the AOS body assembly and coolant lines with fittings. Loosely install both hoses using the supplied fittings.

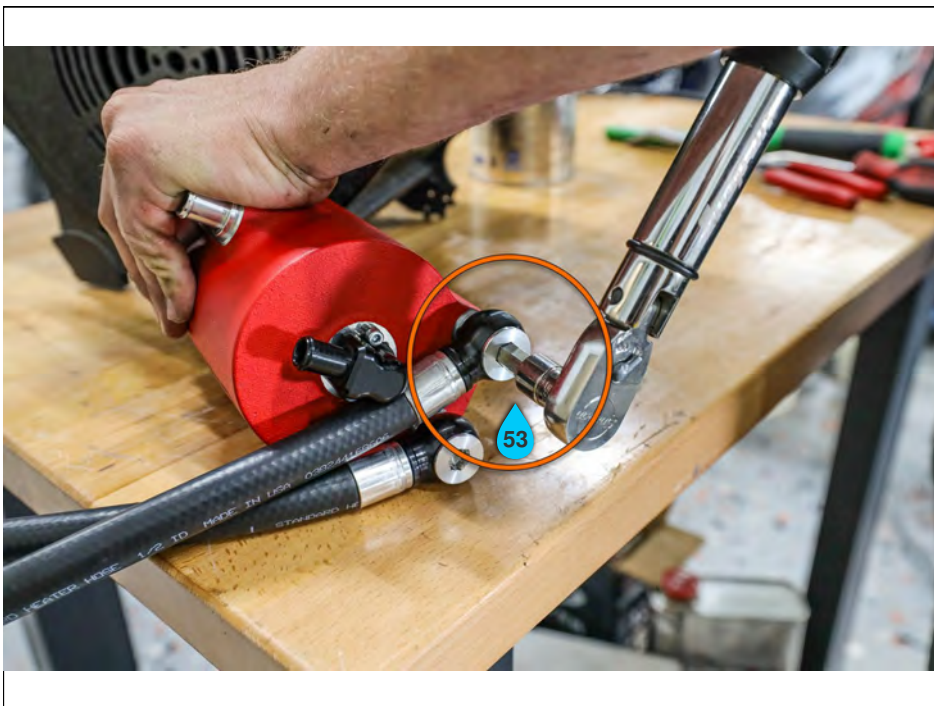




Step 74/114

Numbered annotations (1)

- 52 Make sure the shorter line is installed in this position.



Step 75/114

Numbered annotations (1)

- 53 Tighten these fittings to 7 Ft/lbs. DO NOT OVER TIGHTEN!

Step 76/114

Numbered annotations (1)

- 54 Attach the drain hose using the supplied clamp.



Step 77/114





Step 78/114

Numbered annotations (1)

- 55 Locate the AOS bracket and supplied hardware and install the bracket as shown. Torque the bolts to 7 ft/lbs.



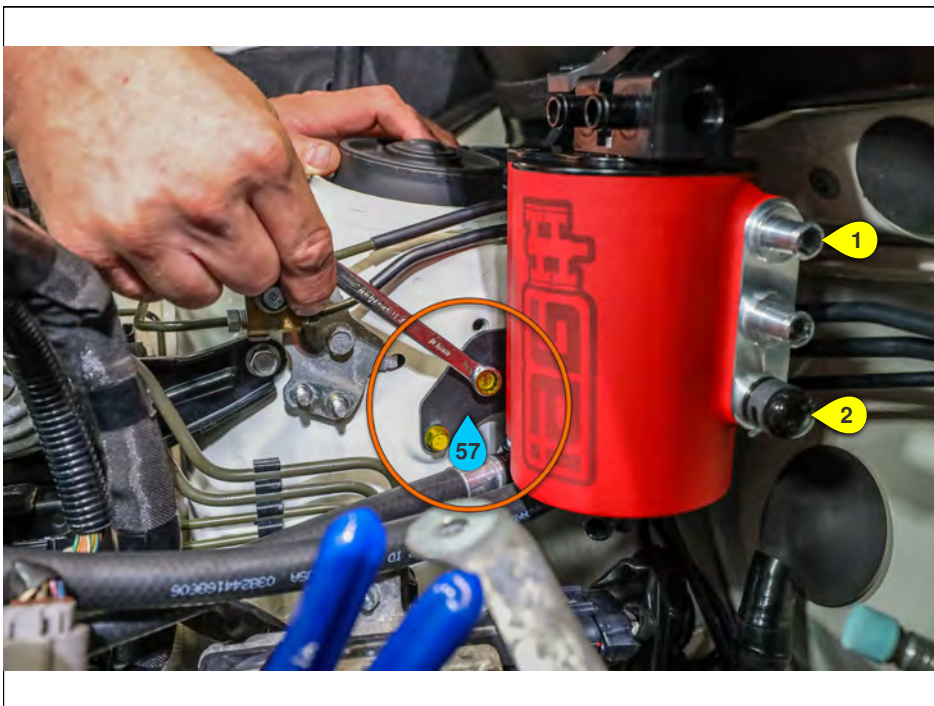
Step 79/114



Step 80/114

Numbered annotations (1)

- 56 Install the supplied 5/8" vacuum cap on this port and secure with the supplied clamp.



Step 81/114

Numbered annotations (3)

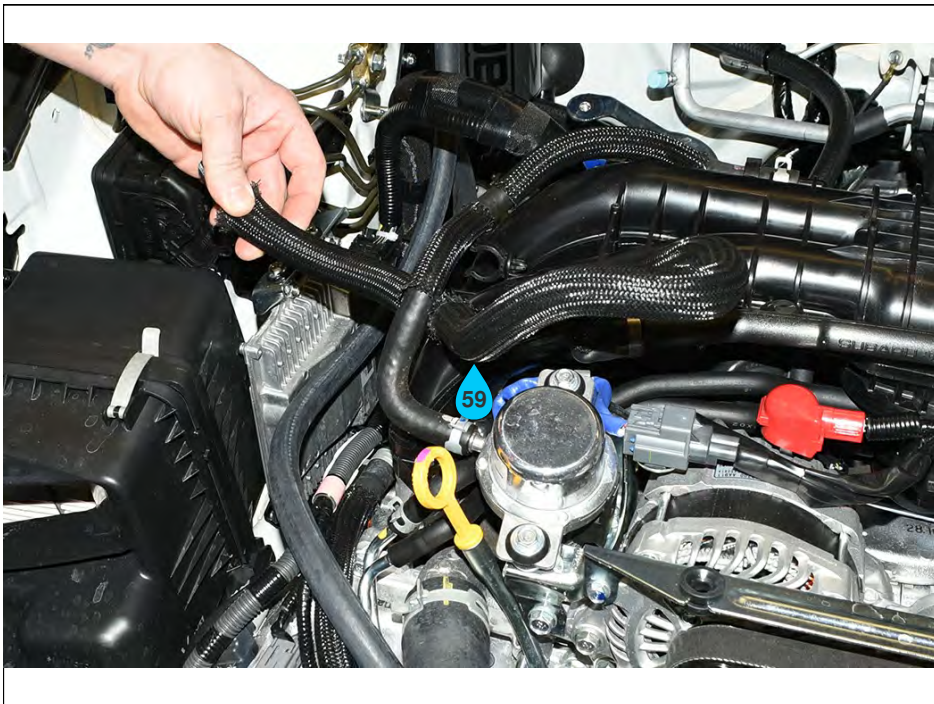
- 57 Mount the AOS here using the supplied bolts.
- 1 Cap installed on this port for 2017+ vehicles
- 2 Cap installed on this port for 2015-2016 vehicles.



Step 82/114

Numbered annotations (1)

- 58 Locate the hose that went to the turbo inlet PCV connector.



Step 83/114

Numbered annotations (1)

- 59 Route the hose as shown.



Step 84/114

Numbered annotations (1)

60 Route vent hose through here.



Step 85/114

Numbered annotations (1)

61 Locate this hose.

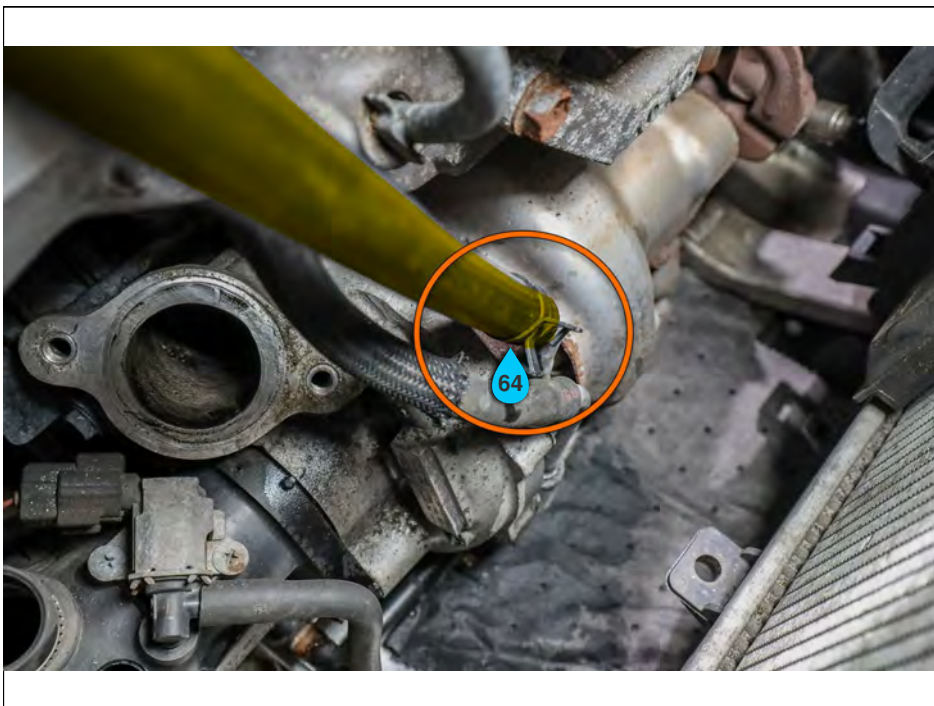
Step 86/114



Numbered annotations (2)

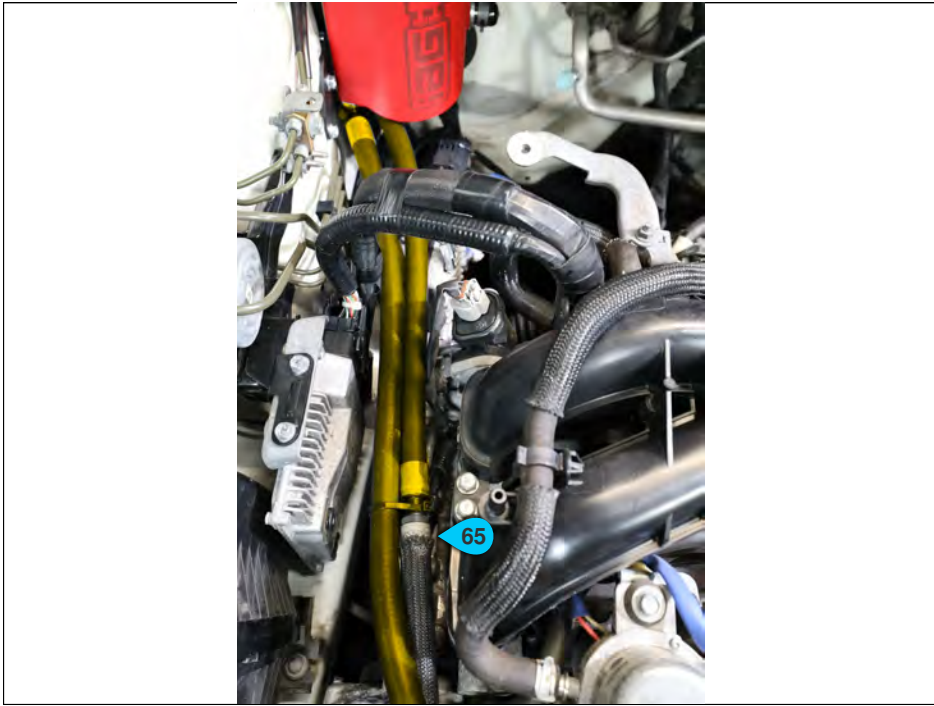
- 62 Insert the 90 degree fitting into the hose in step 84, securing with the supplied clamps. Connect the open end of the hose to the 5/8" port here.
- 63 Ensure the 1/2" vacuum cap is installed here and secured with the supplied clamp on the 2017+ vehicles.

Step 87/114



Numbered annotations (1)

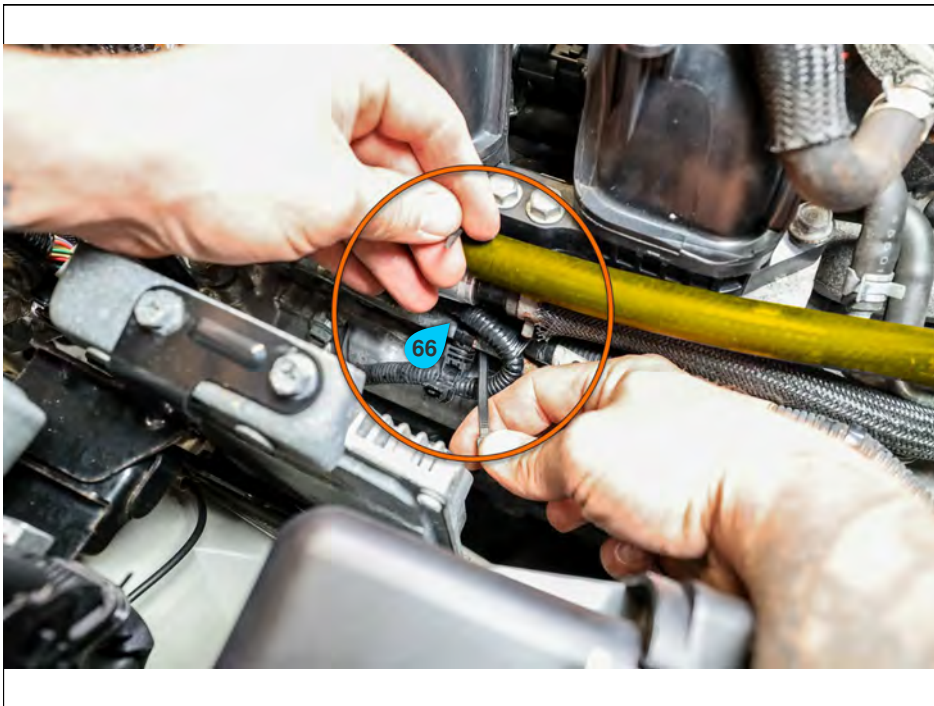
- 64 Attach the longer coolant hose here using the supplied clamp.



Step 88/114

Numbered annotations (1)

- 65 Attach the shorter coolant line with the union fitting here. Secure with the OEM clamp.



Step 89/114

Numbered annotations (1)

- 66 Secure the coolant lines together with a zip tie.



Step 90/114

Numbered annotations (1)

- 67 Use additional zip ties to keep the coolant hoses routed and secure.



Step 91/114

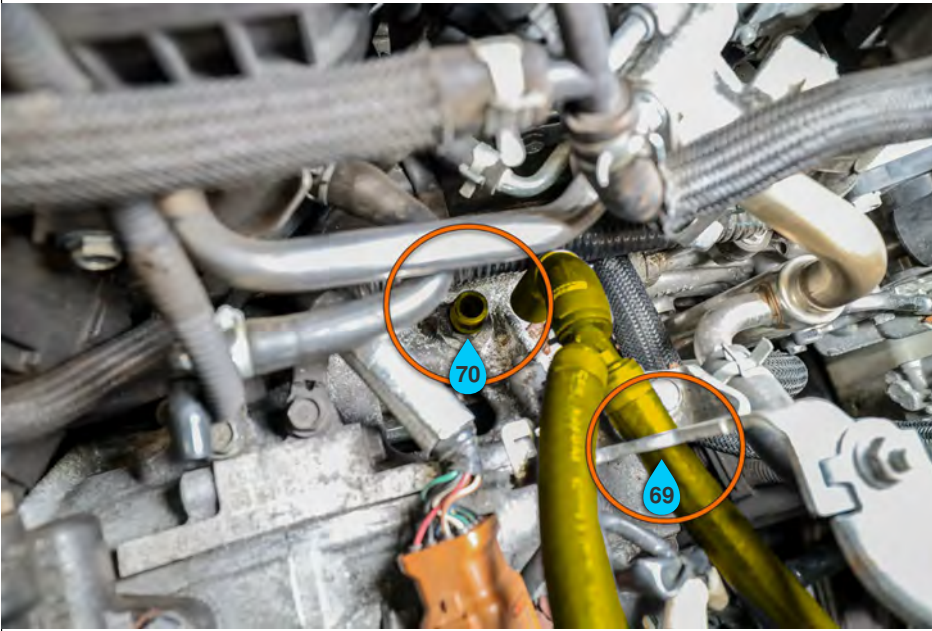
Numbered annotations (1)

- 68 Locate the Y shaped breather hose assembly.

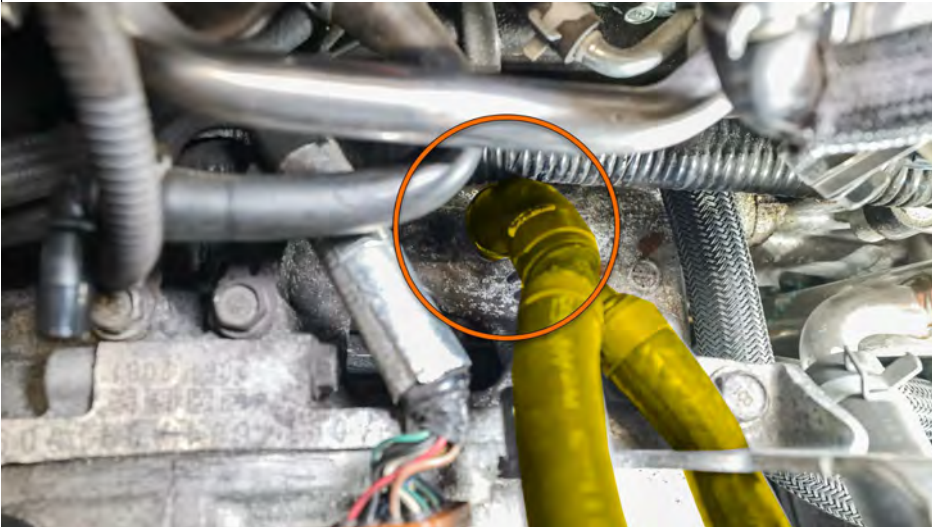
Step 92/114

Numbered annotations (2)

- 69 Pass one hose through the bracket.
- 70 Attach 90 degree hose here using the supplied clamp.



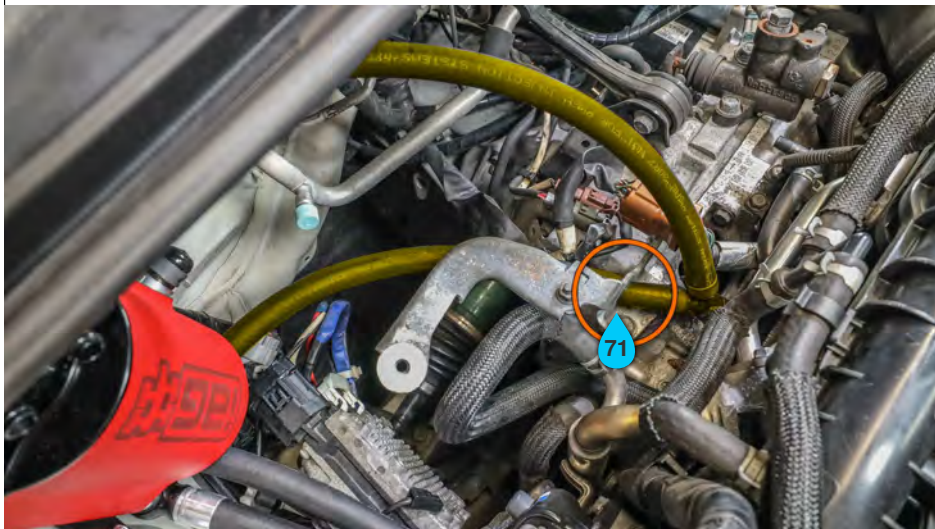
Step 93/114



Step 94/114

Numbered annotations (1)

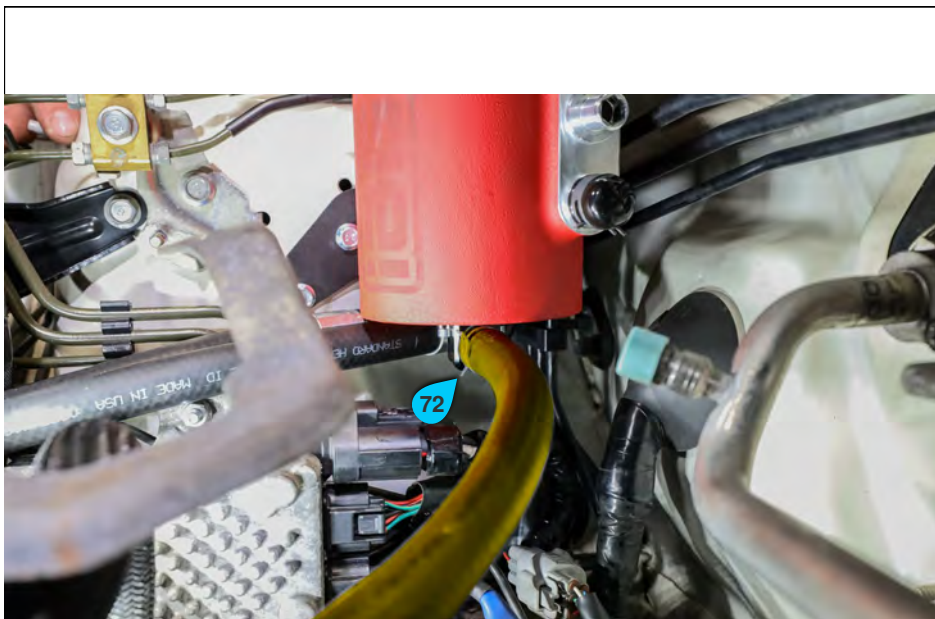
- 71 Ensure the drain hose is routed through this bracket. Measure and trim to length to attach the drain hose to the bottom of the AOS



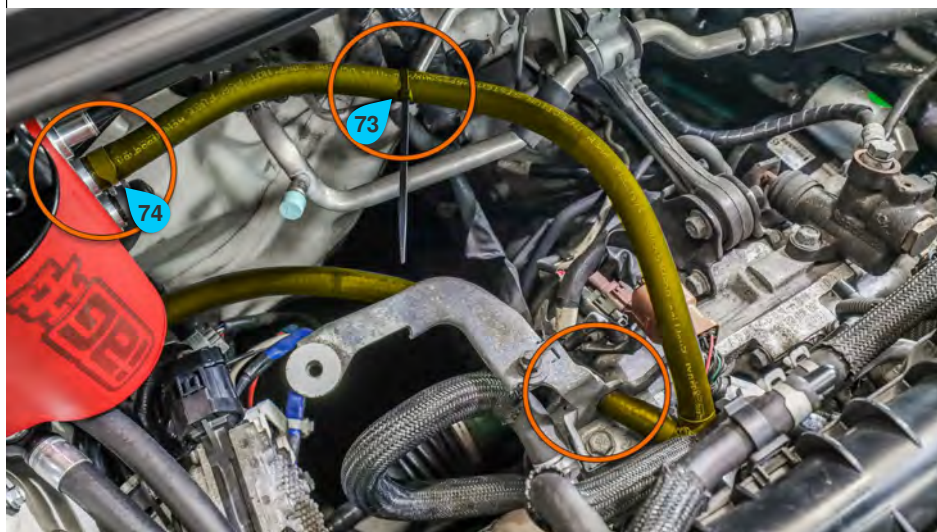
Step 95/114

Numbered annotations (1)

- 72 Attach the drain hose here using the supplied clamp.



Step 96/114



Numbered annotations (2)

- 73 Secure the vent hose assembly here with a zip tie.
- 74 Attach the vent hose to the middle port on the side of the AOS using the supplied clamp.

Step 97/114



Numbered annotations (1)

- 75 Route the 1" breather hose as shown and secure to the AOS with two zip ties.

Step 98/114

Numbered annotations (1)

- 76 Route the breather hose under the vehicle, along the transmission tunnel. Thread a zip tie through here.

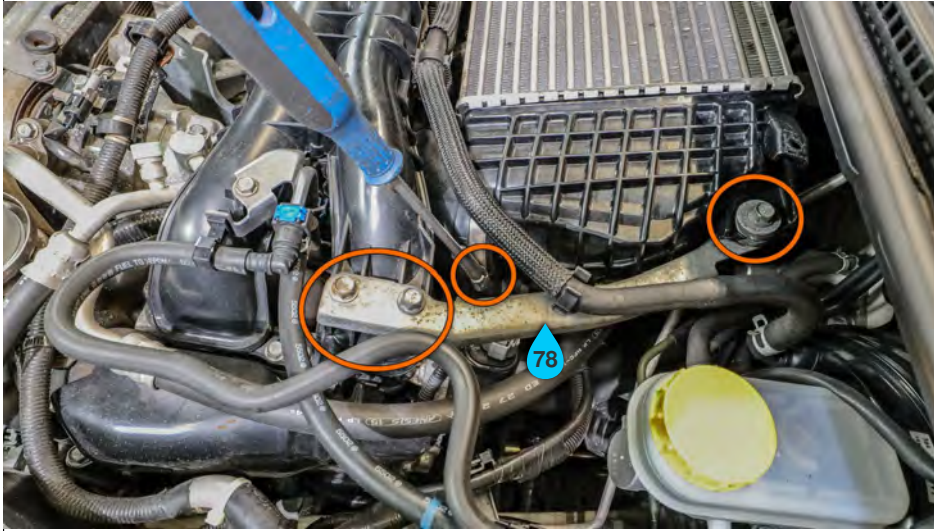


Step 99/114

Numbered annotations (1)

- 77 Pass the end of the breather hose through the zip tie and secure to the bottom of the vehicle.





Step 100/114

Numbered annotations (1)

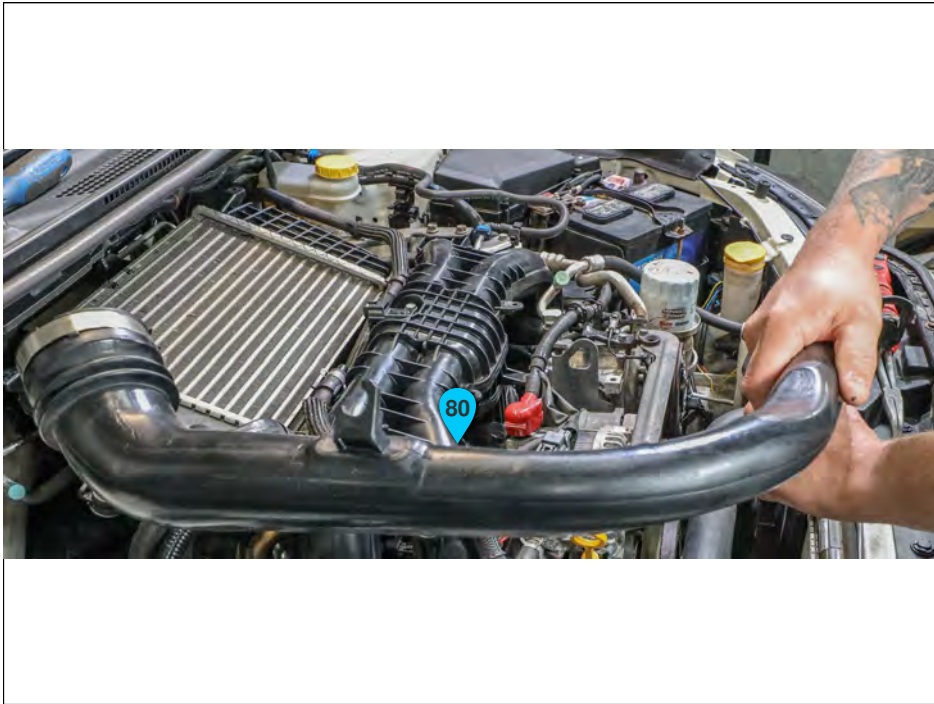
- 78 Reinstall the intercooler and bracket.



Step 101/114

Numbered annotations (1)

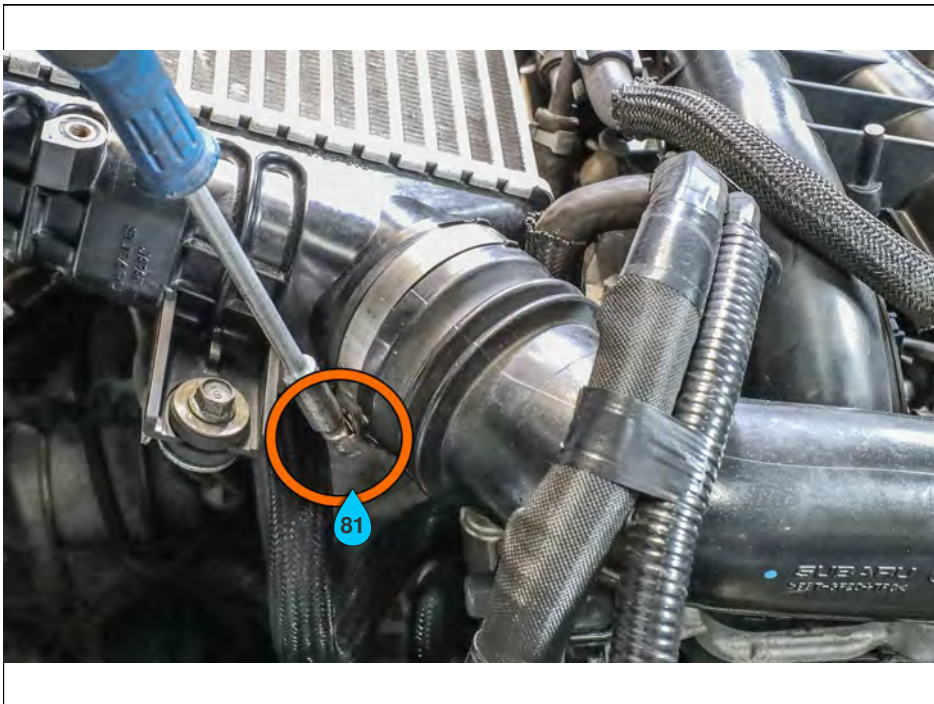
- 79 Reinstall this bolt.



Step 102/114

Numbered annotations (1)

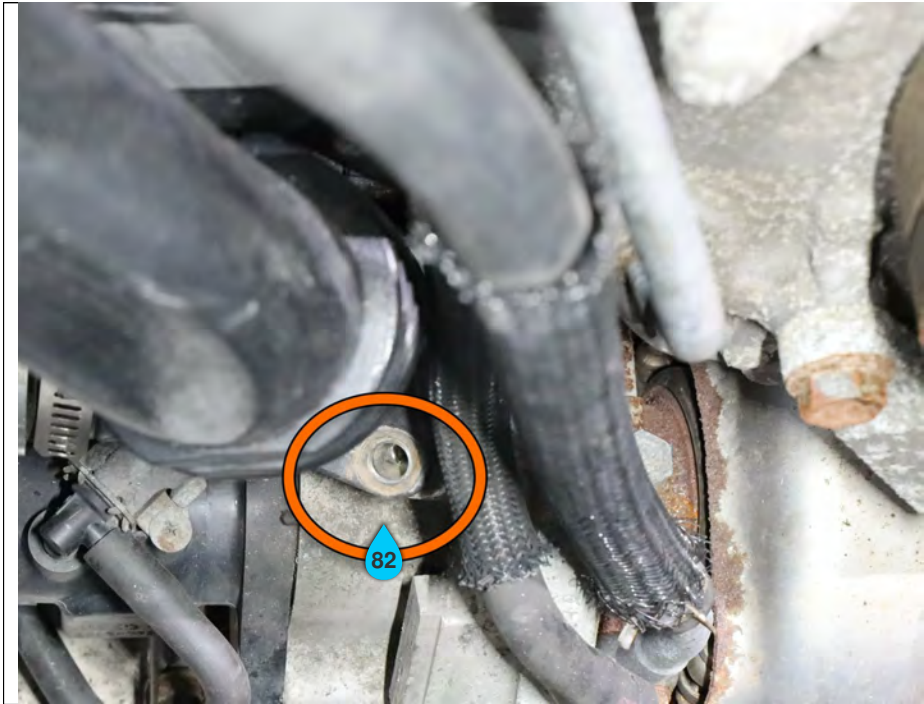
- 80 Reinstall the intercooler charge pipe.



Step 103/114

Numbered annotations (1)

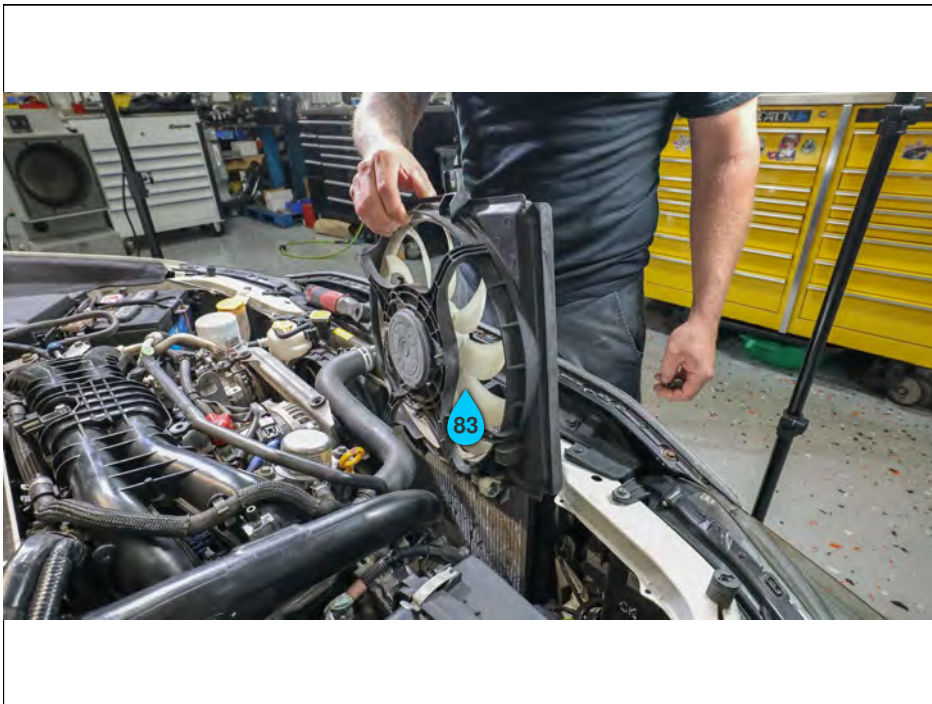
- 81 Attach the charge pipe to the intercooler and tighten this clamp.



Step 104/114

Numbered annotations (1)

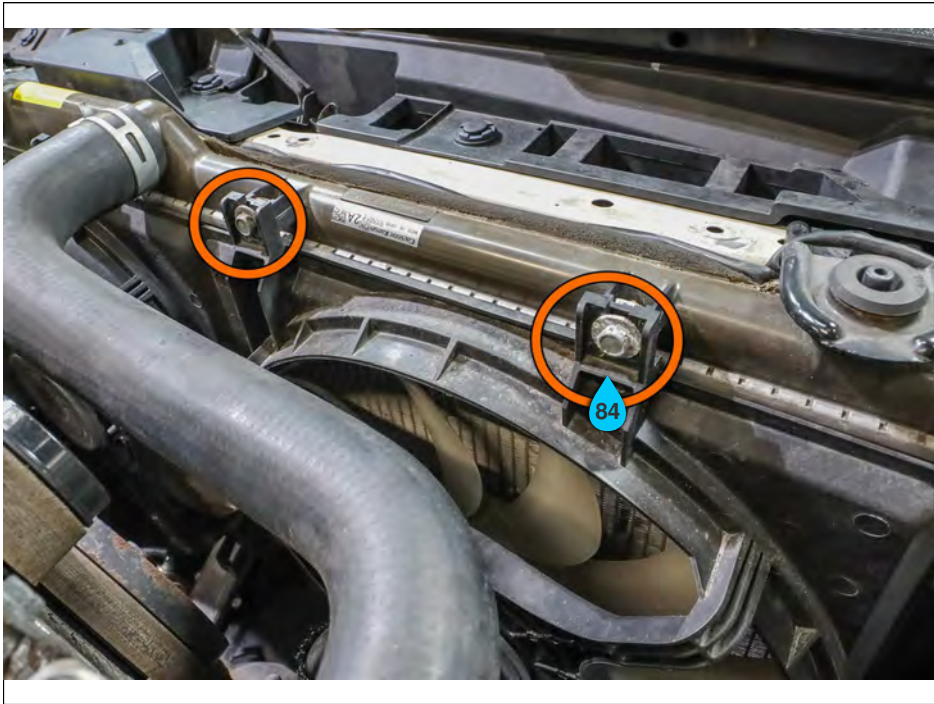
- 82 Reinstall both bolts for the charge pipe to the turbocharger.



Step 105/114

Numbered annotations (1)

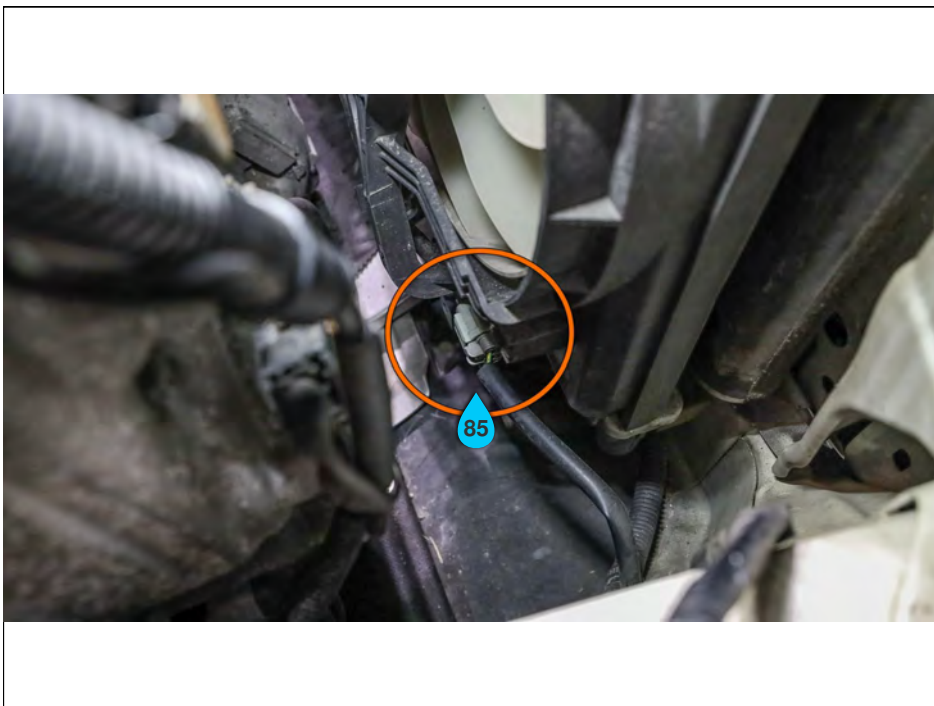
- 83 Reinstal the passenger side radiator fan.



Step 106/114

Numbered annotations (1)

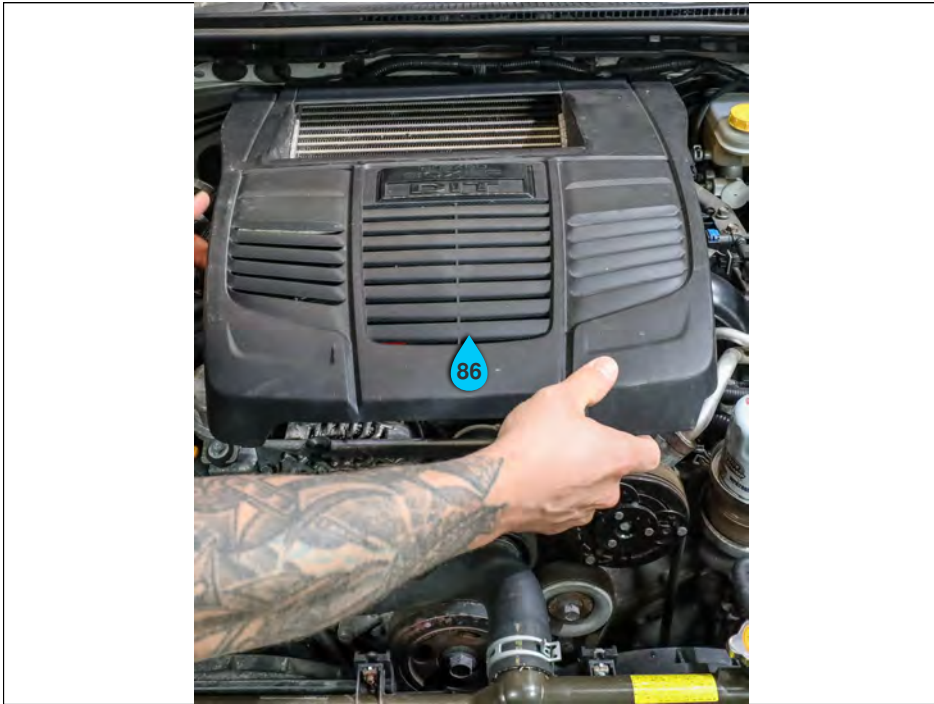
- 84 Secure the fan with the OEM bolts.



Step 107/114

Numbered annotations (1)

- 85 Plug the passenger fan electrical connector back in.



Step 108/114

Numbered annotations (1)

- 86 Reinstall the engine cover.



Step 109/114

Numbered annotations (1)

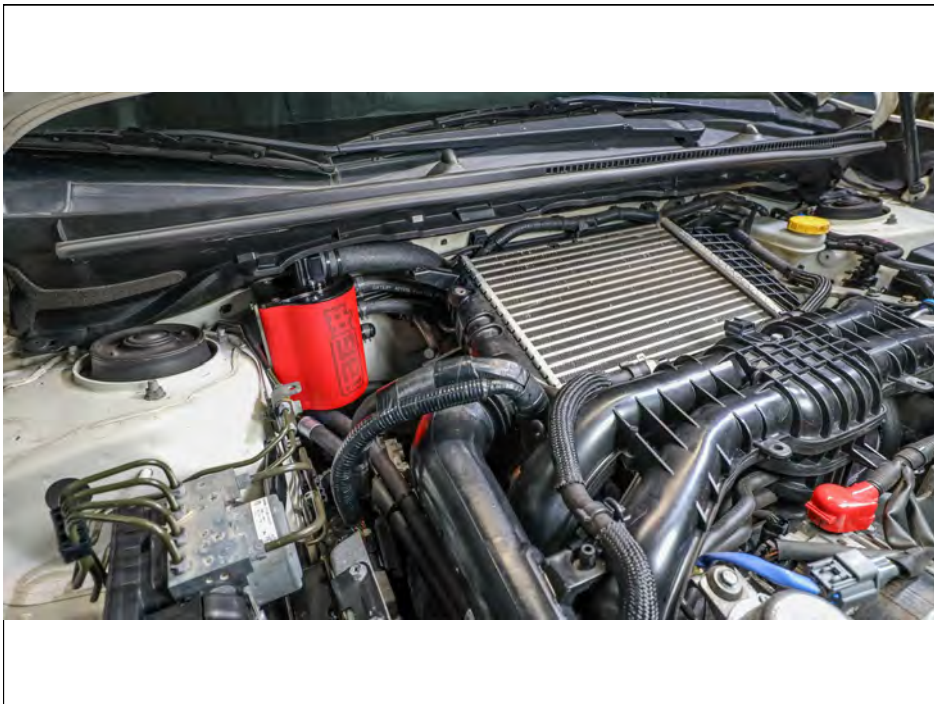
- 87 Reinstall the intake snorkel.



Step 110/114

Numbered annotations (1)

- 88 Secure the snorkel with the OEM hardware.



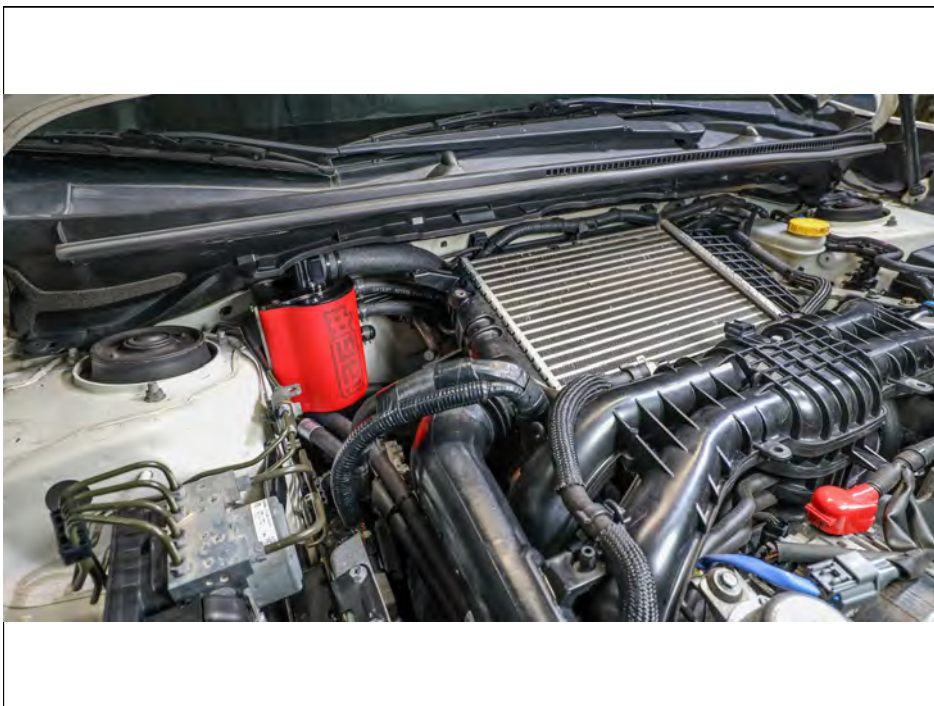
Step 111/114



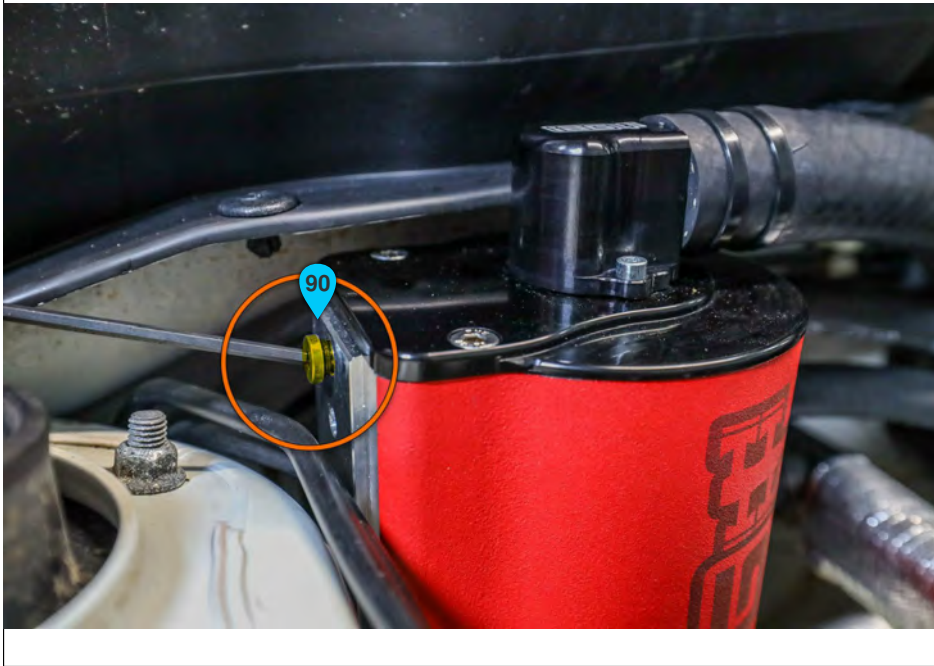
Step 112/114

Numbered annotations (1)

- 89 Reconnect the negative battery cable.



Step 113/114



Step 114/114

Numbered annotations (1)

- 90 Loosen the AOS coolant breather fitting. Top off any coolant lost during installation. Start the vehicle and let it come to operating temperature. Some coolant will begin to weep from this hole. Once the air has been released tighten the bleeder fitting.