IAG Competition Series Air / Oil Separator (AOS) For 2008-14 STI

Part# IAG-ENG-7251

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

Parts List		
Part Name	**Quantity**	**Notes**
Air/Oil Separator	1	
Oil Drain Hose Assembly	1	26" Hose Length
Top Coolant Hose Assembly	1	20" Hose Length, ½" I.D., -8ORB
Bottom Coolant Hose Assembly	1	20" Hose Length, ½" I.D., -8ORB
Discharge Hose	1	60" Hose Length, 1" 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.
Mounting Bracket	1	
90° 5/8" Plastic Fitting	1	Block Breather Fitting
PCV Replacement Fitting	1	
Comp Series Upper Breather Fitting	1	Preinstalled
Fasteners for Breather Top Fitting	2	M4x8mm / Preinstalled
AOS Drain Fitting	1	Comes preinstalled
Spring Clamps	2	Coolant Hose Spring Clamps
6x10mm Bolt	3	Mounting bracket hardware
½" High Temp Rubber Cap	1	
$^{5}/_{8}$" High Temp Rubber Cap	1	
8" Zip Tie	16	
11" Zip Tie	1	
¼" NPT Plug	1	

For 2008+ Installs (Included in packaging)		
M6x12mm Bolt	2	08+ Install Only
Harness Relocation Bracket	1	08+ Install Only

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. Twist and pull the hoses off once the clamps are removed. Model year 2012-14 will have metal spring clamps securing the hoses. Use pliers to remove the clamps.

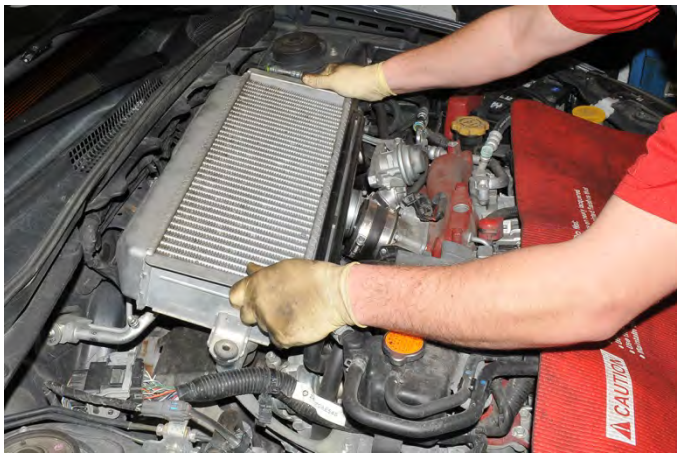
4. Using a 12mm socket, remove the intercooler mounting bolts on either side of the intercooler. In addition, remove the driver side intercooler bracket. It is held on by (2) 12mm bolts at the intake manifold.

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 screw driver, loosen the hose clamp on the turbo discharge silicone coupler.

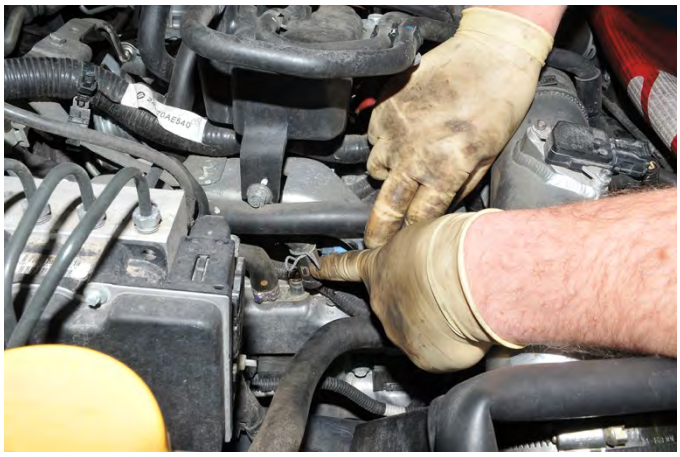
7. Using a flat head screw driver, loosen the hose clamp at the intercooler outlet silicone coupler.

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 fire wall or the intercooler fins. Once the intercooler is out of the car remove the metal crossover pipe by removing the (2) 10mm bolts with a 10mm socket and ratchet.



9. Using hose clamp pliers remove the passenger side valve cover breather line clamp (the one that is closest to the front of the car). Remove the hose off the valve cover port.

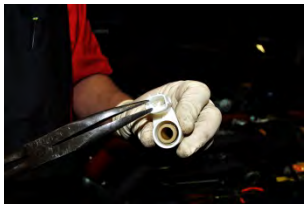
Repeat this process on the driver side forward most valve cover breather line clamp and hose. Remove the driver side hose from the engine bay as well.



10. Remove the breather hose at the turbocharger inlet. If you have a 2012-14 see 10.A. on the next page.

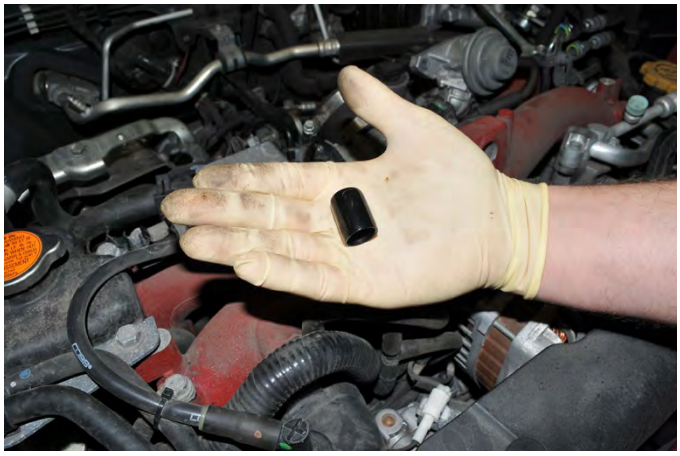
10.A. For model years 2012-14 a blow by sensor operates in between the crossover pipe and the turbo inlet. Disconnect the electrical connector from the blow by sensor in the turbo inlet.

10.B Model Years 2012-14: Remove the jumper from the white portion of crankcase blow-by sensor using needle nose pliers. Pull outwards from sensor until it is free. Then insert the jumper into the gray blow-by sensor connector using needle nose pliers. Tape the connector end with electrical tape to prevent exposure to the elements and tuck it out of the way.

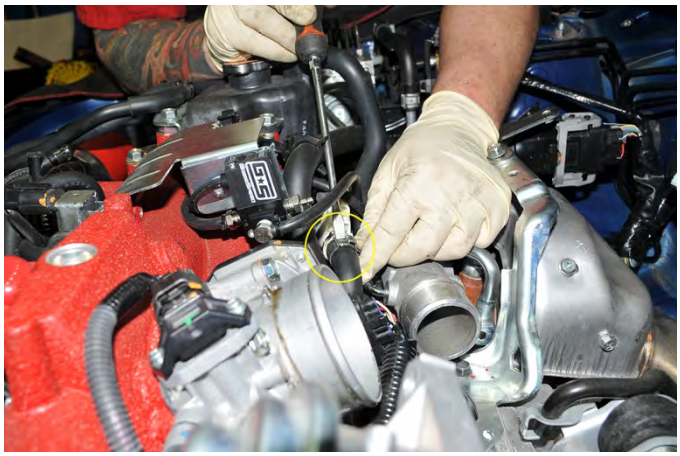


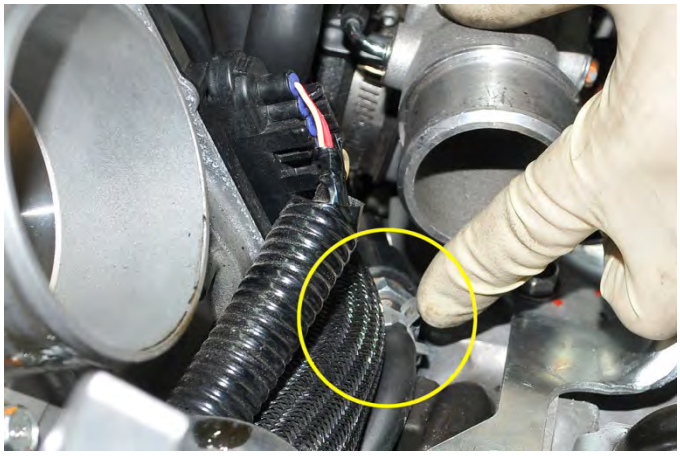
10.C. Model Years 2012-14: Remove the spring clamp from the remaining blow-by sensor hose at the turbocharger inlet. Use pliers to remove the clamp. Then remove the hose and sensor housing from the inlet.

11. For all models 2008-14, using the supplied 5/8” vinyl cap, cover the hole in the inlet and secure it with a zip tie. Trim the excess of the zip tie with snips or scissors.



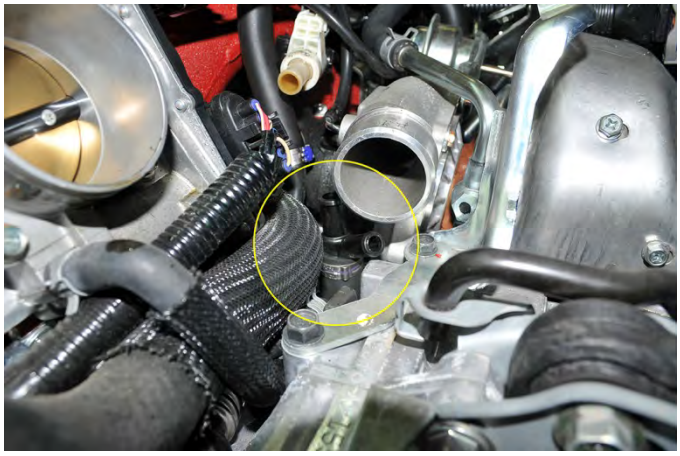
12. Remove the clamp from the OEM blow-by sensor located at the rear of the turbocharger inlet using a flat head screw driver. Then remove the small pinch clamp that holds the hose to the PCV valve using pliers.





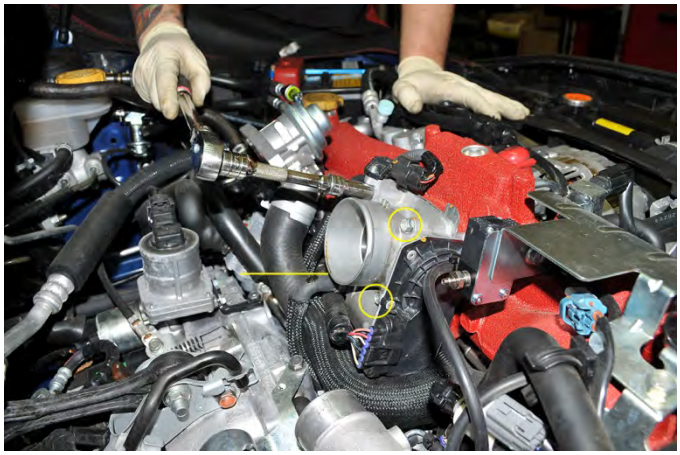
13. Remove the PCV valve assembly from the engine. It may come out with the ¾" drain hose. If the OEM drain hose is in good condition you will reuse it. We have supplied you with a new drain hose if the OEM unit is worn or damaged.

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

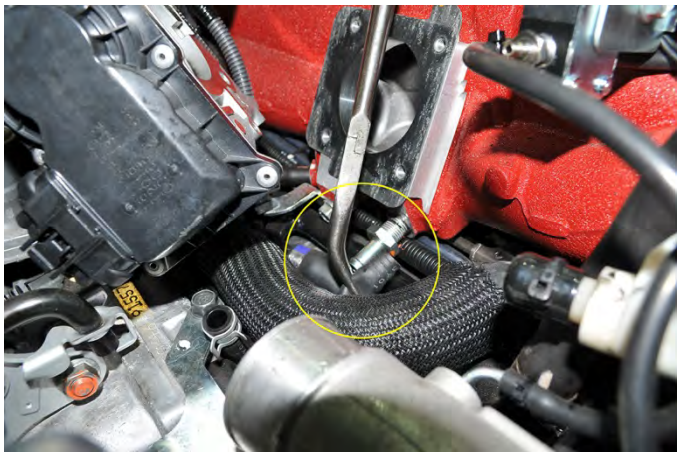


15. Cap off the white portion of the blow-by sensor using the supplied ½" cap and zip tie as shown. Trim the excess off the zip tie.

16. 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.



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



18. Using a 19mm wrench, unscrew the PCV nipple and replace it with the ¼" NPT plug using a ¼" allen socket. The plug comes with thread sealant on it. Torque the plug to 15 $^{lb}/_{ft}$. Do not over torque as the intake manifold can be damaged.

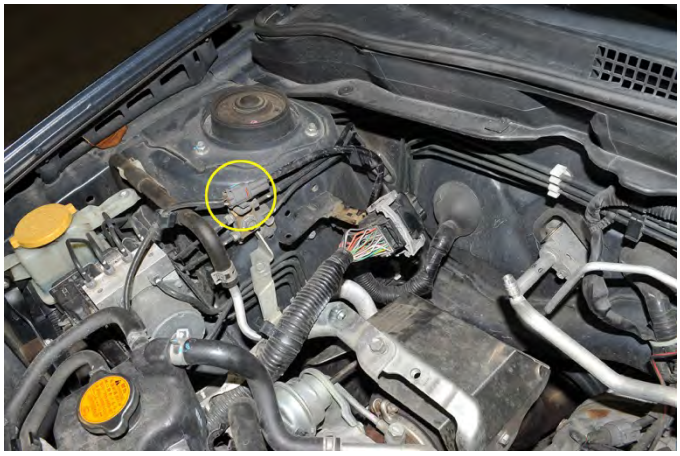
19. Re-install the throttle body to the intake manifold. Torque the (4) 10mm bolts to 6 $^{lb}/_{ft}$.

20. Remove the main engine harness from its mounting bracket located on the passenger side strut tower. Using a flat head screw driver pry the harness clip outwards and lift up as shown.

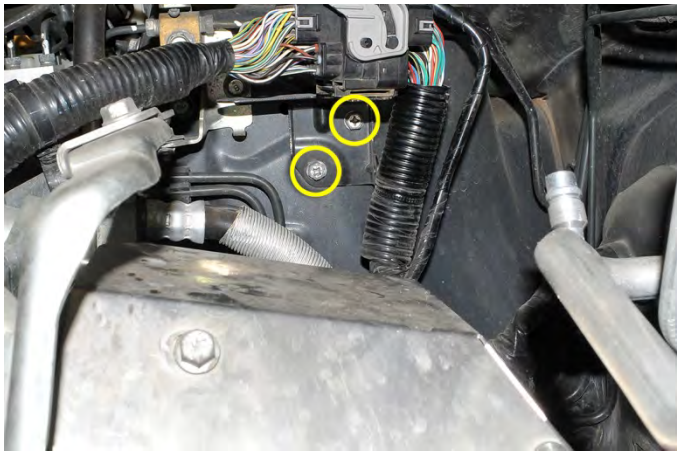
Remove the OEM electrical tape at the primary O2 sensor / main harness connection in order to add additional slack in the wiring.

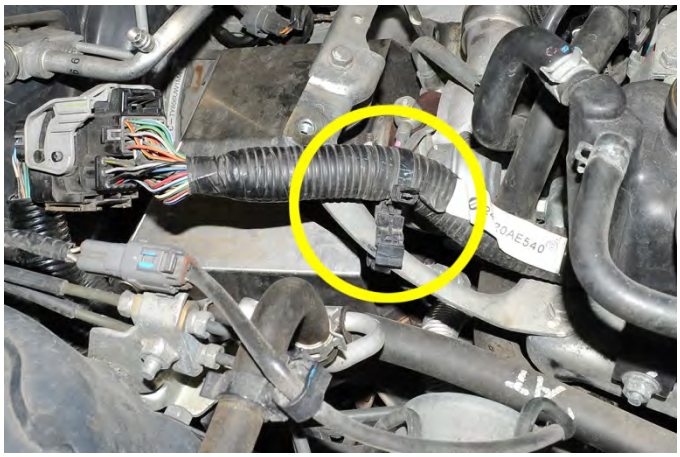
Also remove the plastic main harness securing clamp from the shock tower. It is held in place by a pinch / pop clip. Refer to picture.

Unplug the primary O2 sensor and pull it free from the bracket to make space for the AOS install.



21. Remove main wiring harness bracket using a 10mm socket and ratchet, it is held on by (2) 10mm bolt located on the passenger side strut tower.



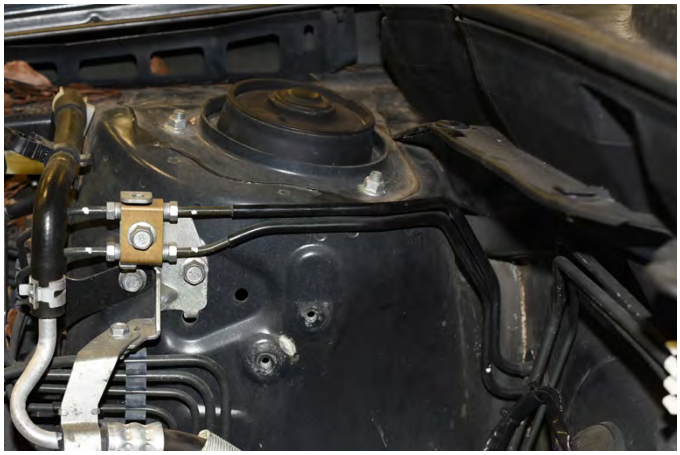


Using a flat head screw driver, remove the main harness plastic securing clamp from the Intercooler support bracket.

22. Next install the (2) AOS coolant lines onto the AOS (Lines come pre-assembled). Thread them on by hand and tighten using 7/8" open end wrench.

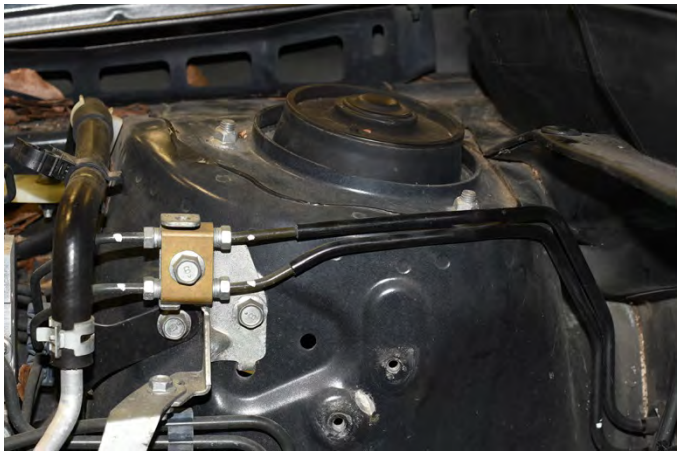
23. Install the ½” drain hose onto the AOS drain port fitting. Secure with a zip tie and trim the excess off.

24. Using a rag and a pry bar carefully pry up each brake line on the strut tower as shown.



^ Before ^

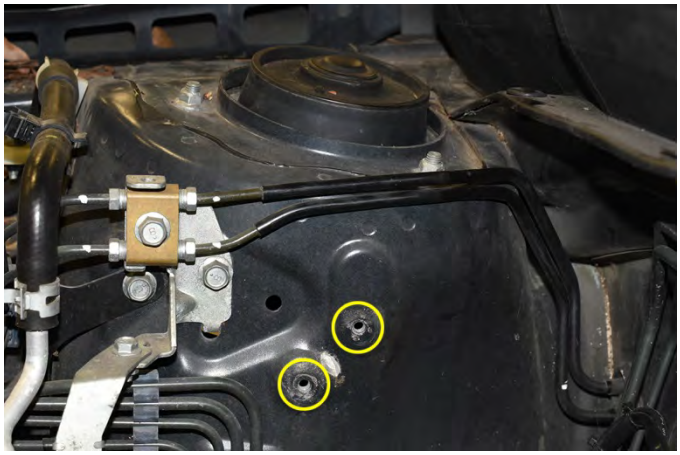
^ During Prying ^



^ After Prying ^

25. Locate the two mounting holes indicated on the picture to the right. Using one of the included M6x12mm bolts, thread the bolt through each hole to remove any foreign media. Remove the hardware after cleaning the threads.

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



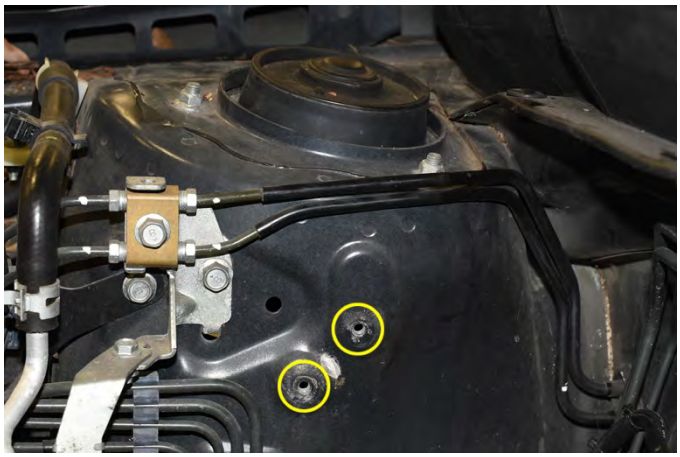
26. Install the bracket onto the AOS using the (3) small allen bolts as shown. The fourth hole from the bottom of the AOS should be oriented to the lowest allen bolt hole on the bracket. Tighten the three allens.

Note in April 2016 the mounting bracket for the AOS was changed. Some pictures after "Step 29" may show the older mounting solution. The older images will not affect the install of AOS's with the most current mounting bracket.

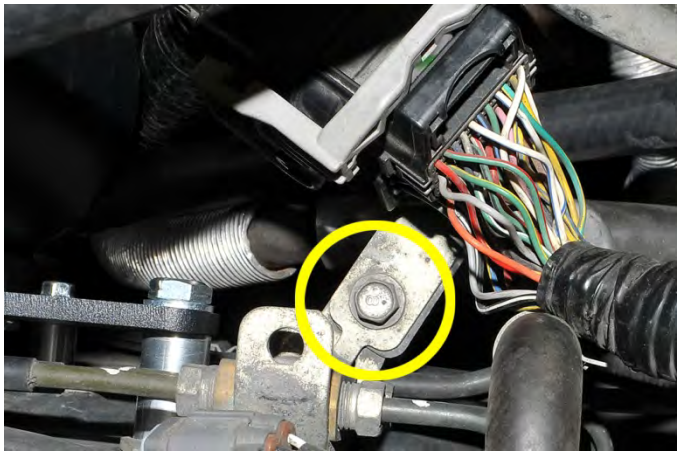
27. Locate the Competition Series upper breather fitting and O-ring. Fit the O-ring onto the fitting as shown. Then insert the fitting on the top of the AOS.

28. Clock the upper breather fitting so that is matches the picture. Locate the (2) supplied 4mm x 8 allen bolts and using a 3mm allen wrench thread the bolts thru the breather fitting into the AOS and secure the port fitting.

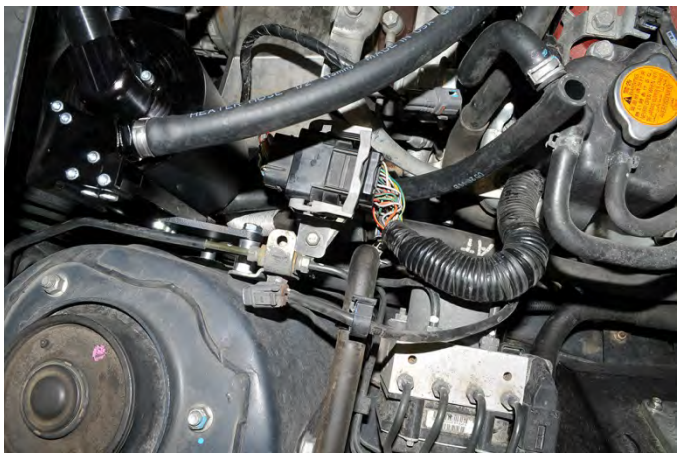
29. Install the AOS using the two holes on the strut tower shown in the picture. Guide the lower coolant hose underneath the main wire harness while installing the AOS. Start the upper M6x12mm bolt first then start the lower m6x12mm bolt. Once both bolts have been slightly threaded finish tightening them. Confirm that the brake lines do not contact the AOS and readjust the lines if necessary.

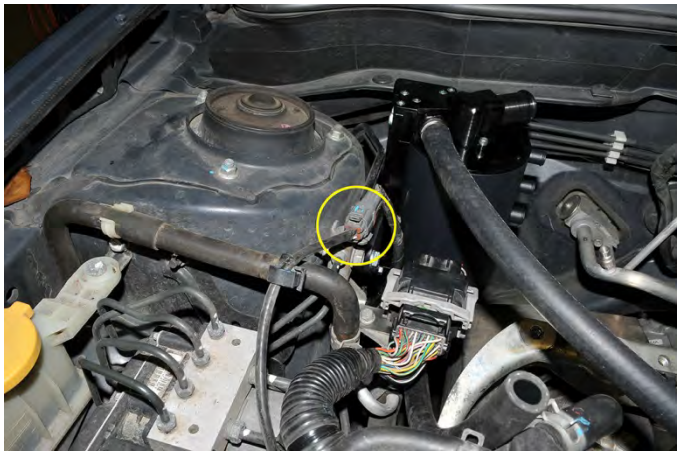


30. Use a 10mm socket and ratchet to remove the (1) 10mm bolt from the power steering line bracket located on the passenger side strut tower.

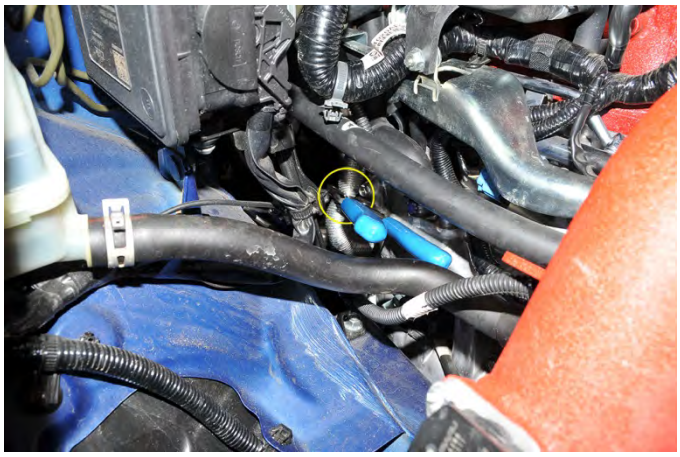


Next install the supplied harness relocation bracket using the same 10mm bolt. Do not completely tighten the bolt yet. Slide the harness onto the relocation bracket until it clips into place. Then adjust the position of the main harness for clearance and fitment. Then finish tightening the 10mm bolt. Finally reroute the primary O2 sensor wire behind the AOS and place it back into its factory support bracket. Plug the gray 02 sensor wires together.

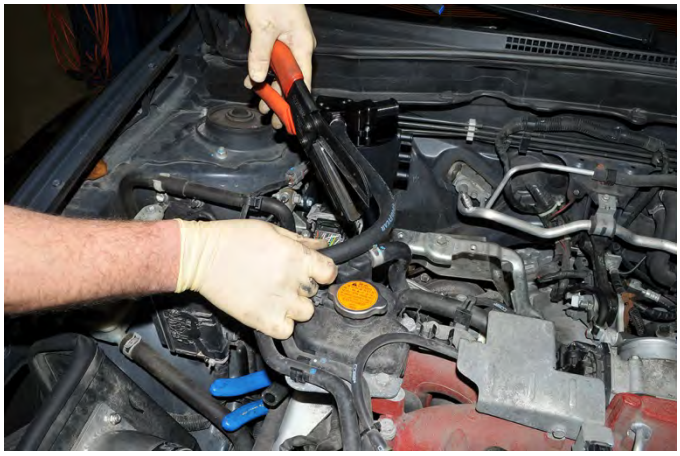


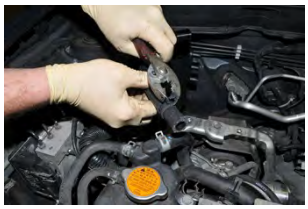


31. To minimize coolant loss, pinch off the lower coolant hose that connects the turbo to the cylinder head using hose clamping pliers.

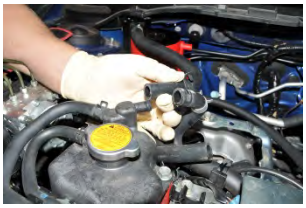


32. The IAG AOS coolant line will attach to the OEM coolant expansion tank. Trim the upper AOS coolant line to the correct length making sure when the line is routed there are not any kinks or obstructions. Once cut, using pliers pinch and slide the supplied pinch clamp onto the AOS coolant line.

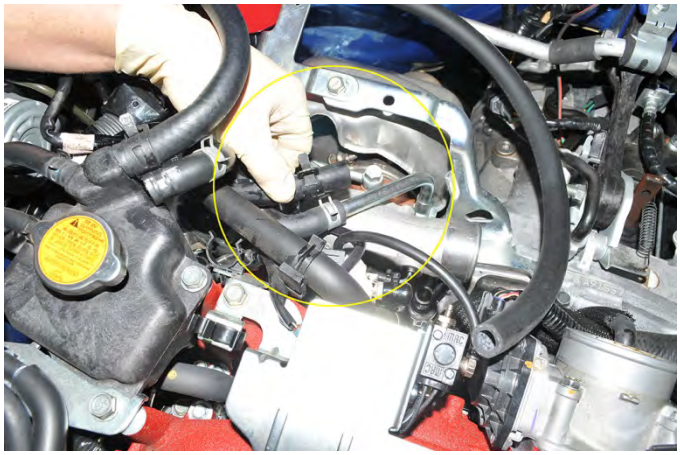




33. Using pliers remove the OEM upper coolant expansion tank hose clamp. Pull the OEM expansion hose off and slide the new IAG AOS coolant hose on. Do this fast so that coolant loss is kept to a minimum. Then using pliers pinch and slide the new supplied pinch clamp over the expansion tank port barb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



34. Locate the AOS lower coolant hose. The hose should be routed under the main harness and lead to the upper coolant hose on the turbocharger. Trim the line to fit onto the upper coolant turbocharger hard pipe. Slide the new supplied pinch clamp onto it using pliers.

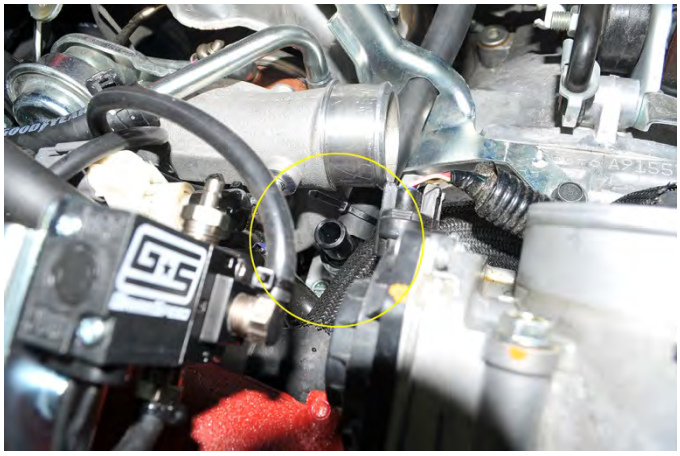


Remove the upper OEM coolant line pinch clamp and pull the OEM line off the turbocharger. Remove the OEM line from the vehicle.

Next slide the IAG AOS coolant line onto the turbocharger coolant hard pipe and secure the hose with the supplied clamp.

Finally using a supplied zip tie secure the line to the power steering bracket as shown. ***If done correctly minimal coolant should be lost. If substantial coolant is lost, bleeding the coolant system is required to avoid overheating.***

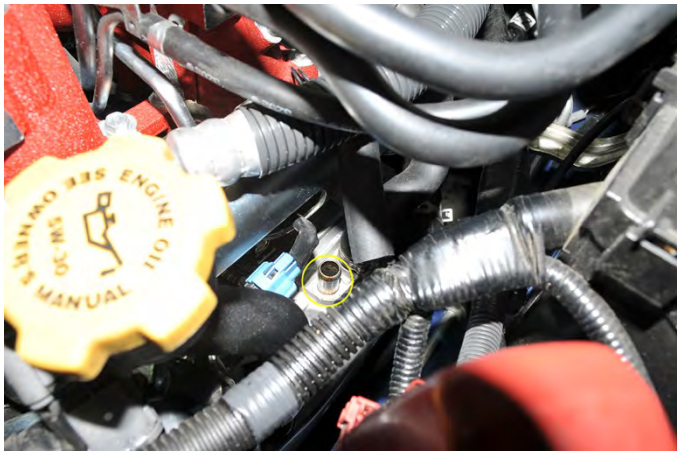
35. Locate the AOS oil drain line. The line will route over the transmission, thru the intercooler support bracket and finally lead to the ½" port on the plastic drain fitting located on the engine block. The hose is supplied long to allow for various turbochargers, intercoolers and downpipes. Make sure 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.

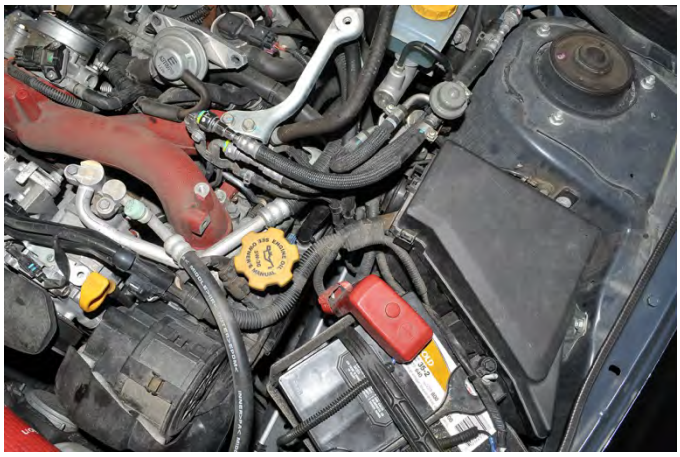


36. Locate the 5/8" breather hose and the plastic 90° fitting included with the AOS kit. Cut 3" off the breather hose. Slide the 3" length of breather hose onto one side of the 90° fitting, then slide the other side of the 3" breather hose onto the 5/8"port on the plastic drain fitting.

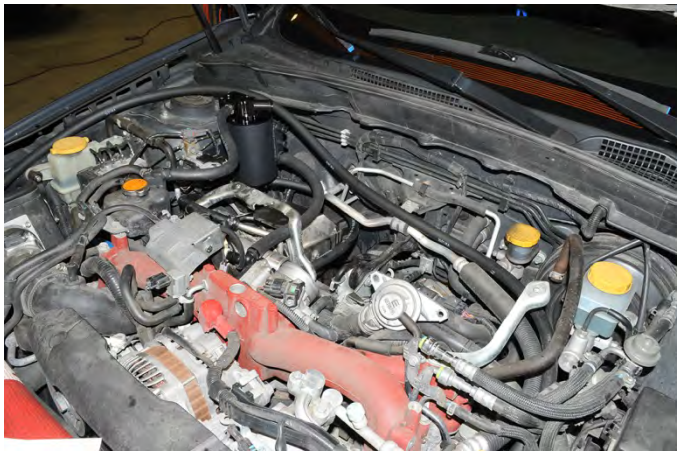
37. Slide the long 5/8” breather hose onto the other side of the 90° fitting. Route the breather line to the 5/8” port on the AOS can. The line should route over top of the heat shield and under the intercooler bracket. Trim the line to fit. Leave enough room so the line is free of obstructions and not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

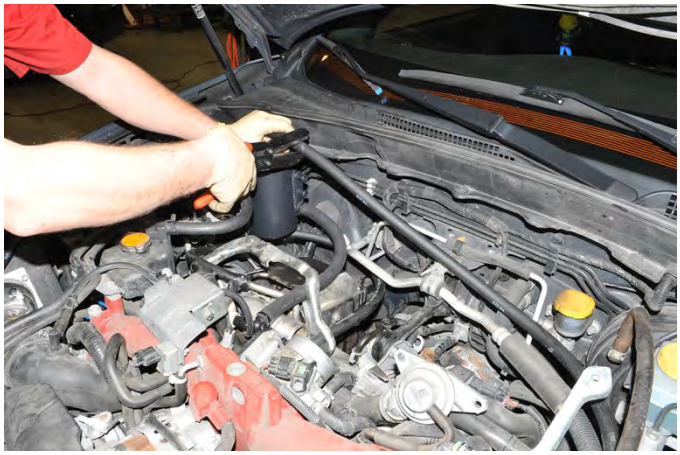
38. Locate the ½" breather line included in the AOS kit. Route one side of the line to the driver side most forward valve cover breather port. The line should pass inside the AC line and over top the fuel injector cover bracket until it meets the valve cover port. Slide the hose onto the port and secure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

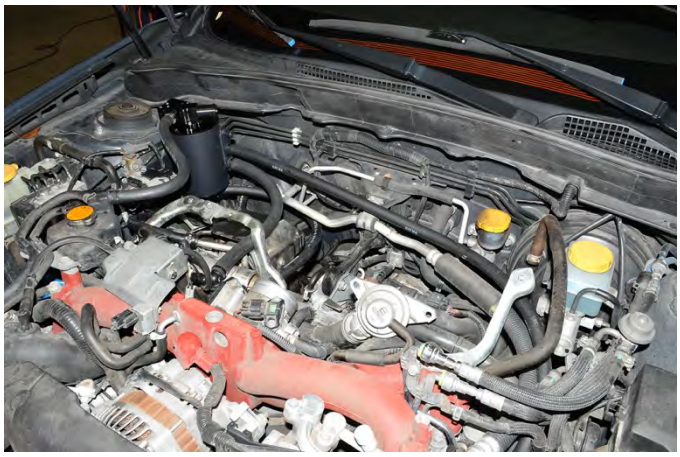




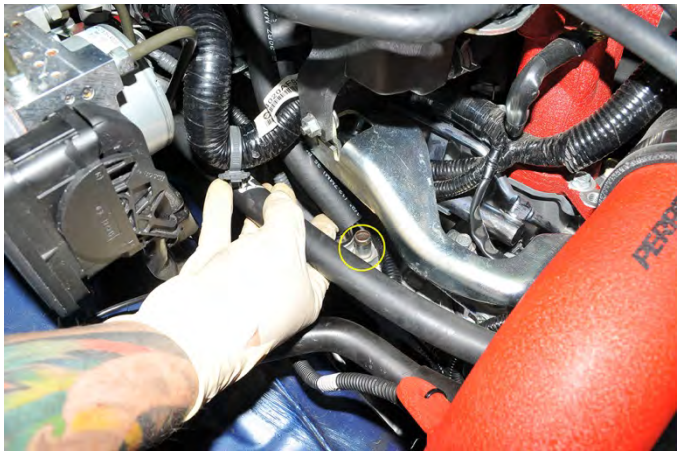
39. Route the remaining length of hose following the AC line to the passenger side where the AOS located. Trim the hose to fit the center port on the AOS. Then install the hose onto the port and secure it with a zip tie.

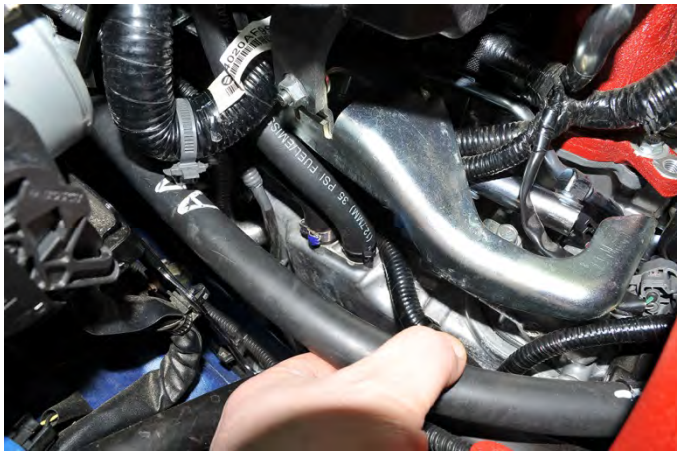






40. Using the remaining length of ½” hose, route between the main harness and over top the injector cover bracket. Finally slide it onto the passenger side valve cover breather port and secure it with a zip tie and trim the excess off.

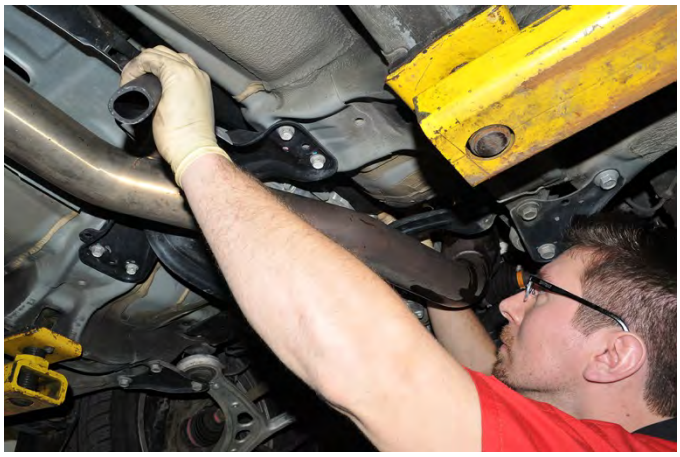




Next route the remaining portion of the hose under the intercooler bracket and alongside the 5/8” breather hose. The line will then lead up to the upper AOS port. Make sure the line is free of kinks or any obstructions. Trim the line to fit and secure it with a zip tie trimming off the excess.

41. Locate the 1” breather line and route it down the passenger side transmission tunnel starting behind the firewall ac lines. Push the line down as far as it can go. You may need to get under the car to help guide the hose. Attach the upper portion of the line to the upper AOS breather port and secure it with a zip tie trimming the excess.

42. Place the vehicle on a lift or on jack stands, route the remainder of the 1” breather line overtop the transmission cross-member and along the side of the transmission. The line should rest on top of the center exhaust heat shield. Make sure the line is free of any kinks then secure the line using an 11” zip tie to the heat shield as shown. Snip the excess of the zip tie off. Finally trim approximately 3” off the end the of breather hose for road clearance.



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 check list 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 check list, 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.