

## **IAG COMPETITION SERIES AOS FOR 2008-14 STI**



### **IAG Competition Series Air / Oil Separator (AOS) For 2008-14 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.

Step 1/122

Step 2/122

## IAG-ENG-7281 Competition Series Air / Oil Separator (AOS) For 2008-2014 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.

### NOTICE

These instructions are for the IAG-ENG-7281 Competition Series AOS for 2008-2014 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 3/122

**Step 4/122**

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 5/122**

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

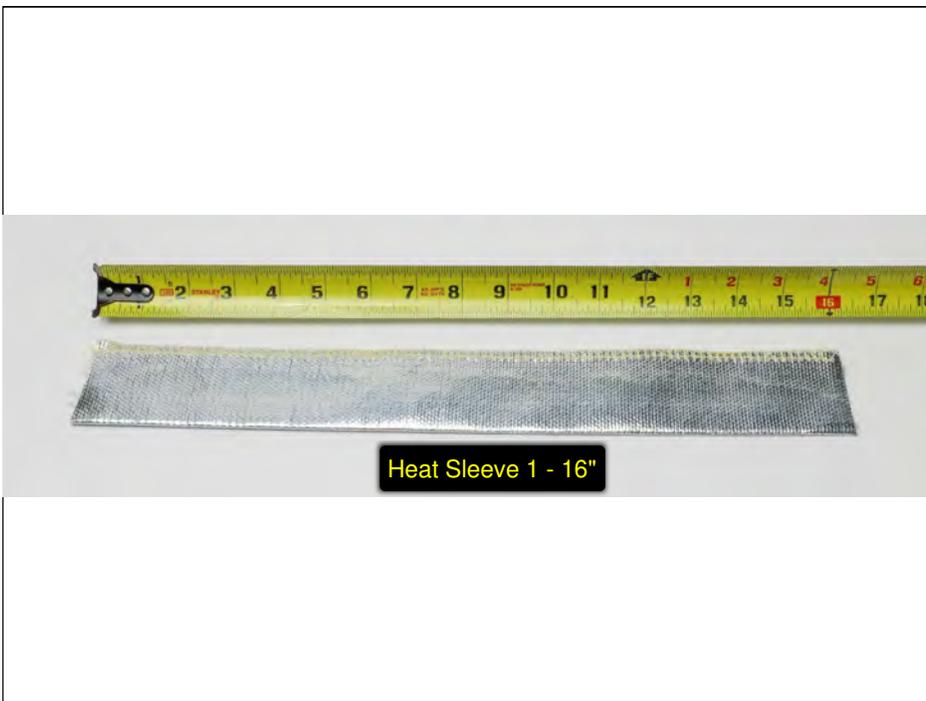
### Step 6/122

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 7/122



Heat Sleeve 1 - 16"

**Step 8/122**



**Heat Sleeve 2 - 16"**

**Step 9/122**



**Heat Sleeve 3 - 12"**

**Step 10/122**



**AOS Drain Hose - 1/2" x 26"**

**Step 11/122**



**Block Breather Hose - 5/8" x 25"**

**Step 12/122**



**Comp Breather Hose 1" x 59"**

**Step 13/122**



**Valve Cover Breather Hose 1/2" x 74"**

**Step 14/122**



**Step 15/122**



### Step 16/122



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 17/122



### Step 18/122

Numbered annotations (1)

- 1 Disconnect the negative battery terminal



### Step 19/122

Numbered annotations (2)

- 2 Loosen the clamps on these hoses
- 3 Remove this intercooler mounting bolt.



### Step 20/122

Numbered annotations (1)

- 4 Disconnect this hose.



### Step 21/122

Numbered annotations (1)

- 5 Remove this hose.



### Step 22/122

Numbered annotations (1)

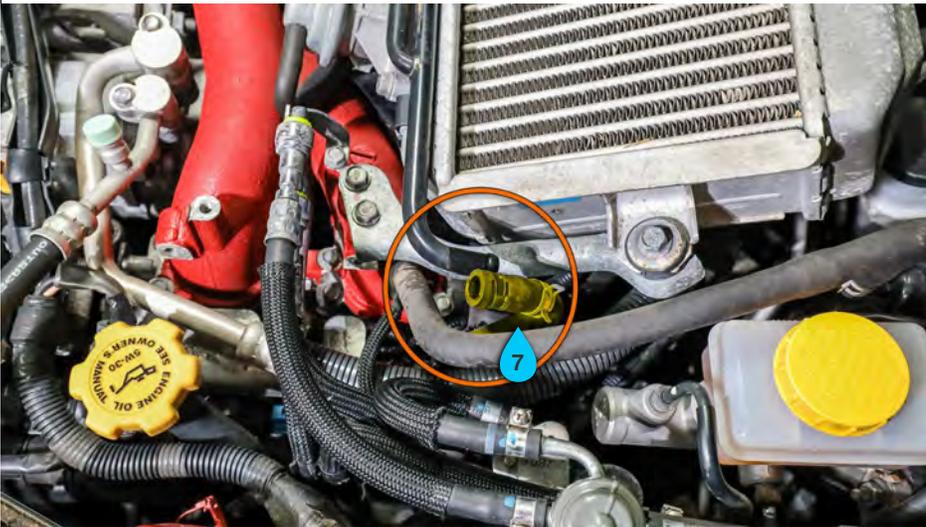
- 6 Disconnect this hose.



### Step 23/122

Numbered annotations (1)

- 7 Loosen the clamp and disconnect this hose.



### Step 24/122

Numbered annotations (1)

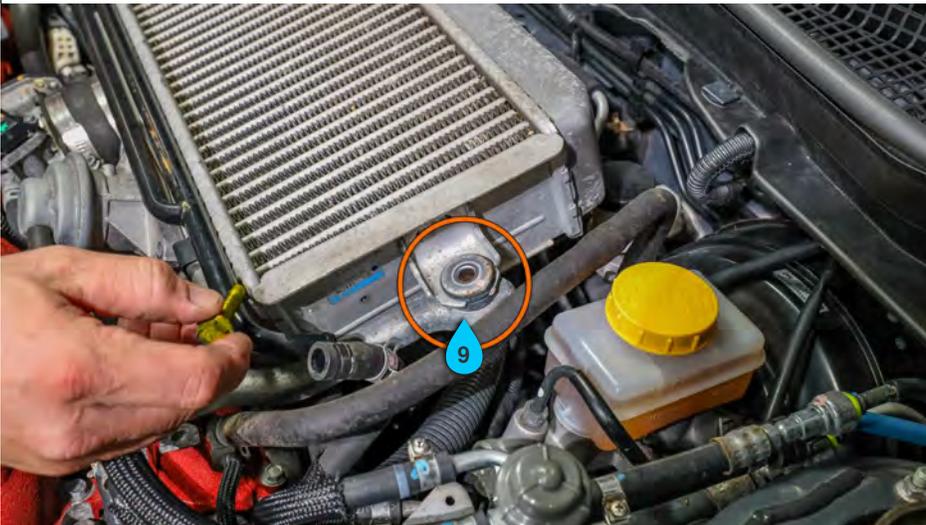
8 Remove these bolts.



### Step 25/122

Numbered annotations (1)

9 Remove this intercooler mounting bolt.



### Step 26/122

Numbered annotations (1)

10 Loosen these clamps.



### Step 27/122

Numbered annotations (1)

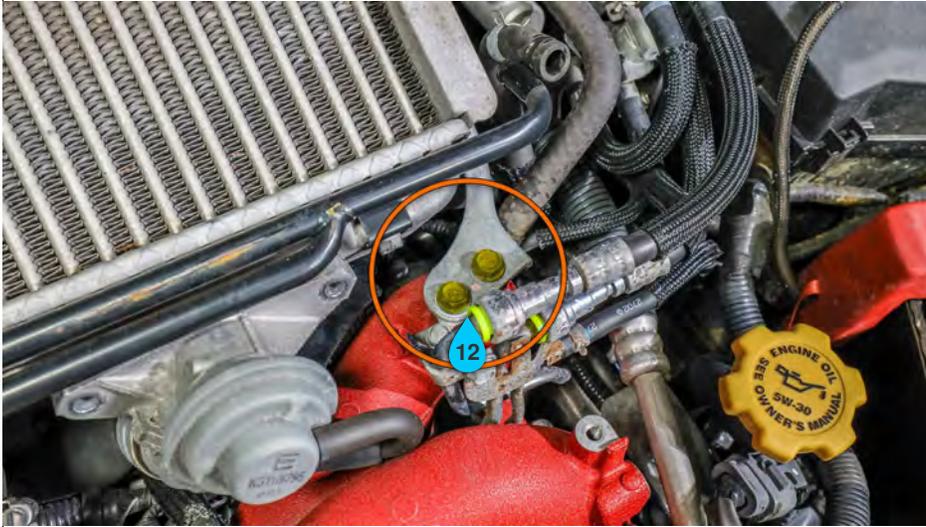
11 Loosen this clamp.



### Step 28/122

Numbered annotations (1)

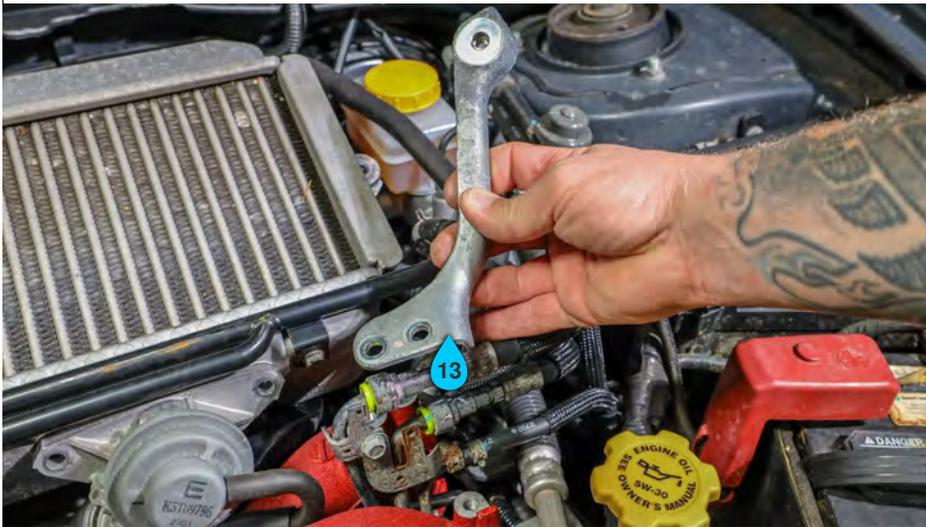
12 Remove these bolts.



### Step 29/122

Numbered annotations (1)

13 Remove this bracket.



### Step 30/122

Numbered annotations (1)

- 14 Remove the intercooler.



### Step 31/122

Numbered annotations (1)

- 15 Remove these bolts.



### Step 32/122

Numbered annotations (1)

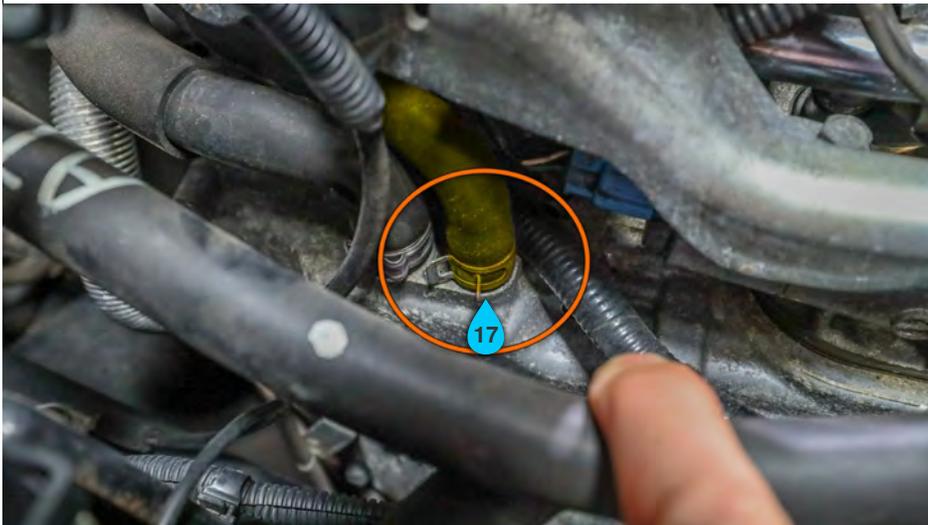
- 16 Remove the PCV crossover tube from the intercooler.



### Step 33/122

Numbered annotations (1)

- 17 Loosen the clamp and remove this hose from the passenger side valve cover.



### Step 34/122

Numbered annotations (1)

- 18 Remove the breather hose.



### Step 35/122

Numbered annotations (1)

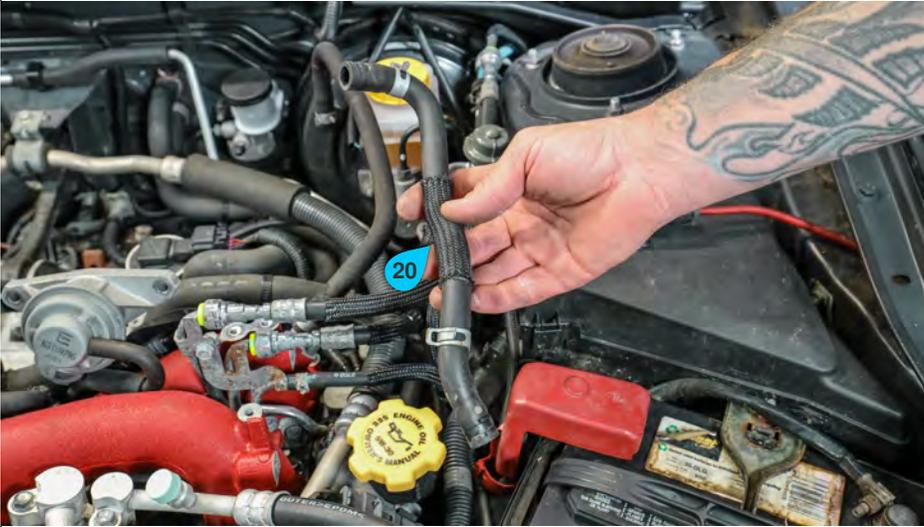
- 19 Loosen the clamp and disconnect this hose on the driver side valve cover.



### Step 36/122

Numbered annotations (1)

- 20 Remove the breather hose.



### Step 37/122

Numbered annotations (1)

- 21 Use a pick tool to release this spring clamp.



### Step 38/122



Numbered annotations (1)

- 22 Disconnect the hose.

### Step 39/122



Numbered annotations (1)

- 23 Remove the throttle body.

### Step 40/122

Numbered annotations (1)

- 24 Move the throttle body out of the way.



### Step 41/122

Numbered annotations (1)

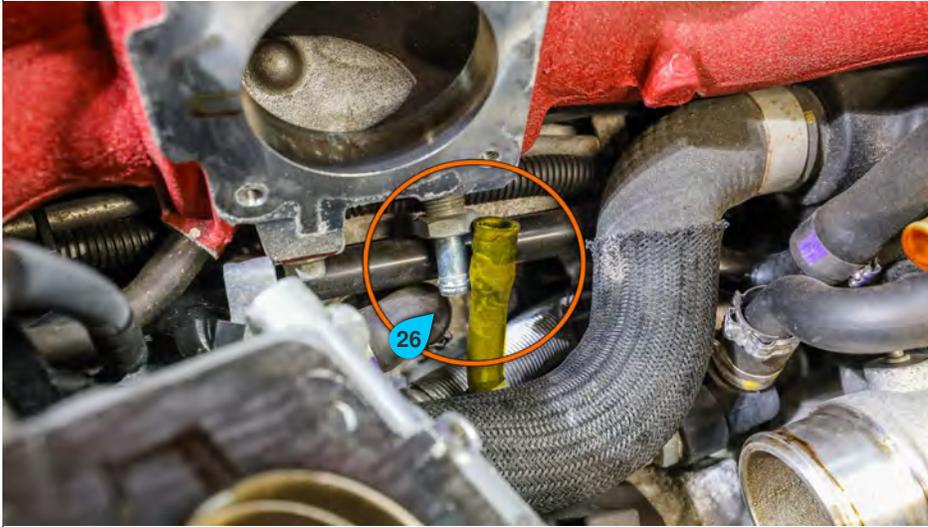
- 25 Loosen this clamp on the PCV vacuum hose nipple.



### Step 42/122

Numbered annotations (1)

- 26 Remove the hose.



### Step 43/122

Numbered annotations (1)

- 27 Remove the PCV vacuum hose nipple.



### Step 44/122

Numbered annotations (1)

- 28 Install the supplied 1/4" NPT plug



### Step 45/122

Numbered annotations (1)

- 29 Torque the supplied NPT plug to 15 ft/lbs.



**Step 46/122**

Numbered annotations (1)



- 30 Use a pick tool to remove the lower spring clamp and remove the PCV hose assembly from the block vent.

**Step 47/122**



### Step 48/122

Numbered annotations (1)

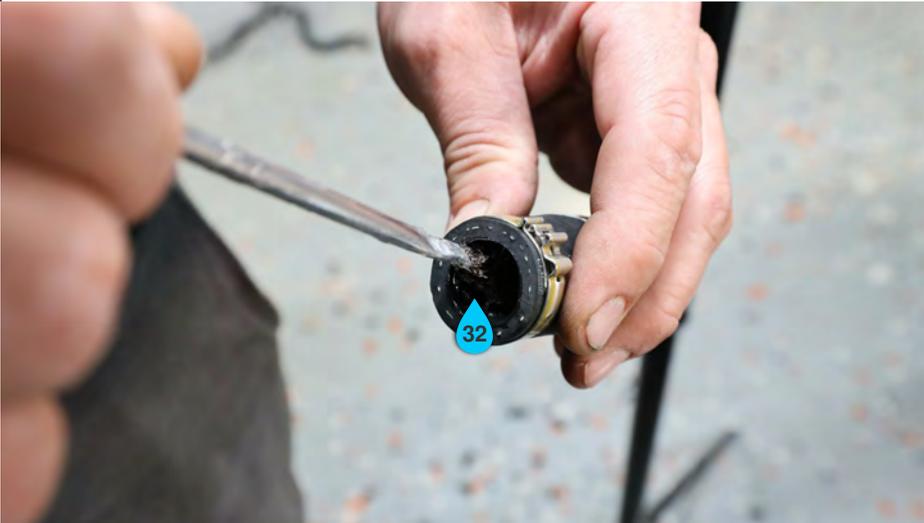
- 31 Attach the block breather hose to the supplied Y fitting and tighten both clamps.



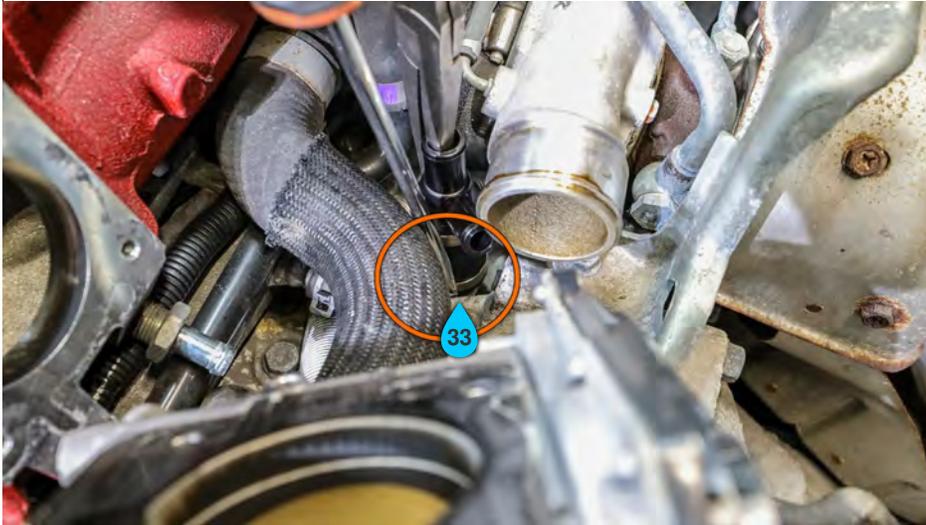
### Step 49/122

Numbered annotations (1)

- 32 Lubricate the inside of this hose with petroleum jelly or silicone lube.



### Step 50/122



Numbered annotations (1)

- 33 Push the assembly over the bard on the block vent. It's useful to use pliers and a screwdriver to help push the assembly over the barb.

### Step 51/122



### Step 52/122

Numbered annotations (1)

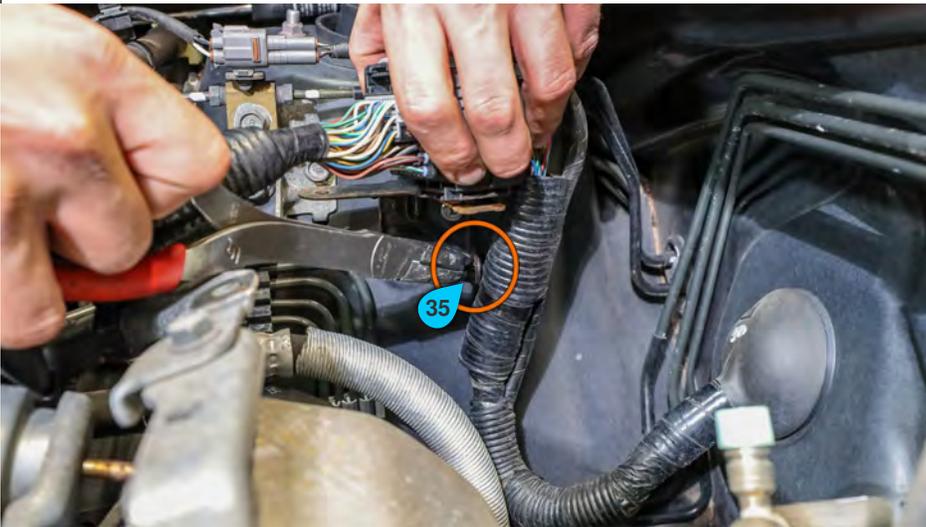
- 34 Release the wiring harness retaining tab.



### Step 53/122

Numbered annotations (1)

- 35 Use pliers to remove this zip tie from the bracket.



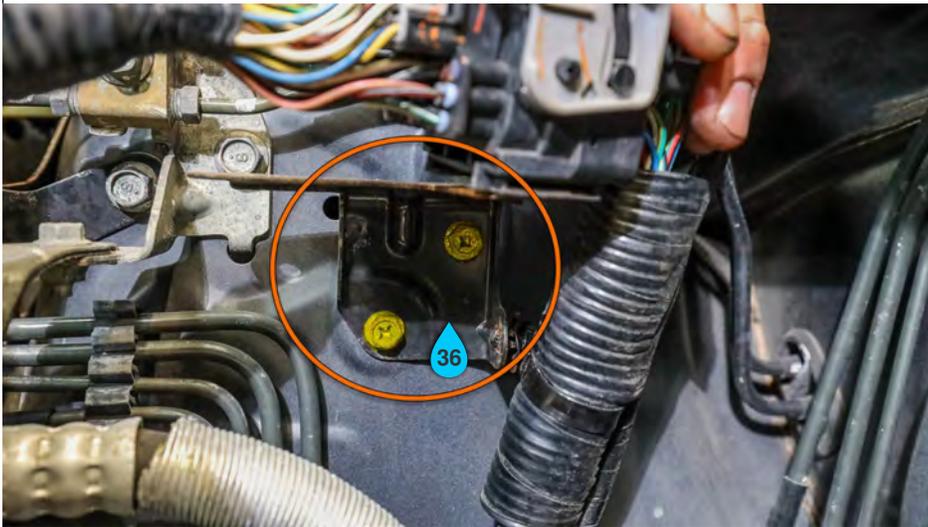
**Step 54/122**



**Step 55/122**

Numbered annotations (1)

**36** Remove these bolts.



### Step 56/122

Numbered annotations (1)

- 37 Remove the wiring harness bracket.



### Step 57/122

Numbered annotations (1)

- 38 Use pliers to release the clip for the oxygen sensor connector.



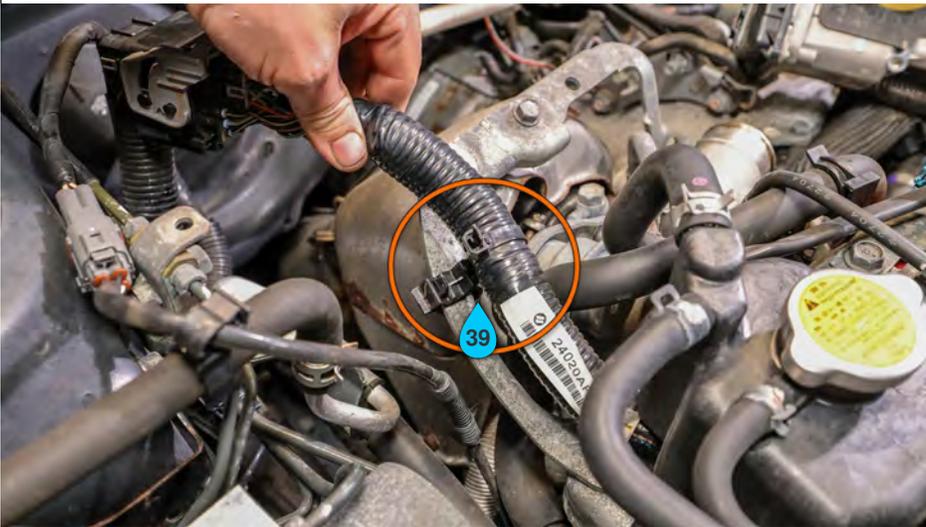
**Step 58/122**



**Step 59/122**

Numbered annotations (1)

- 39 Disconnect this zip tie.



**Step 60/122**



**Step 61/122**

Numbered annotations (1)

- 40 Remove the harness retaining zip tie.



**Step 62/122**

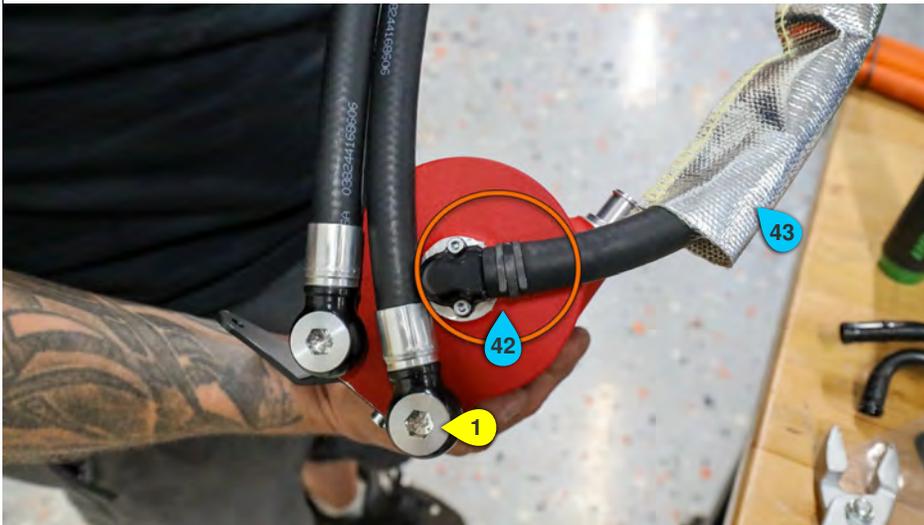
Numbered annotations (1)

- 41 Attach the AOS bracket using the supplied hardware.

**Step 63/122**

Numbered annotations (3)

- 42 Attach the AOS drain hose using the supplied clamp.
- 43 Slide a 16" section of heat sleeve over the drain hose.
- 1 These fittings are preinstalled and torqued. The fitting is designed to swivel around the bolt. Do not remove or tighten further.



### Step 64/122

Numbered annotations (1)

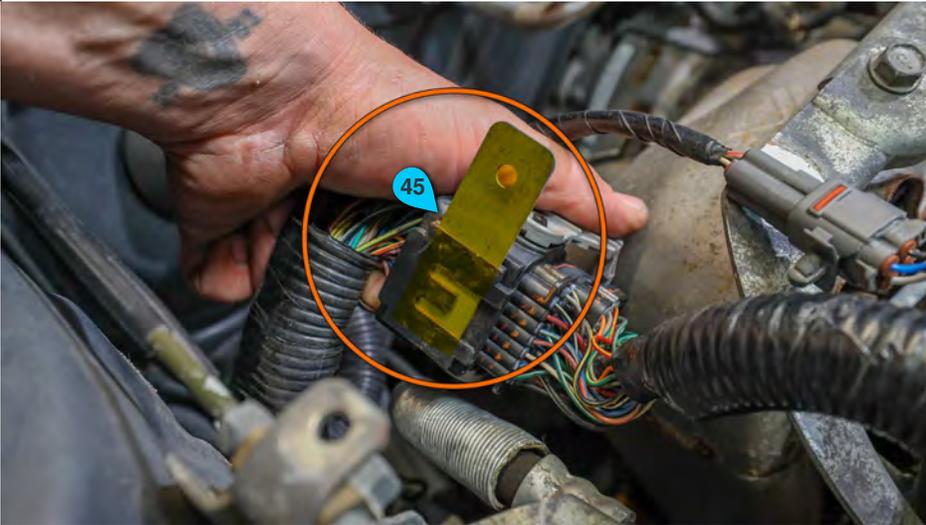
- 44 Remove this bolt.



### Step 65/122

Numbered annotations (1)

- 45 Insert the supplied harness relocation bracket as shown.



**Step 66/122**

Numbered annotations (1)

- 46 Attach the harness using the OEM bolt.



**Step 67/122**



### Step 68/122



Numbered annotations (1)

- 47 Bolt the AOS bracket here using the supplied hardware.

### Step 69/122



Numbered annotations (1)

- 48 Locate the lower turbocharger coolant hose and pinch it off with hose clamping pliers to prevent coolant loss.

**Step 70/122**



**Step 71/122**



Numbered annotations (1)

**49** Loosen this clamp.

### Step 72/122

Numbered annotations (1)

50 Loosen this clamp.



### Step 73/122

Numbered annotations (1)

51 Remove the hose.



### Step 74/122

Numbered annotations (1)

- 52 Zip tie the harness here.



### Step 75/122

Numbered annotations (1)

- 53 Route the AOS coolant hose as shown and measure to length.



### Step 76/122

Numbered annotations (1)

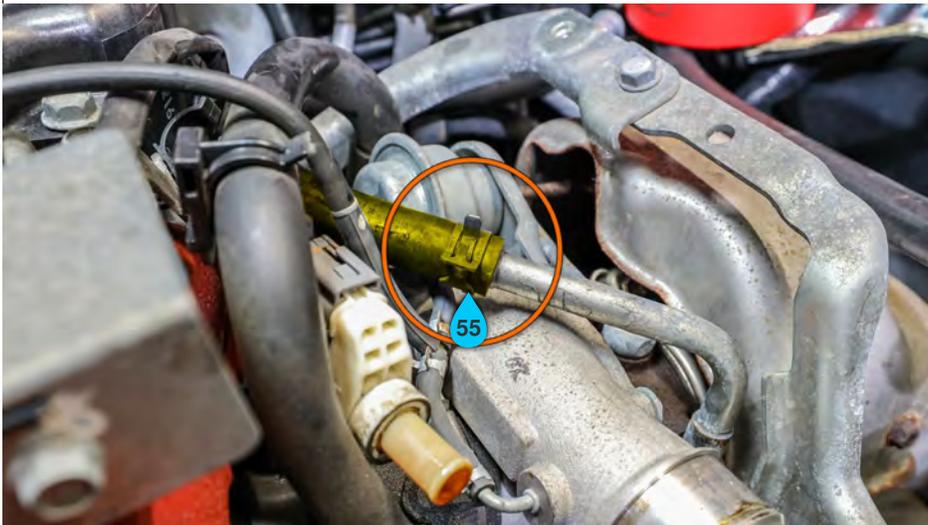
- 54 Trim excess coolant hose.



### Step 77/122

Numbered annotations (1)

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



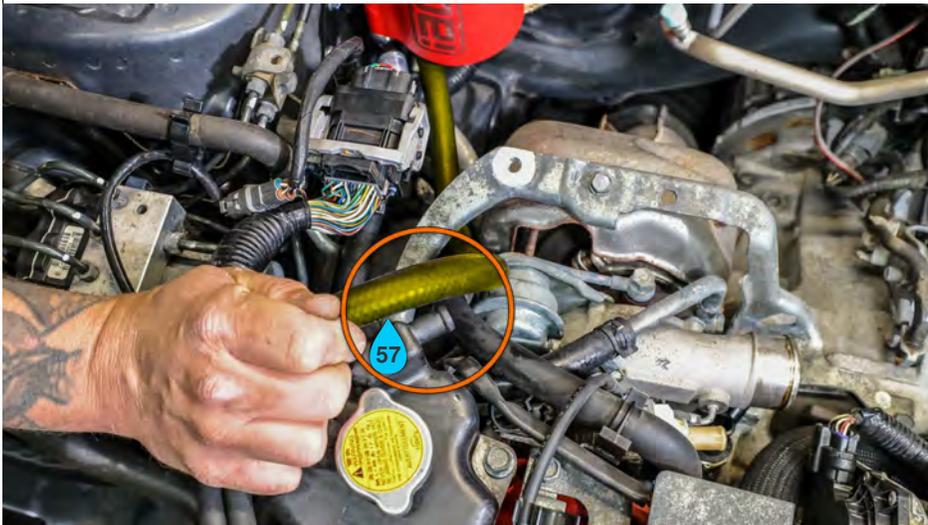
### Step 78/122



Numbered annotations (1)

- 56 Secure the coolant hose here with a zip tie.

### Step 79/122



Numbered annotations (1)

- 57 Route the other AOS coolant hose as shown and measure to length.

### Step 80/122

Numbered annotations (1)

- 58 Trim the excess AOS coolant hose.



### Step 81/122

Numbered annotations (1)

- 59 Using a razor blade, split the trimmed section of hose lengthwise.



**Step 82/122**



**Step 83/122**

Numbered annotations (1)

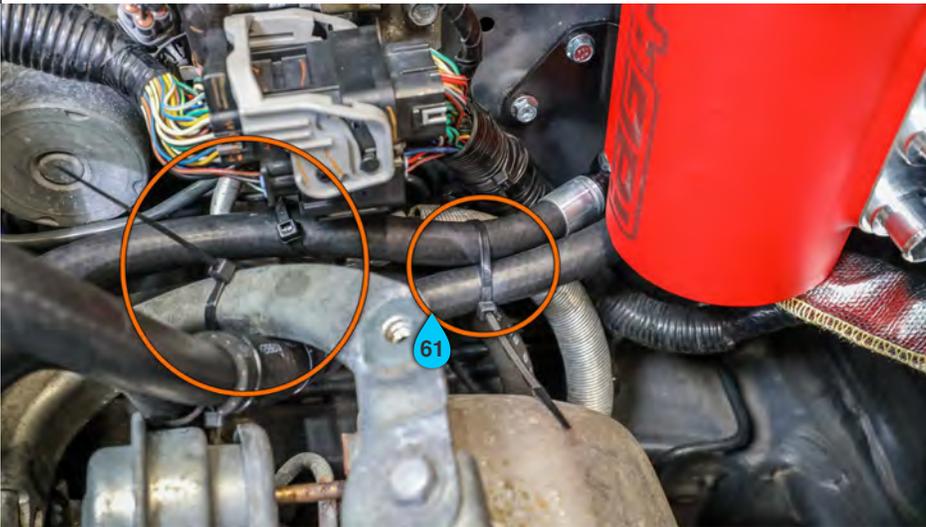


- 60 Zip tie the cut section of hose here to prevent rubbing.

**Step 84/122**

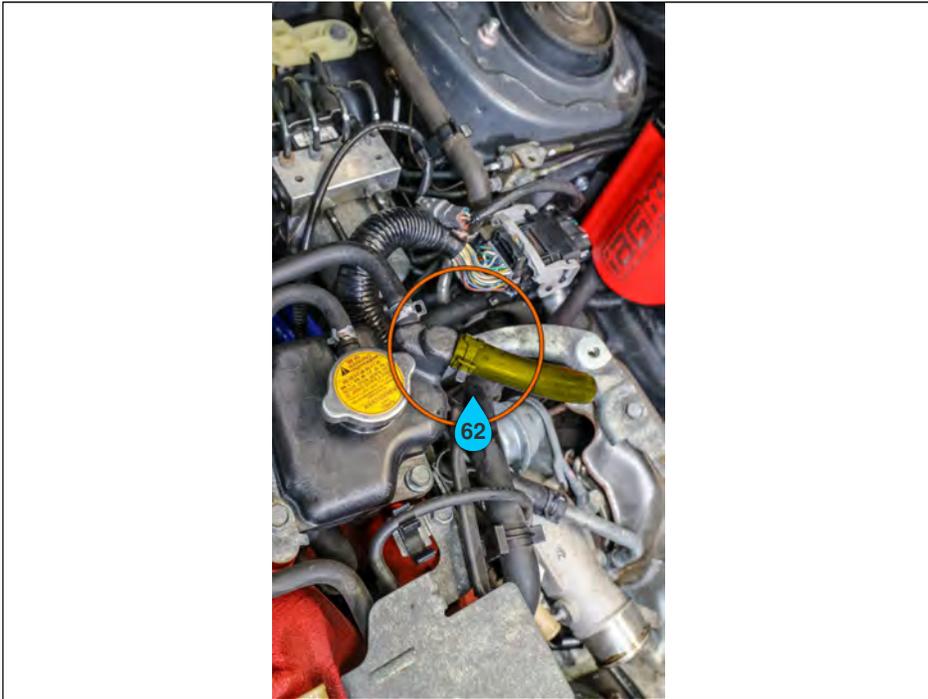


**Step 85/122**



**Numbered annotations (1)**

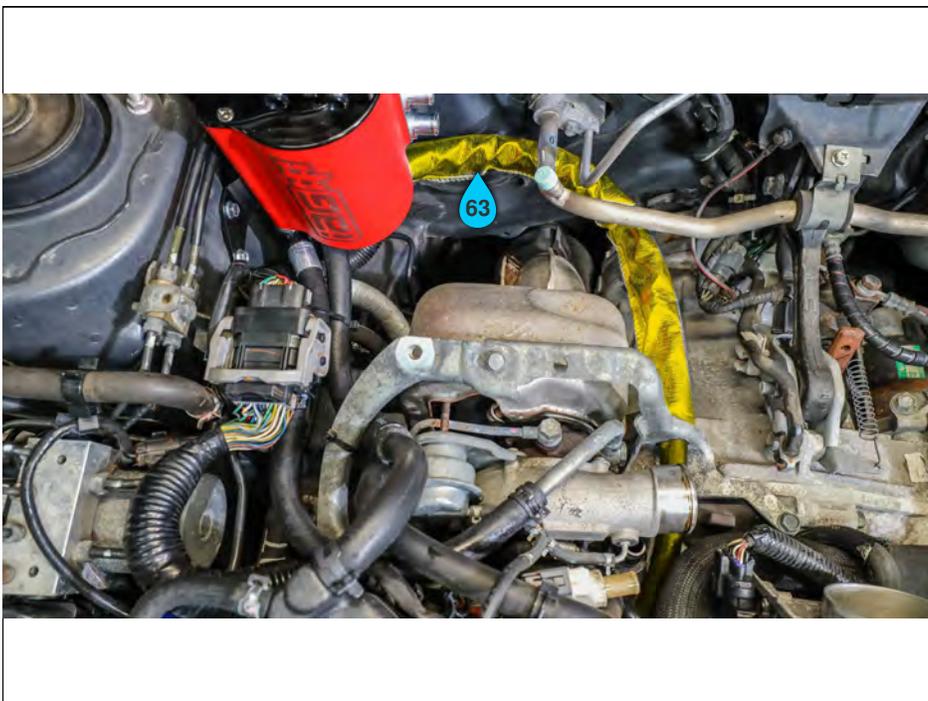
- 61 Route the AOS coolant hose as shown, secured with zip ties.



### Step 86/122

Numbered annotations (1)

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



### Step 87/122

Numbered annotations (1)

- 63 Route the AOS drain hose as shown.

### Step 88/122



Numbered annotations (2)

- 64 Pass the AOS drain hose through the hole in this bracket.
- 65 Measure and mark the length of the drain hose to the Y fitting.

### Step 89/122



Numbered annotations (1)

- 66 Trim the excess drain hose.

### Step 90/122

Numbered annotations (1)

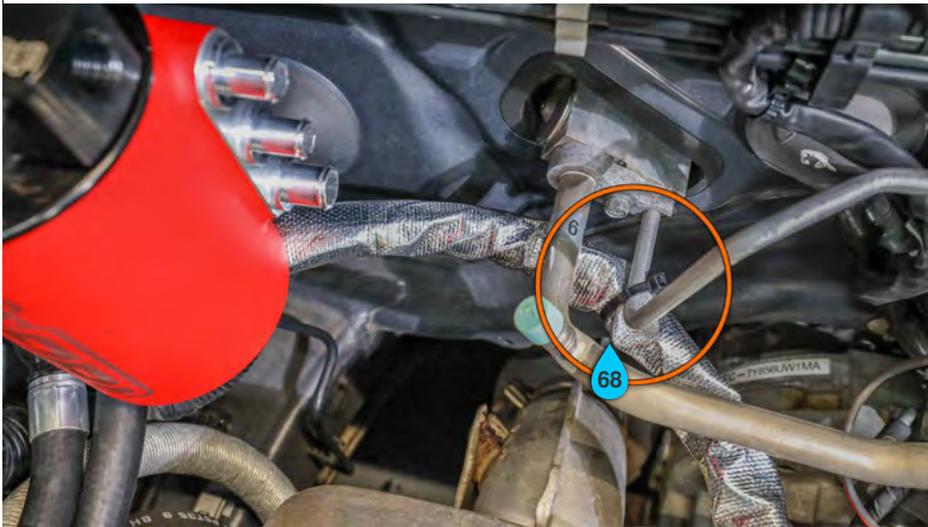
- 67 Attach the AOS drain hose here using the supplied clamp.



### Step 91/122

Numbered annotations (1)

- 68 Secure the drain hose here with a zip tie.



### Step 92/122

Numbered annotations (1)

- 69 Measure and cut 3" from the end of the 5/8" AOS vent tube.



### Step 93/122

Numbered annotations (1)

- 70 Assemble the hose as shown with the supplied 5/8" 90 degree elbow and the supplied clamps.



### Step 94/122

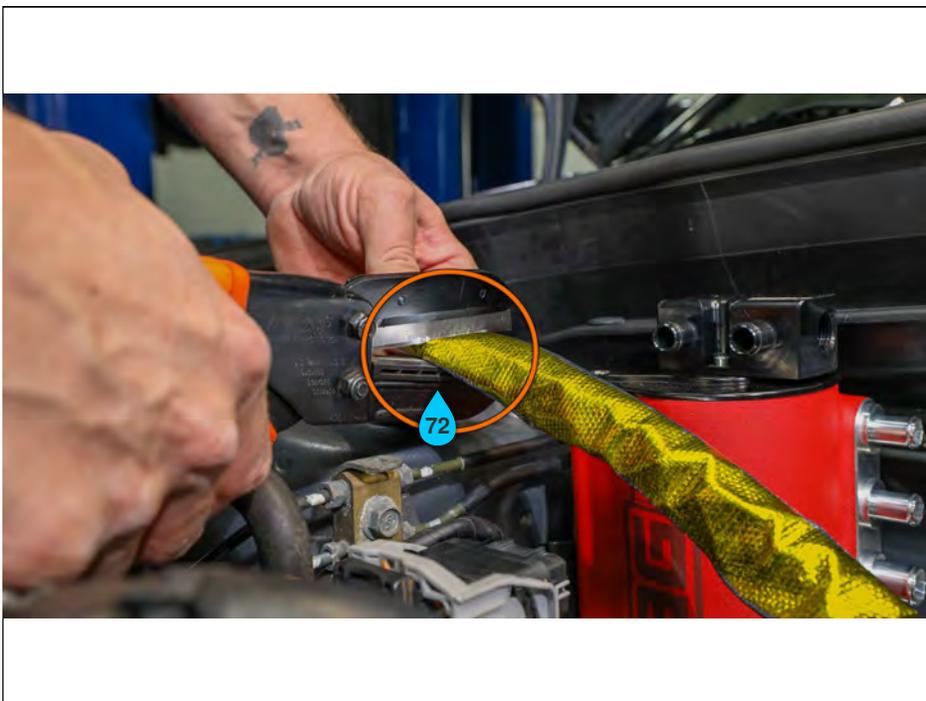
Numbered annotations (1)



- 71 Slide the 16" section of heat sleeve over the 5/8" vent hose and attach the AOS vent hose to the top of the Y fitting with the supplied clamps.

### Step 95/122

Numbered annotations (1)



- 72 Measure and trim the AOS vent hose to length.

### Step 96/122

Numbered annotations (1)

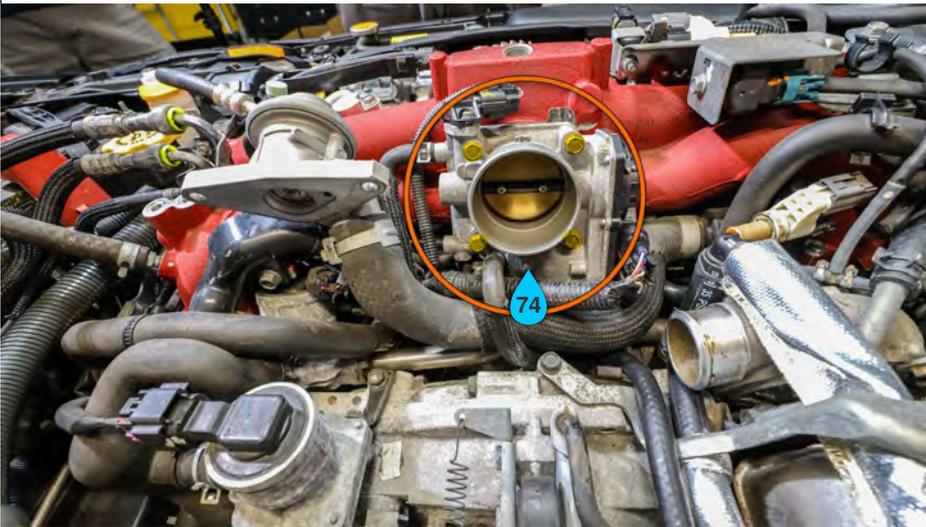
- 73 Attach the AOS vent hose here using the supplied clamp.



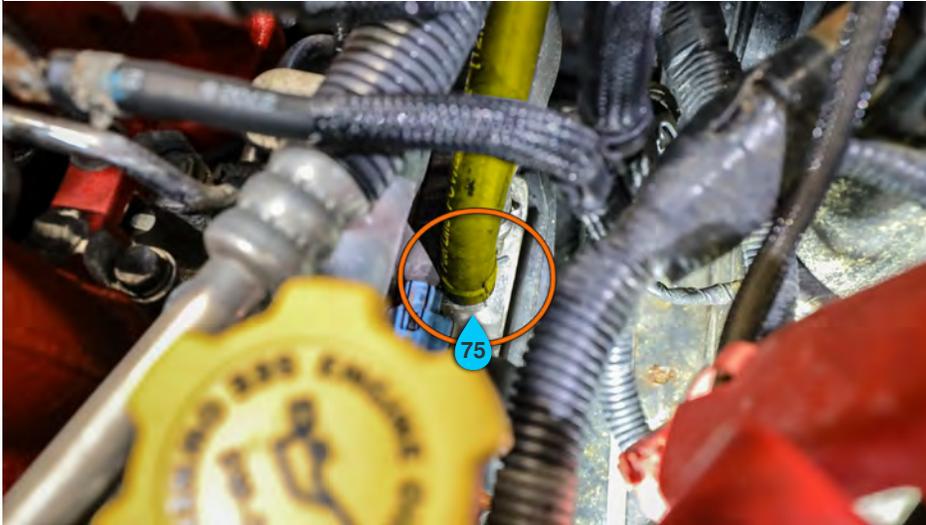
### Step 97/122

Numbered annotations (1)

- 74 Reinstall the throttle body. Torque the bolts to OEM specs.



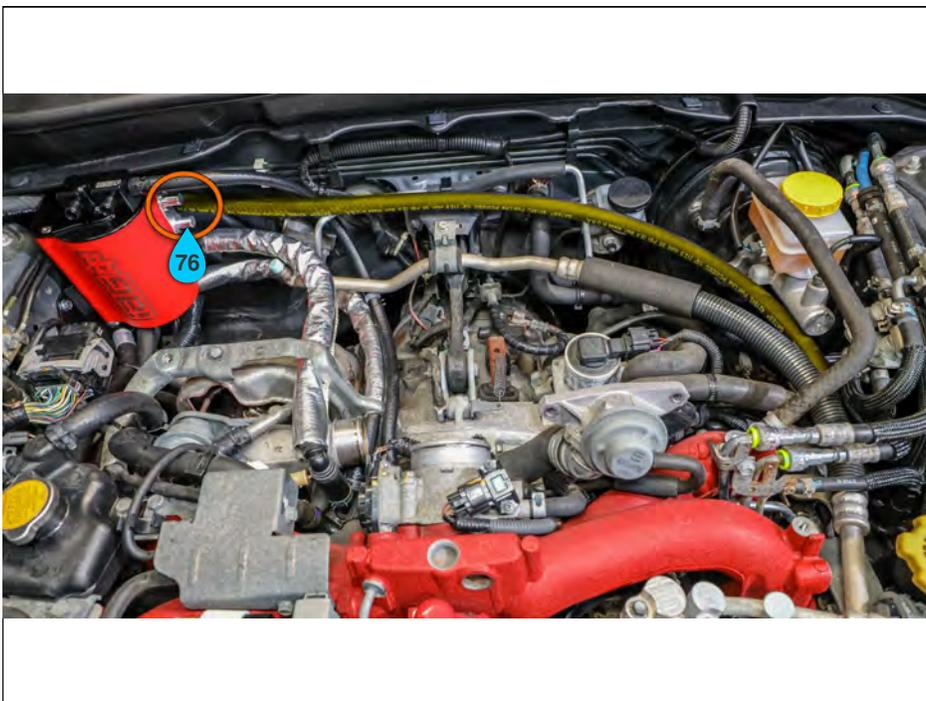
### Step 98/122



Numbered annotations (1)

- 75 Attach the 74" long 1/2" AOS valve cover vent hose to the driver side valve cover using the supplied clamp.

### Step 99/122



Numbered annotations (1)

- 76 Route the AOS valve cover vent hose as shown, measure to length.

### Step 100/122

Numbered annotations (1)

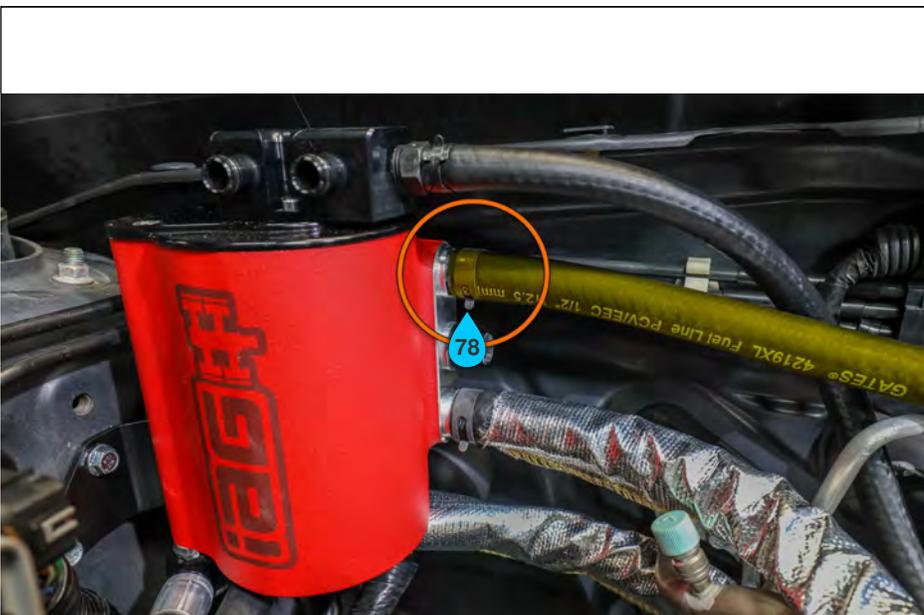
- 77 Trim excess valve cover vent hose. Reserve the excess hose.



### Step 101/122

Numbered annotations (1)

- 78 Attach the AOS vent hose here using the supplied clamp.



### Step 102/122

Numbered annotations (1)

- 79 Attach the reserved 1/2" AOS valve cover vent hose to the passenger side valve cover using the supplied clamp.



### Step 103/122



### Step 104/122



Numbered annotations (1)

- 80 Slide the 12" section of heat sleeve over the valve cover vent hose. Route the vent hose as shown and measure for length.

### Step 105/122



Numbered annotations (1)

- 81 Trim the excess valve cover vent hose.

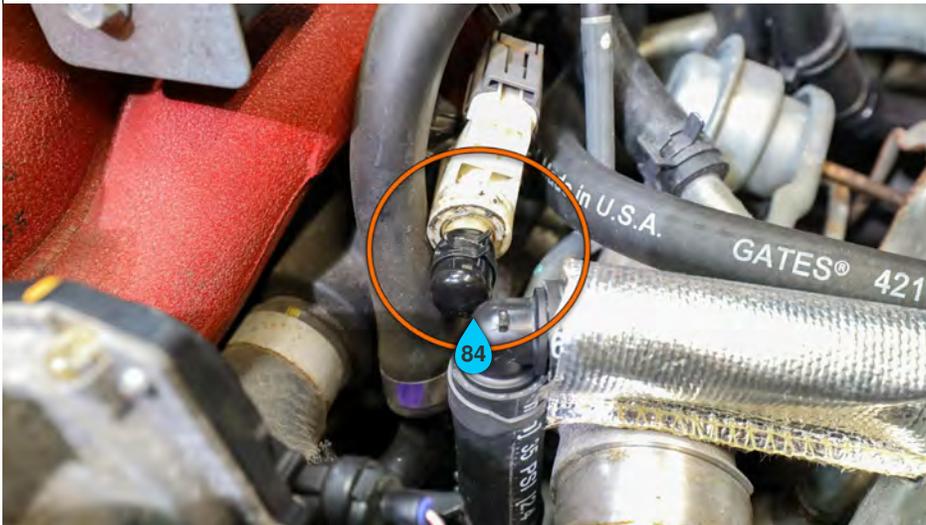
### Step 106/122



Numbered annotations (2)

- 82 Attach the vent hose here using the supplied clamp.
- 83 Secure the vent hose here using a zip tie.

### Step 107/122



Numbered annotations (1)

- 84 Install the supplied vacuum cap here, secured with the supplied clamp.

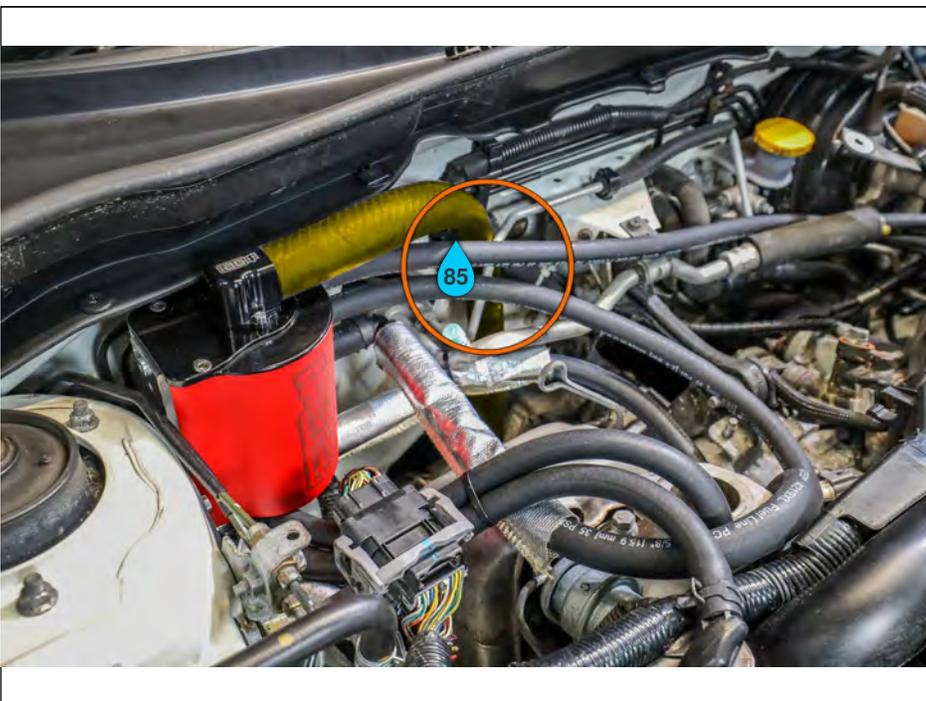
### Step 108/122

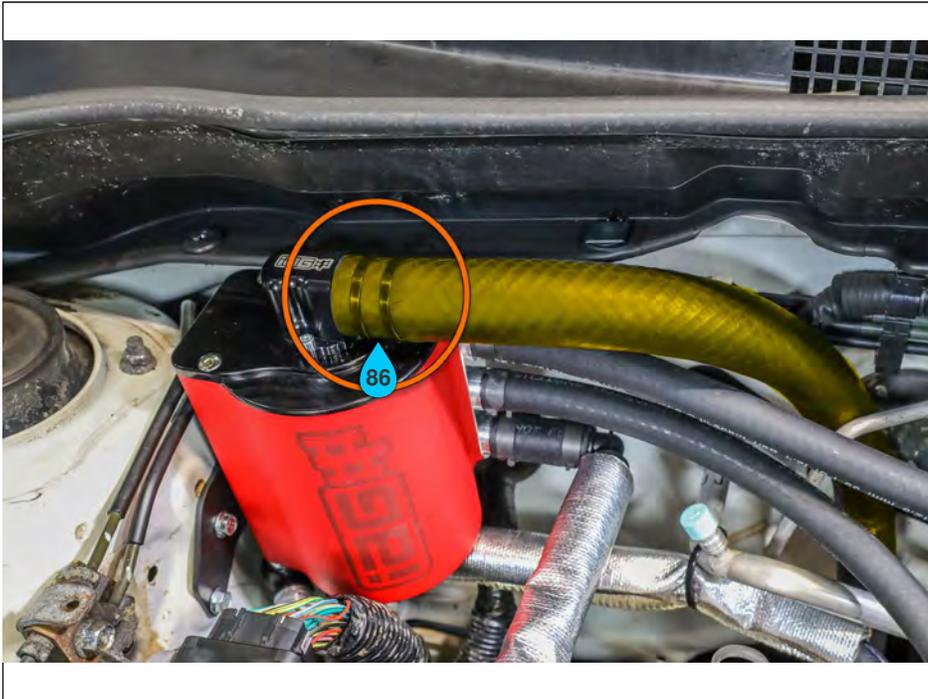


### Step 109/122

Numbered annotations (1)

- 85 Install the 1" Breather hose and route as shown.





### Step 110/122

Numbered annotations (1)

- 86 Secure the breather hose with two zip ties.



### Step 111/122

Numbered annotations (1)

- 87 Route the breather hose here

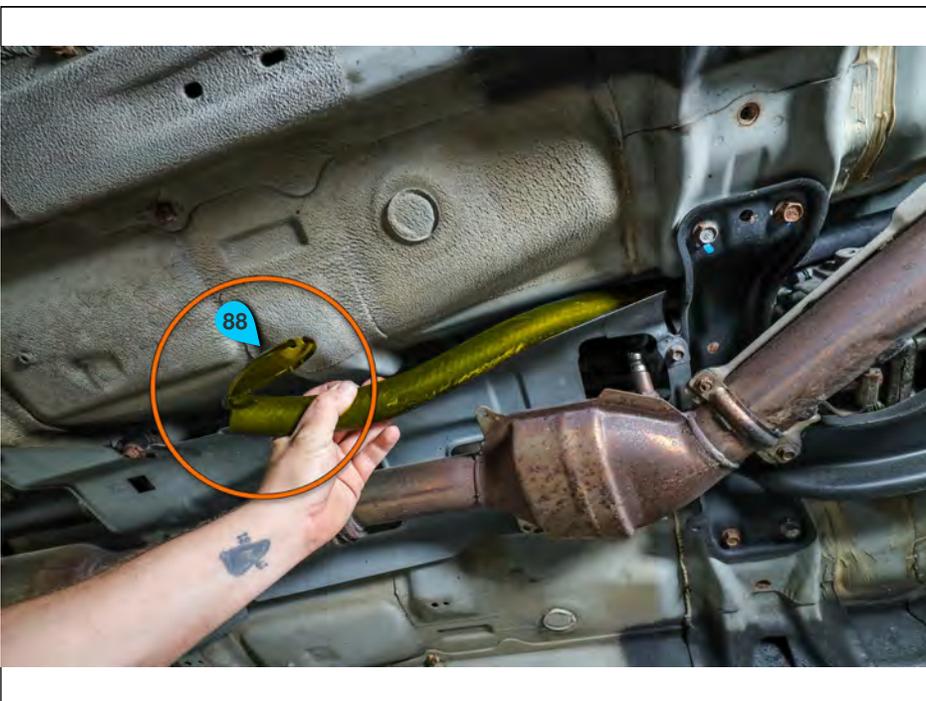
**Step 112/122**



**Step 113/122**

Numbered annotations (1)

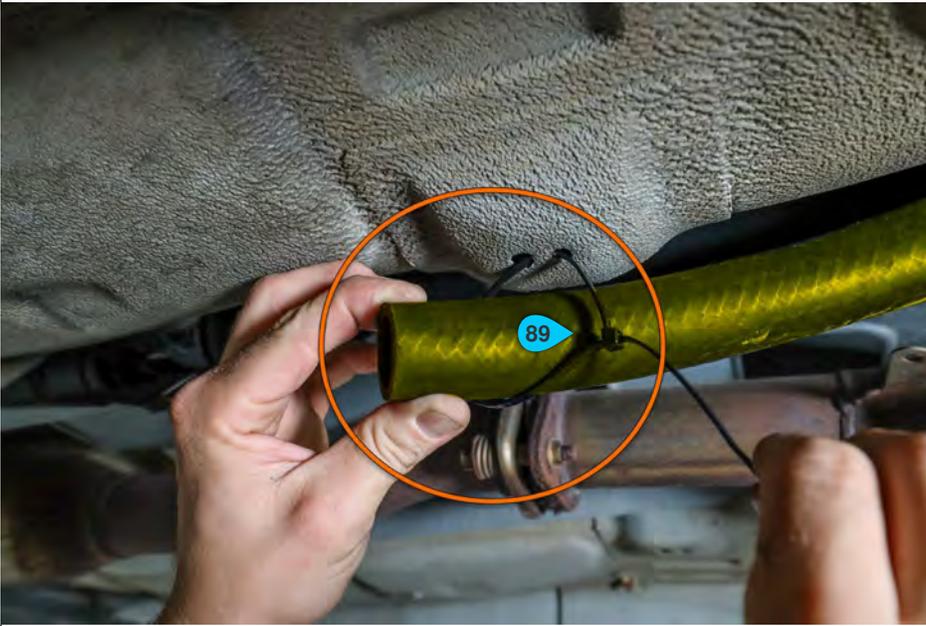
**88** Make a loop with a zip tie here



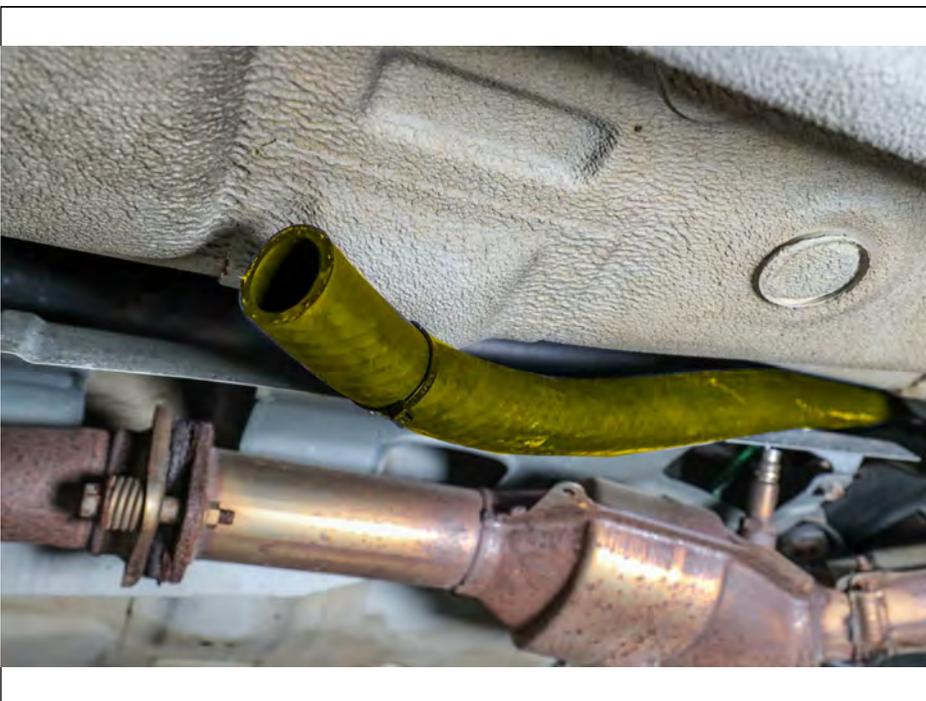
### Step 114/122

Numbered annotations (1)

- 89 Run the hose through the zip tie to secure it to the bottom of the vehicle.



### Step 115/122



### Step 116/122

Numbered annotations (1)

- 90 Reinstall the intercooler.



### Step 117/122

Numbered annotations (1)

- 91 Install this bolt.



### Step 118/122

Numbered annotations (1)

92 Reinstall these bolts.



### Step 119/122

Numbered annotations (1)

93 Tighten the intercooler clamps.



### Step 120/122



### Step 121/122



Numbered annotations (1)

- 94 Reconnect the negative battery cable.

## Step 122/122

Numbered annotations (1)

- 95 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.

