IAG Street Series Air / Oil Separator (AOS) For 2006-07 WRX & 2004-07 WRX STI

Part# IAG-ENG-7150

Tools Required: Ratchet, torque wrench, extensions, needle nose pliers, hose cutter, snips/scissors, flat head screw driver, hose clamping pliers, pry bar
Sockets: 10mm, 12mm, 13mm, ¼" allen,
Wrenches: ⅜", 8mm, 10mm, 13mm, 19mm $^{11}/_{16}$", 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.

Parts List		
Part Name	**Quantity**	**Notes**
Air/Oil Separator	1	
Oil Drain Hose Assembly	1	26" Hose Length, ½" I.D.
Top Coolant Hose Assembly	1	20" Hose Length, ½" I.D., -8ORB
Bottom Coolant Hose Assembly	1	20" Hose Length, ½" I.D., -8ORB
PCV Hose	1	27" Length, 3/8" ID
Block Breather Hose	1	25" Hose Length, $^{5}/_{8}$" ID
Valve Cover Breather Hose	1	74" Hose Length, ½" ID
Block Drain Replacement Hose	1	2" Hose Length, ¾" I.D.
Street Series Breather Hose	1	37" Hose Lenngth, ½" I.D.
Mounting Bracket	1	
M6x12mm Bolt	1	Mounting Bracket to strut tower
M8x18mm Bolt	1	Mounting Bracket to strut tower
90° 5/8" Plastic Fitting	1	Block Breather Fitting
90° ½" Plastic Fitting	1	
½" Straight Barb Union Fitting	1	
PCV Replacement "Y" Fitting	1	
Street Series Breather & PCV Fitting	1	Preinstalled
Fasteners for Breather Top Fitting	3	M4x8mm Preinstalled
AOS Drain Fitting	1	Preinstalled
Spring Clamps	2	Coolant Hose Spring Clamps
6x10mm Bolt	3	AOS Bracket Fasteners
8" Zip Tie	24	
11" Zip Tie	1	

Removal - Please read through the entire removal instructions before proceeding

1. The engine needs to be completely cool before beginning work.

2. Disconnect the negative battery terminal using a 10mm wrench.

3. Remove the rubber breather hoses from the metal crossover pipe. There are two on the passenger side and one on the driver side.

4. Using a 12mm socket, remove the intercooler mounting bolts on either side of the intercooler.

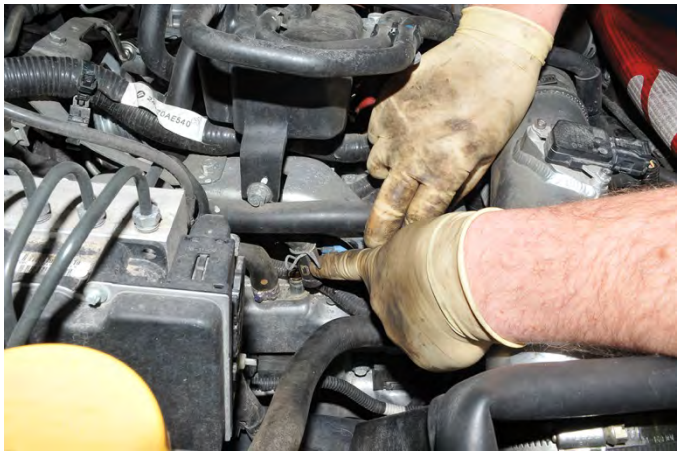
5. Using a 12mm socket, remove the (2) 12mm bolts that hold the blow off valve (BOV) to the intercooler. You can leave the BOV where it sits. Be careful not to lose or damage the gasket.

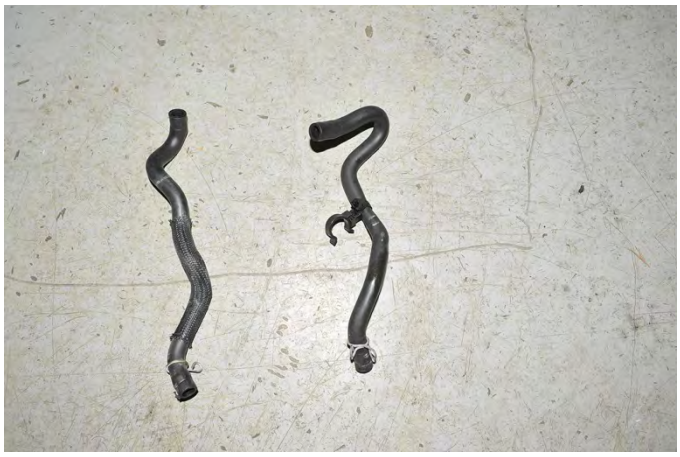
6. Using a flat head screwdriver, loosen the hose clamp on the turbo discharge silicone coupler.

7. Using a flat head screwdriver, loosen the hose clamp at the intercooler outlet silicone coupler.

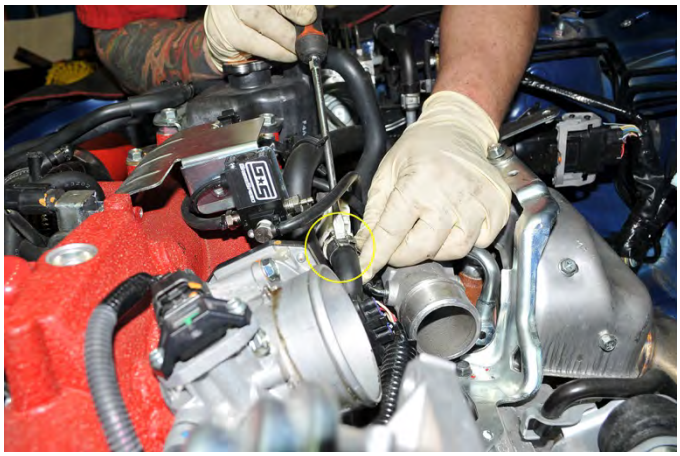
8. Grab the intercooler by the sides and carefully wiggle it out of the engine bay. Be cautious to not damage the A/C line that runs along the firewall or the intercooler fins. Once the intercooler is out of the car then remove the metal crossover pipe by removing the (2) 10mm bolts with a 10mm socket and ratchet.

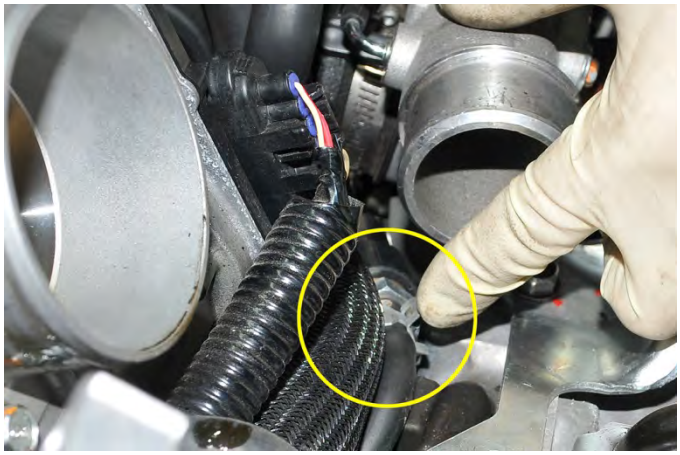
9. Using pliers remove the passenger side valve cover breather line clamp (the one that is closest to the front of the car). Remove the hose from the valve cover port. Repeat this process on the driver side forward most valve cover breather line clamp and hose. Remove the driver side hose from the engine bay as well.





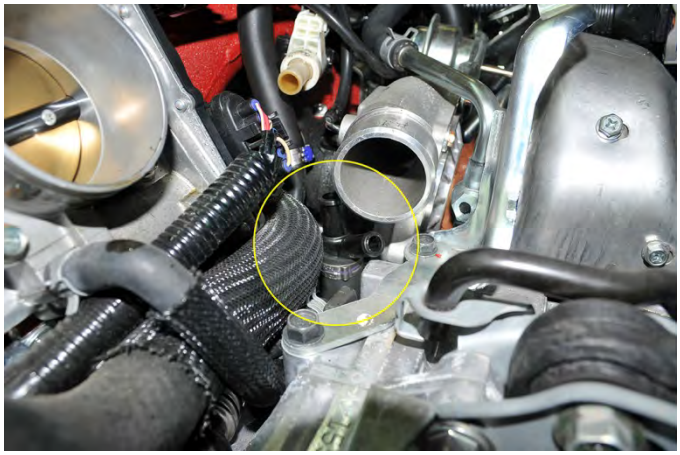
10. Remove the clamp from the OEM blow-by sensor located at the rear of the turbocharger inlet using a flat head screwdriver. Then remove the small pinch clamp that holds the hose to the PCV valve using pliers.





11. Remove the PCV valve assembly from the engine. It may come out with the ¾" drain hose. If the OEM drain hose is in good condition you will reuse it. We have supplied you with a new drain hose if the OEM unit is worn or damaged.

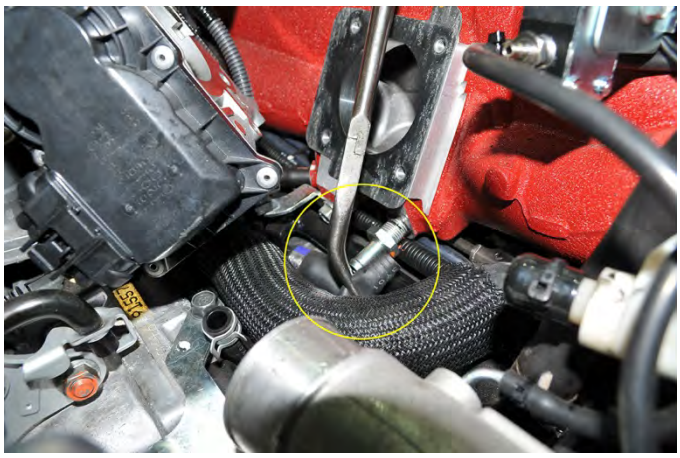
12. Slide the supplied plastic drain fitting into the ¾" drain hose as shown.



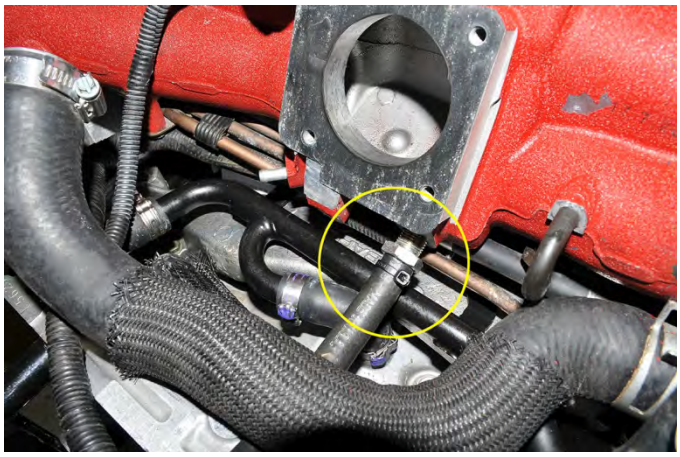
13. ** Optional – The throttle body does require removal but it does make the procedure of removing and adding a hose shown in steps 14-15 easier.*

Using a 10mm socket, remove the (4) 10mm bolts that secure the throttle body to the intake manifold. If the throttle body is stuck, gently tap around the sides with a rubber mallet to break the throttle body free. Do not lose or damage the OEM Throttle body gasket as it is reused.

14. Remove the small pinch clamp and hose from the PCV vacuum nipple under the throttle body on the intake manifold using needle nose pliers.



15. Install the supplied 3/8” hose on to the existing PCV nipple under the throttle body. Secure the hose with a zip tie and trim the excess off the zip tie. Leave the remaining hose free for use later in the install.

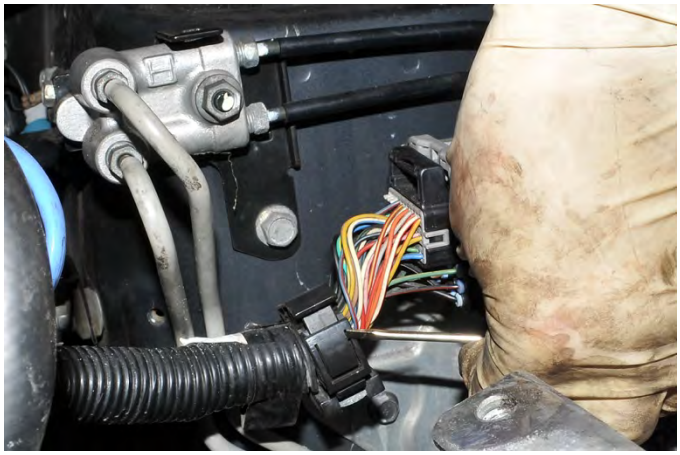


16. Reinstall the throttle body to the intake manifold. Torque the (4) 10mm bolts to 6 $^{lb}/_{ft}$.

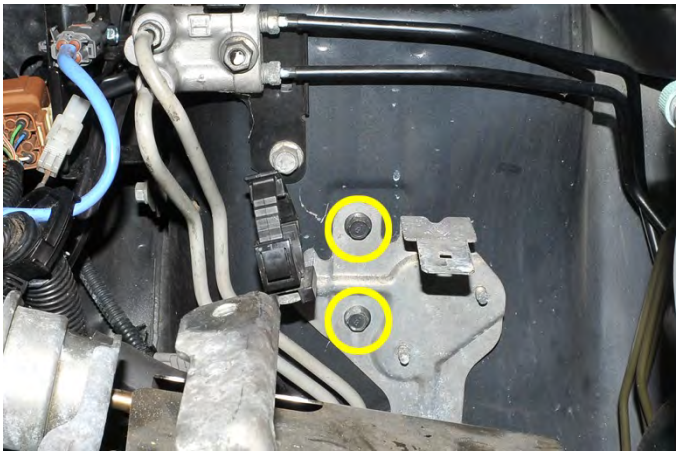
17. * 2007 STI Only - Remove the main engine harness from its mounting bracket located on the passenger side strut tower. Using a flat head screwdriver start by unclipping the harness hold down clamp. Then using a flat head screwdriver pry the main harness clip outwards and lift out as shown.

***2002-2005 WRX 2.0L you will have to delete your cruise control module on the passenger side strut tower or modify the mounting bracket to retain it.*

Instructions for 02-05 modification can be found here:
www.iagperformance.com/v/vspfiles/downloadables/instructions/IAG/02-05-AOS/IAG-AOS-Cruise-Control-Relocation-02-05-WRX-v.01.pdf



18. * 2006-07 WRX / 2007 STI Only - Remove main wiring harness bracket using 10mm socket and ratchet, it is held on by (2) 10mm bolt located on the passenger side strut tower.

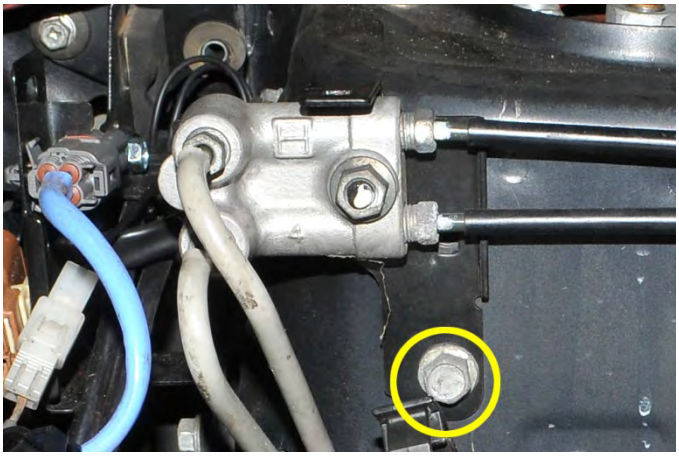


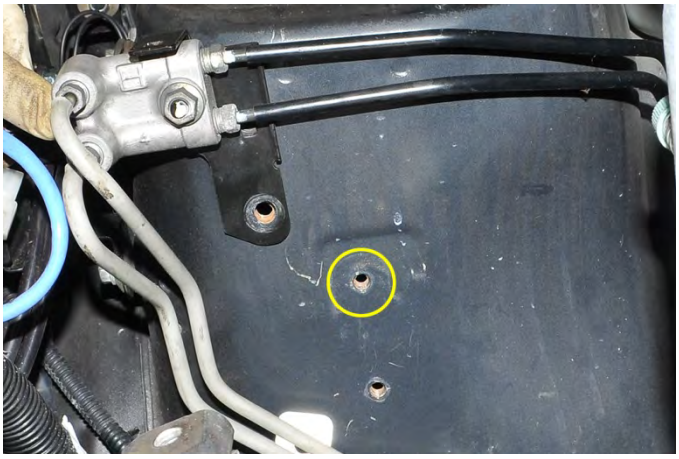
19. Remove the (1) 12mm bolt holding the brake line bracket to the strut tower.

*** Take the supplied M6x12mm bolt and thread the bolt through the hole indicated to remove any foreign media.

Remove the hardware after cleaning the threads.

(Note: if the bolt will not thread through, then the nuts may be severely rusted. In this case, we recommend running a chaser tap through the nut.)





20. Next, install the (2) AOS coolant lines onto the AOS (Lines come pre-assembled). Thread them on by hand and tighten using ⅞" open end wrench.

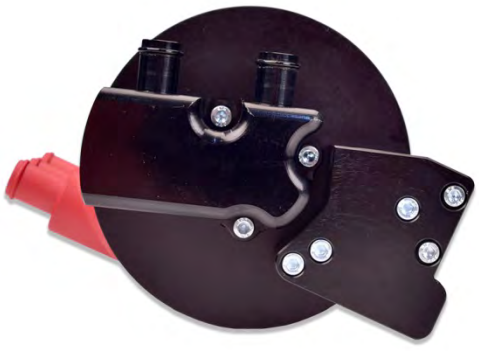
21. Install the ½" drain hose onto the AOS drain port fitting. Secure with a zip tie and trim the excess off.

22. Install the bracket onto the AOS using the (3) small allen bolts as shown. The last hole from the bottom of the AOS should be oriented to the lowest allen bolt hole on the bracket. Tighten the three allens.

**In April 2016 the mounting bracket was changed, later step pictures may show the older bracket design which utilized spacers.*

23. The AOS ships with the upper breather fitting generally clocked into the desired install position. Make sure the fitting is clocked similar to the picture on the right. If necessary you can re-clock the upper breather fitting by removing the (3) 4mm x 8 allen bolts at the fitting using a 3mm allen wrench. When the bolts are removed, turn the breather fitting to the desired position and then screw back in the (x3) 4mm x 8 allen bolts.

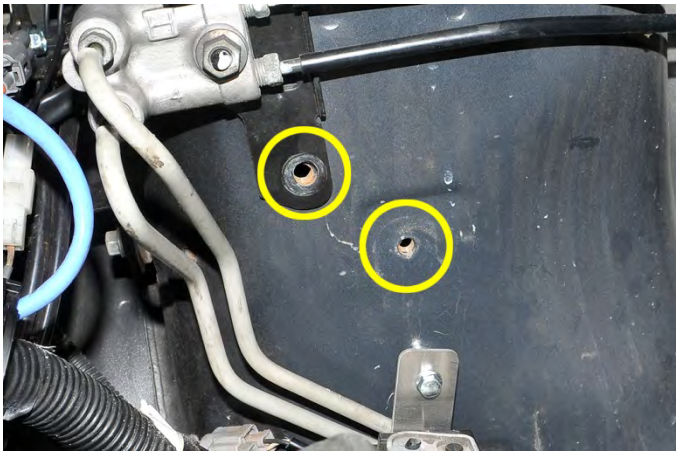
**In 2017 the PCV system was revised to eliminate a noise produced from having the PCV valve directly on the AOS. AOS's shipped 2017 and later include a breather hose with the valve integrated into the middle of the breather line. Later step pictures may show the older PCV system that used a metal valve at the breather.*



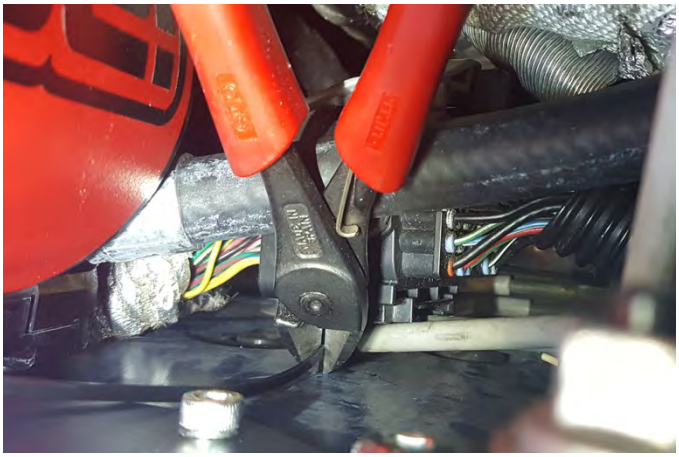
** Pic above shows early design with metal PCV valve.*

24. Next using your hands bend brake lines up and back to make room for the AOS at the passenger side strut tower as shown.

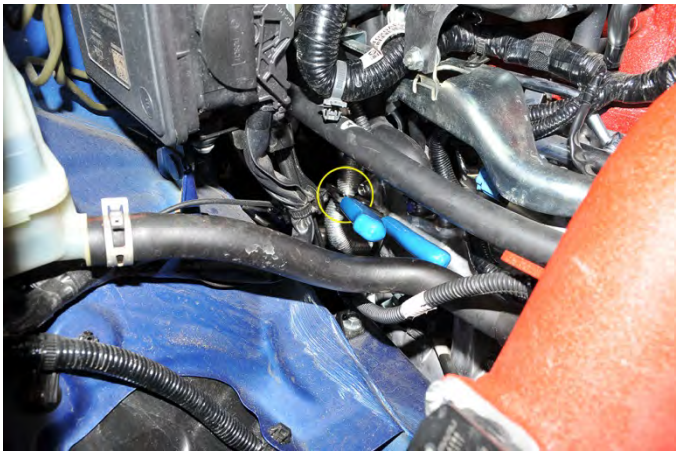
25. Install the AOS using the two holes on the strut tower shown in the picture. Start the upper M8x18mm bolt first then start the lower M6x12mm bolt. Once both bolts have been slightly threaded finish tightening them.



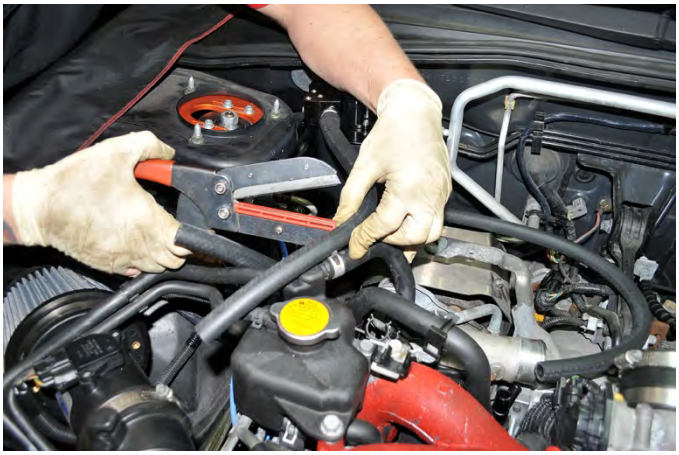
26. 2006-07 WRX / 2007 STI only ** Thread a supplied 8” zip tie through the back of the harness and attach the wiring harness to the brake lines as shown.

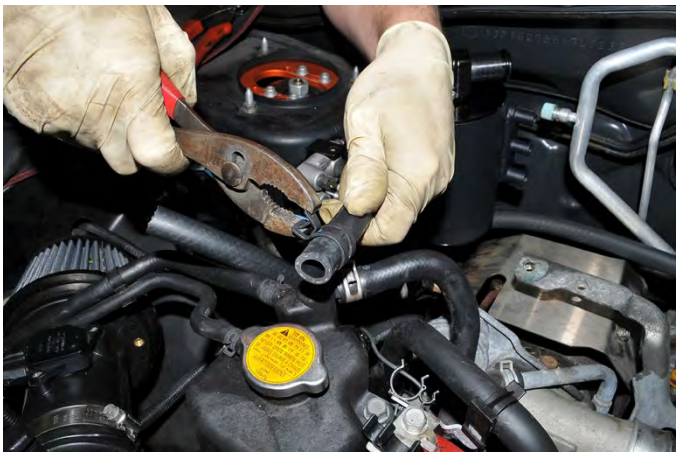


27. To minimize coolant loss, pinch off the lower coolant hose that connects the turbo to the cylinder head using hose clamping pliers.

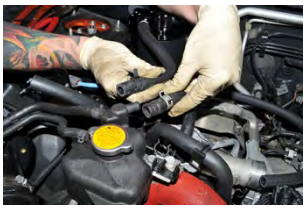


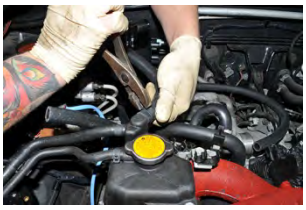
28. The IAG AOS coolant line will attach to the OEM coolant expansion tank. Trim the upper AOS coolant line to the correct length making sure when the line is routed there are not any kinks or obstructions. Once cut, using pliers pinch and slide the supplied pinch clamp onto the AOS coolant line.





29. Using pliers remove the OEM upper coolant expansion tank hose clamp. Pull the OEM expansion hose off and slide the new IAG AOS coolant hose on. Do this fast so that coolant loss is kept to a minimum. Then using pliers pinch and slide the supplied pinch clamp over the expansion tank port barb to secure the line.



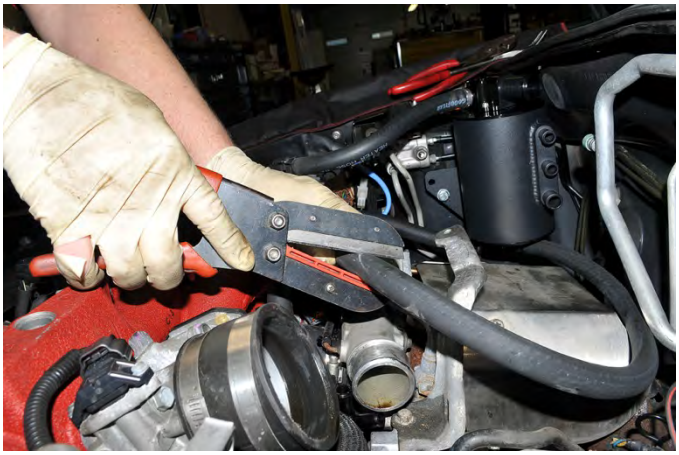


30. Locate the AOS lower coolant hose. The hose will lead to the upper coolant hose on the turbocharger. Trim the line to fit onto the upper coolant turbocharger hard pipe. Slide the supplied pinch clamp onto it using pliers.

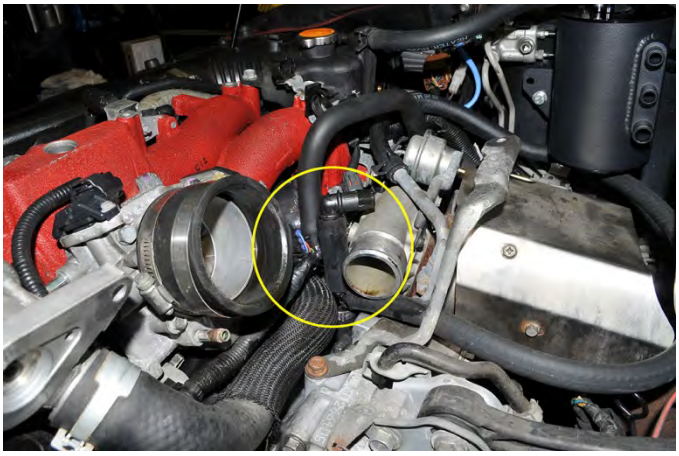
Remove the upper OEM coolant line pinch clamp and pull the OEM line off the turbocharger. Remove the OEM line from the vehicle.

Next, slide the IAG AOS coolant line onto the turbocharger coolant hard pipe and secure the hose with the supplied clamp. ***If done correctly minimal coolant should be lost. If substantial coolant is lost, bleeding the coolant system is required to avoid overheating.***

31. Locate the AOS oil drain line. The line will route over the transmission, thru the turbo support bracket and finally lead to the ½" port on the plastic drain fitting located on the engine block. The hose is supplied long to allow for various turbochargers, intercoolers, and downpipes. Make sure when trimming the length that the hose is free of heat sources and the line is not kinked. Once the hose is in place install a zip tie to secure the hose and trim the excess.

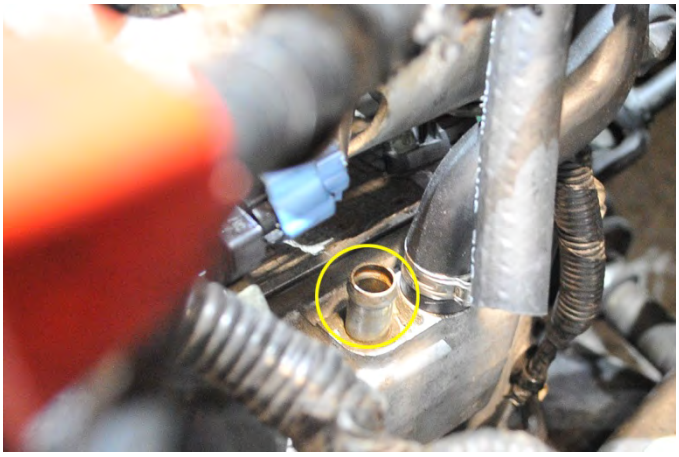


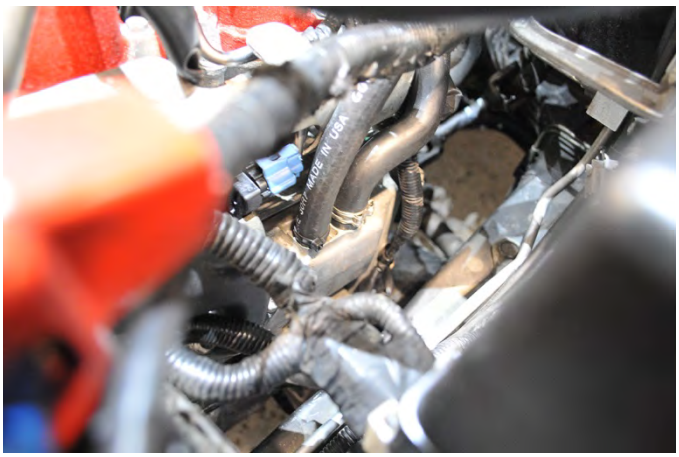
32. Locate the 5/8” breather hose and the plastic 90° fitting included with the AOS kit. Cut 3” off the breather hose. Slide the 3” length of breather hose onto one side of the 90° fitting, then slide the other side of the 3” breather hose onto the 5/8” port on the plastic drain fitting.



33. Slide the long 5/8” breather hose onto the other side of the 90° fitting. Route the breather line to the 5/8” port on the AOS can. The line should route over the top of the heat shield and under the intercooler bracket. Trim the line to fit. Leave enough room so the line is free of obstructions and not kinked. Secure all the hose connections with zip ties and trim the excess off.

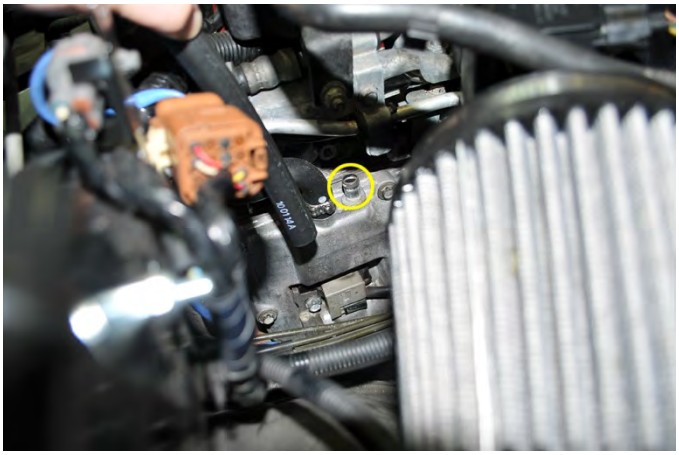
34. Locate the ½" breather line included in the AOS kit. Route one side of the line to the driver side most forward valve cover breather port. The line should pass over top the fuel injector cover bracket until it meets the valve cover port. Slide the hose onto the port and secure it with a zip tie.



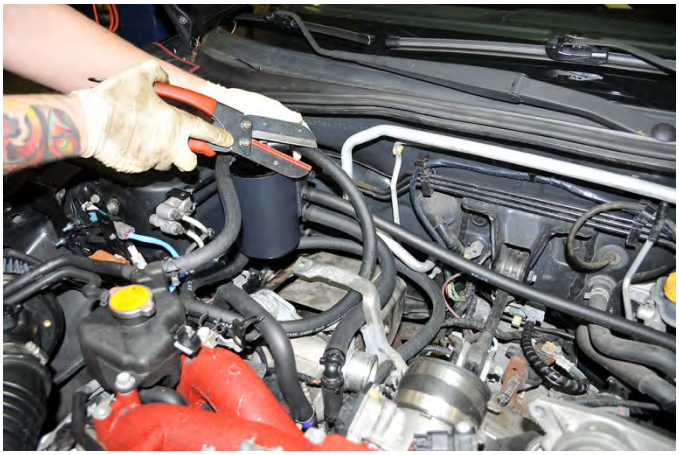


35. Route the remaining length of hose to the passenger side where the AOS located as shown. Trim the hose to fit the center port on the AOS. Then install the hose onto the port and secure it with a zip tie.

36. Using the remaining length of ½" hose, route over the top of the power steering lines and over top the injector cover bracket. Finally, slide it onto the passenger side valve cover breather port and secure it with a zip tie and trim the excess off.



37. Next route the remaining portion of the hose under the intercooler bracket and alongside the 5/8” breather hose. The line will then lead up to the upper AOS port. Make sure the line is free of kinks or any obstructions. Trim the line to fit and secure it with a zip tie trimming off the excess.



38. *In 2017 the PCV system was revised to eliminate a noise produced from having the valve directly on the AOS. AOS’s shipped in 2017 include a breather hose with the valve integrated into the middle of the breather line

^ *Supplied hose with integrated PCV valve shown above*

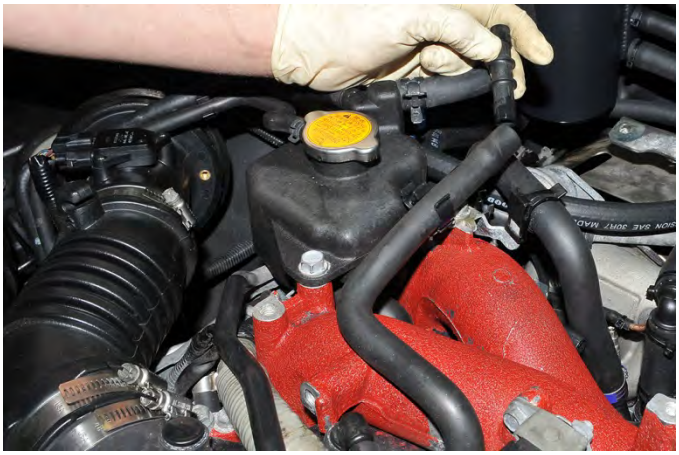
The PCV hose features a threaded fitting on one end. Hand screw the fitting end into the upper breather fitting on the AOS as shown. Once started tighten the fitting using an 11/16” wrench.

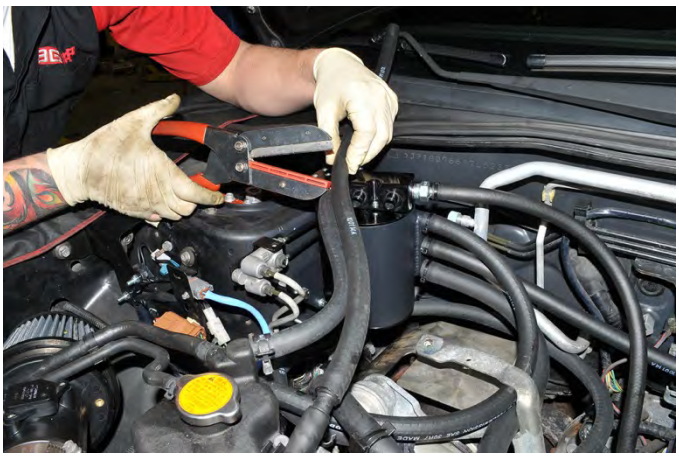
39. Next route 3/8” hose with the integrated PCV valve and fitting from the upper AOS fitting to the PCV nipple under the throttle body. Keep the line as low as possible next to the transmission housing. Trim the hose to fit and secure with a zip tie. Trim excess off the zip tie.

^ *Old PCV line and fitting shown*

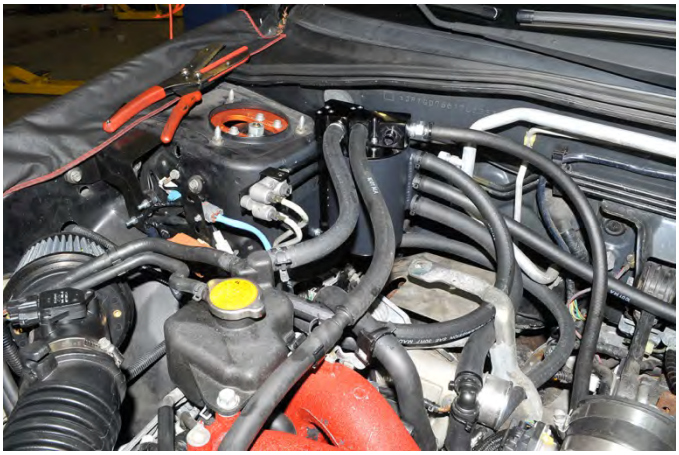
^ *Old PCV line and fitting shown.*

40. Insert supplied ½” straight fitting into the OEM breather hose as shown. Then install the supplied ½” hose onto the plastic fitting. Route the hose to the upper AOS breather fitting as shown. Trim the hose to fit and secure connections with zip ties.





^ *Old PCV line and fitting shown.*



^ *Old PCV line and fitting shown.*

41. Locate the remaining ½" hose supplied with the kit. Cut 2" off and insert it onto the supplied ½" 90° degree plastic fitting. Then install the ½" hose and 90 onto the white portion of the blow-by sensor.

42. Install the remaining length of ½" hose onto the plastic 90° fitting. Then route the remaining portion to the port on the AOS breather. Trim the excess and secure all the connections with zip ties.

^ *Old PCV line and fitting shown.*

^ *Old PCV line and fitting shown.*

43. Reinstall the intercooler and bypass valve using the OEM hardware and gaskets. Reattach the negative battery terminal.

44. Before proceeding, please look over the checklist below:

Check Over List

Are all coolant fittings tight?

Are (2) coolant clamps correctly fitted on the turbo coolant pipe and the expansion tank?

Was any coolant spilled in the engine bay cleaned up?

Are the hose clamps on the silicone couplers tight?

Are the following connections zip tied:

- ½" valve cover ports
- Both connections on the Y-fitting that is attached to the block
- All 3 side ports on the AOS
- The top breather port

45. After you have reviewed the checklist, proceed to start the vehicle and check for leaks. After the engine has heat cycled, you can check the coolant level and replace any coolant that was lost during installation.