

IAG COMPETITION SERIES AOS FOR 2015-20 STI



IAG Competition Series Air / Oil Separator (AOS) For 2015-20 STI

Part# IAG-ENG-7281

Tools Required: Ratchet, torque wrench, extensions, needle nose pliers, hose cutter, snips/scissors, flat head screw driver, hose clamping pliers

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

Wrenches: 7/8", 11/16", 8mm, 10mm, 19mm 3mm allen, 5mm allen, pry bar,

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 removal 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.

Note: The 2015+ STI cars are equipped with a "noise symposer" engine sound enhancing device that connects the intake to the firewall. These instructions do not cover the removal process of this device. Usually this device is already bypassed by the time an AOS is required.

Step 1/127

Step 2/127

IAG-ENG-7281 Competition Series Air / Oil Separator (AOS) For 2015-2020 STI

WARNING

THE IAG COMPETITION SERIES AOS IS ONLY TO BE INSTALLED ON OFF-ROAD COMPETITION VEHICLES NOT SUBJECT TO VEHICLE EMISSIONS CONTROLS. PLEASE CONTACT IAG PERFORMANCE OR YOUR LOCAL IAG DEALER TO EXCHANGE THIS PRODUCT IF THE VEHICLE WILL BE USED ON PUBLIC ROADS.

Step 3/127

NOTICE

These instructions are for the IAG-ENG-7281 Competition Series AOS for 2015-2020 STI ONLY

Please verify that you are using the correct instructions for the product you purchased

Some steps of these instructions feature photos of the Street Version of the AOS. However, all relevant information is correct in each step.

Step 4/127

Subaru used more of the white PCV sensors in later years of the STI models. If your vehicle does not have one or more of these sensors simply bypass that step and connect the hose where the sensor is indicated in the photo.

**Step 5/127**

Numbered annotations (13)



- 1 AOS Body Assembly
- 2 Heat Sleeve 1 - 16"
- 3 Heat Sleeve 2 - 16"
- 4 Heat Sleeve 3 - 12"
- 5 AOS Drain Hose - 1/2" x 26"
- 6 Block Breather Hose - 5/8" x 25"
- 7 Comp Breather Hose 1" x 59"
- 8 Valve Cover Breather Hose 1/2" x 74"
- 9 Coolant Hose 1 - 20" (Preinstalled to AOS)
- 10 Coolant Hose 2 - 20" (Preinstalled to AOS)
- 11 Block Breather Hose 3/4" x 2"
- 12 Wiring Harness Relocation Bracket

Step 6/127



Numbered annotations (11)

- 1 1/2" Vacuum Cap
- 2 5/8" Vacuum Cap x 2
- 3 5/8" Band Clamp x 4
- 4 1/2" Band Clamp x 8
- 5 3/4" Spring Clamp x 2
- 6 1/4" NPT Plug for Intake Manifold
- 7 AOS Mounting Hardware (M6x12mm x 2, M6x10mm x 3)
- 8 5/8" 90 Degree Elbow
- 9 Bock Breather Y Fitting
- 10 Zip ties
- 11 3/8" Clamp x 2

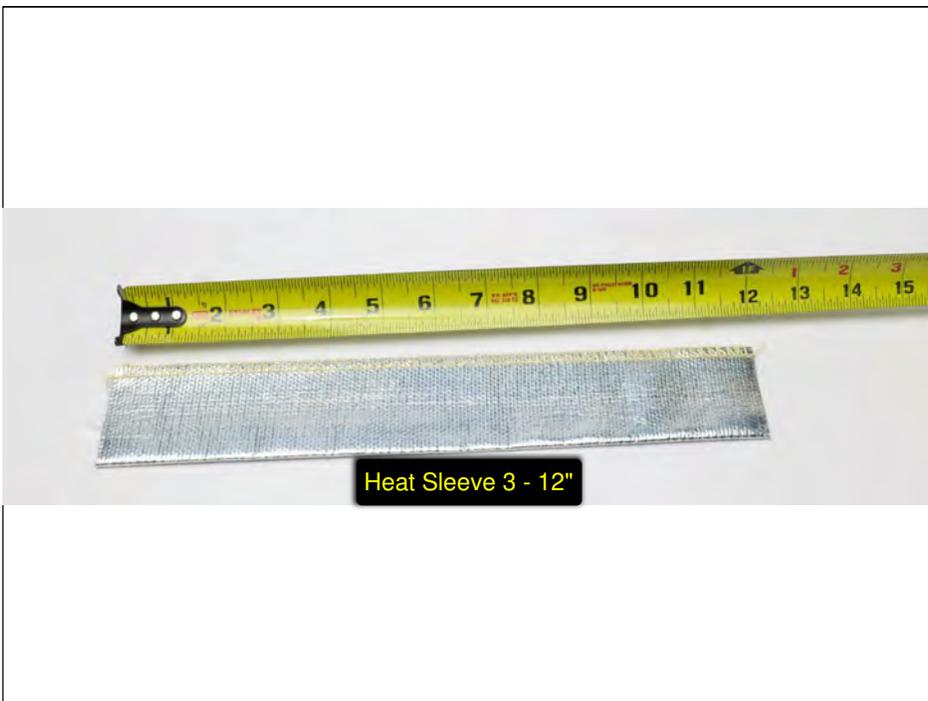
Step 7/127



Step 8/127



Step 9/127

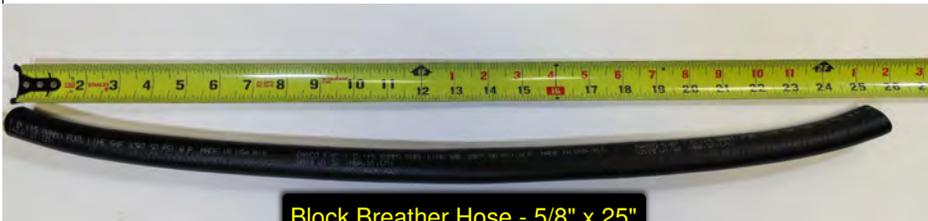


Step 10/127



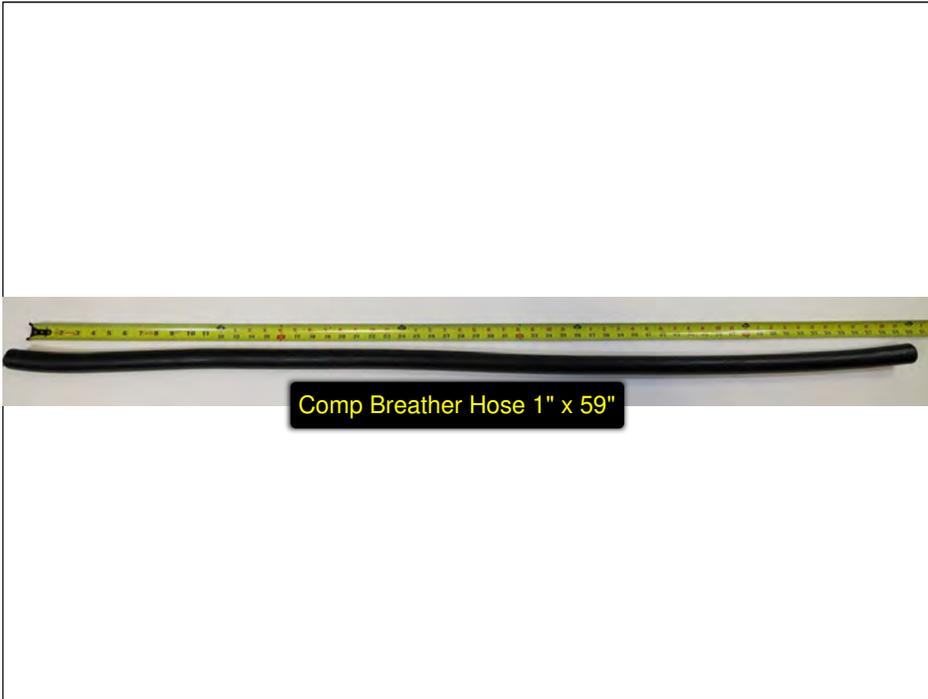
AOS Drain Hose - 1/2" x 26"

Step 11/127



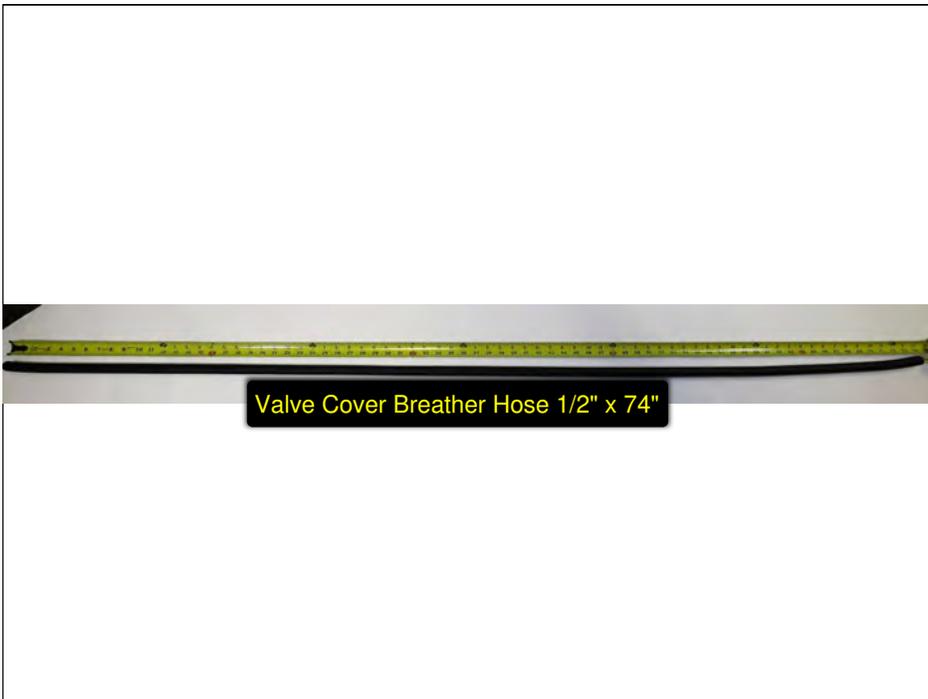
Block Breather Hose - 5/8" x 25"

Step 12/127



Comp Breather Hose 1" x 59"

Step 13/127



Valve Cover Breather Hose 1/2" x 74"

Step 14/127



Step 15/127



Step 16/127



Numbered annotations (7)

- 1 Atmospheric Vent Hose (Routed under vehicle)
- 2 1/2" Valve Cover Vent Hose - Driver side
- 3 1/2" Valve Cover Vent Hose - Passenger Side
- 4 5/8" Block Breather Vent- Top of Y fitting on Block Breather
- 5 1/2" Drain Hose
- 6 Coolant Hose 1
- 7 Coolant Hose 2

Step 17/127



Step 18/127

Numbered annotations (1)

- 1 Disconnect the negative battery cable.



Step 19/127

Numbered annotations (1)

- 2 Remove all hardware securing the intercooler and BPV to the vehicle.



Step 20/127

Numbered annotations (1)

- 3 Remove intercooler mounting bolt.



Step 21/127

Numbered annotations (1)

- 4 Unplug the electrical connector.



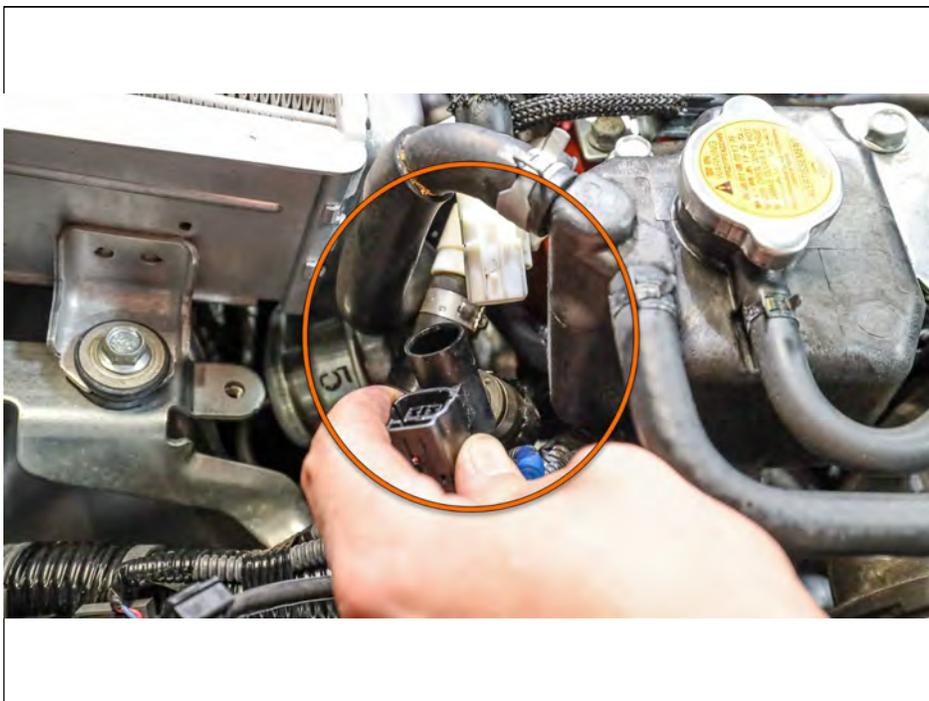
Step 22/127

Numbered annotations (1)

- 5 Unplug the PCV sensor electrical connector.



Step 23/127



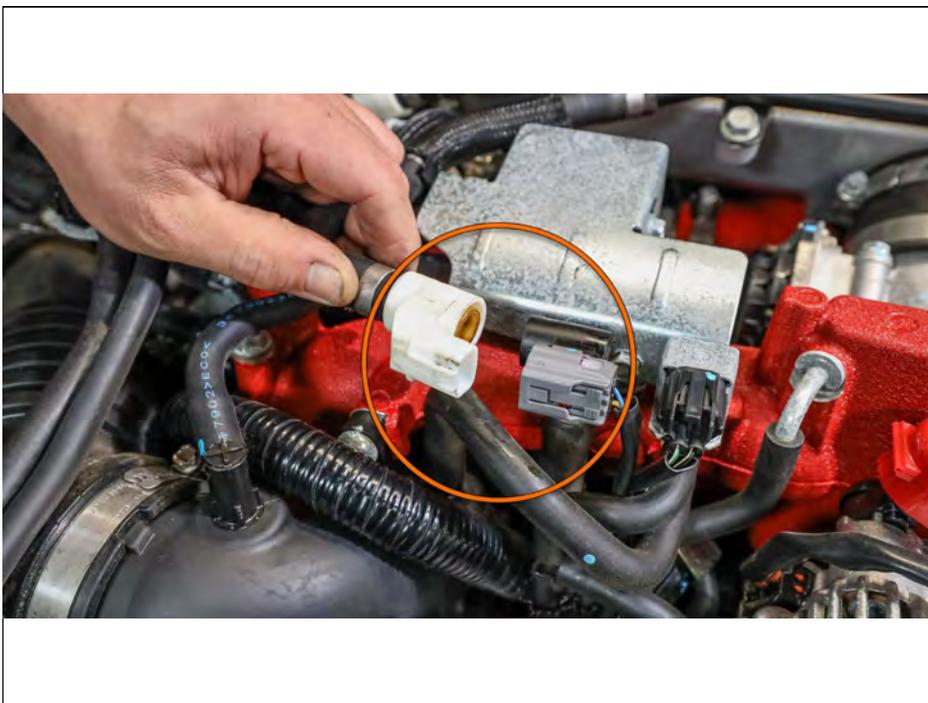
Step 24/127

Numbered annotations (1)

- 6 Unplug the PCV sensor electrical connector



Step 25/127



Step 26/127

Numbered annotations (1)

- 7 Unplug the PCV Sensor electrical connector.



Step 27/127



**Step 28/127**

Numbered annotations (1)

- 8 Remove the hardware holding the PCV crossover pipe to the intercooler.

**Step 29/127**

Numbered annotations (1)

- 9 Remove the PCV crossover pipe.

Step 30/127

Numbered annotations (1)

- 10 Remove the intercooler bracket hardware.



Step 31/127

Numbered annotations (1)

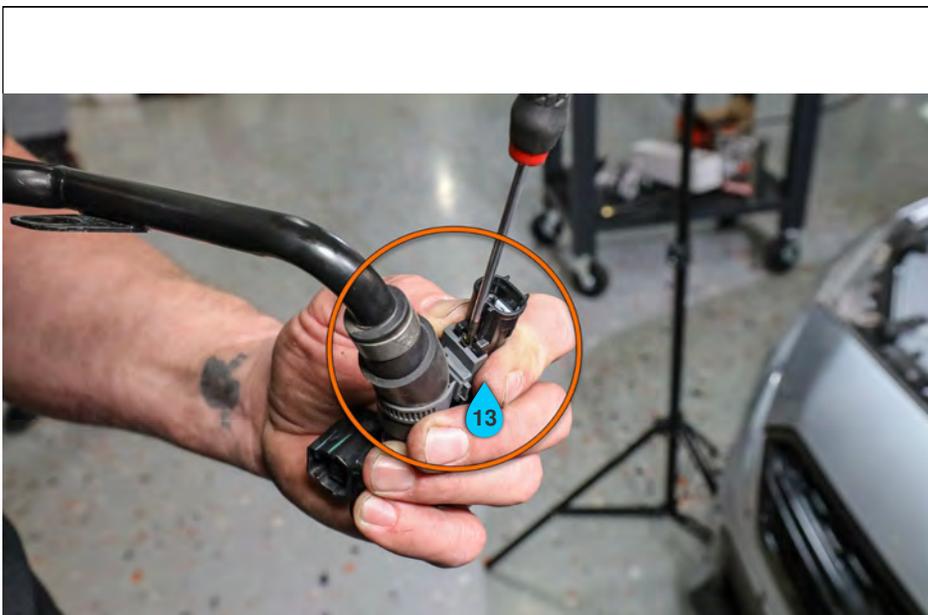
- 11 Loosen the throttle body to intercooler clamp



**Step 32/127**

Numbered annotations (1)

- 12 Remove the intercooler.

**Step 33/127**

Numbered annotations (1)

- 13 Use a small flathead to depress the clip and remove the electrical connector. from the end of the PCV crossover pipe.

Step 34/127



Step 35/127



Numbered annotations (1)

- 14 Remove the PCV connector from the end of the PCV crossover pipe.

Step 36/127



Step 37/127

Numbered annotations (1)

- 15 Locate the PCV connector and lay it down as shown in the next photo.



Step 38/127



Step 39/127

Numbered annotations (1)

- 16 Remove PCV sensor from hose.



Step 40/127



Step 41/127

Numbered annotations (1)

 Reinstall the sensor here.



Step 42/127

Numbered annotations (1)

- 18 Remove the PCV sensor from this hose.



Step 43/127



Step 44/127

Numbered annotations (1)

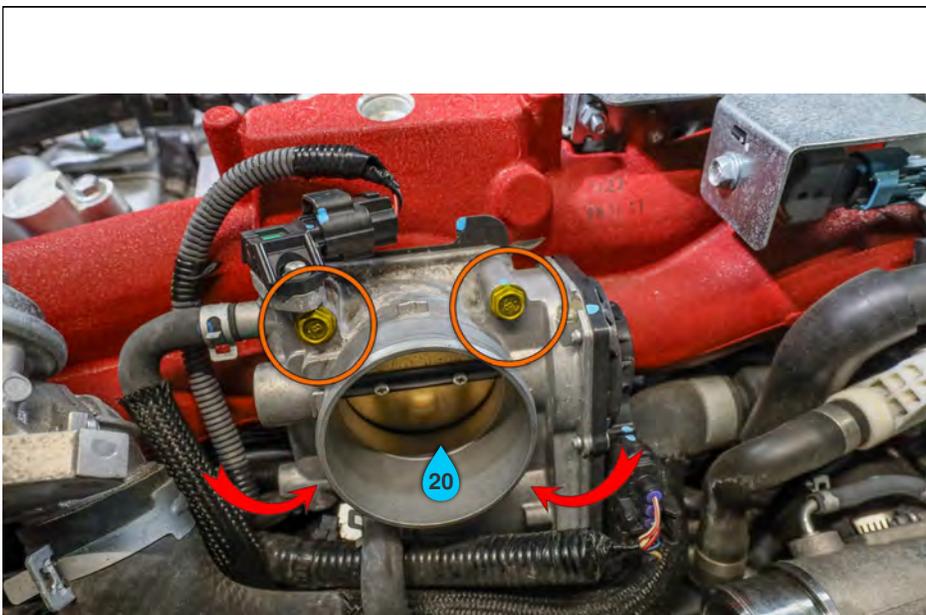
- 19 Reinstall the PCV sensor here.



Step 45/127

Numbered annotations (1)

- 20 Remove the four bolts securing the throttle body to the manifold.



Step 46/127

Numbered annotations (1)

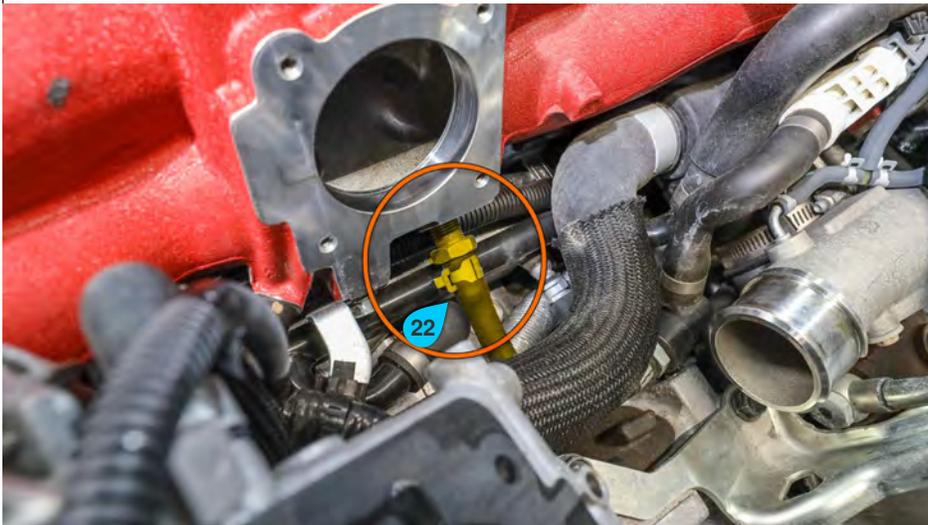
- 21 Lay the throttle body out of the way.



Step 47/127

Numbered annotations (1)

- 22 Locate the OEM PCV Valve nipple



Step 48/127

Numbered annotations (1)

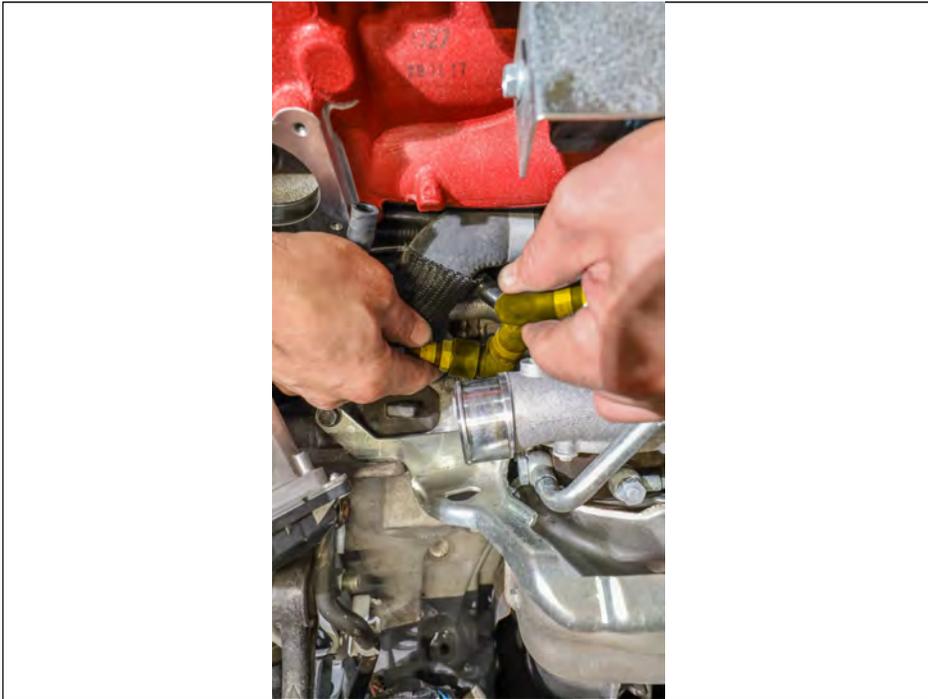
- 23 Loosen the clamp and remove the vacuum hose from the nipple. Remove this nipple and replace it with the supplied 1/4" NPT plug.

**Step 49/127**

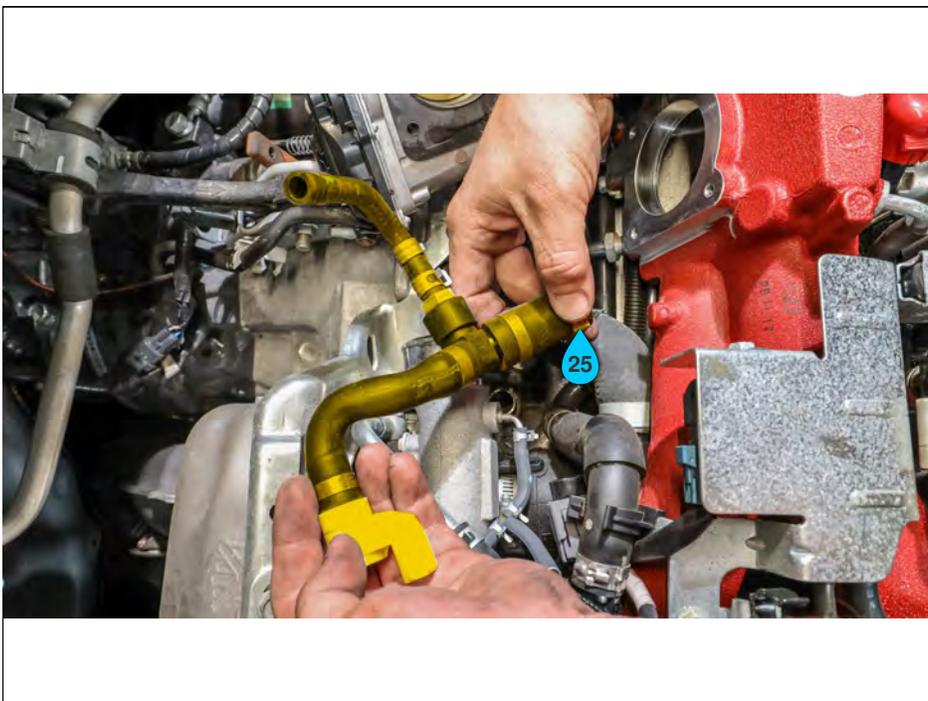
Numbered annotations (1)

- 24 Locate the block breather PCV assembly.





Step 50/127



Step 51/127

Numbered annotations (1)

- 25 Using a pick, remove the spring clamp holding the breather assembly to the block vent. Remove the hose assembly.

Step 52/127



Step 53/127



Numbered annotations (1)

- 26 Remove the PCV sensor from the hose.

Step 54/127



Step 55/127

Numbered annotations (1)

-  Install the PCV connector you removed in the last step here.



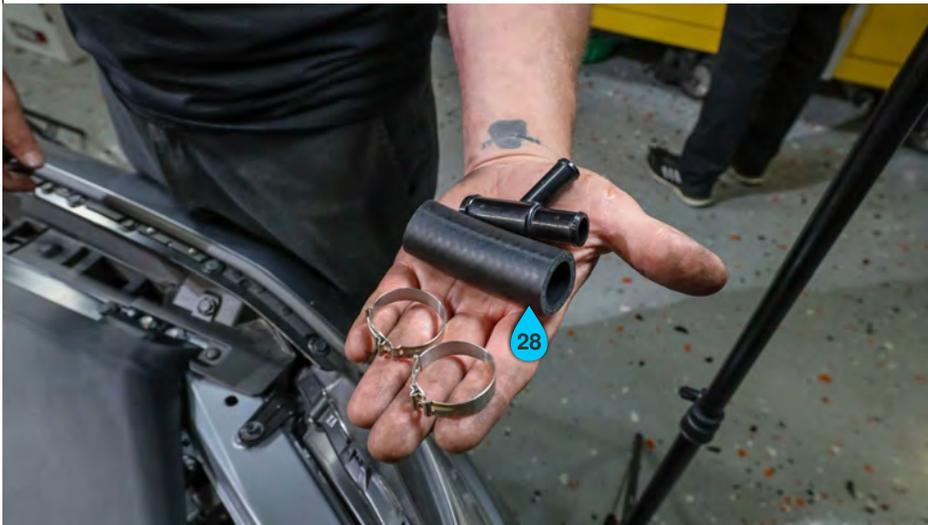
Step 56/127



Step 57/127

Numbered annotations (1)

- 28 Locate the supplied 3/4" x 2" breather hose, Y fitting, and spring clamps.



**Step 58/127**

Numbered annotations (1)

- 29 Install the spring clamps as shown. Tighten both clamps.

**Step 59/127**

Numbered annotations (1)

- 30 Lubricate the inside of the lower portion of the breather hose with silicone lube or petroleum jelly.

Step 60/127

Numbered annotations (1)

- 31 Push the hose assembly over the breather port.

**Step 61/127**

Numbered annotations (1)

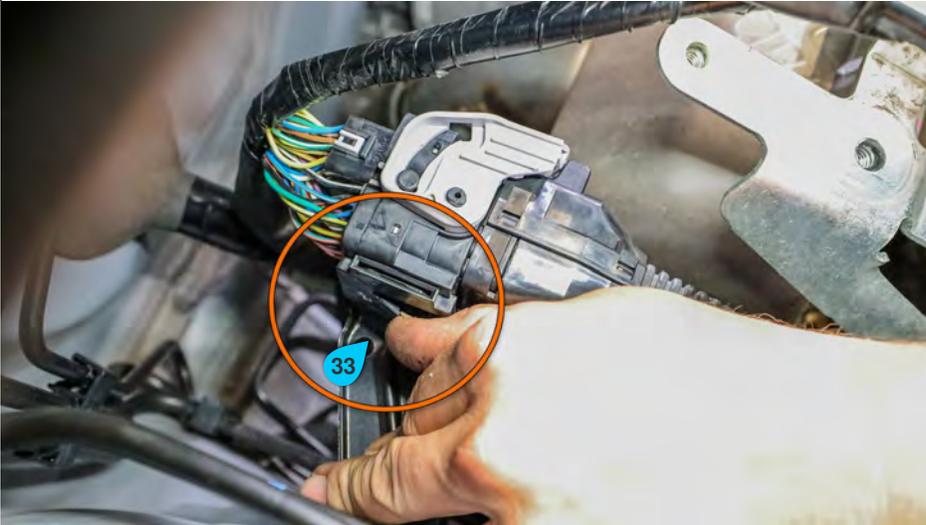
- 32 Use pliers to release the clip holding this wiring connector on the passenger side strut tower.



Step 62/127

Numbered annotations (1)

- 33 Release the harness retaining clip.



Step 63/127

Numbered annotations (1)

- 34 Remove harness from bracket.



Step 64/127



Numbered annotations (1)

- 35 Use machete to trim wiring harness insulation.

Step 65/127



Numbered annotations (1)

- 36 Just kidding, use a razor blade.

**Step 66/127**

Numbered annotations (1)

- 37 Unbolt and remove the wiring harness bracket.

**Step 67/127**

Numbered annotations (1)

- 38 Locate this harness connector and remove the retaining clip with pliers. Older model vehicles may not have this connector.

Step 68/127



Step 69/127



Numbered annotations (1)

- 39** Carefully trim electrical tape to release the branch of the harness.

Step 70/127

Numbered annotations (1)

- 40 Retape this portion of the harness.



Step 71/127

Numbered annotations (1)

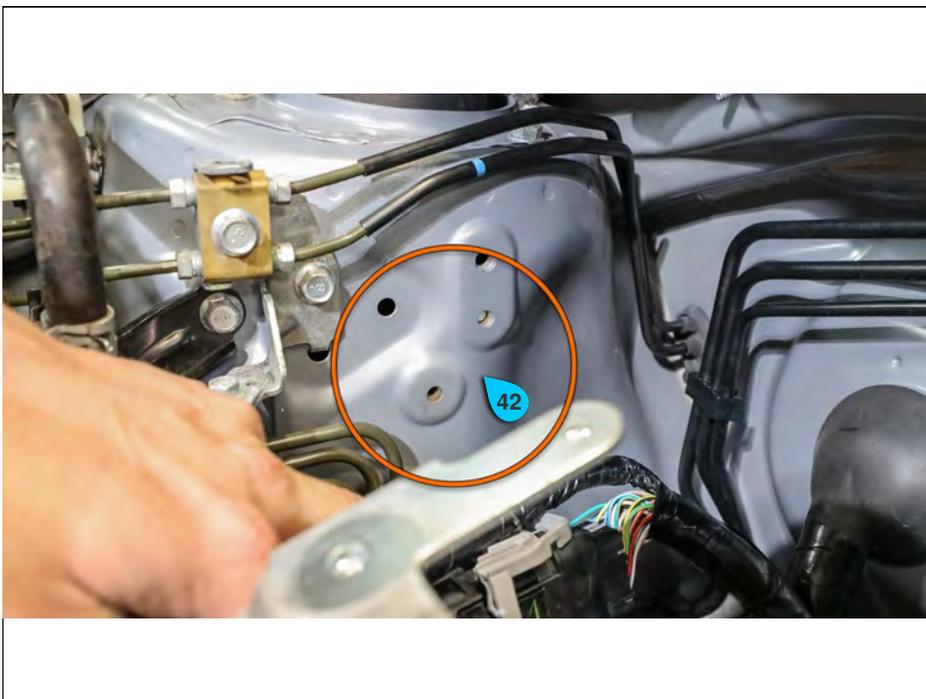
- 41 Install drain hose with supplied retaining clamp.



**Step 72/127**

Numbered annotations (1)

- 1 These fittings are preinstalled and torqued. The fitting is designed to swivel around the bolt. Do not remove or tighten further.

**Step 73/127**

Numbered annotations (1)

- 42 The AOS bracket will mount here. Make sure the threads are clean and free of any rust or debris.

Step 74/127



Numbered annotations (1)

- 43 Attach the AOS bracket using the supplied hardware. Torque the bolts 7 ft lbs.

Step 75/127



Numbered annotations (1)

- 44 Attach the AOS with the bracket and supplied hardware.

Step 76/127

Numbered annotations (1)

- 45 Install the supplied harness relocation bracket.



Step 77/127



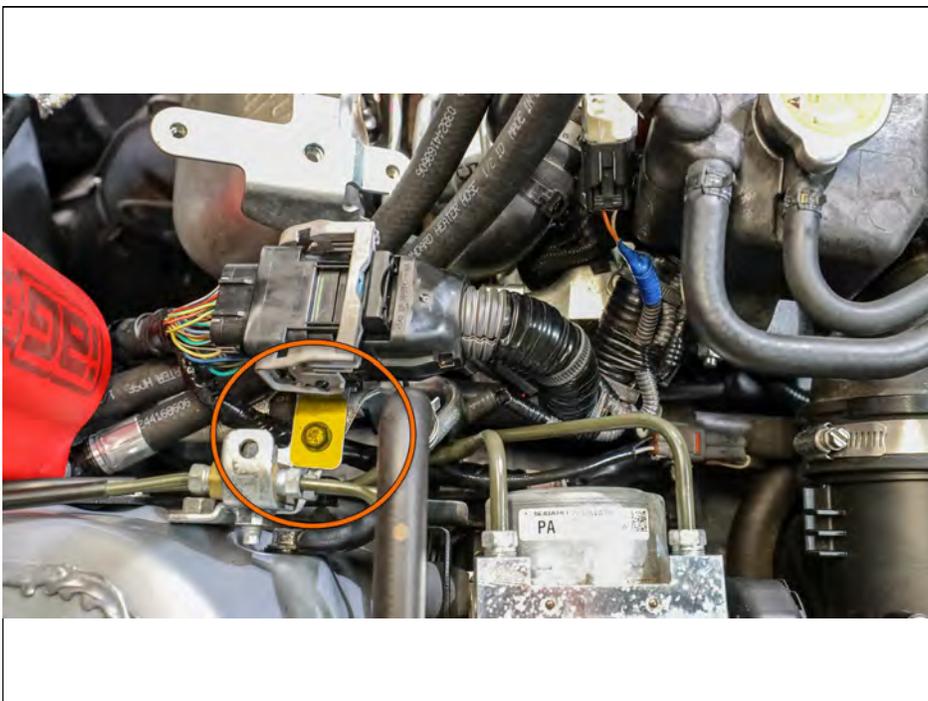
Step 78/127

Numbered annotations (1)

- 46 Bolt the open end of the harness relocation bracket here using the OEM hardware.



Step 79/127



Step 80/127

Numbered annotations (1)

- 47 Zip tie the harnesses together here.



Step 81/127

Numbered annotations (1)

- 48 Remove the retaining clamp and hose from the upper coolant line.



Step 82/127

Numbered annotations (1)

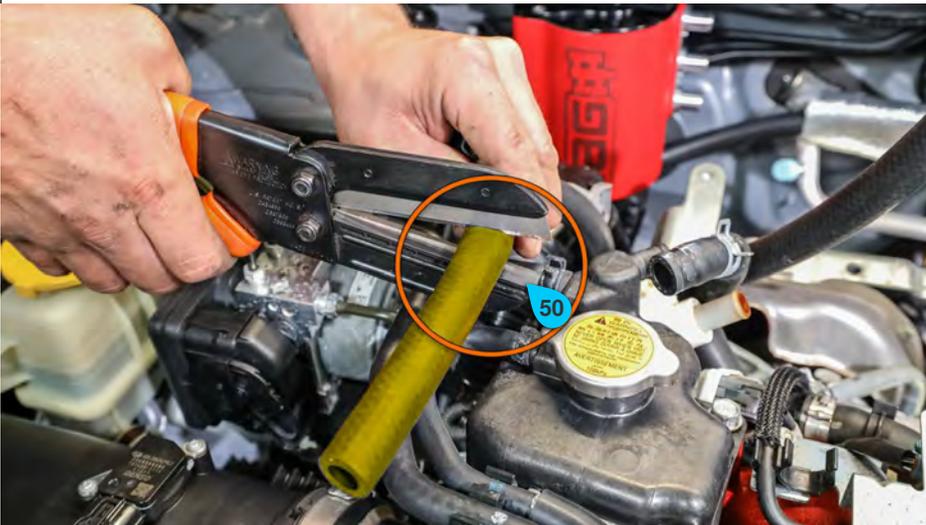
- 49 Measure one of the AOS coolant hoses for length to connect here.



Step 83/127

Numbered annotations (1)

- 50 Trim excess coolant hose.



Step 84/127

Numbered annotations (1)

- 51 Attach AOS coolant hose here with the supplied clamp.



Step 85/127

Numbered annotations (1)

- 52 Remove coolant hose retaining clip and remove hose.



Step 86/127



Step 87/127

Numbered annotations (1)

- 53 Measure and cut the other AOS coolant hose to length. Attach the hose here using the supplied clamp.



Step 88/127

Numbered annotations (1)

54 Cut and remove this retaining clip.



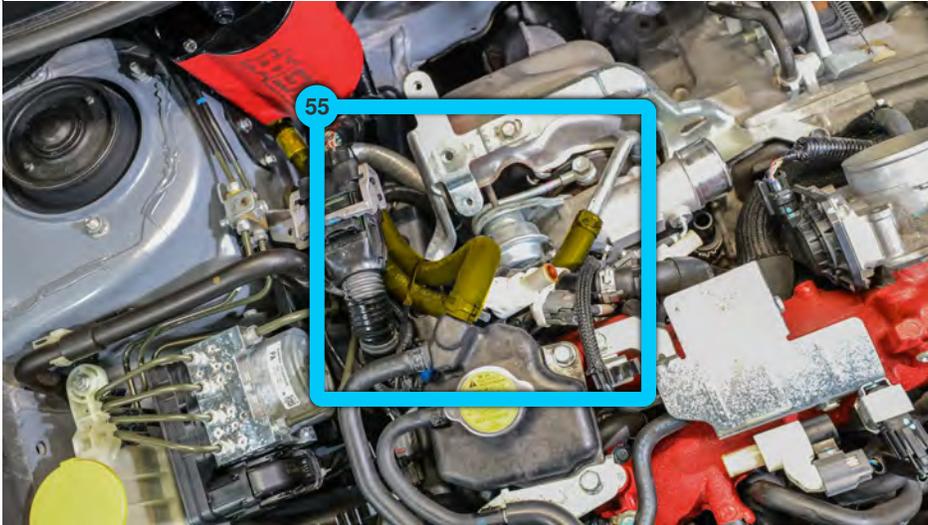
Step 89/127



Step 90/127

Numbered annotations (1)

- 55 Routing of the AOS Coolant Hoses.



Step 91/127

Numbered annotations (1)

- 56 Reposition throttle body.



Step 92/127

Numbered annotations (1)

- 57 Install the bolts for the throttle body.



Step 93/127

Numbered annotations (1)

- 58 Tighten all throttle body bolts to OEM specs.



Step 94/127



Numbered annotations (1)

- 59 Slide a 16" piece of heat sleeve over the AOS drain hose and route the AOS drain hose through this bracket.

Step 95/127



Numbered annotations (1)

- 60 Measure AOS drain hose for length

Step 96/127

Numbered annotations (1)

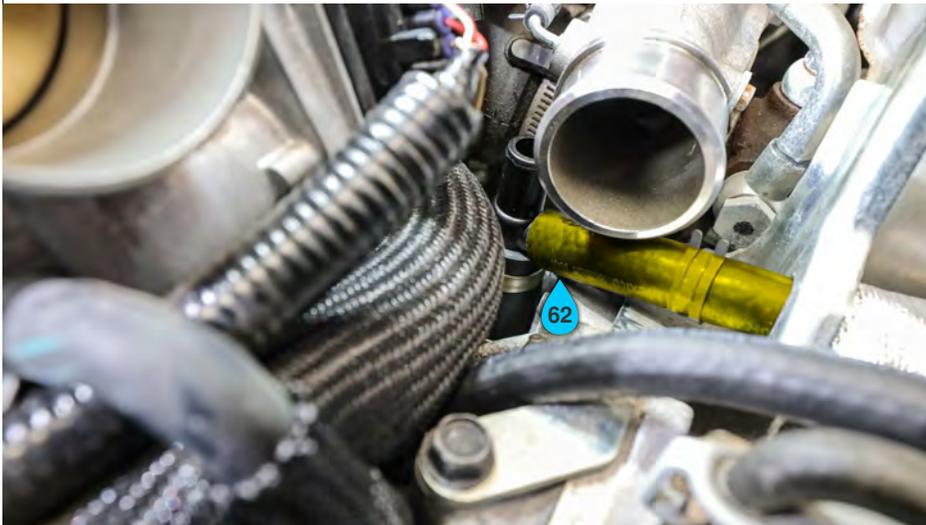
- 61 Trim excess AOS drain hose.



Step 97/127

Numbered annotations (1)

- 62 Attach AOS drain hose here using the supplied clamp.



Step 98/127

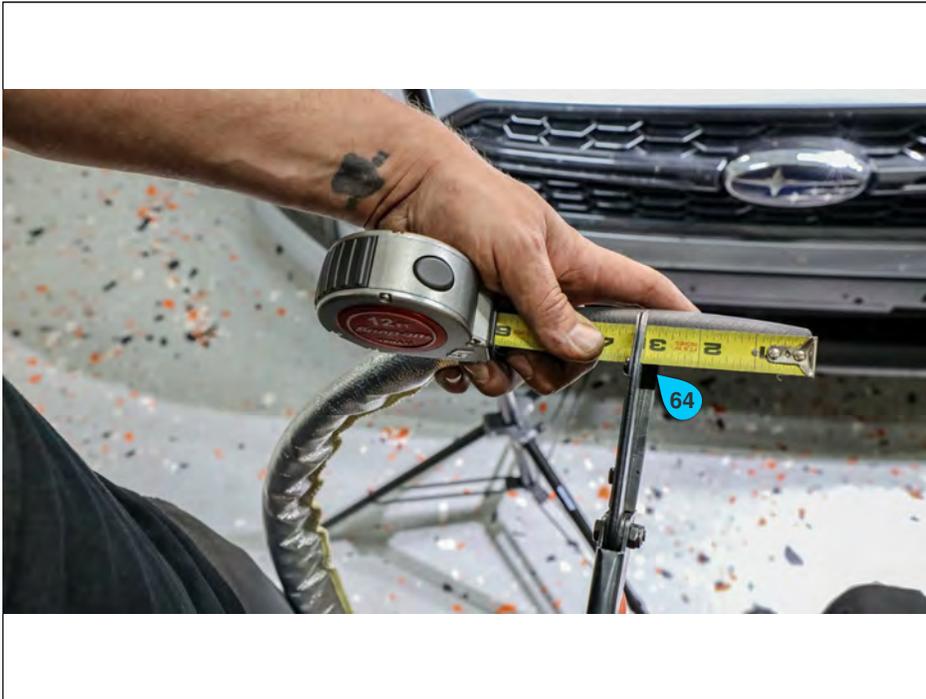


Step 99/127



Numbered annotations (1)

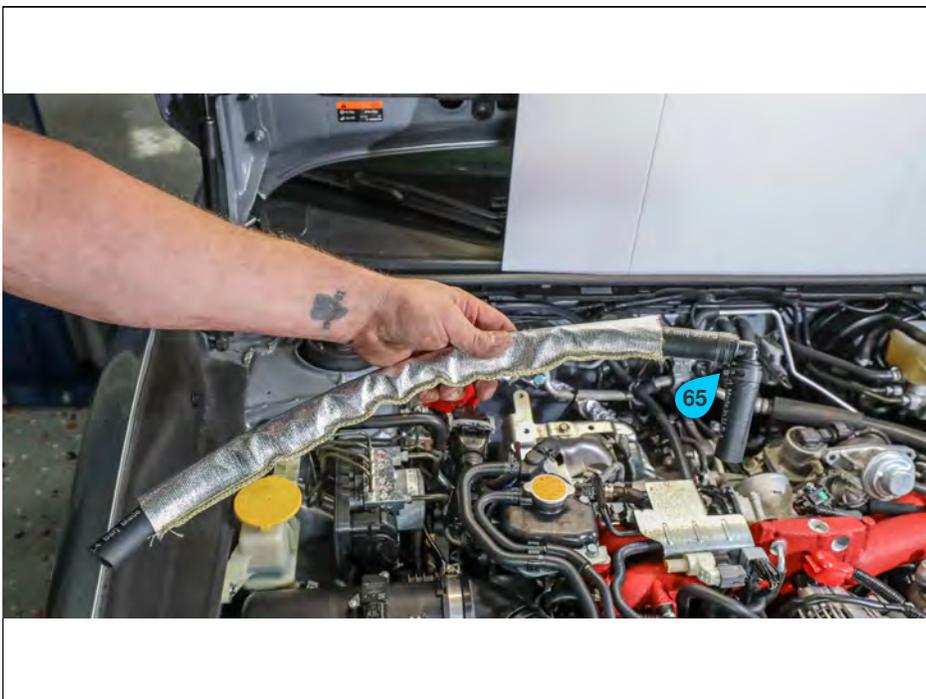
- 63 Secure the AOS drain hose here with a zip tie. Ensure that this hose is routed downhill the whole way to ensure proper drainage.



Step 100/127

Numbered annotations (1)

- 64 Locate the 5/8" AOS vent hose, measure 3" and cut the hose.



Step 101/127

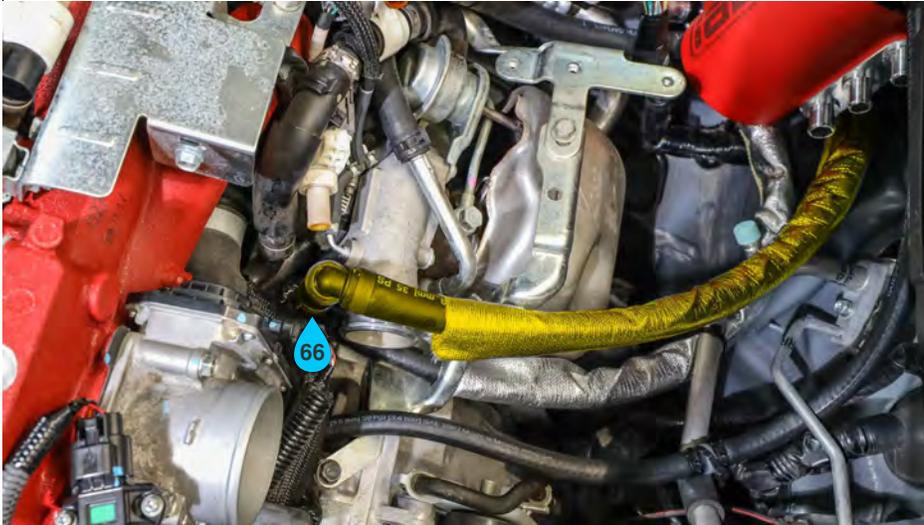
Numbered annotations (1)

- 65 Install the 5/8" 90 degree elbow between the two hose pieces here. Secure with the supplied camps. Slide the other 16" piece of heat sleeve over the hose as shown.

Step 102/127

Numbered annotations (1)

- 66 Attach the short end of the hose here using the supplied clamp.

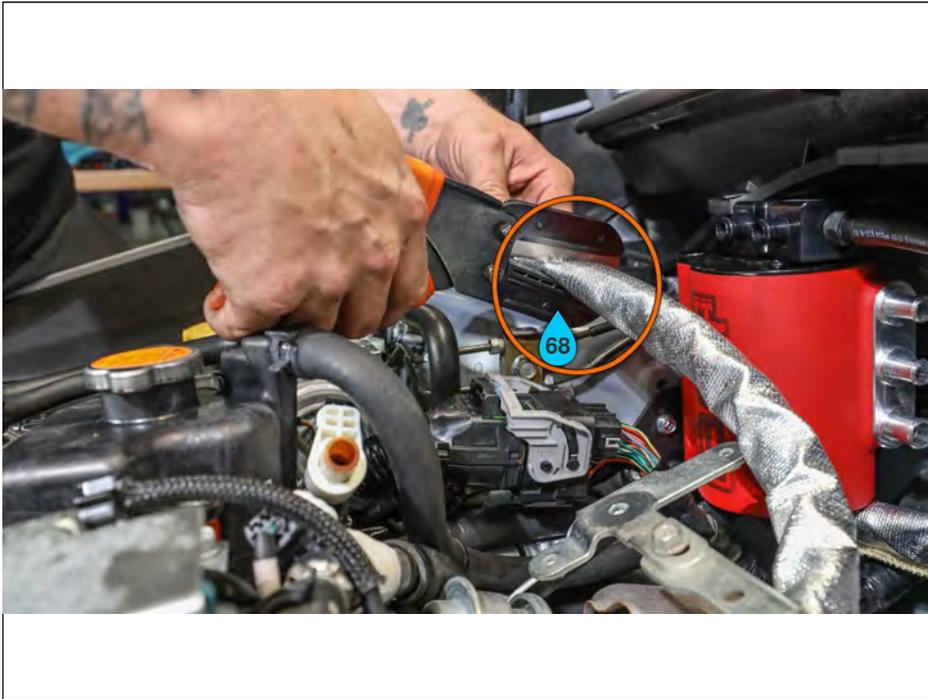


Step 103/127

Numbered annotations (1)

- 67 Measure 5/8" vent hose for length.

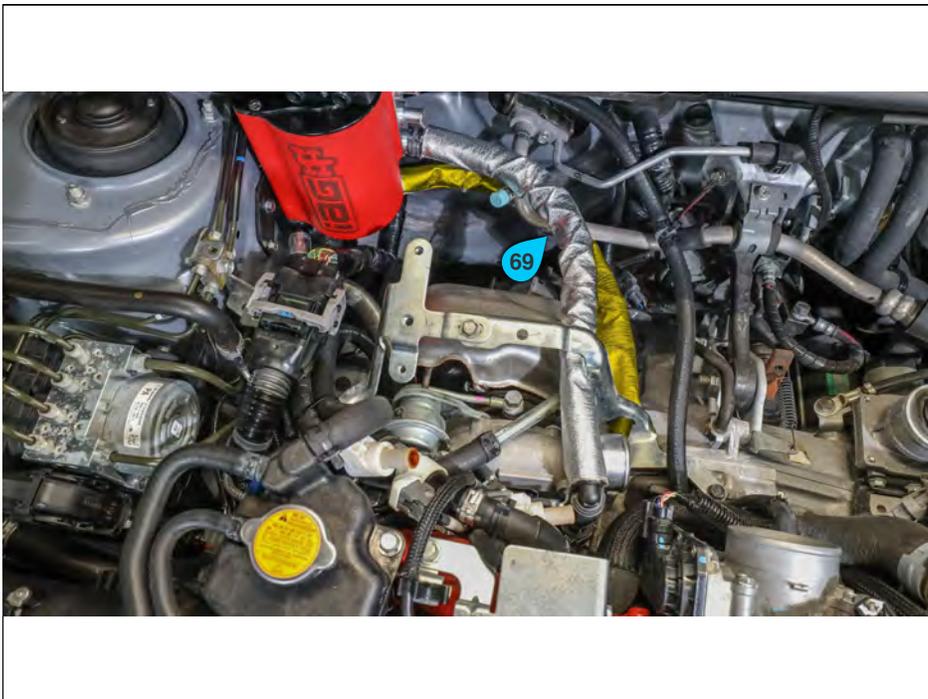




Step 104/127

Numbered annotations (1)

- 68 Trim excess vent hose.



Step 105/127

Numbered annotations (1)

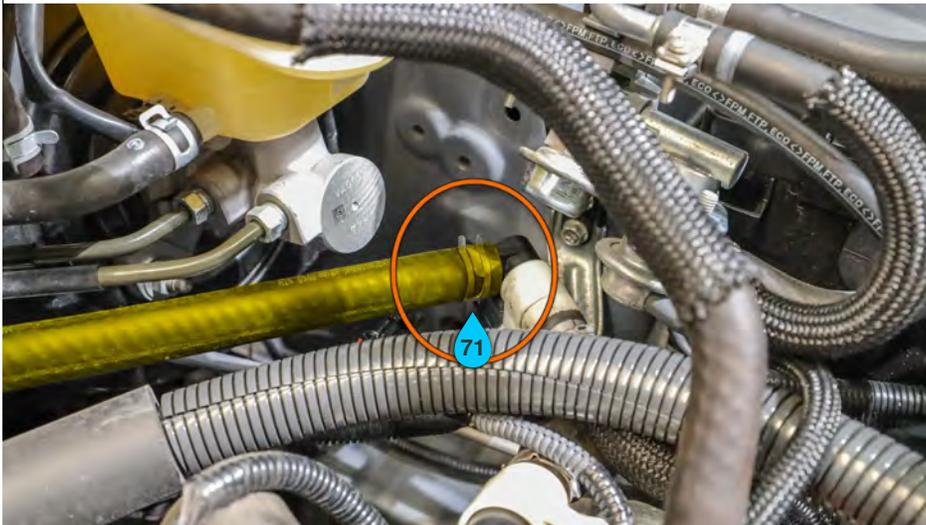
- 69 Routing of vent hose.



Step 106/127

Numbered annotations (1)

- 70 Attach vent hose here using the supplied clamp.



Step 107/127

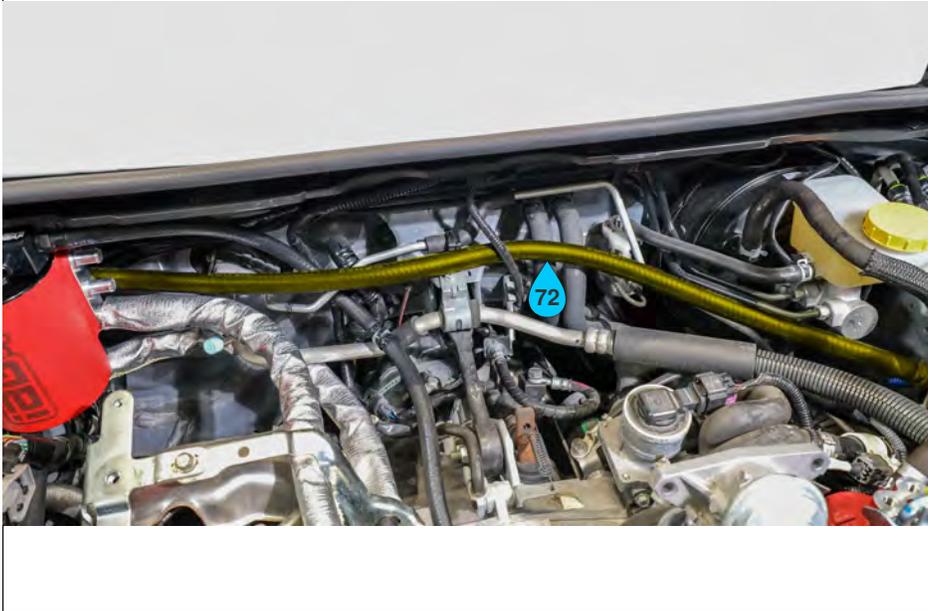
Numbered annotations (1)

- 71 On the driver side attach the 74" long 1/2" AOS valve cover vent hose here using the supplied clamp. If your vehicle does not have the sensor then connect this hose to the front port of the driver side valve cover.

Step 108/127

Numbered annotations (1)

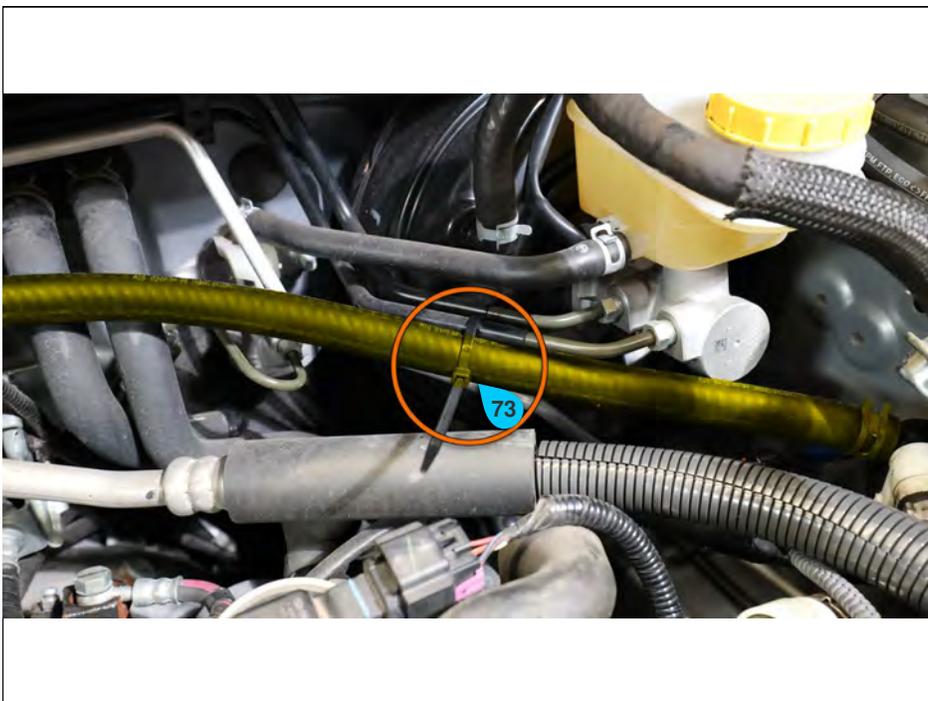
- 72 Routing of the driver side valve cover vent hose.



Step 109/127

Numbered annotations (1)

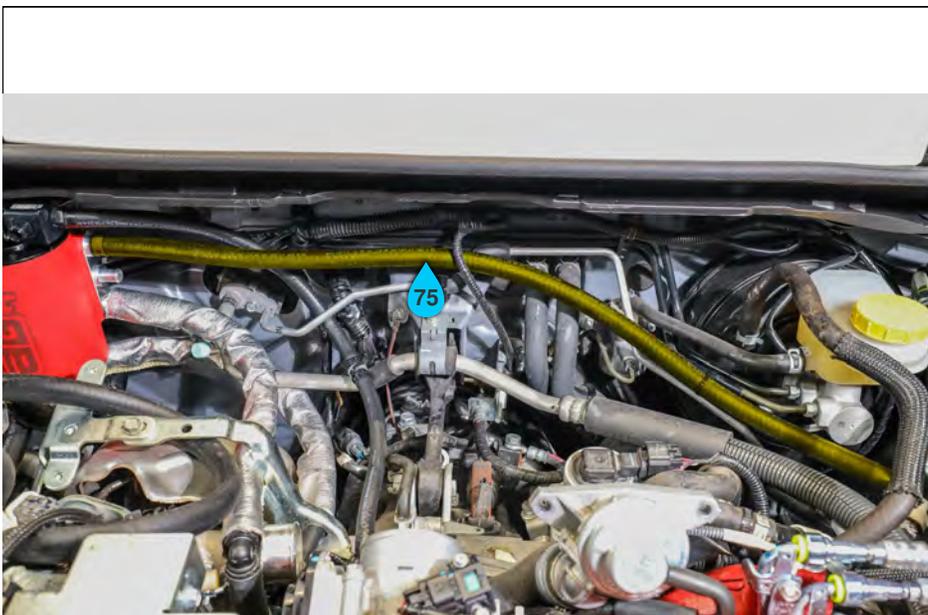
- 73 Secure the vent hose here with a zip tie.



**Step 110/127**

Numbered annotations (1)

- 74 Measure the vent hose and trim to length. Reserve the remaining hose.

**Step 111/127**

Numbered annotations (1)

- 75 Routing of vent hose.

Step 112/127

Numbered annotations (1)

- 76 Attach the vent hose here using the supplied clamp.

**Step 113/127**

Numbered annotations (1)

- 77 Slide the 12" piece of heat sleeve over the reserved 1/2" valve cover hose attach the vent hose here using the supplied clamp. If your vehicle does not have this sensor you will need to connect this hose to the front port of the passenger side valve cover.



Step 114/127



Numbered annotations (1)

- 78 Routing of passenger side AOS valve cover vent hose.

Step 115/127



Numbered annotations (1)

- 79 Measure and cut hose to length.

Step 116/127

Numbered annotations (1)

- 80 Attach passenger side AOS valve cover vent hose here using the supplied clamp.

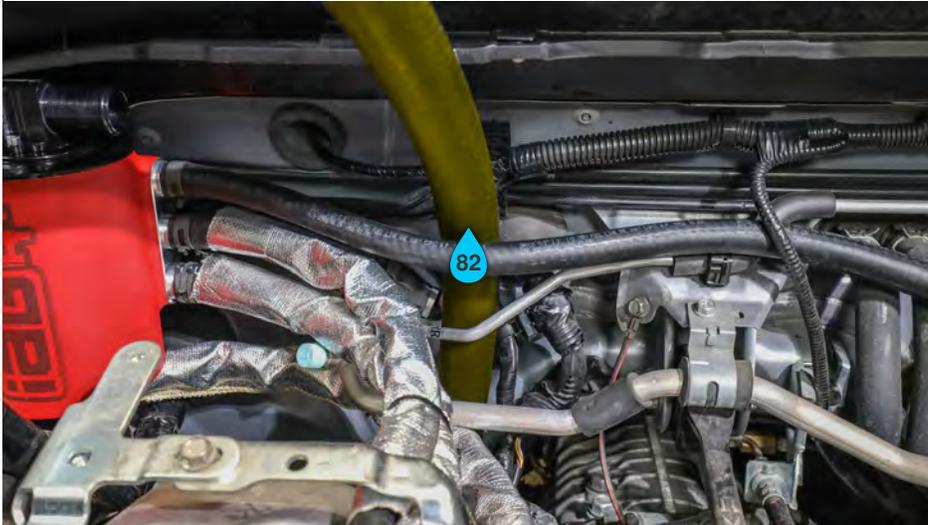
**Step 117/127**

Numbered annotations (1)

- 81 Secure these hoses together with zip ties.



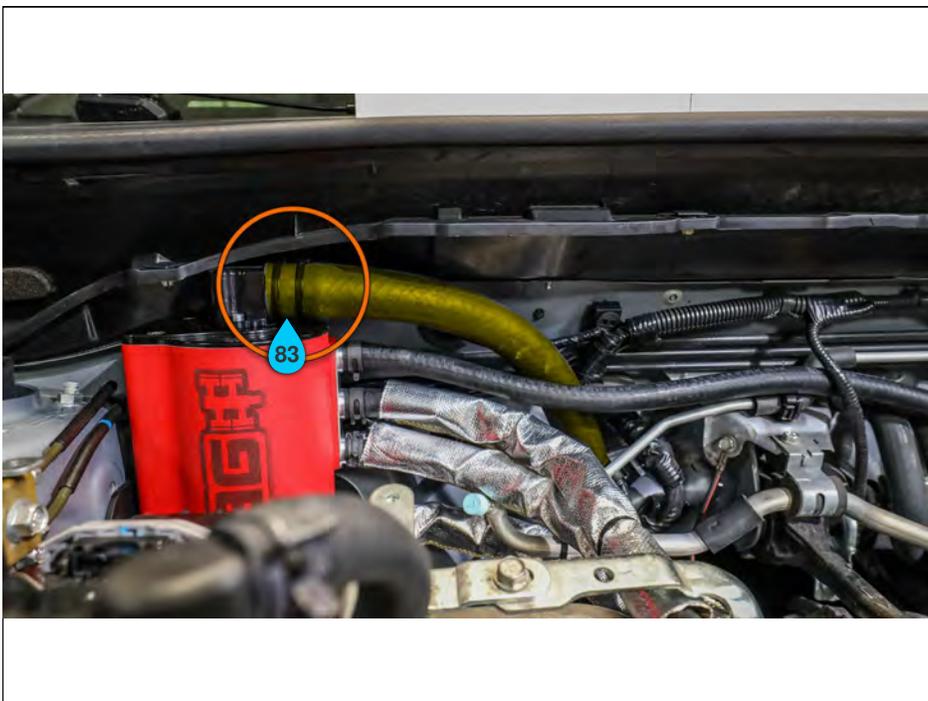
Step 118/127



Numbered annotations (1)

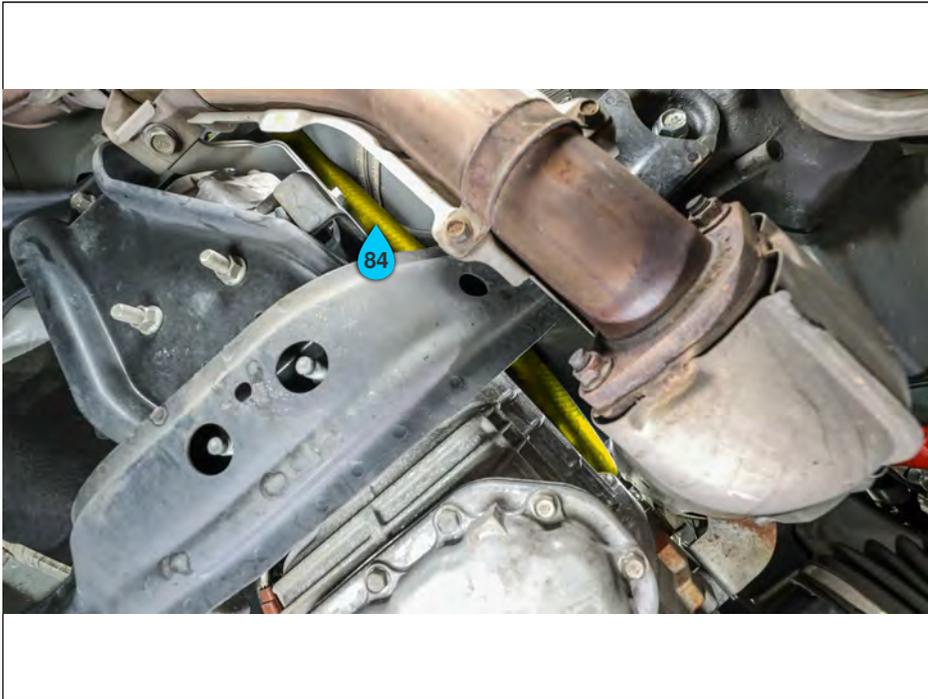
- 82 Route the 1" AOS breather hose through here.

Step 119/127



Numbered annotations (1)

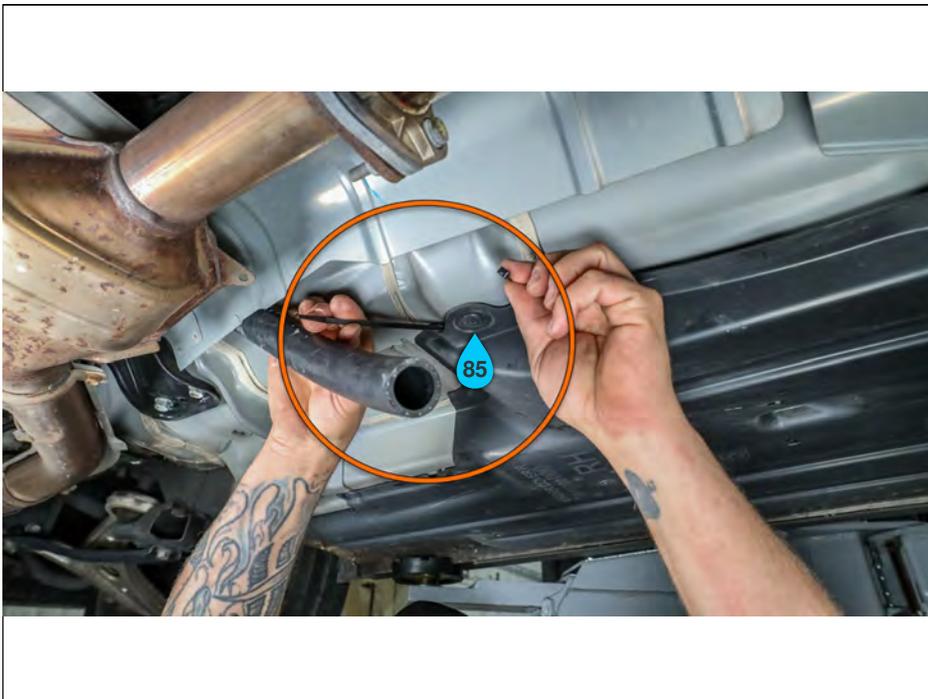
- 83 Connect the 1" vent hose here. Secure with two zip ties.



Step 120/127

Numbered annotations (1)

84 Route the 1" vent hose here.



Step 121/127

Numbered annotations (1)

85 Loop a zip tie through here.

Step 122/127

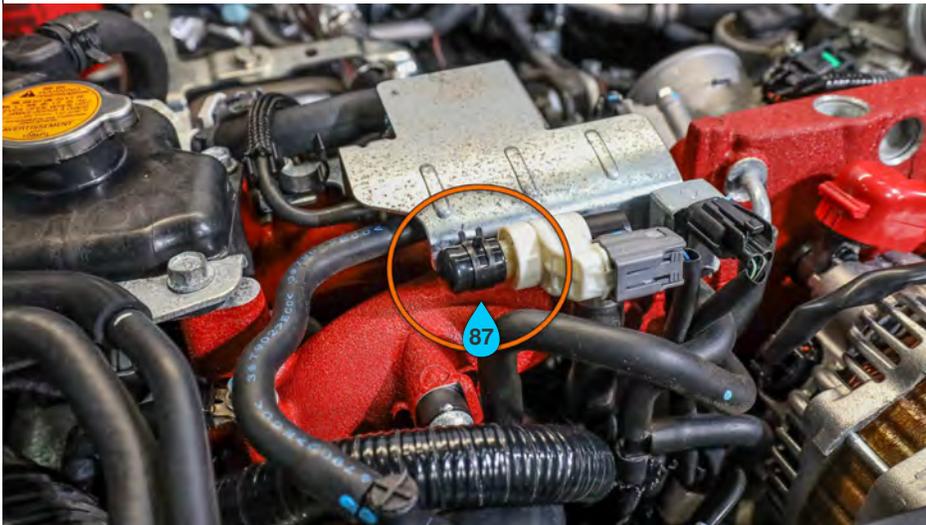
Numbered annotations (1)

- 86** Pass the hose through the looped zip tie and tighten to secure.

**Step 123/127**

Numbered annotations (1)

- 87** Install the supplied vacuum cap here, secured with the supplied clamp. If you have an aftermarket inlet use the cap to cap off the port on the turbo inlet hose.



Step 124/127

Numbered annotations (1)

- 88 Install the other supplied vacuum cap here and secure it with the supplied clamp.



Step 125/127

Numbered annotations (1)

- 89 Reinstall the intercooler.





Step 126/127

Numbered annotations (1)

- 90 Reconnect the negative battery terminal.



Step 127/127

Numbered annotations (1)

- 91 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.