

## **IAG AIR / OIL SEPARATOR (AOS) FOR 06-07 WRX, 04-07 STI**



Step 1/117

### **IAG-ENG-7180 IAG Air / Oil Separator (AOS) For 2006-07 WRX & 2004-07 STI**

**Part#** IAG-ENG-7180

**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 2/117

Numbered annotations (13)

- 1 AOS Body Assembly
- 2 Heat Sleeve 16" x 2
- 3 Heat Sleeve 12"
- 4 AOS Drain Hose - 1/2" x 26"
- 5 AOS Vent Hose - 5/8" x 25"
- 6 Breather Hose Assembly 1/2" x 44"
- 7 Valve Cover Breather Hose - 1/2" x 74"
- 8 PCV Hose Assembly 1/2" x 28"
- 9 Coolant Hose 1 - 20" (Preinstalled to AOS)
- 10 Coolant Hose 2 - 20" (Preinstalled to AOS)
- 11 PCV Vent Hose Extension
- 12 Block Breather Hose to Y fitting - 3/4" x 2"
- 13 AOS Mounting Bracket

## Step 3/117

Numbered annotations (12)

- 1 Wiring Harness Relocation Bracket
- 2 Inlet fitting for PCV sensor
- 3 Y Fitting for Block Breather
- 4 1/2" Hose Clamp x 16
- 5 1/2" 90 Degree Elbow x 2
- 6 5/8" Hose Clamp x 8
- 7 5/8" 90 Degree Elbow
- 8 1/2" Nylon Union
- 9 3/4" Spring Clamp x 2
- 11 AOS Mounting Hardware (M6x12mm x 2, M6x10mm x 3)
- 12 5/8" Vacuum Cap
- 13 Zip Ties

## IMPORTANT UPDATE!

**AOS UNITS PURCHASED AFTER  
12/23/2020 HAVE AN UPDATED  
BREATHER ASSEMBLY AND PCV  
HOSE**

**PLEASE FOLLOW THE  
INSTRUCTIONS IN THE NEXT 3  
STEPS FOR PROPER  
INSTALLATION**

Step 4/117

Step 5/117

Numbered annotations (7)

- 1 Updated Street Breather Assembly
- 2 Connections to Turbocharger Inlet
- 3 Connection to PCV breather hose from intake manifold
- 4 11.5" Section of Hose
- 5 15" Section of Hose
- 6 Connects to Port 3 on Street Breather
- 7 Connects to Intake Manifold Nipple

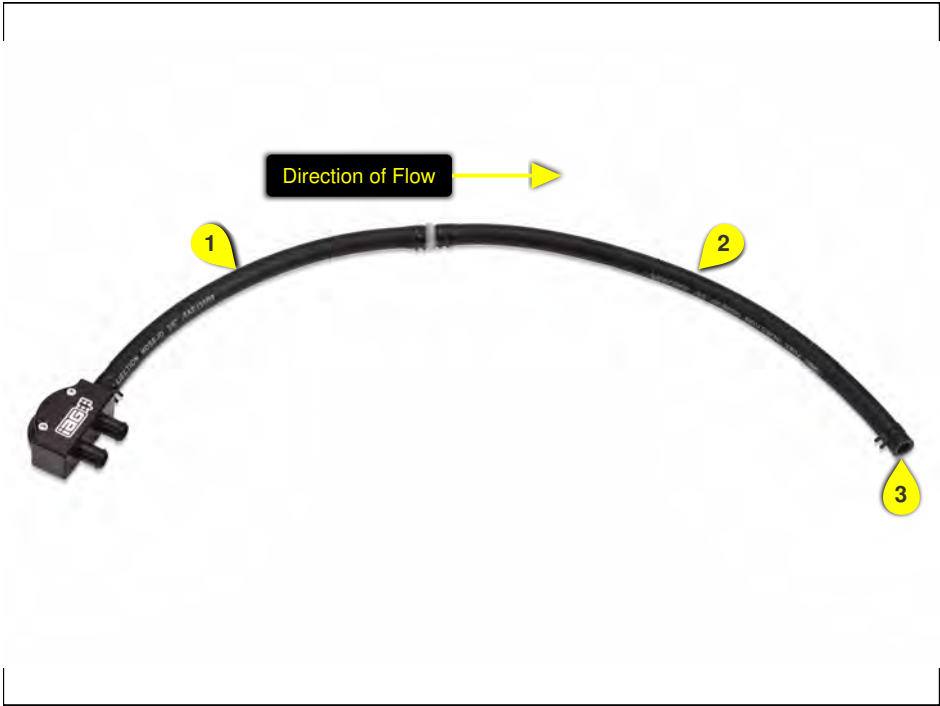




Step 6/117

Numbered annotations (1)

- 1 Ensure that this arrow on the one-way valve is pointed toward the intake manifold. The shorter piece of hose is on the AOS side of the check valve. The longer piece of hose is on the intake manifold side.



Step 7/117

Numbered annotations (3)

- 1 11.5" Section of Hose
- 2 15" Section of Hose
- 3 Connect to Intake Manifold Nipple

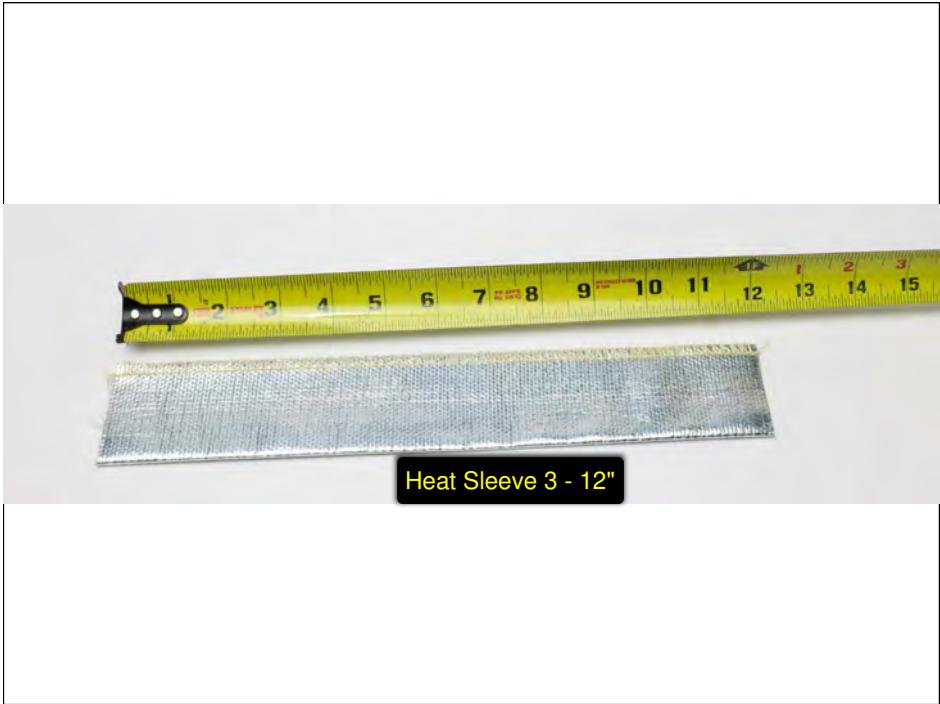
Step 8/117



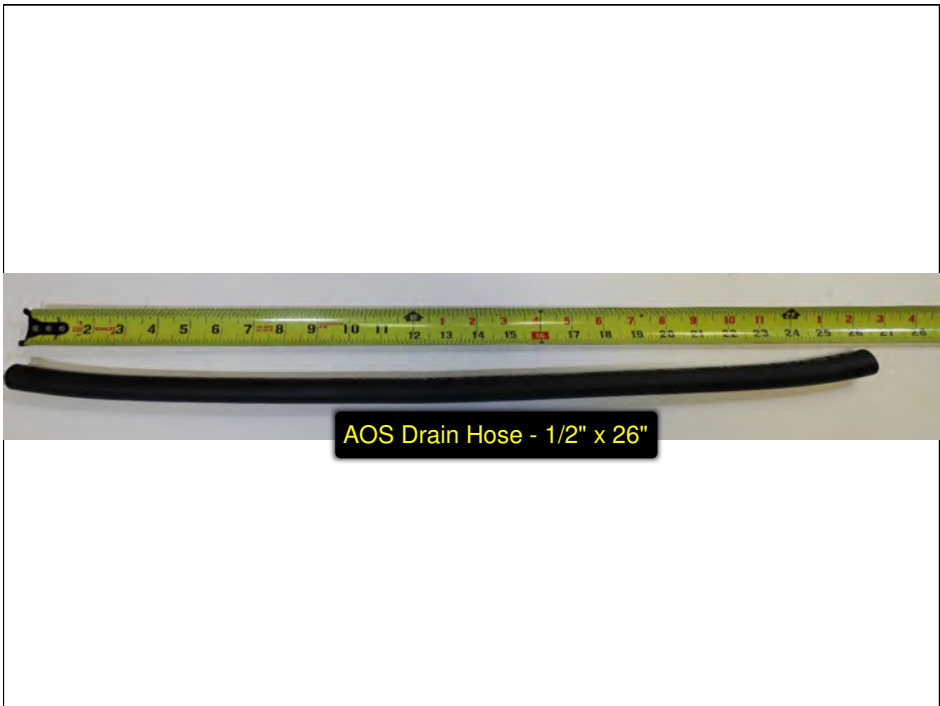
Step 9/117



Step 10/117



Step 11/117

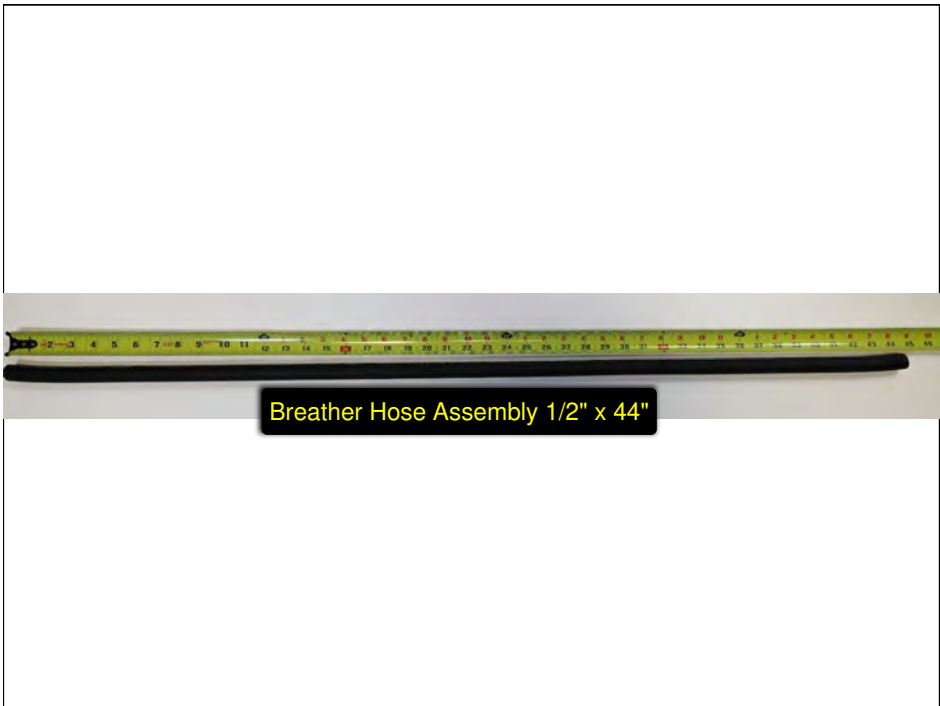




Step 12/117



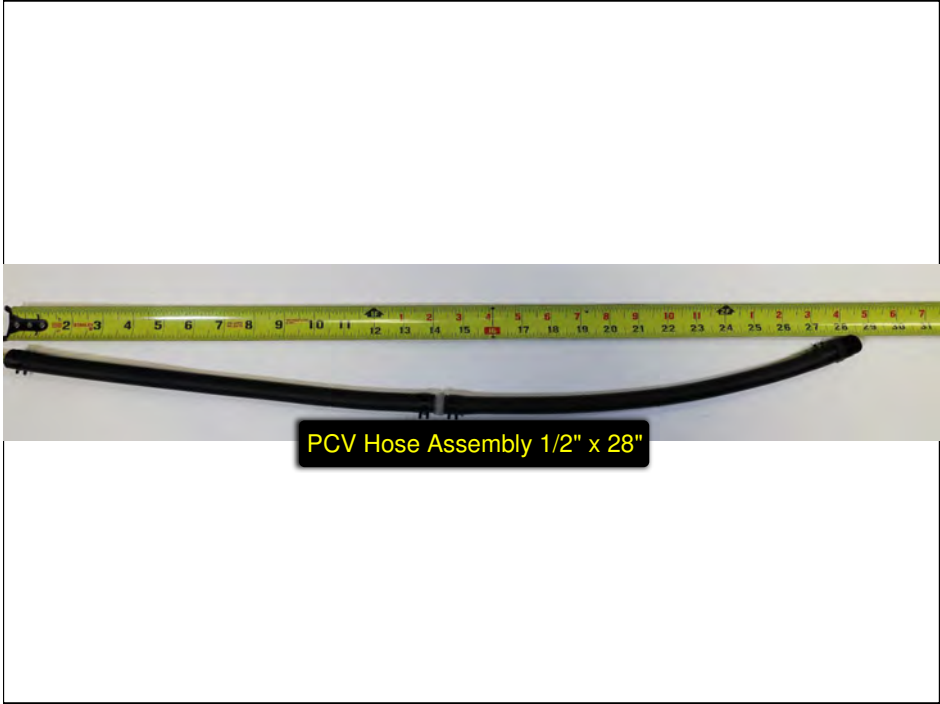
Step 13/117



Step 14/117

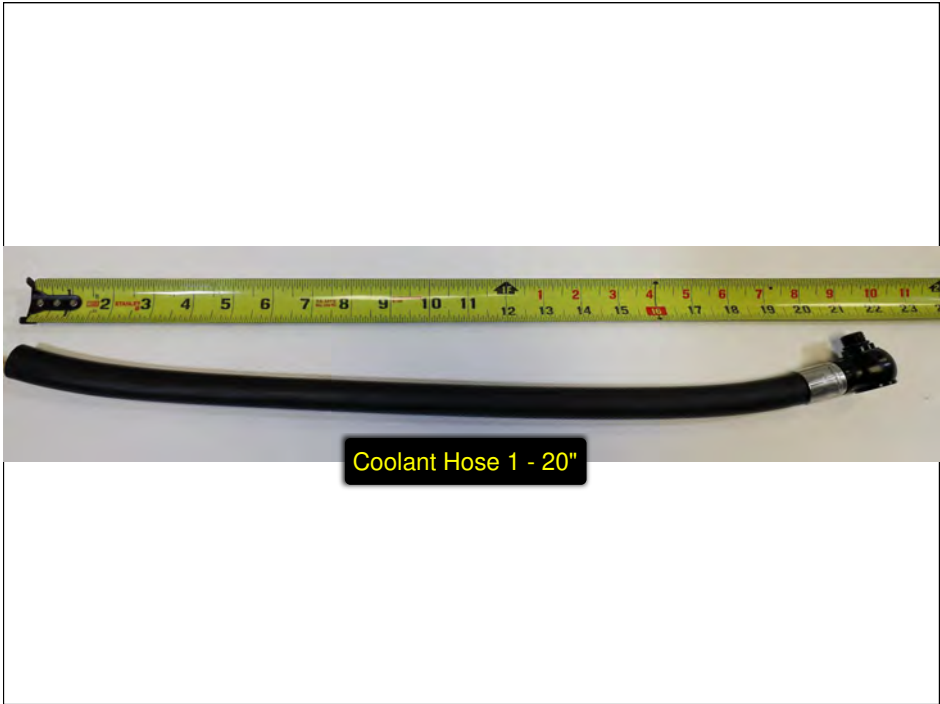


Step 15/117

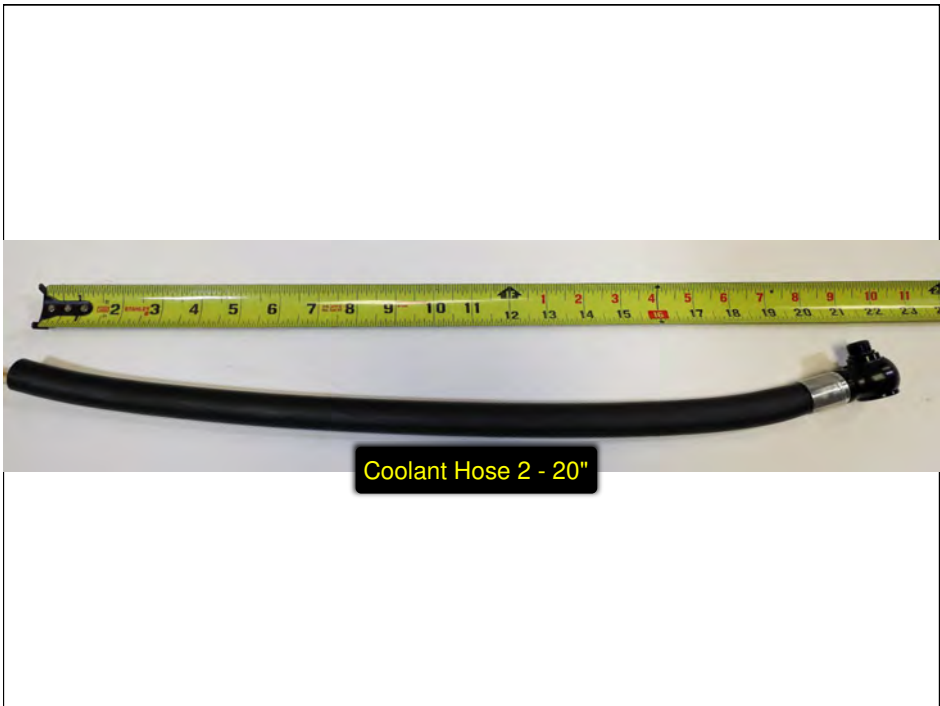




Step 16/117



Step 17/117





### Step 18/117

Numbered annotations (8)

- 1 AOS Vent Hose to turbo inlet (Both must be connected individually.)
- 2 AOS Vent Hose to turbo inlet (Both must be connected individually.)
- 3 Valve Cover Vent Hose (Driver Side)
- 4 Valve Cover Vent Hose (Passenger Side)
- 5 5/8" Block Vent Hose from Y fitting.
- 6 1/2" Drain hose to Y Fitting at top of block
- 7 Coolant Hose 1
- 8 Coolant Hose 2



### Step 19/117

Numbered annotations (1)

- 1 Disconnect the negative battery terminal

**Step 20/117**

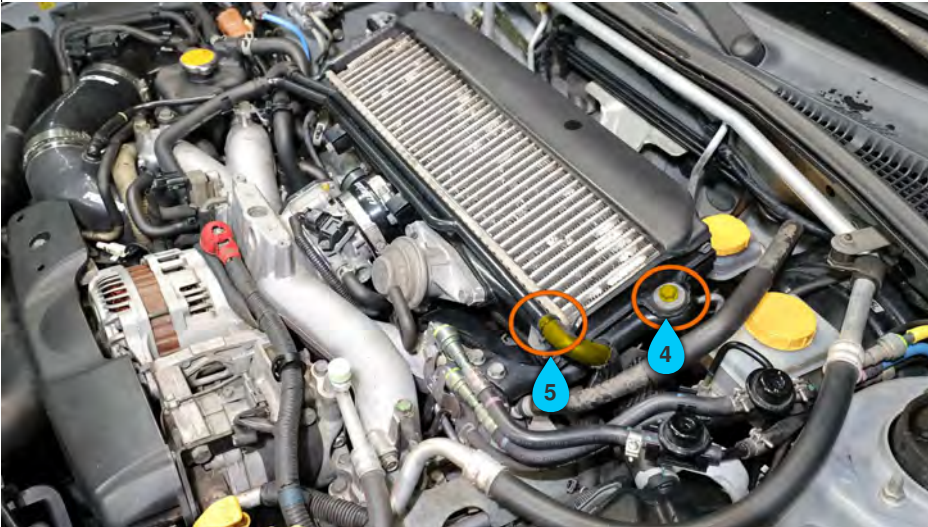
Numbered annotations (2)

- 2 Remove the intercooler mounting bolt.
- 3 Disconnect the PCV crossover hoses.

**Step 21/117**

Numbered annotations (2)

- 4 Remove the intercooler mounting bolt
- 5 Disconnect the hose from the PCV crossover pipe.





## Step 22/117

Numbered annotations (1)

- 6 Remove the bolts securing the BPV and loosen the clamps on the intercooler couplers.



## Step 23/117

Numbered annotations (1)

- 7 Remove the intercooler.



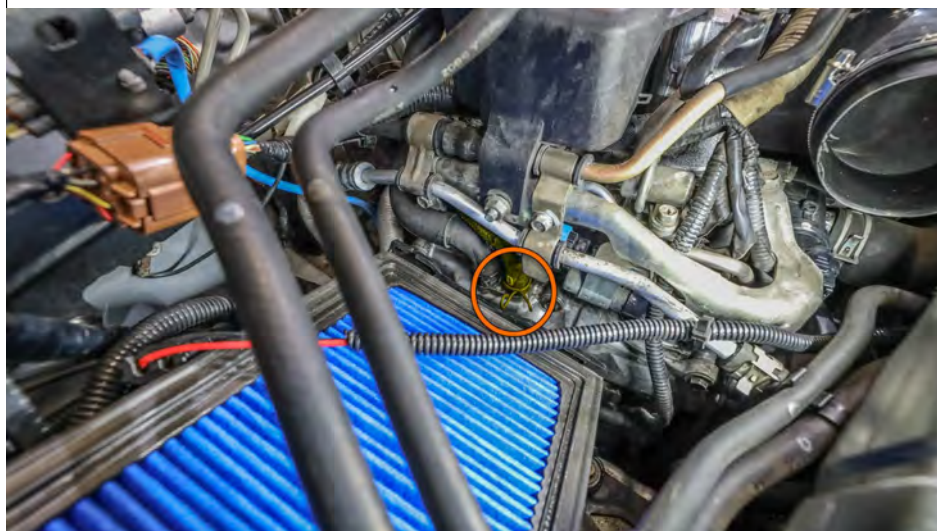
## Step 24/117

Numbered annotations (1)

- 8 Disconnect and remove the hose from the passenger side valve cover



## Step 25/117

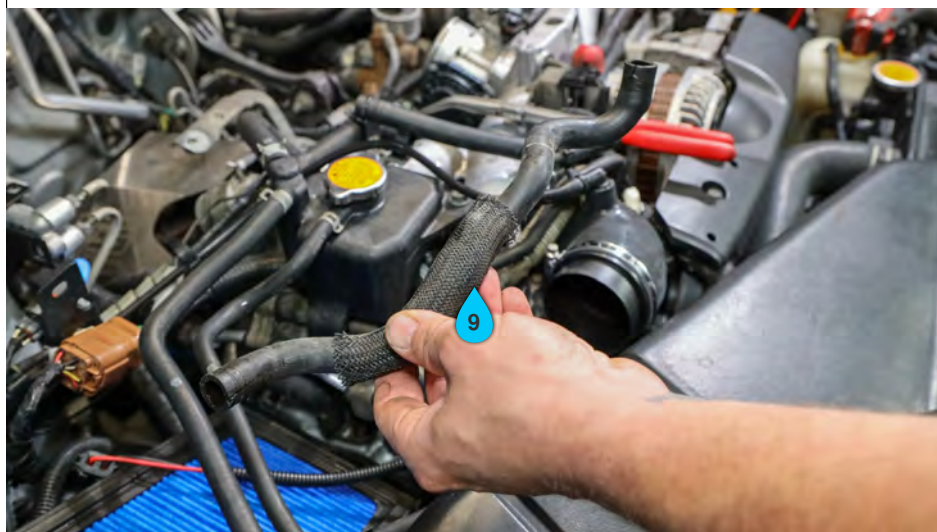




## Step 26/117

Numbered annotations (1)

- 9 Remove the hose.



## Step 27/117



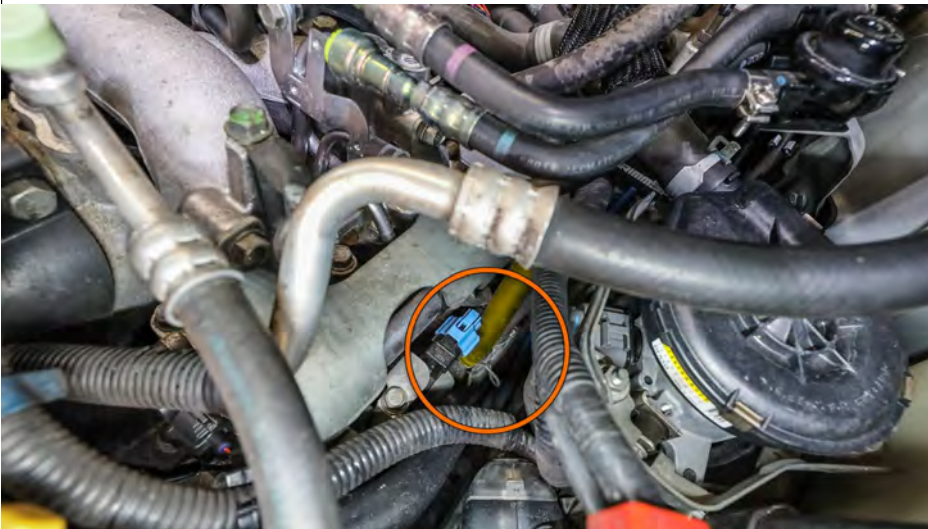
### Step 28/117

Numbered annotations (1)

- 10 Disconnect and remove the PCV hose from the driver side valve cover.



### Step 29/117





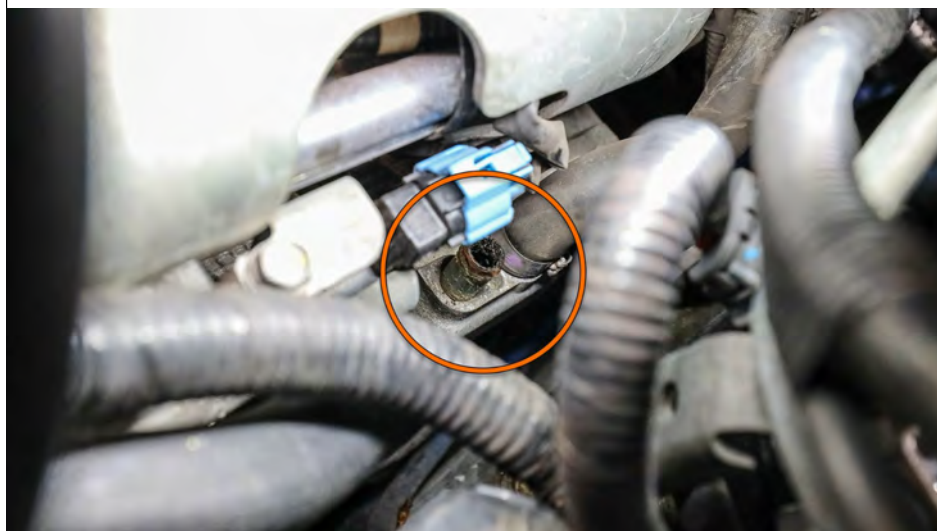
### Step 30/117

Numbered annotations (1)

- 11 Remove the hose.



### Step 31/117



### Step 32/117

Numbered annotations (1)

- 12 Use a pick tool to release the spring clamp on the PCV sensor at the turbo inlet.



### Step 33/117

Numbered annotations (1)

- 13 Disconnect the hose from the sensor.





### Step 34/117

Numbered annotations (1)

- 14 Remove the bolts securing the throttle body.



### Step 35/117

Numbered annotations (1)

- 15 Move the throttle body out of the way.



### Step 36/117

Numbered annotations (1)

- 16 Loosen the clamp on the PCV vacuum hose and remove the hose.



### Step 37/117







### Step 38/117



### Step 39/117

Numbered annotations (1)

- 17 Using a pick tool loosen the spring clamp at the block vent and remove the PCV assembly.

### Step 40/117



### Step 41/117

Numbered annotations (1)

- 18 Attach this hose to the supplied Y pipe using the spring clamps. Tighten both springs clamps with pliers now.



## Step 42/117

Numbered annotations (1)

- 19 Apply silicone lube or petroleum jelly to the lower portion of the short hose.



## Step 43/117

Numbered annotations (1)

- 20 Push the hose assembly over the barb on the block vent.





### Step 44/117

Numbered annotations (1)

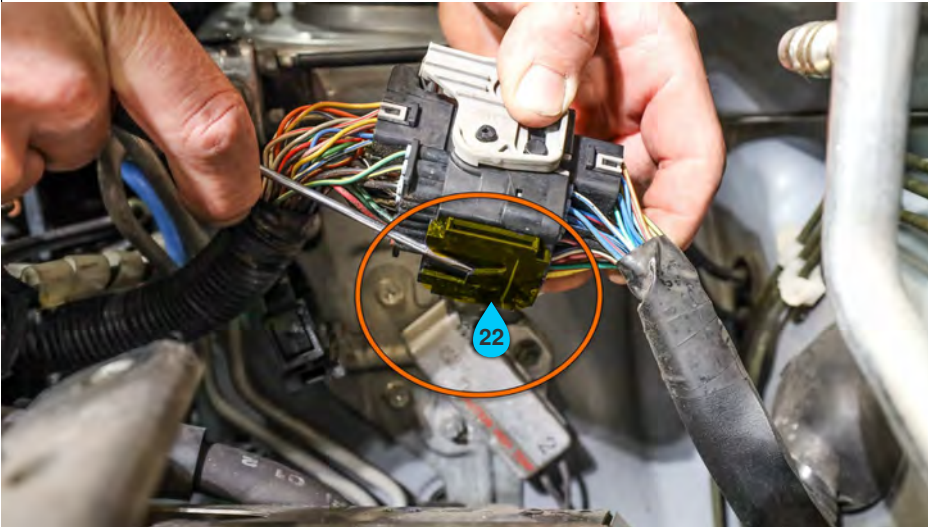
- 21 Disconnect the harness retaining clip.



### Step 45/117

Numbered annotations (1)

- 22 Disconnect the harness from the mounting bracket by releasing this clip.



**Step 46/117**

Numbered annotations (1)

- 23** Remove the bolt securing this module. Zip tie this module out of the way.

**Step 47/117**

Numbered annotations (1)

- 24** Disconnect the engine harness by lifting the release clip.



## Step 48/117

Numbered annotations (1)

- 25 Push the vehicle side portion of the harness behind the harness coming out of the wirewall.



## Step 49/117

Numbered annotations (1)

- 26 Reconnect the engine harness.







### Step 50/117

Numbered annotations (1)

- 27 Push a zip tie through here.



### Step 51/117

Numbered annotations (1)

- 28 Secure the harness to these lines using the zip tie.

**Step 52/117**

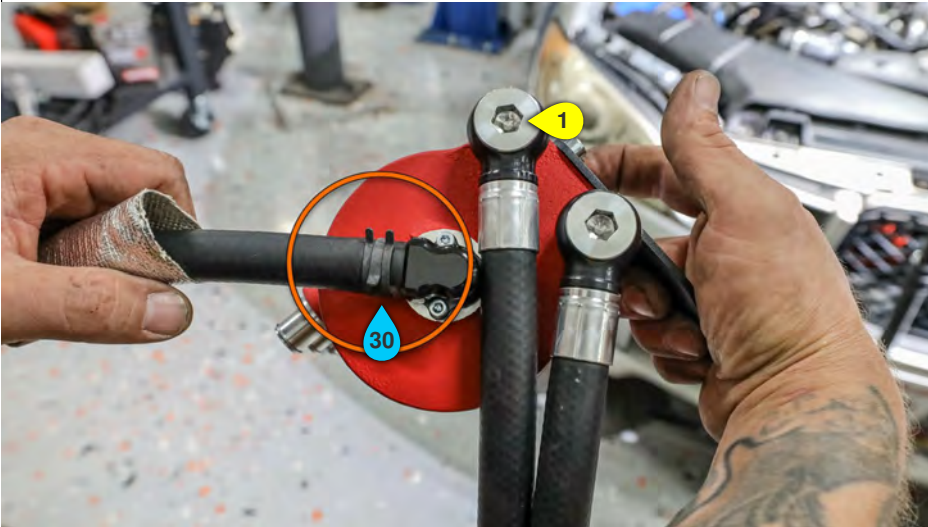
## Numbered annotations (1)

- 29** Install the AOS mounting bracket.  
Torque the bolts to 7 ft/lbs.

**Step 53/117**

## Numbered annotations (2)

- 30** Attach the AOS drain hose using the supplied clamp.
- 1** These fittings are preinstalled and torqued. The fitting is designed to swivel around the bolt. Do not remove or tighten further.



**Step 54/117**

Numbered annotations (1)

- 31 Mount the AOS here using the supplied hardware.

**Step 55/117**

Numbered annotations (1)

- 32 Slide a 16" section of heat sleeve over the drain hose. Route the AOS drain hose through here. Make sure the drain flows downhill the whole way to ensure proper drainage.





## Step 56/117

Numbered annotations (1)

- 33 Pass the AOS drain hose through the hole in this bracket.



## Step 57/117

Numbered annotations (1)

- 34 Measure and mark the length of the AOS drain hose against the Y fitting.





**Step 58/117**

Numbered annotations (1)

- 35 Trim the excess hose.

**Step 59/117**

Numbered annotations (1)

- 36 Attach the drain hose to the Y fitting using the supplied clamp.



### Step 60/117



### Step 61/117

Numbered annotations (1)

- 37 Locate the lower turbocharger coolant line and pinch it off using hose clamping pliers to prevent coolant loss.







Step 62/117




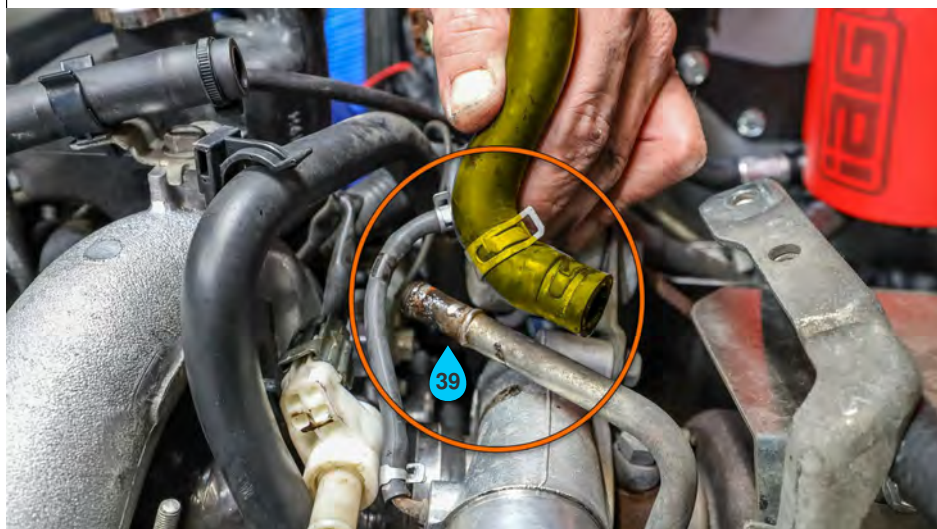
Step 63/117

- Numbered annotations (1)
- 38 Disconnect the upper turbo coolant hose from the expansion tank.

## Step 64/117

Numbered annotations (1)

-  39 Disconnect the upper coolant hose from the turbo and remove the hose.



## Step 65/117





## Step 66/117

Numbered annotations (1)

- 40 Route the AOS coolant line as shown.



## Step 67/117

Numbered annotations (1)

- 41 Measure and mark the coolant hose for length.



**Step 68/117**

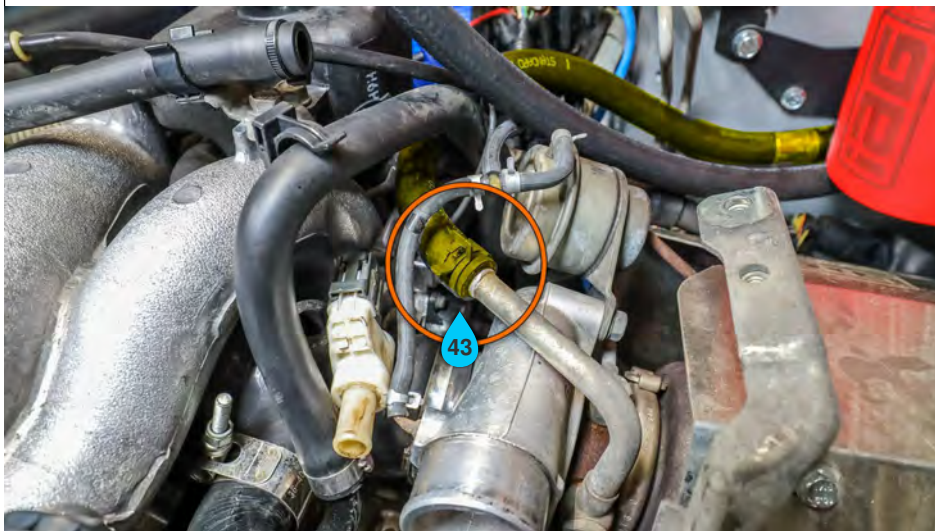
Numbered annotations (1)

- 42 Trim the excess hose.

**Step 69/117**

Numbered annotations (1)

- 43 Connect the AOS coolant hose to the upper turbo coolant barb using the supplied clamp.



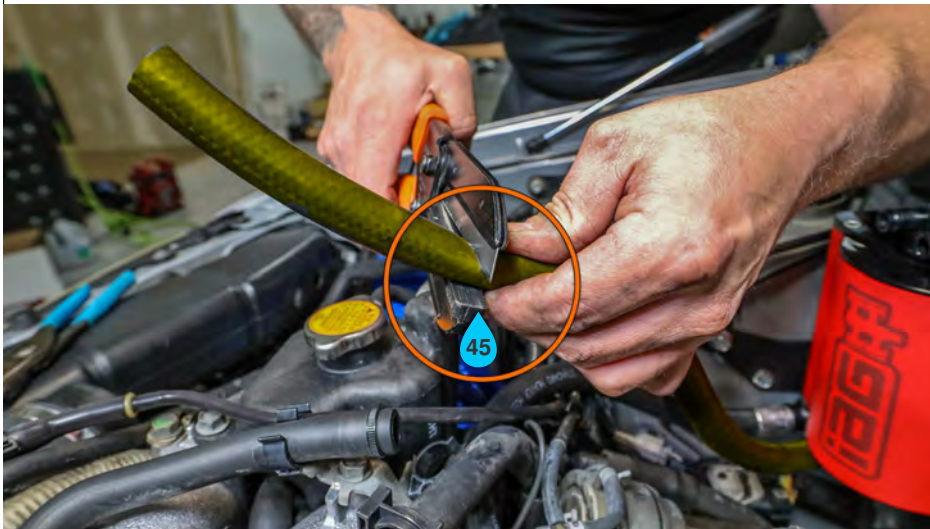




## Step 70/117

Numbered annotations (1)

- 44 Measure and mark the other AOS coolant hose.



## Step 71/117

Numbered annotations (1)

- 45 Trim the excess AOS coolant hose.



**Step 72/117**

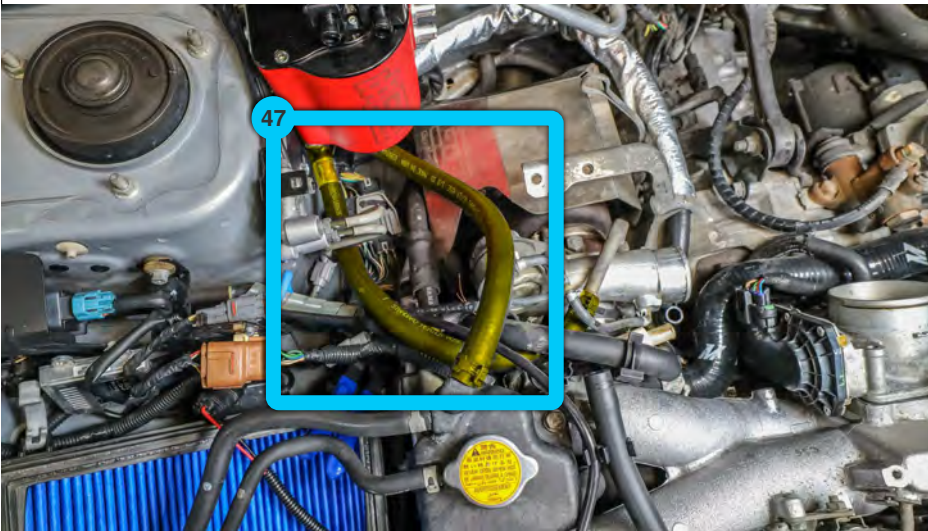
Numbered annotations (1)

- 46 Attach the AOS coolant hose to the expansion tank using the supplied clamp.

**Step 73/117**

Numbered annotations (1)

- 47 Ensure that the coolant hoses are routed as shown.



**Step 74/117**

Numbered annotations (1)

- 48 Locate the 5/8" AOS vent hose.  
Measure 3" and cut the hose.

**Step 75/117**

Numbered annotations (1)

- 49 Assemble the vent hoses as shown using the supplied 5/8" 90 degree elbow and clamps.

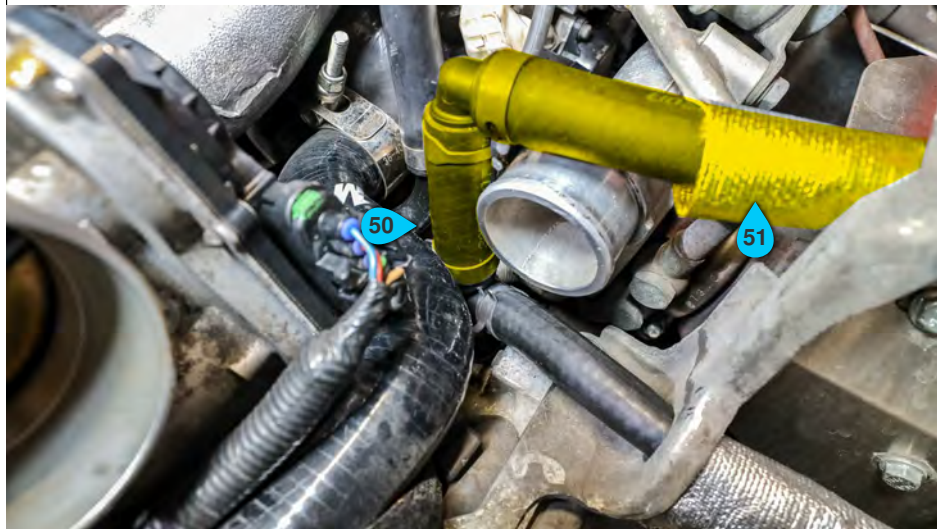




**Step 76/117**

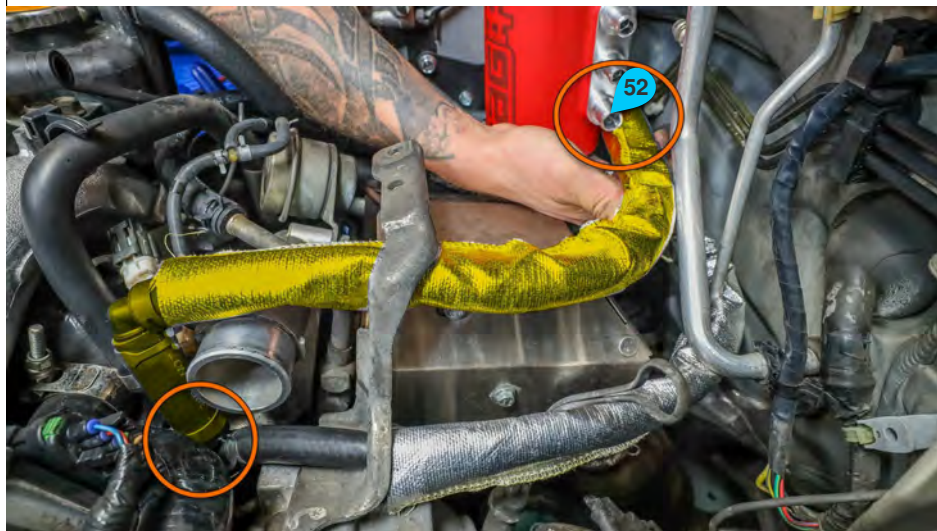
Numbered annotations (2)

- 50** Install the AOS vent hose to the Y fitting at the top of the block using the supplied clamp.
- 51** Slide the other 16" section of heat sleeve over the vent hose.

**Step 77/117**

Numbered annotations (1)

- 52** Measure and mark the length of the 5/8" AOS vent hose to the 5/8" AOS barb.

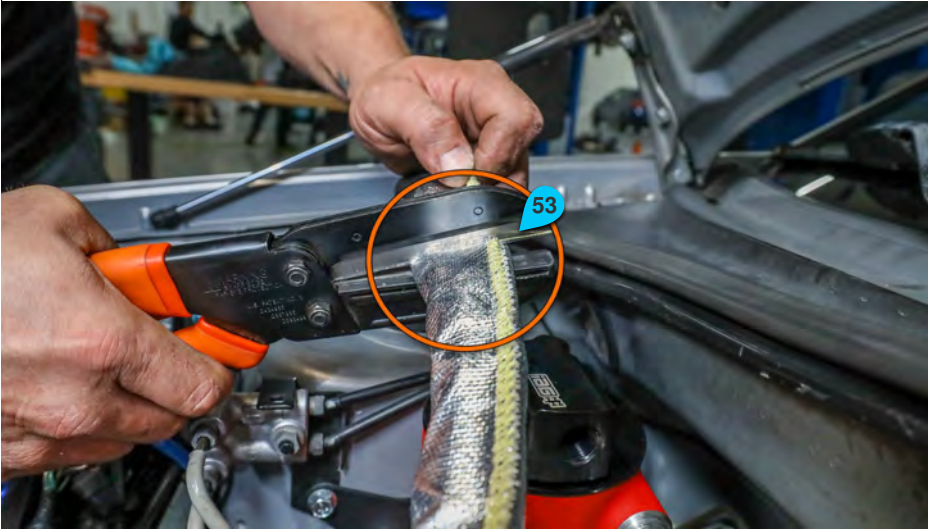




## Step 78/117

Numbered annotations (1)

- 53 Trim the excess vent hose.



## Step 79/117

Numbered annotations (1)

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





### Step 80/117

Numbered annotations (1)

- 55 Secure the vent hose to the A/C line using a zip tie.



### Step 81/117

Numbered annotations (1)

- 56 Routing of the vent hose shown.



**Step 82/117**

Numbered annotations (1)

- 57 Locate the supplied PCV hose (This hose has a white PCV valve installed in the middle and a 3/8" NPT fitting on one end.) Screw the fitting into the AOS, being careful not to over tighten the tapered fitting.

**Step 83/117**

Numbered annotations (1)

- 58 Routing of the PCV hose shown.





**Step 84/117**

Numbered annotations (1)

- 59 Attach the other end of the PCV hose to the nipple under the throttle body using the supplied clamp.

**Step 85/117**

Numbered annotations (1)

- 60 Reinstall the throttle body using the OEM torque specs.



**Step 86/117**

Numbered annotations (1)

- 61 Attach the 74" 1/2" AOS valve cover vent hose to the passenger side valve cover using the supplied clamp.

**Step 87/117**

Numbered annotations (1)

- 62 Route the valve cover vent hose through here.







### Step 88/117

Numbered annotations (1)

- 63 Route the hose through here as shown.



### Step 89/117

Numbered annotations (1)

- 64 Slide a 12" piece of heat sleeving over this hose. Measure and mark the length of the AOS vent hose.



**Step 90/117**

Numbered annotations (1)

- 65 Trim the excess AOS vent hose.  
Reserve the excess valve cover vent hose.

**Step 91/117**

Numbered annotations (1)

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





### Step 92/117

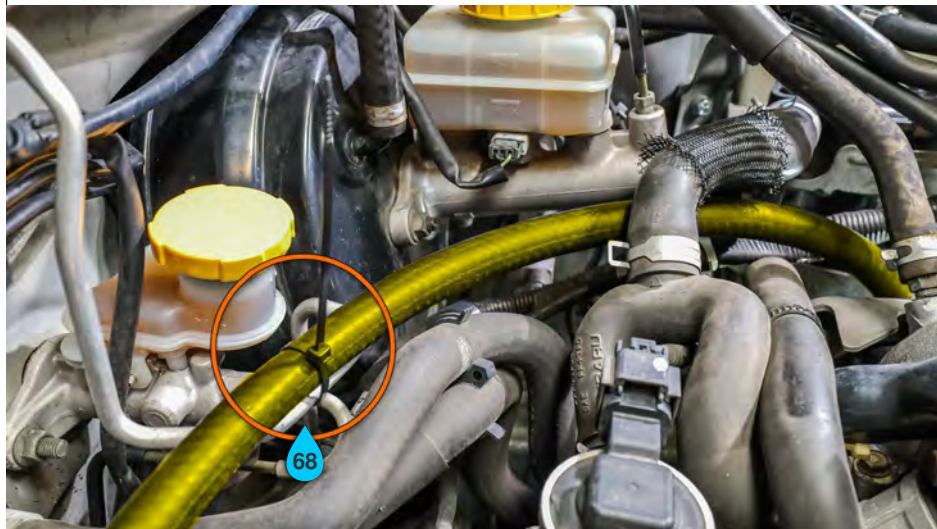


### Step 93/117

Numbered annotations (1)

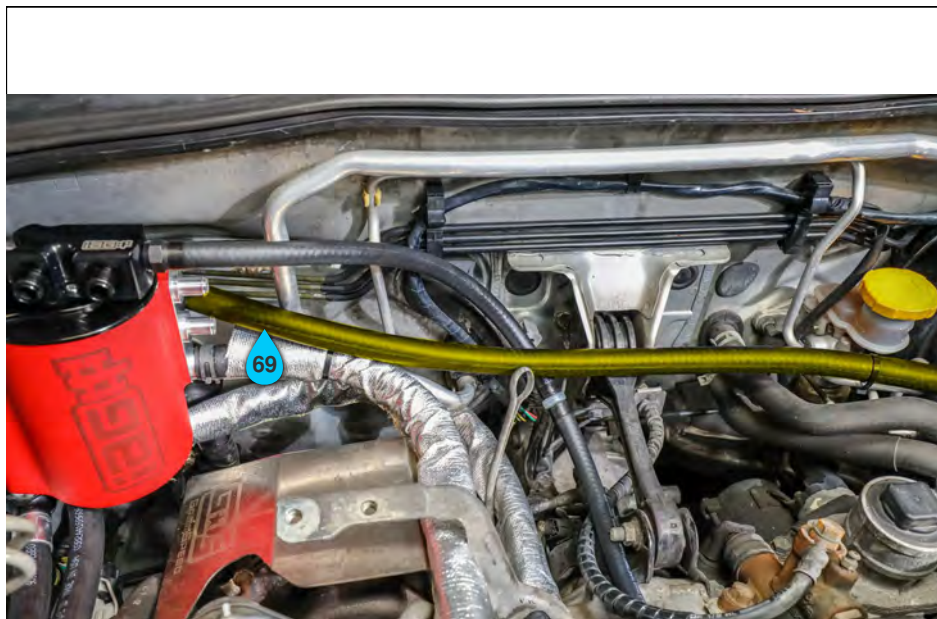
- 67 Attach the reserved 1/2" AOS valve cover vent hose to the driver side valve cover using the supplied clamp.



**Step 94/117**

Numbered annotations (1)

- 68 Route the 1/2" AOS valve cover vent hose and secure it with a zip tie as shown.

**Step 95/117**

Numbered annotations (1)

- 69 Measure and mark the length of this hose.





### Step 96/117

Numbered annotations (1)

- 70 Trim excess vent hose.



### Step 97/117

Numbered annotations (1)

- 71 Attach the 1/2" AOS vent hose here using the supplied hose clamp.

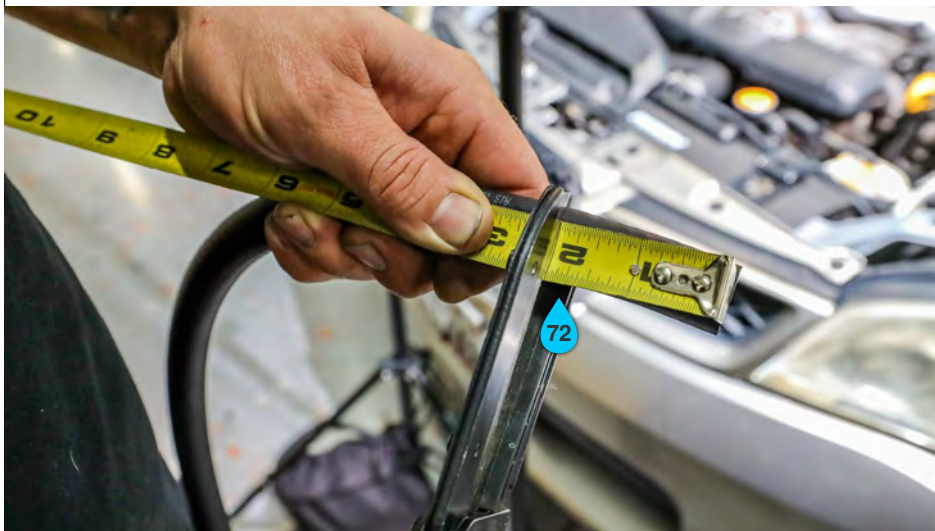
### Step 98/117



### Step 99/117

Numbered annotations (1)

- 72 Measure and cut two inches from the end of the 44" 1/2" AOS breather hose.





**Step 100/117**

Numbered annotations (1)

- 73 Assemble the vent hose as shown using the supplied 90 degree elbow and clamps.

**Step 101/117**

Numbered annotations (1)

- 74 Attach the vent hose to the white PCV sensor on the turbo inlet as shown.





**Step 102/117**

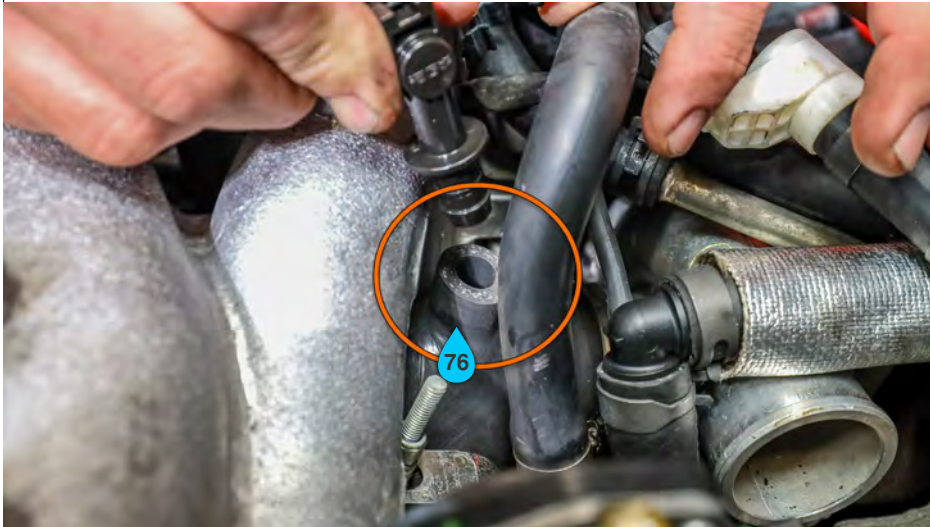
Numbered annotations (1)

- 75** If using an aftermarket turbo inlet without a provision for the PCV sensor, locate the supplied fitting.

**Step 103/117**

Numbered annotations (1)

- 76** If using an aftermarket turbo inlet use the supplied fitting to connect the white PCV sensor to the turbo inlet.




### Step 104/117



### Step 105/117

Numbered annotations (1)

-  Attach the hose assembly with white PCV sensor here.







Step 106/117



Step 107/117

- Numbered annotations (1)
- 78 Measure the length of the PCV vent hose to the AOS breather port.



**Step 108/117**

Numbered annotations (1)

- 79 Trim the excess AOS breather hose.  
Reserve the excess hose.

**Step 109/117**

Numbered annotations (1)

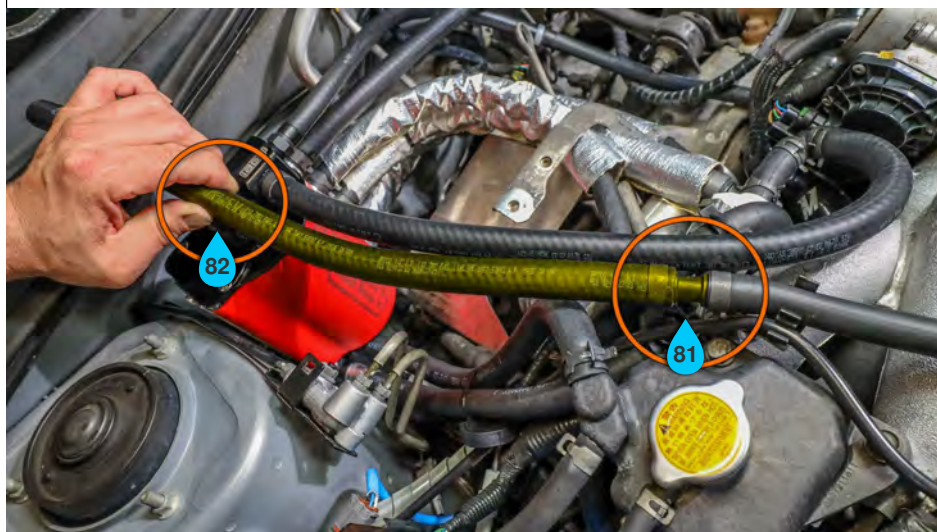
- 80 Attach the AOS vent hose here using  
the supplied clamp.



**Step 110/117**

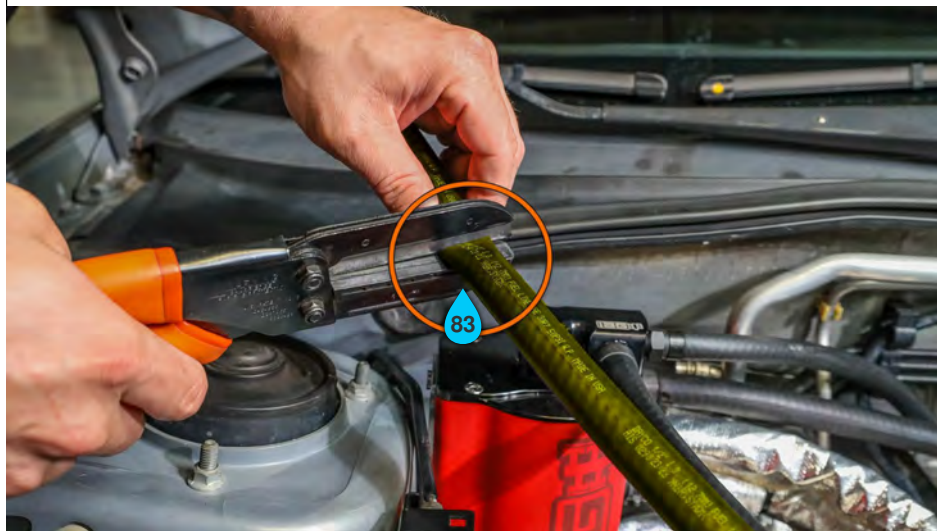
Numbered annotations (2)

- 81 Attach the reserved 1/2" AOS breather hose to the OEM inlet hose using the supplied 1/2" nylon union and clamps.
- 82 Measure the AOS vent hose to length.

**Step 111/117**

Numbered annotations (1)

- 83 Trim the excess AOS breather hose.





**Step 112/117**

Numbered annotations (1)

- 84 Attach the AOS breather hose here using the supplied clamp.

**Step 113/117**

Numbered annotations (1)

- 85 Routing of all AOS hoses shown.





- . Reinstall the intercooler**
- . Reconnect any white PCV connectors which were disconnected earlier.**

Step 114/117



Step 115/117



### Step 116/117

Numbered annotations (1)

- 86 Reconnect the negative battery terminal



### Step 117/117

Numbered annotations (1)

- 87 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.