



IAG Air / Oil Separator (AOS) For 2008-14 WRX

Part# IAG-ENG-7000

Tools Required: Ratchet, torque wrench, extensions, needle nose pliers, hose cutter, snips/scissors

Sockets: 10mm, 12mm 13mm

Wrenches: 10mm, 13mm, 19mm $11/16"$

Hex: 5mm, $1/4"$

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 manufacturer specific instructions for removal.



Parts List

Part Name	Quantity	Notes
Air/Oil Separator	1	
Oil Drain Hose Assembly	1	24" Hose Length
Top Coolant Hose Assembly	1	18" Hose Length, Straight Hose Barb, $1/2"$ ID
Bottom Coolant Hose Assembly	1	20" Hose Length, 45° Hose Barb, $1/2"$ ID
Discharge Hose	1	60" Hose Length, 1" ID
Block Breather Hose	1	23" Hose Length, $5/8"$ ID
Valve Cover Breather Hose	1	72" Hose Length, $1/2"$ ID
5mm ID O-ring	1	
7mm ID O-ring	1	
Mounting Bracket	1	
PCV Replacement Fitting	1	
6x12mm Bolt	3	
6mm Washers	4	
8mm Washer	1	
$1/2"$ High Temp Rubber Cap	1	
$5/8"$ High Temp Rubber Cap	1	
4" Zip Tie	3	
6" Zip Tie	10	
12" Zip Tie	3	
$1/4"$ NPT Plug	1	
3mm "L" Allen Key	1	
For 2008+ Installs (Included in packaging)		
6mmx17mm Spacer	1	08+ Install Only
8mmx27mm Spacer	1	08+ Install Only
6x35mm Bolt	1	08+ Install Only
8x45mm Bolt	1	08+ Install Only
Harness Relocation Bracket	1	08+ Install Only
For 2002-07 Installs (Included in packaging)		
6mmx29mm Spacer	1	02-07 Install Only
8mmx25mm Spacer	1	02-07 Install Only
6x45mm Bolt	1	02-07 Install Only
8x50mm Bolt	1	02-07 Install Only



IAG's AOS comes assembled and ready to install. The AOS features 3 o-ring boss (ORB) to AN fittings as well 2 ORB plugs that are tightened before shipping. If you remove these fittings please make sure that they are tightened down to ensure the o-ring is properly seated.

Included with the AOS are two hardware bags, one bag is marked 02-07 and the other is marked 08+. Each bag contains (1) 6mm bolt and spacer as well as (1) 8mm bolt and spacer. The 08+ hardware bag also contains a harness relocation bracket. Please use the bag that corresponds to the year of your vehicle. You can set the other bag aside as you will not be using it.



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. Using a set of pliers, loosen the clamp holding the recirculation tube onto the Blow Off Valve and pull the tube off the Blow Off Valve.



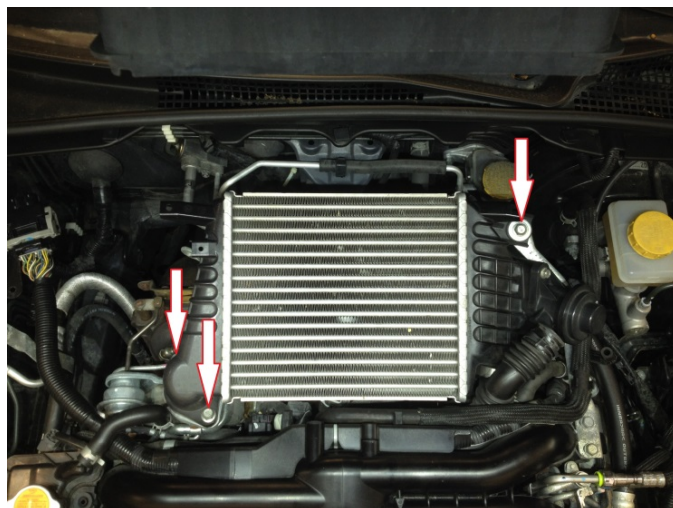


4. Remove the vacuum line attached to the top of the Blow Off Valve by pulling straight down.

*Note: some twisting may help break the hose free.

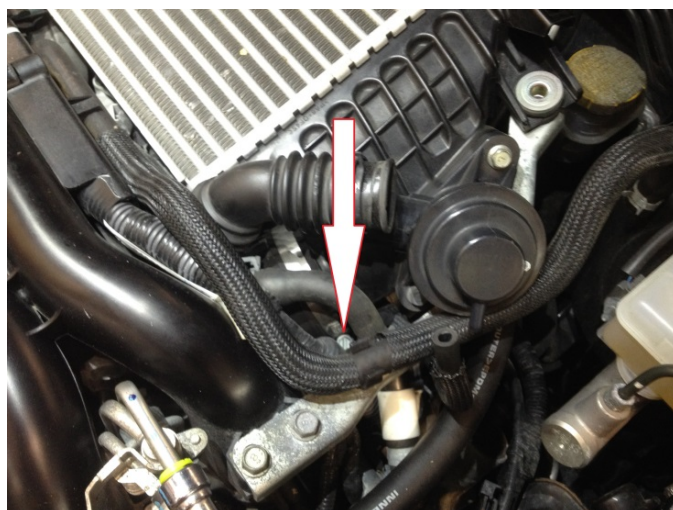


5. Using a 12mm socket with extension, remove the 3 bolts securing the intercooler, one to the support beam (driver side) and the two attaching it to the turbo outlet.



6. Loosen the hose clamp securing the intercooler to the throttle body by using an 8mm socket or flathead screw driver.

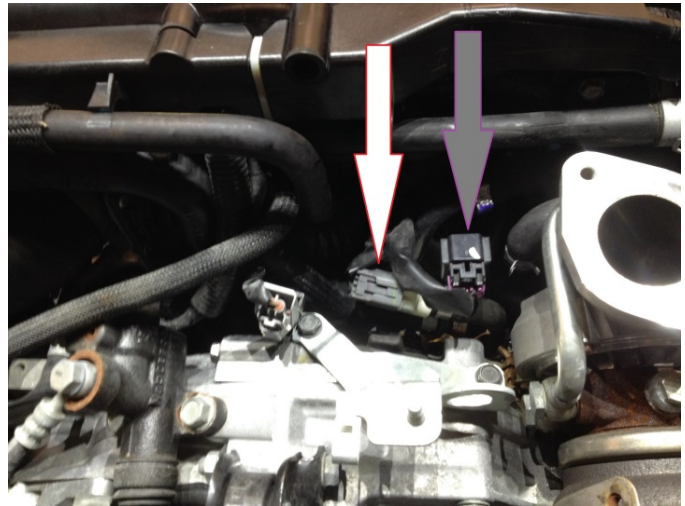
Grab the intercooler by either side and begin pushing it off the throttle body. Once free of the engine set the assembly aside.





7. Behind the intake manifold on the passenger side of the vehicle disconnect the black/purple wire connector and set aside (Purple/Grey arrow).

Disconnect the PCV connector (red/white arrow). During the removal, the black hose under the connector will come out, this is normal.



8. Disconnect the PCV valve from the hose leading to the crank case by using a narrow flathead screw driver. Slide it into the clamp and twist until the clamp breaks free.



9. Once the PCV is free, use the provided ½" vinyl cap to cover the port. Secure it with a zip tie. You may then reinstall this into the original connector it came out of and set it aside.



10. At the center rear of the manifold there is a PVC nipple that must be removed. First disconnect the hose then using a 19mm deep well socket unscrew the PCV nipple from the manifold. Replace it with the provided $\frac{1}{4}$ " NPT plug using a $\frac{1}{4}$ " Hex. Torque to 15 lb/ft.

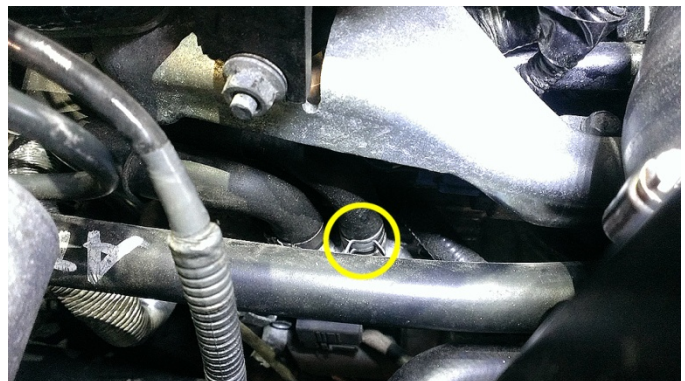


11. Located next to the turbo is the crank case drain port. To remove the pre-existing hose fitting attachment simply pull up on the hose until it pulls from the port on the engine block.



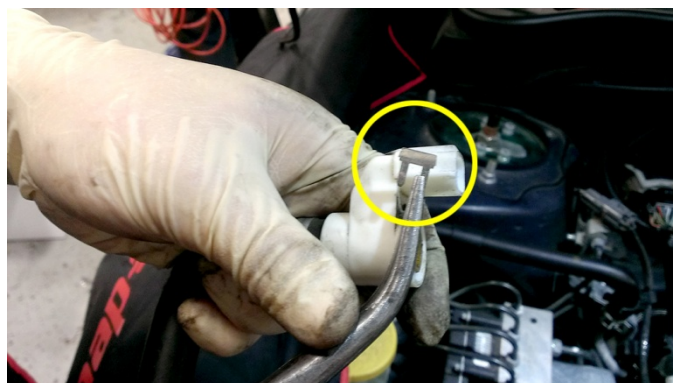
12. Remove the forward most valve cover breather hose on each valve cover. These hoses connect through a plastic crossover pipe that will be removed next.

Note: There are two ports on each valve cover, Remove the hose from the smaller port.





13. Some 2008-14 WRX's have additional blow by sensors on the hoses coming off the valve covers. Pull the flat blade connector out of the blow by sensor and insert it into the electrical connector. Use electrical tape to cover the connector and tuck these away.





14. Now that the breather ports are disconnected from both valve covers, remove the hose and blow by sensor from the rubber lines at the rear of the manifold (shown with orange arrows). Then unbolt the hard plastic line that runs behind the manifold.



15. Working from the front of the intake manifold, the breather assembly connects to the turbo inlet line as seen in the image to the right. Loosen the hose clamp and pry the hose off the fitting. Once the breather assembly is free, cap the port with the provided 5/8" vinyl cap and secure with a zip tie (shown).





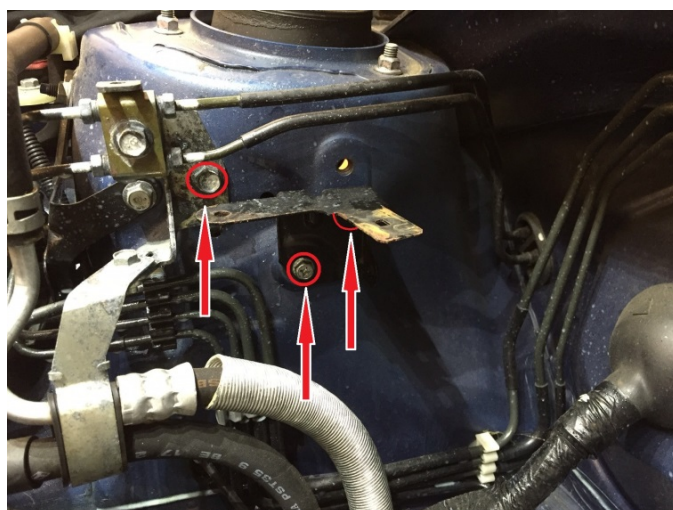
16. Insert the supplied PCV replacement fitting into the rubber hose provided. The two barbs that make the “Y” should point up with the smaller barb pointed to the rear of the car.



17. Use a small pick and disconnect the wiring harness from the bracket that is attached to the passenger side strut tower.



18. Remove the bolt holding the brake line bracket to the passenger strut tower with a 12mm socket. Then remove the two 10mm bolts holding the wire harness bracket to the strut tower.

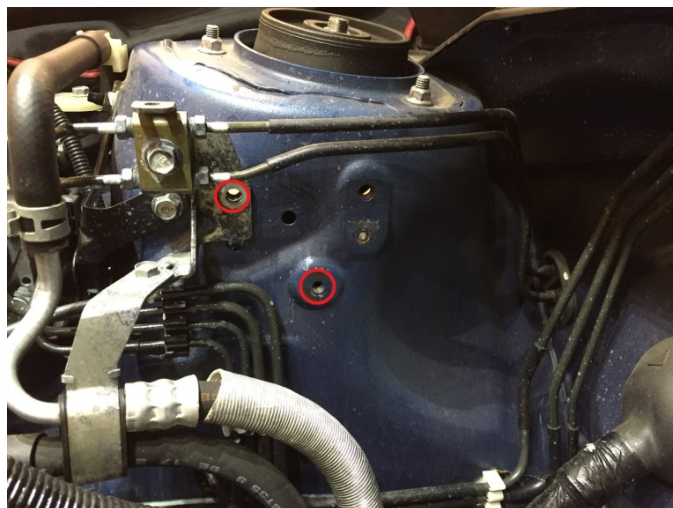




19. The picture to the right indicates the AOS mounting holes. The threaded holes (welded nuts) may be clogged with rust and debris from years of road use. Take the long 6mm and 8mm bolts from the bag marked 2008+ and thread the bolts through the hole approximately 1" deep to remove any foreign media.

Using a 13mm socket thread the 8mm bolt into the hole that holds the brake line bracket. Now using an 8mm socket thread the 6mm bolt into the circled hole that held the wire harness bracket. Remove the hardware after cleaning the threads.

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



20. Assemble the AOS mounting bracket, bolts, washers, spacers and o-rings as shown. Orient the spacer so the side with the groove is facing away from the bracket. The smaller o-ring is used on the 6mm bolt and the larger o-ring is used on the 8mm bolt. Slide the o-ring down into the groove. The o-ring's only purpose is to prevent the spacer from falling off of the bolt during installation or removal. Use the holes as shown in the picture.





21. Attach the mounting bracket to the AOS using the 6mm bolts and washers as shown. Align the bottom hole on the bracket with the 3rd hole from the bottom on the AOS.

(Note: if you have a rotated turbo or an aftermarket hood, install the bracket assembly to the car first and hold the AOS up to the bracket to see what holes to use on the back of AOS.)

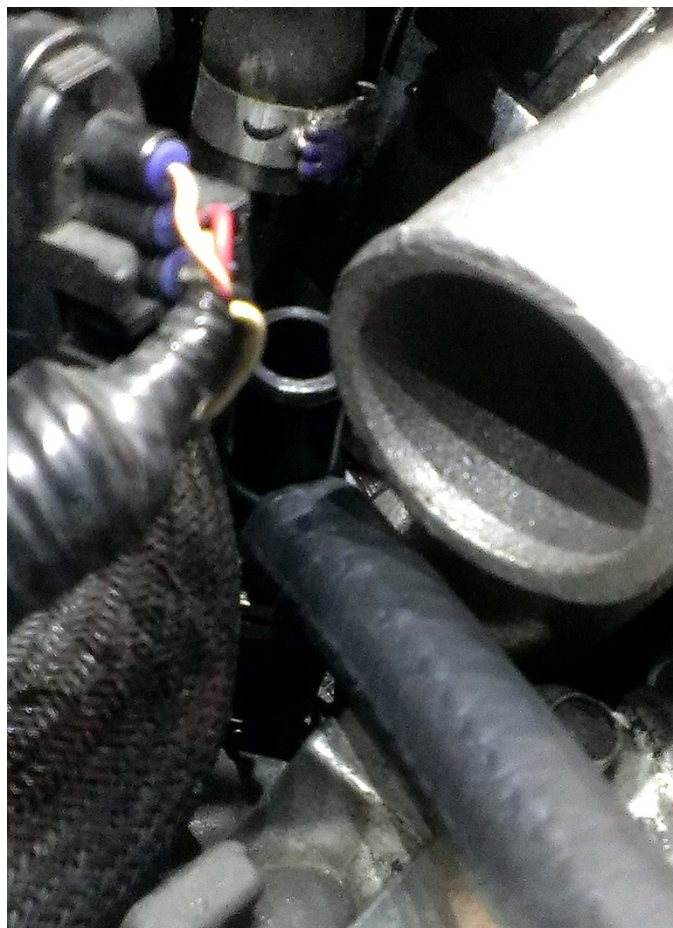


22. Place the AOS in the engine bay and thread the bolts in by hand. Using a 10mm and 13mm wrench, tighten both bolts. Depending on the wrench used, a open ended wrench may be required to tighten the 6mm bolt.



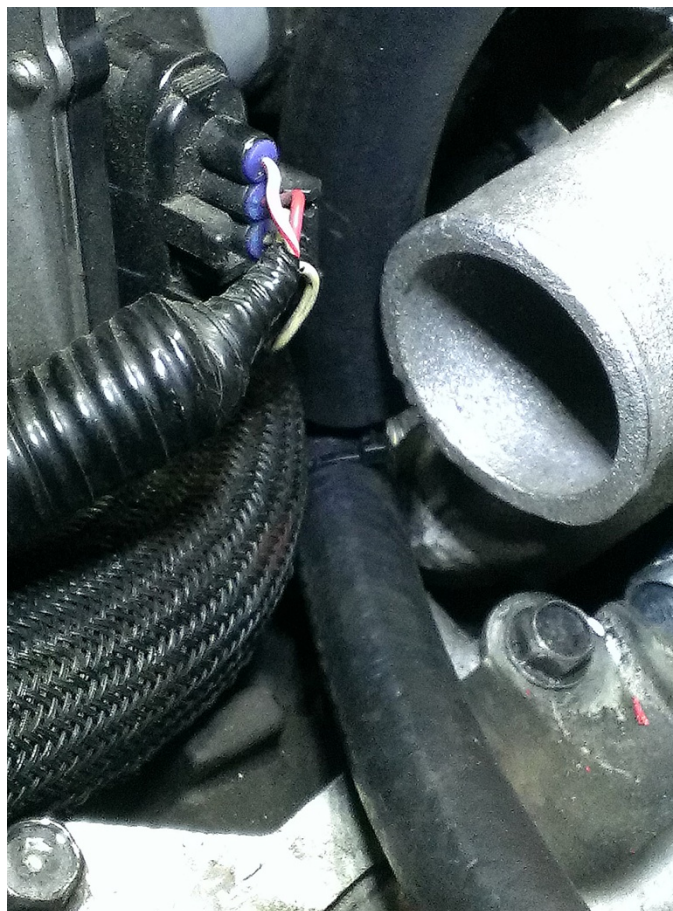
23. Install the oil drain hose by screwing the straight AN fitting to the bottom port on the AOS. Then run the open end of the oil drain line to the side port on the short block Y-fitting. The supplied hose is left long to accommodate for different mounting configurations. Trim the hose to the appropriate length and slide the hose over the side barb on the Y-fitting. Zip tie the connection. Tighten the AN fitting with an $11/16$ " wrench.







24. Install one end of the 5/8" breather hose on to the engine short block Y-Fitting. Then install the other end to the bottom hose barb on the side of the AOS as shown. Trim the hose to length and then zip tie the connections.





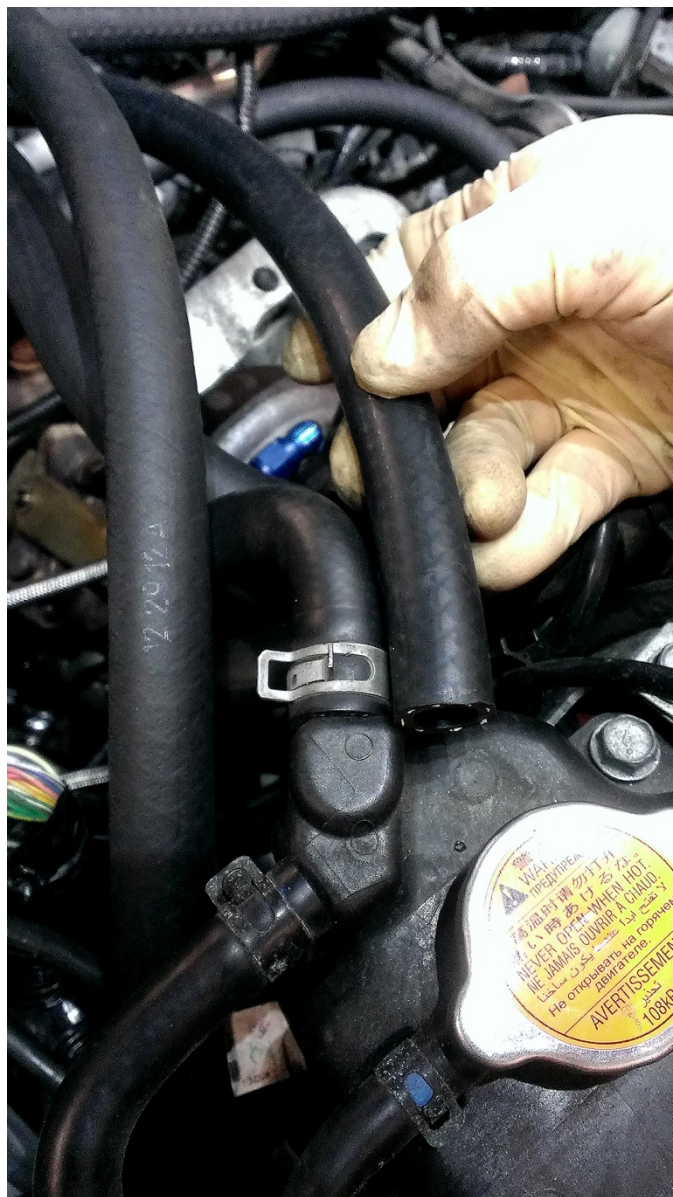
25. Install driver's side valve cover breather hose by sliding the provided oil breather hose on to the valve cover port and running the hose to the middle port on the side of the AOS. Keep the hose length to a minimum and trim the hose to fit. The remaining hose length is used to run the passenger side valve cover port. Once both the hoses are trimmed to length, zip tie the connections.



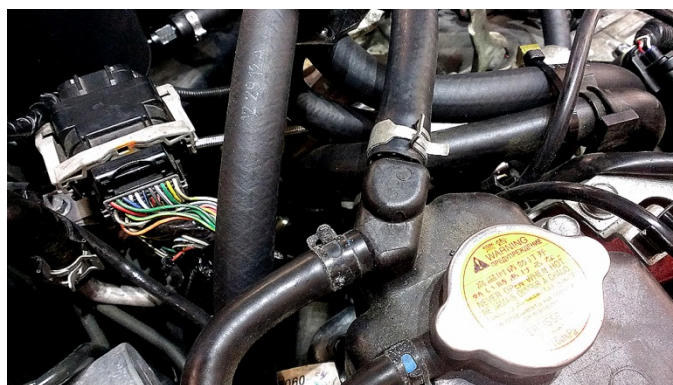


Coolant – Please follow the instructions carefully. These next steps require opening up the coolant system and replacing the coolant hose that runs from the top of the coolant expansion tank to the top turbo coolant pipe. This can cause coolant loss and may open the system up to air pockets.

26. Install the bottom coolant line by screwing the 45° fitting into the bottom side port of the AOS. You can leave the fitting loose to aid in orientation. Next, run the open end of the hose to the top of the coolant expansion tank. Place the hose side by side with the factory hose to measure the correct length and then trim the hose to length. Tighten the AN fitting on the bottom of the AOS with an $1\frac{1}{16}$ " wrench.



27. Locate the factory **lower** turbo coolant hose and pinch the hose in the middle so coolant can no longer pass through the hose. Depending on the type of pinch clamp you have, you might find it helpful to pull back the heat shield sheath around the hose. Loosen the tension on the spring clamp that is on the **upper** factory turbo coolant hose. Proceed to pull the factory hose off of the coolant expansion tank. Quickly, slide the existing spring clamp over the exposed end of the AOS hose and then push the hose over the exposed barb on the expansion tank and tighten with the spring clamp.





28. Install the top AOS coolant hose by screwing the straight AN fitting to the top port on the AOS. Tighten the fitting with an $\frac{11}{16}$ " wrench. Run the open end of the hose next to the factory hose on the turbo coolant pipe. Place the hose side by side with the factory hose to measure the correct length and then trim the hose to length. Loosen the tension on the spring clamp that is on the factory hose. Proceed to pull the factory hose off of the turbo coolant pipe. Quickly, slide the existing spring clamp over the exposed end of the AOS hose and then push the hose end over turbo coolant pipe and tighten with the spring clamp.

If this procedure is done quickly and correctly, the amount of coolant lost should be minimal and will not require burping the system





29. Install the 1" AOS breather hose by sliding one end of the hose over the top port. (Note, if you need to change the orientation of the top port, you can use the supplied 3mm allen wrench to remove the top bolt and turn the top port in the direction you desire. Once the top is oriented, re-install the bolt and tighten.) Secure the hose to the top breather port with a 12" zip tie.



30. Run the 1" hose down the transmission tunnel and secure with the remaining 12" zip ties. Make sure that the hose is not bent or kinked as this will cause operating issues. Keep the hose at least a few inches from your downpipe. We *do not recommend* trimming this hose. The farther back the hose discharges, the less likely you are to smell oil vapor inside the vehicle.



31. Re-install the intercooler hose connections starting with the turbo discharge coupler. Again, be careful of the firewall A/C line.

****The bolts that hold the intercooler to the mounting bracket and the bolts that hold the BOV to the intercooler are the same diameter but slightly different lengths. The shorter bolts are used for the BOV. If you attempt to install the longer bolts, you may damage your intercooler****



32. Re-install the Blow Off Valve and gasket (use a new gasket if necessary). Once the Blow Off Valve is secure to the intercooler, tighten the hose clamps around the silicone coupler. Re-install the mounting bolts on the side of the intercooler and finally re-connect the negative battery terminal.

33. Before proceeding, please look over the check list below:

Check Over List

Are all the AN fittings tight (two coolant fittings and one oil drain)?

Are the factory hose clamps re-installed on the turbo coolant pipe and the expansion tank?

Was the spilled coolant cleaned in the engine bay?

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

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