Air Oil Separator for 2008-14 WRX

2026-03-16 PSP-ENG-620

Thank you for purchasing this PERRIN product for your car! Installation of this product should only be performed by persons experienced with installation of aftermarket performance parts and proper operation of high performance vehicles. If vehicle needs to be raised off the ground for installation, the installer must use proper jacks, jack-stands and/or a professional vehicle hoist for safety of the installer and to protect property. If the vehicle is lifted improperly, serious injury or death may occur! Please read through all instructions before performing any portion of installation. Always use appropriate personal proection equipment such as gloves, eye and hearing protection for installation of this product. If you have any questions, please contact our tech department prior to starting installation. We can be reached in any of the following methods:

Email Tech@PERRIN.com
Instant Chat off the main page of www.PERRIN.com
Or simply call our tech team at 503-693-1702

WARNING: Handling passenger or off-highway motor vehicle parts can expose you to chemicals such as phthalates and lead, which can cause cancer and reproductive harm. To minimize exposure, service the vehicle in a well-ventilated area, wear gloves, and wash your hands. WARNING: Handling passenger or off-highway motor vehicle parts can expose you to chemicals such as phthalates and lead, which can cause cancer and reproductive harm. To minimize exposure, service the vehicle in a well-ventilated area, wear gloves, and wash your hands.

GENERAL MODIFICATION NOTE

Modifications to any vehicle can change the handling and performance. As with any vehicle extreme care must be used to prevent loss of control or roll-over during sharp turns or abrupt maneuvers. Always wear seat belts, and drive safely, recognizing that reduced speeds and specialized driving techniques may be required. Failure to drive a vehicle safely may result in serious injury or death. Do not drive a vehicle unless you are familiar with its unique handling characteristics and are confident of your ability to maintain control under all driving conditions. Some modifications (and combinations of modifications) are not recommended and may not be permitted in your state or country. Consult the owner's manual, service manual, instructions accompanying these products, and local laws before purchasing and installing these modifications. You are responsible for the legality and safety of the vehicle you modify using these components.

SPECIAL NOTES:

- The PERRIN Air Oil Separator (AOS) was designed to remove a significant amount of the oil and water vapor that normally gets sent to your intake system to be ingested by your engine. There are many variables as to how much oil will make it past our AOS but expect it to remove a significant amount of the crank case blow by. For cars with built engines with excessive blow-by, or have an aftermarket turbo or supercharger, you may still experience oil getting past our Air Oil Separator.
- When installing hoses to barb fittings, a small amount of oil on each fitting will allow hoses to slide on easier.
- Some of the installation pictures show components removed in order to better illustrate how the part is installed. The 08-14 WRX engine is densely packed with piping and components relating to the secondary air system. Not all these components are shown in order to make the installation clearer.

NPT Notes:

- There are NPT (National Pipe Thread) fittings included with your Air Oil Separator. Throughout the instructions, these notes below will be referred to often. It's important to understand these types of fittings and how they work.
- NPT fittings are a tapered thread that seals when tightened, not bottomed out. Thread fittings in by hand and tighten roughly 1/2 to 1 full turn more until fitting is tight. **NOTE: Use a small amount of Teflon tape or proper thread sealant on threads of each NPT fitting before installing into each part.**
- Angle of the 90 degree fitting can be adjusted after tightening, as long as it is not backed off more than 1/4 of a turn. When in doubt, tighten the fitting versus loosen it.
- There is not a flow direction to the coolant fittings! It does not matter which one goes where as long as they are connected to the throttle body fittings and there is loop from the top to the bottom of the AOS.

Included Parts with PERRIN Air Oil Separator:

QTY	Part Number	Description
1	X-PSP-ENG-620	Air Oil Separator Universal Assembled
1	X-PSP-ENG-623	Bracket for AOS, 2002-07 WRX/STI
1	X-PSP-ENG-624	Bracket for AOS, 2008-21 WRX/STI
1	S-PSP-ENG-620	Subpacket for 2002-21 WRX/STI Air Oil Separator
3	X-HOS-107	3/8" ID Fuel Injection Hose (27346)
3	X-HOS-111	5/16" ID Crank Case Emissions Hose (27069)
85	X-HOS-115	5/16" Heater/Coolant Hose (28408) 50 foot spool
9	X-HOS-120	1/2" Emissions/Crank Case Vent Hose (27019) 250' roll
4	X-HOS-127	5/8"ID Emissions Crank Case Vent Hose (27008) (25' per box)
1	X-PSP-ENG-626BK	Crank Case Vent Bung NPT threads Black Anodized
1	X-CON-056BK	Aluminum 3/8NPT -1/2" Hose Barb 90 Degree Black
3	X-CON-058BK	Aluminum 3/8NPT -1/2" Hose Barb Straight Black
2	X-CON-059BK	Aluminum 3/8NPT -5/8" Hose Barb Straight Black
1	X-CON-067BK	Aluminum 3/8NPT Flange Plug Black
2	X-CON-009	Plastic 1/2"-1/2" Straight
1	X-CON-019	Plastic 1/2"-5/8" Reducer
2	X-CON-020	Plastic 1/2" 90 Degree
1	X-CON-031	Plastic 5/8" Y Connector
1	X-CON-038	Plastic 1/2" Y Connector
1	X-CON-039	Plastic 5/16"- 5/16" Straight
1	X-CON-069	Plastic 1/2" to 5/16" Reduction Tee

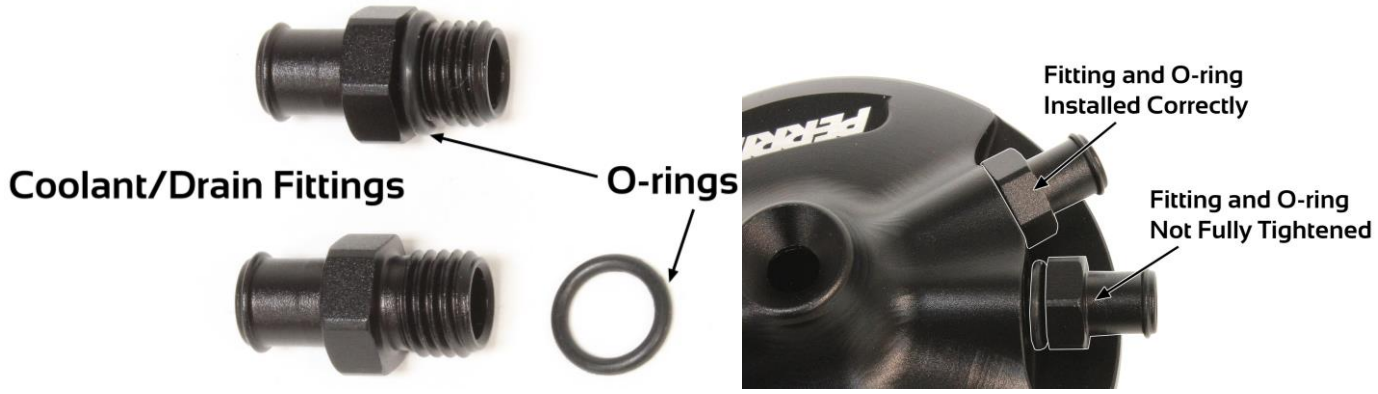
1	X-CON-073	Cap Vinyl for 1/2"-9/16" OD, 3/4" Long Black
1	X-CON-026	Brass 1/4NPT 3/8" Barb Straight
1	X-CON-044	Nickel 1/8NPT 5/16" Barb 90 Degree
2	X-CON-048	Nickel 1/4NPT 1/2" Barb Straight
1	X-CON-053	Aluminum 3/8NPT Female to 1/2" Barb (EDP 240)
1	X-CON-060	Aluminum 3/8NPT Female to 5/8" Barb (EDP 80)
2	X-CON-080	Plastic 1/2" OD Plug
2	X-BLT-00250PPS	1/4NPT Socket Plug Steel
2	X-BLT-M618WF-SS	M6 x 18 Fender Washer SS
2	X-BLT-M6X14CSB-SS	M6 x 14mm Button Head Socket cap screw SS
3	X-BLT-M8WF-SS	M8 Flat Washer Stainless Steel
3	X-BLT-M8X10CSB-SS	M8 X 10 Button Head SS Screw
10	X-CLAMP-002	Clamp Size 2 or 8-16mm
11	X-CLAMP-006	Clamp Size 6 or 12-22mm
2	X-CLAMP-008	Clamp Size 8 or 16-27mm
5	X-CLAMP-17.0	Clamp Oetiker 17.0
15	X-CLAMP-22.6	Oetiker Clamp 22.6
1.625	X-HOS-125	3/4" ID Emissions/Crank Case Vent Hose (27010)
20	X-BLT-CT080B-18	Zip Tie 8" Long
1	X-BLT-GRS-209	Grease for Polyurethane Bushings Packet

WHICH WAY IS THE RIGHT WAY?

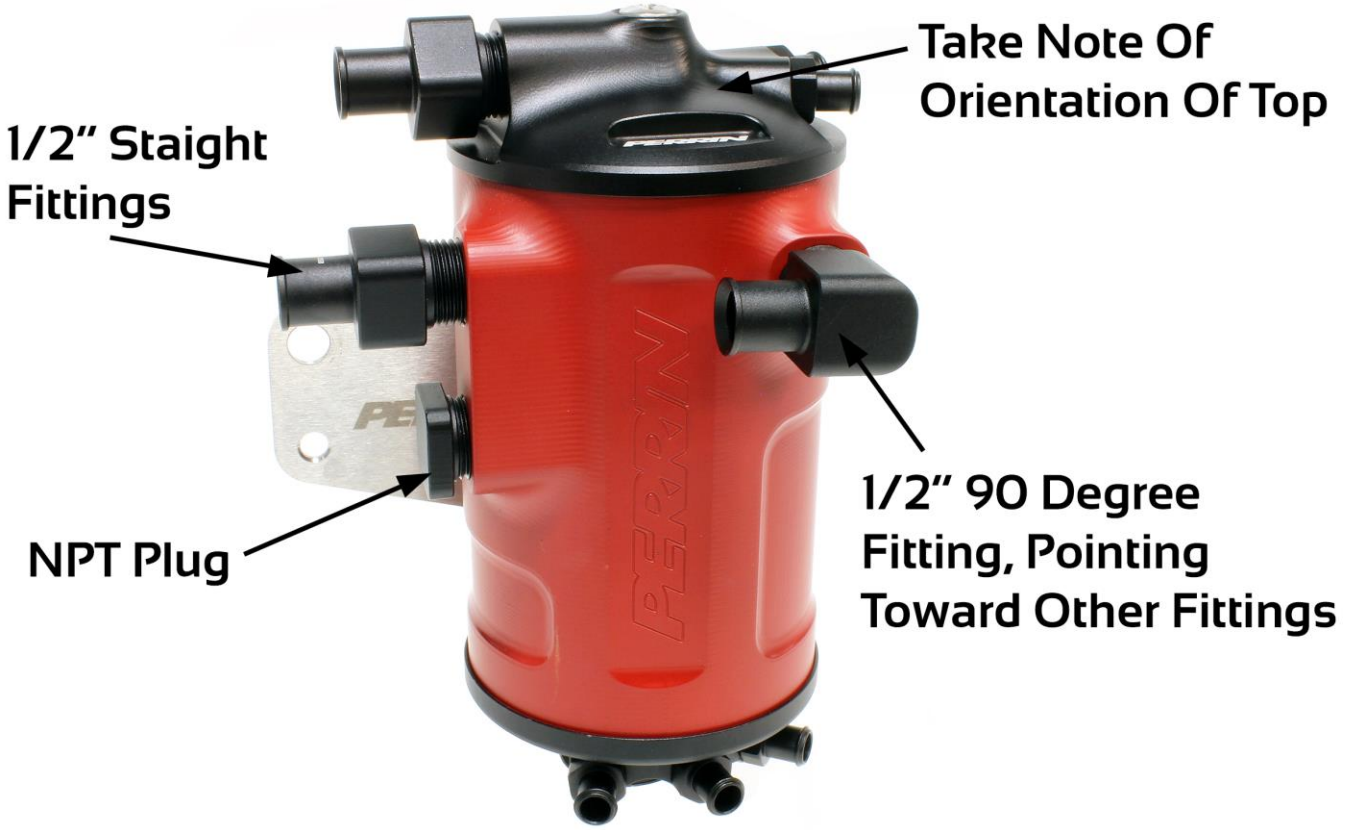
In ALL situations, when describing left and right sides of the vehicle it is always as though you are sitting in the driver's seat looking forward.
Example of a US Market Vehicle: If standing in front of the car, looking at the engine bay, the Drivers side is described as the LEFT side the vehicle.

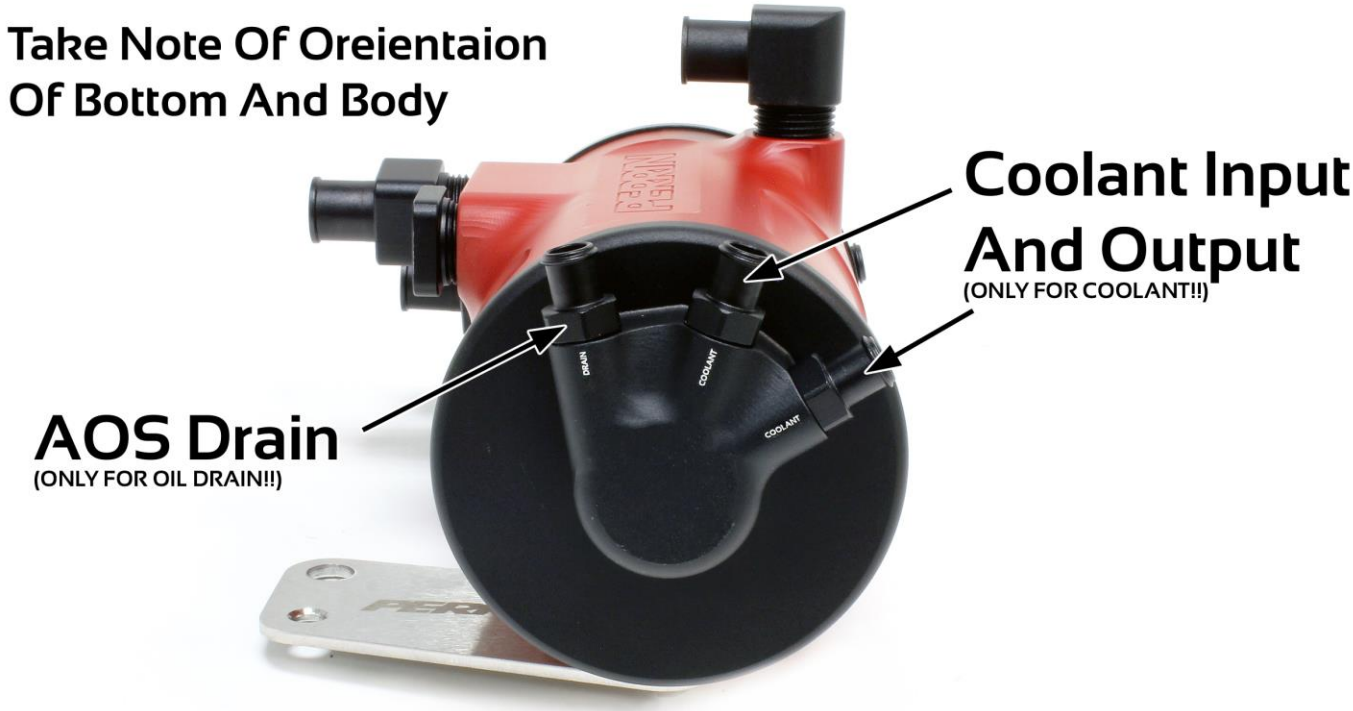
1. Installation Of Fittings On AOS

Each AOS is pre-assembled and does not require it to be taken apart to do the install. During the installation process, you may need to loosen and re-orient the parts or you may want to take it apart completely in order to install the fittings. If you do take it apart follow the instructions at the end that goes over how to maintain your AOS.

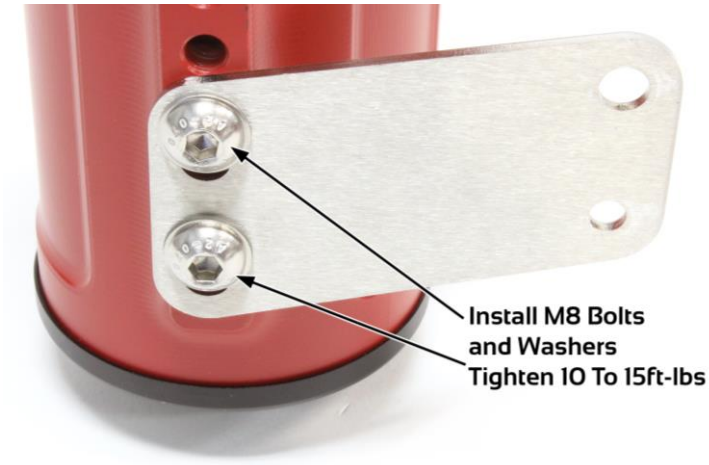


a. Install supplied O-rings to each of the 5/16" barb fittings as shown and apply a small amount of the supplied grease to the O-rings. Thread (3) of the fittings into the ports on the AOS bottom, and (2) fittings into the ports on the AOS top.
b. As you tighten the fittings into each port make sure that the O-ring is fully seated and isn't sticking out as it's tightened. Tighten fittings to 5-8ft-lbs or just past hand tight. These fittings seal using O-rings and do not need to be overly tight to seal, like the NPT fittings.
c. Using diagram below and the NPT fitting notes above, install (1) 5/8" barb straight NPT fitting (marked 059) into the port of the AOS top.
d. Using diagram below and the NPT fitting notes above, install (1) 1/2" barb straight NPT fitting (marked 058) into the single side port on the AOS body. **NOTE: There are 90-degree fittings included that can be installed instead. If you choose to install these fittings due to other aftermarket parts, they will not affect how the AOS functions.**
e. Using diagram below and the NPT fitting notes above, install fitting into the upper fitting on the double side port on the AOS.
    i. For 2015-16 models, install the supplied 1/2" barb straight fitting (marked 058).
    ii. For 2017-21 modes, install the supplied 5/8" barb straight fitting (marked 059).
f. Using diagram below and the NPT fitting notes above, install (1) NPT plug fitting into the remaining open port on the AOS.
g. Loosen the center screw about half of a turn and rotate the top until the top fitting is aimed similar to the picture below.





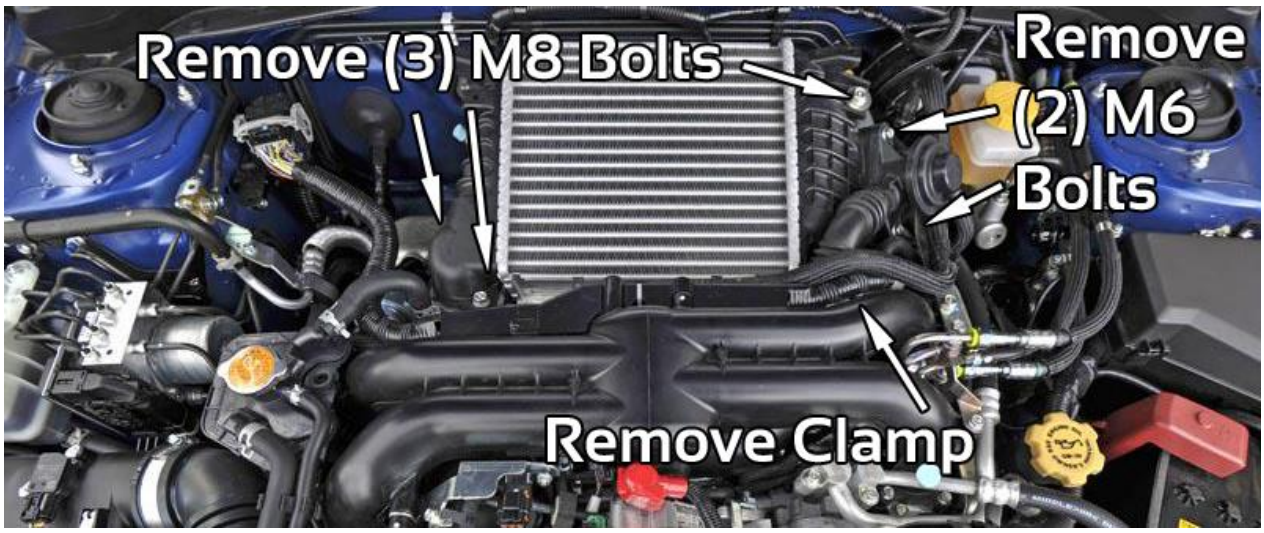
h. Rotate the AOS bottom until it is oriented like the picture above.
i. Tighten center screw to secure all AOS parts together. **NOTE: Further adjustments can be made in later steps, so there is no need to make it perfect at this time. If the center screw was loosened too far, check that the O-ring is in the small groove in the bottom of the AOS. See the last section on how to maintain your AOS to make sure this is done correctly.**



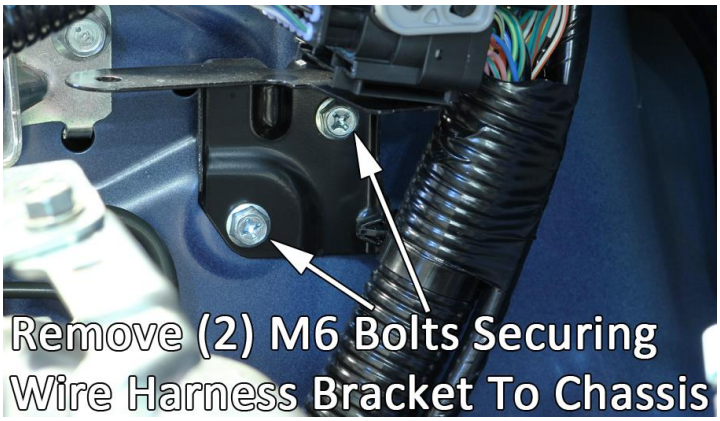
j. Install supplied bracket 624 to the lowest set of holes on the AOS body (will mount the AOS as high up in the car as possible) using supplied M8 button head bolt and washers. Tighten screws to 10 to 15ft-lbs. **NOTE: There are many sets of holes to mount the bracket to. As long as the oil drain is higher than the engine block fitting, you can mount it to one of the other locations.**

2. Mounting of AOS to Chassis

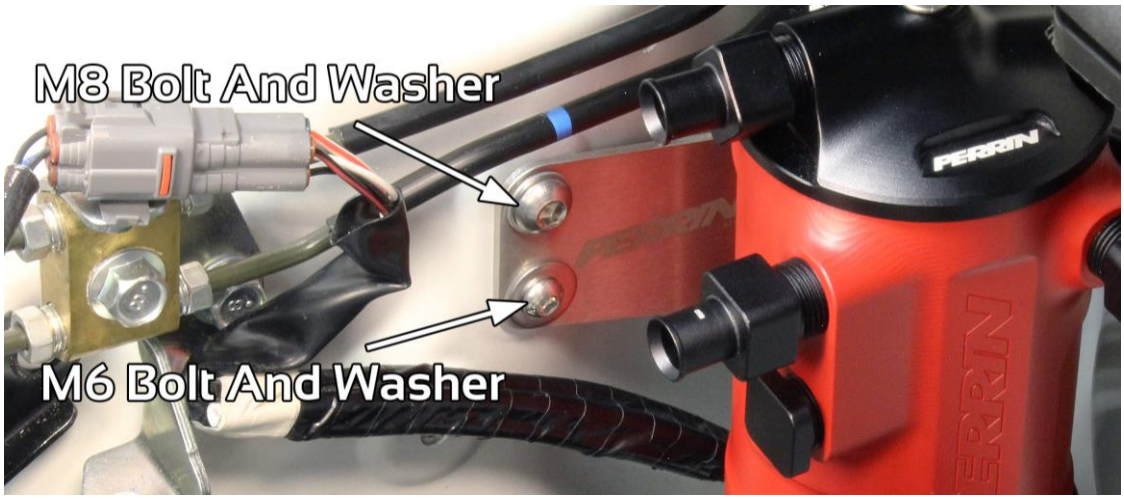
a. If there is strut bar installed, remove at this time as this will interfere with removing the intercooler from the engine bay.
b. Locate and remove (3) M8 bolts as shown below securing the intercooler to the engine. Then locate and remove (2) M6 bolts securing bypass valve to intercooler. Locate and loosen the hose clamp holding the throttle body coupler to intercooler. Leave hose clamp securing coupler to throttle body.



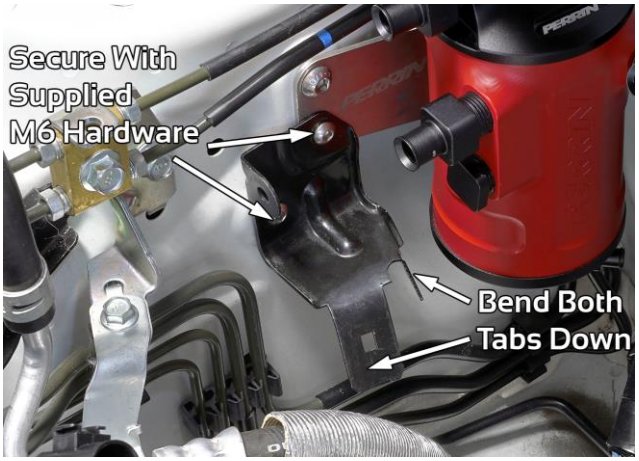
c. Lift up on sides and back of intercooler to free from the throttle body and turbo outlet. Move bypass valve out of the way and remove intercooler from engine bay.
d. Locate and remove throttle body coupler that conencts the intercooler to the throttle body. This is done to access the coolant hoses.
e. Locate main engine wire harness/plug and bracket located on right side shock tower. Remove hardware securing bracket to chassis, then remove bracket from harness by lifting up on the small tabs to free.

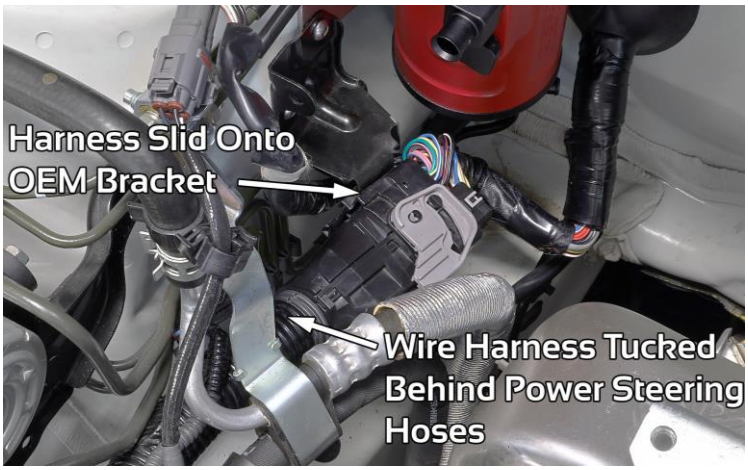


f. Locate threaded holes in right side shock tower. These are located in the same location as in the pictures, but could be covered by different things (sticker, plug…) depending on the year.



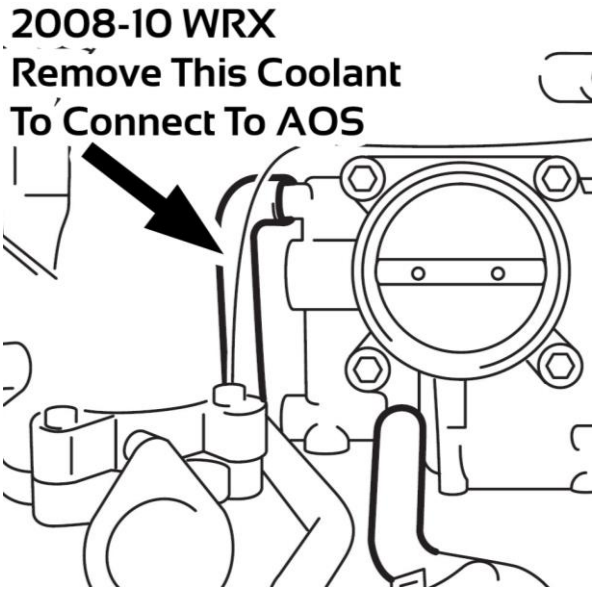
g. Using supplied M6 and M8 hardware, mount AOS with bracket to shock tower as shown below but leave bolts loose as you will need to remove to install some of the hoses in later steps. There are two options to secure OEM wire harness to the chassis.
   i. Option1: Push the OEM harness down to the frame rail and secured to the power steering hoses and to the ABS lines. This method provides the most clearance for other aftermarket parts such as turbo kits.
   ii. Option2: Using pictures below, bend both tabs down on the OEM wire harness bracket (roughly 90 degrees), then rotate bracket 180 degrees and mount as shown using suppled hardware. Unplug the large wire harness plugs and move wire harness behind the power steering bracket (some bending of the bracket may be needed to get clearance), and route toward the bracket and reattach wire harness to bracket. Reconnect both sides of the wire harness plugs. You may find additional bending of brackets may be necessary to gain the clearance needed.

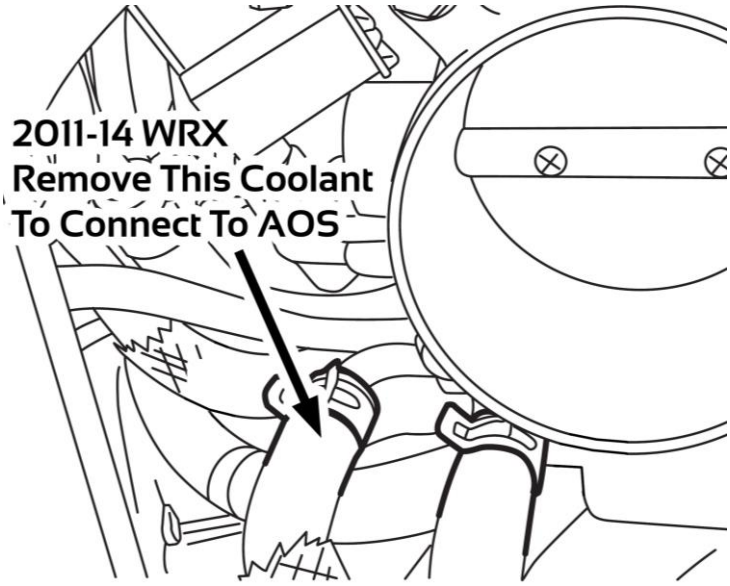




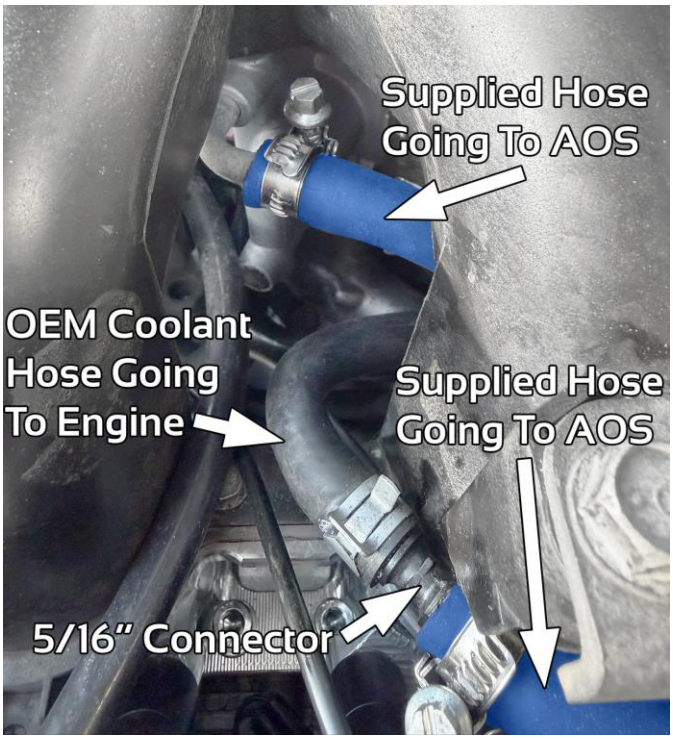
3. Coolant Feed Connections

The coolant hose connection varies between 2008-2010 models and 2011-2014 models. The connection point does not matter as long as the coolant hose goes from the engine to the AOS and from the AOS back to the throttle body. Think of this as creating a giant extension of the throttle body coolant hose, that goes through the AOS before reentering the throttle body. The AOS will need to be removed a few times during these steps as well.

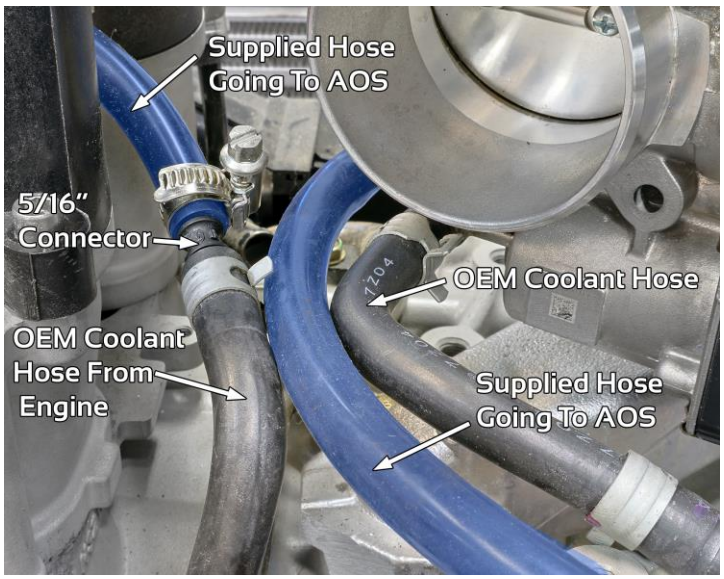




a. Locate coolant hose and fitting on throttle body as shown above. Slide pinch clamp back, remove hose from fitting and install supplied 5/16”-5/16” adapter into OEM coolant hose. Secure with OEM pinch clamp. **NOTE: The other coolant fitting on throttle body or even the port on the small pipe on the engine. The installation instructions will be the same except for all connections will be made under the throttle body. A small amount of coolant will come out of hose, be prepared to catch some with a paper towel or rag.**

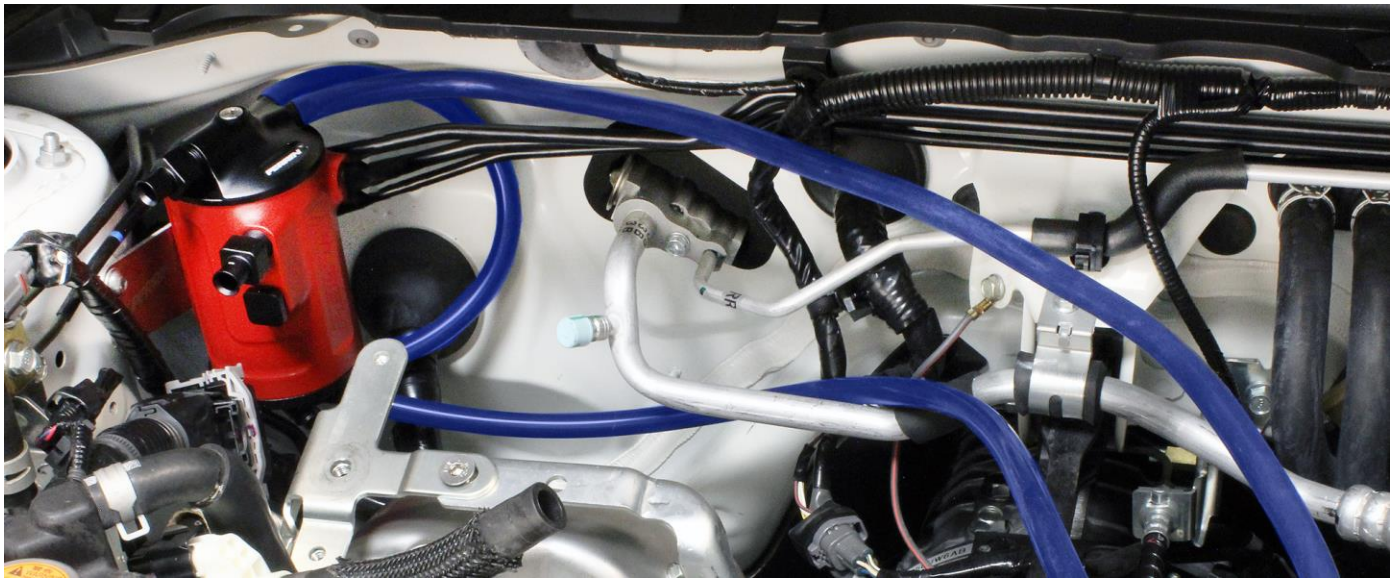


2008-2010 WRX looking through the left side of the intake manifold

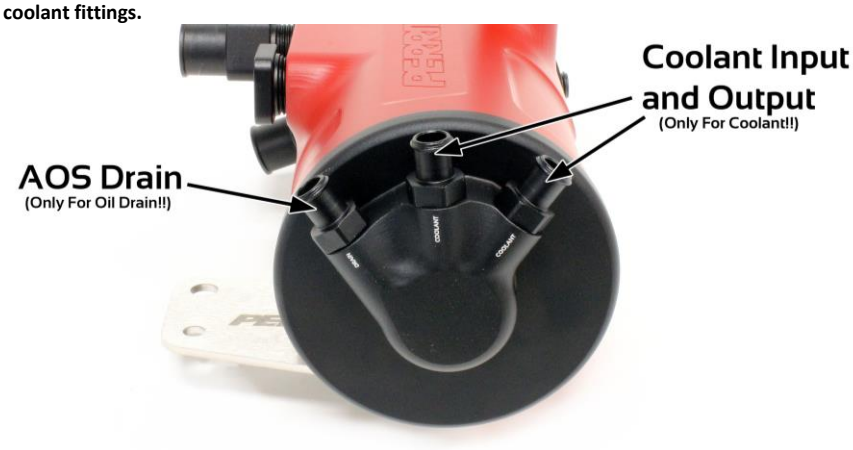


2011-14 WRX looking from the back of the engine toward throttle body

b. Install supplied 5/16” coolant hose to plastic adapter fitting and secure with supplied size 2 hose clamp. Install another one of supplied size 2 hose clamps to the other end of the hose, then connect hose to coolant fitting on throttle body as shown above. This creates a giant loop of the coolant hose that will be cut in the next few steps.



c. Using the picture above as a rough guide for hose routing. Start with routing the loop of hose from the plastic fitting/OEM coolant hose toward the firewall and then to the middle fitting on the AOS bottom. **IMPORTANT NOTE: The picture above illustrates hose routing in a way to make it clear for installation purposes only. Take time and route hoses under and around things such as the bypass valve hose, vacuum hoses, wire harnesses and brackets. Then route toward firewall, behind wire harnesses and over the AC components to make a nice clean run toward the AOS bottom.**
   i. Do NOT connect this hose to the drain fitting or engine damage will occur! See picture below to make sure this is done correct.
   ii. **NOTE: It does not matter which side of the loop of hose connects to this fitting as there is no flow direction to this. If you choose to connect them opposite how we describe them, that will not affect how the part works as long as it is connected to the coolant fittings.**



d. Install supplied size 2 hose clamp (or lower profile pinch clamp) over hose but do not tighten currently. **NOTE: Included with each kit are two different types of clamps, a worm drive type and a lower profile crimp type. The crimp type clamp requires the use of a nipper/single ear crimping tool to secure. If you are not familiar with this type of clamp, install the supplied worm drive clamp.**
e. Trim and connect remaining length of hose (connected to fitting on throttle body) to either of the upper coolant fittings on the AOS. Install supplied size 2 hose clamp (or lower profile pinch clamp) over hose but do not tighten currently. **NOTE: Included with each kit are two different types of clamps, a worm drive type and a lower profile crimp type. The crimp type clamp requires the use of a nipper/single ear crimping tool to secure. If you are not familiar with this type of clamp, install the supplied worm drive clamp.**



f. Use remaining length of hose to create a loop from the remaining coolant fittings on the top and bottom. **NOTE: Make sure you do NOT connect one of these to the drain fitting on the bottom. Engine damage will occur if this is done incorrectly! See the diagram above showing where to connect hose to!**

g. Install supplied size 2 clamps (or lower profile pinch clamps) over hoses, then install hoses to fitting and secure with clamps. **NOTE: Included with each kit are two different types of clamps, a worm drive type and a lower profile crimp type. The crimp type clamp requires the use of a nipper/single ear crimping tool to secure. If you are not familiar with this type of clamp, install the supplied worm drive clamp.**

h. Tighten all hose clamps and secure coolant hoses along firewall and engine using supplied zip ties.

i. Make any final changes to the orientation of the AOS bottom and top, then secure center bolt and tighten bolts securing AOS to chassis.

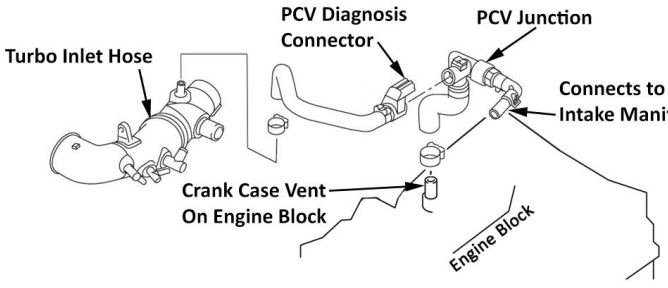
4. Crank Case Vent Connection and AOS Drain Connection

The 2008-2010 models and 2011-2014 have different PCV junctions and PCV valves installed on them. Take note of the model you have and follow the correct instructions for your model. Take note of the PCV valve that is part of the PCV junction as this will be removed and installed in future steps.

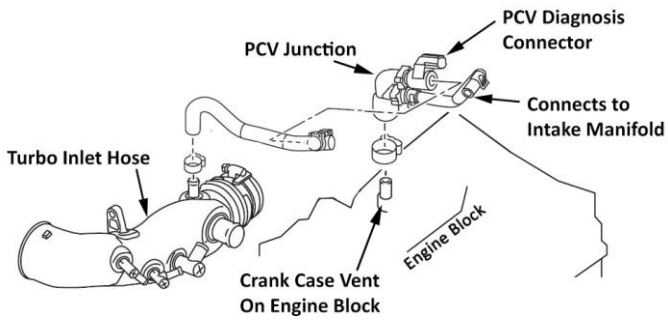
a. Locate your PCV junction and its 3 main connections. Start with unplugging the PCV diagnosis connector from the PCV junction. Then remove the hose from the metal port on the intake manifold and finally remove the connection at the engine block.

b. Locate and remove hose going from PCV diagnosis connector to the turbo inlet hose.

c. Install supplied 1/2” vacuum cap onto open fitting on turbo inlet hose.



2008-2010 WRX crank case vent and PCV system

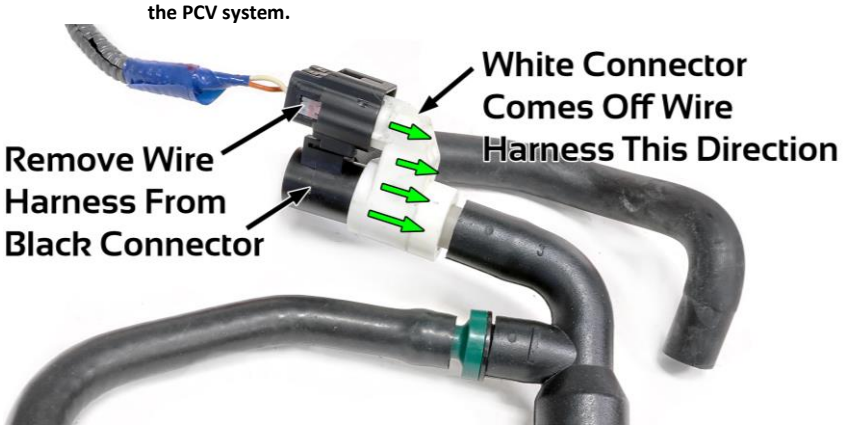


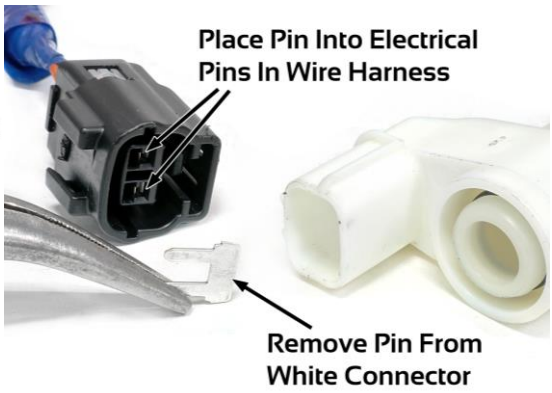
2011-2014 WRX crank case vent and PCV system



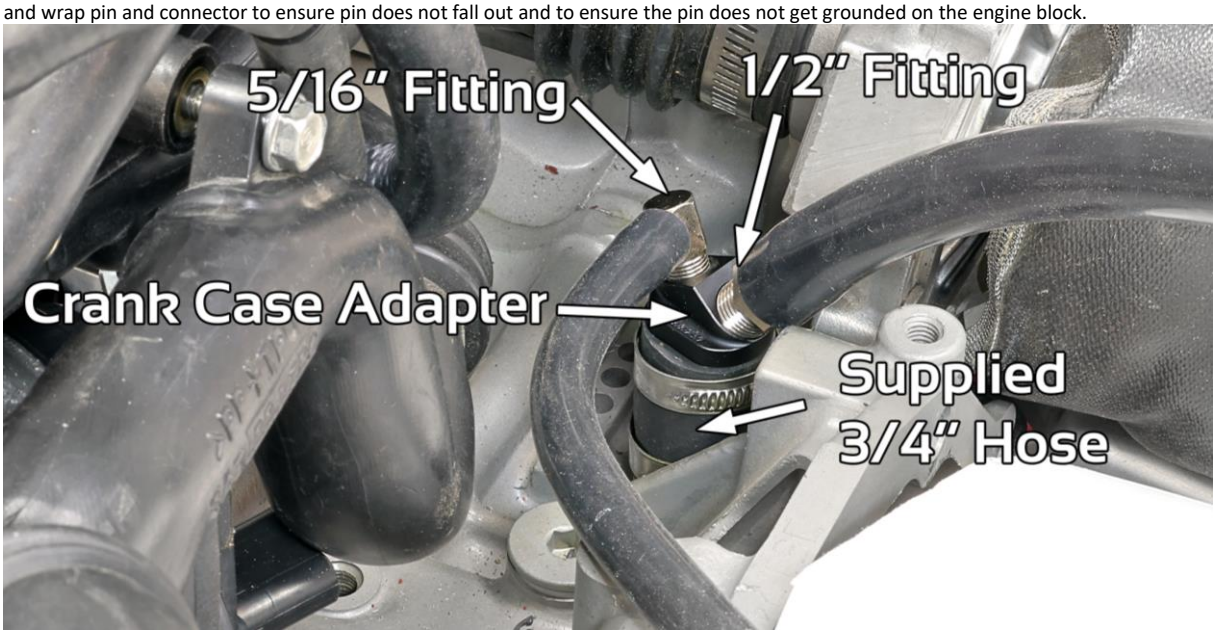


d. Unclip the wire harness from the PCV hose and or diagnosis connector by depressing a small clip under the plug and sliding the clip off of the adapter. **NOTE: This step varies slightly from the 2008-2010 models to the 2011-14 models as the harness is connected to different parts of the PCV system.**





e. Using pliers, remove the small male pin inside of the white connector and install it into the female pins in the wire harness. Use electrical tape and wrap pin and connector to ensure pin does not fall out and to ensure the pin does not get grounded on the engine block.



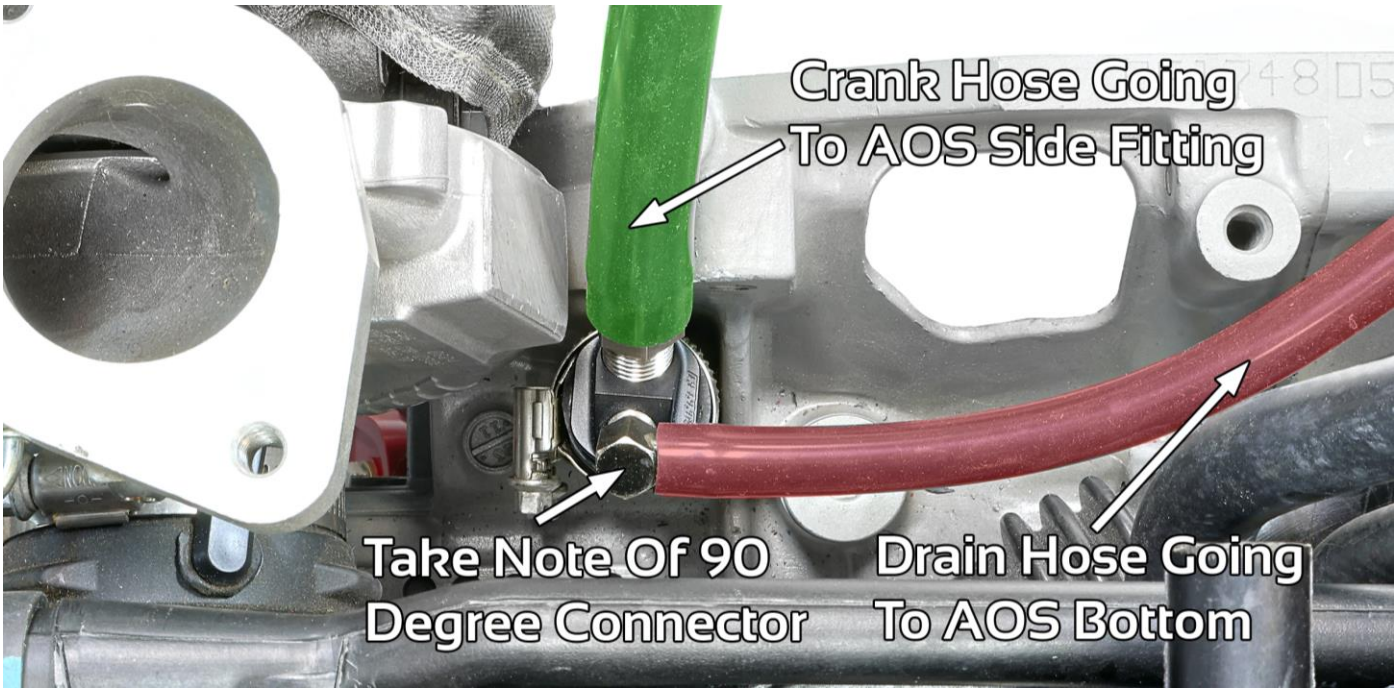
Direction of fitting shown that works for most installations. Fitting can be rotated in any other direction as long as oil draining from the AOS can maintain a downhill path to fitting. Picture is also not showing the large plug that is resting directly above the oil hose.

f. Using diagram above, install supplied 1/2" straight fitting and 5/16” 90 degree fitting into PERRIN Crank Case Vent Adapter. If other custom parts are installed (such as a turbo kit), it is ok to rotate this fitting (or the entire junction) in a different direction. It is important that oil to travels downhill from the AOS bottom, so take care in the orientation of this fitting! **See NPT Notes above regarding installation of this fitting.**

g. Install supplied 3/4" hose to the PERRIN Crank case fitting, and secure with supplied size 8 or 16-27mm clamp. Then install crank case vent fitting and hose onto the engine block. See below notes on this:

   i. Due to the space limitations and available tools, installing the lower clamp to secure fitting to the block may not be feasible. If you do not have a proper tool the hose is tight enough that no clamp is needed. We do recommend securing it with a ziptie.

   ii. If you have a small gear wrench, extra-long screw driver or extra-long socket extensions and can get to this lower clamp, install the clamp and aim it in a direction that will allow your tools to work.**NOTE: The 3/4” hose can be trimmed down to ensure the drain is as low as possible. It is pre-cut to 1.625”, and if you want it shorter, check that there is enough left to clamp the PERRIN Crank Case Adapter to.**



h. Connect supplied 1/2” crank case hose to 1/2" fitting on PERRIN crank case adapter and secure with supplied size 006 or 12-22mm (or lower profile pinch clamp). **NOTE: Included are two different types of clamps, a worm drive type and a lower profile crimp type. The crimp type clamp requires the use of a nipper/single ear crimping tool to secure. If you are not familiar with this type of clamp, install the supplied worm drive clamp.**

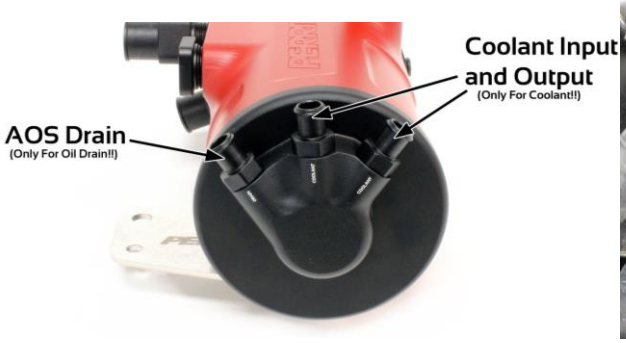
i. Route hose away from engine for now as this will be re-routed in later steps.

j. Connect supplied 5/16” emissions hose to 5/16” fitting on PERRIN crank case adapter and secure with supplied size 002 or 8-16mm hose clamp (or lower profile pinch clamp). **NOTE: Included are two different types of clamps, a worm drive type and a lower profile crimp type. The crimp type clamp requires the use of a nipper/single ear crimping tool to secure. If you are not familiar with this type of clamp, install the supplied worm drive clamp.**

k. Route this hose toward the middle of the engine, then back toward the firewall, then to the bottom of the AOS. Using pictures below as guide, follow this path to ensure that the drain hose goes uphill to the AOS bottom. The path can also be longer to go around other components as well.



l. Connect hose to the oil drain fitting (should be the forward most fitting) on the bottom of the AOS and secure hose with supplied size 002 or 8-16mm hose clamp. We do not recommend using one of the crimp type clamps to secure as this hose may need to be removed during general maintenance.





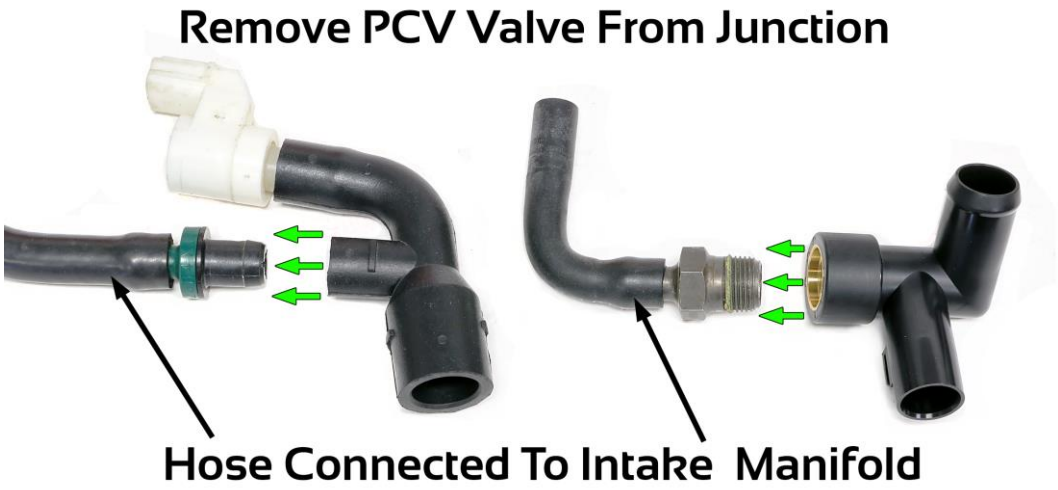
m. Once hose routing is to your liking, using supplied zip ties, secure hose along the way to make sure it maintains its downhill trajectory from the AOS to the engine.

n. Route the 1/2" emissions hose between intake manifold and turbo as shown in the pictures above and below, then connect it to the straight fitting facing the front of the car on the AOS. Secure hose to AOS using supplied size 6 or 12-22mm clamps (or lower profile pinch clamp). **NOTE: Included are two different types of clamps, a worm drive type and a lower profile crimp type. The crimp type clamp requires the use of a nipper/single ear crimping tool to secure. If you are not familiar with this type of clamp, install the supplied worm drive clamp.**

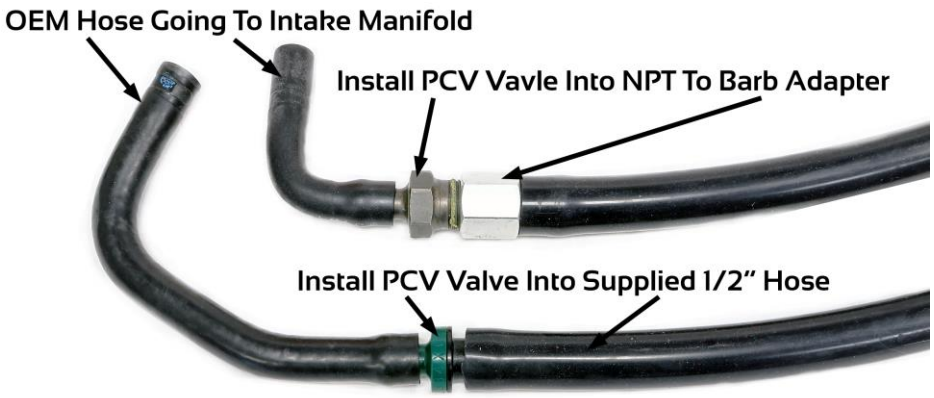


5. PCV And Outlet Connection

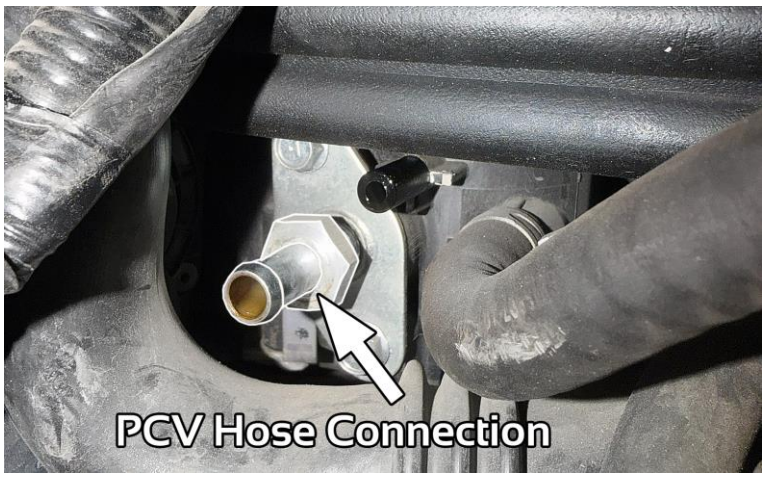
a. Locate and remove the PCV valve from your PCV junction that was removed previously. This step varies slightly from the 2008-2011 models to the 2012-2014 models. Using the below picture as a guide the 2012-14 models can simply pull the PCV valve from the rubber PCV junction. The 2008-11 models require the PCV valve to be unscrewed from the plastic junction. **NOTE: This fitting has thread locking compound applied to the threads and can be hard to remove from the junction. Warming up the fitting to 200F can help make this come apart easier. Also the use of a vise is recommended to hold the junction while removing**



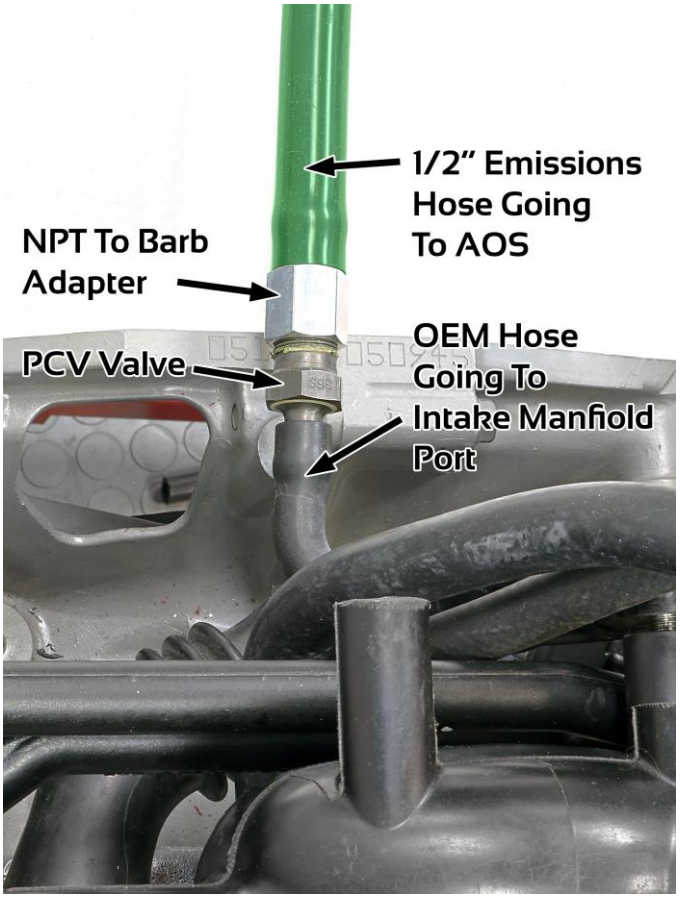
b. Use picture below as a guide. For 2012-14 models (black and green valve), connect PCV to the supplied 1/2" emission hose. For 2008-2011 models, install PCV valve into supplied 1/2” barb to NPT adapter as shown below. Then install fitting into hose under throttle body. **See NPT Notes above regarding installation of this fitting. Leave hoses long for the next few steps.**

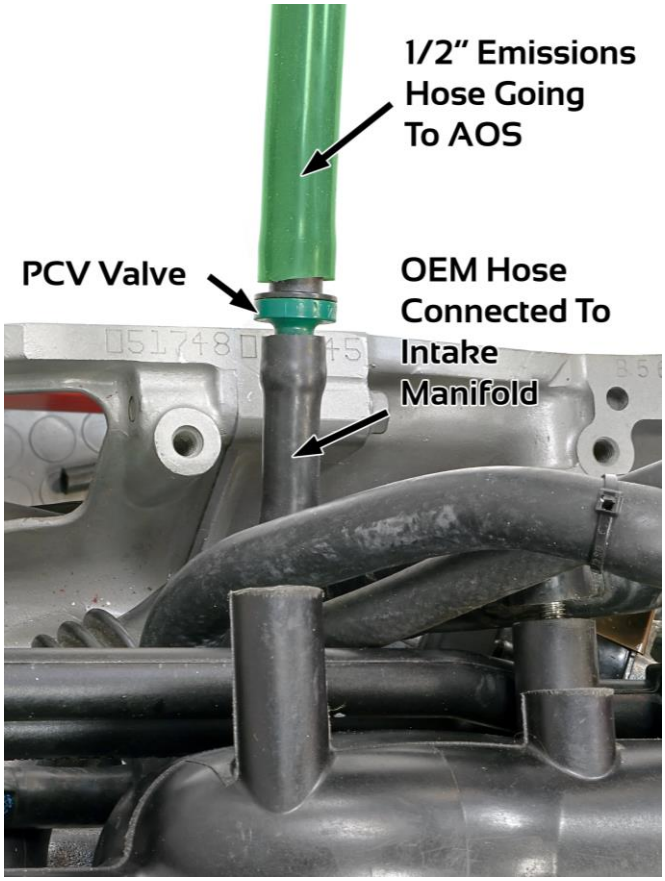


j. Reinstall hose (smaller diameter side) to the PCV hose connection on the back of the intake manifold that it was previously connected to. Install supplied size 6 or 12-22mm clamp (or lower profile pinch clamp) over hose but do not tighten currently. **NOTE: Included with each kit are two different types of clamps, a worm drive type and a lower profile crimp type. The crimp type clamp requires the use of a nipper/single ear crimping tool to secure. If you are not familiar with this type of clamp, install the supplied worm drive clamp.**



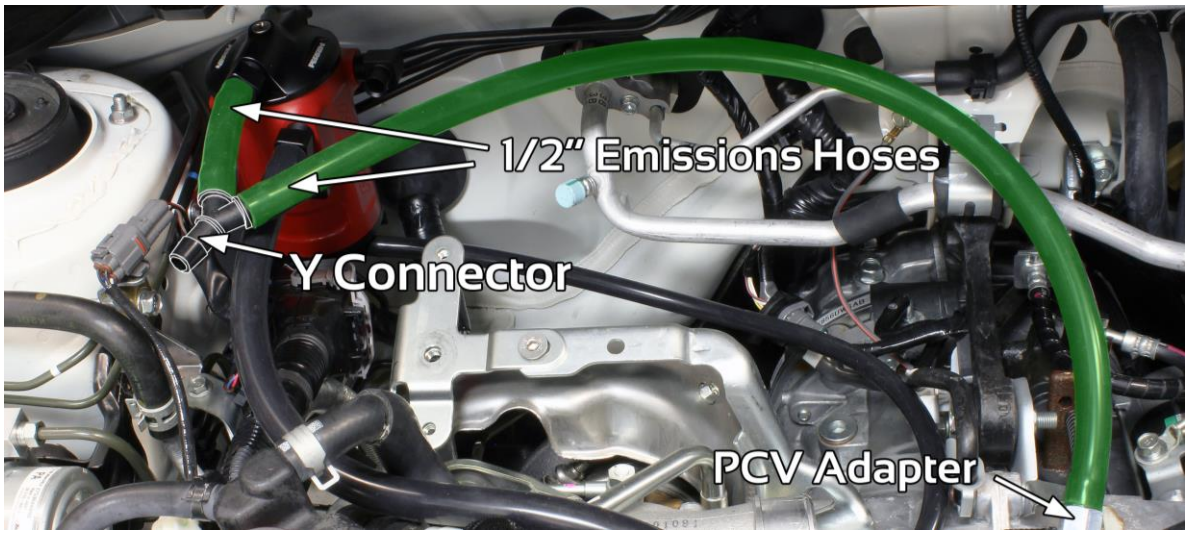
c. Then route hose toward the firewall. **NOTE: Some planning ahead will make the next few steps easier. This hose will route to the firewall, then over to the top of the AOS. You may find you need to re-route this slightly during the next few steps to get the cleanest installation.**



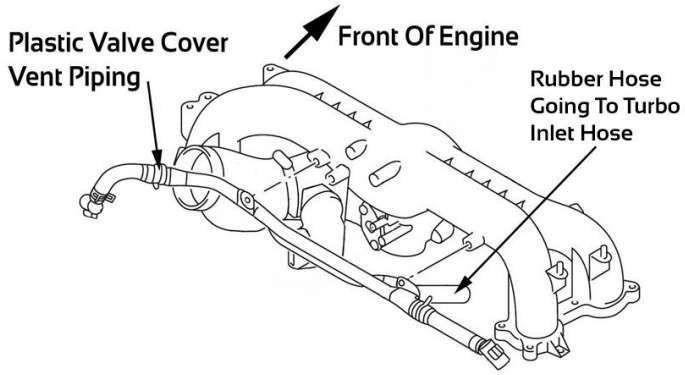


d. Using picture below as a guide, cut a 3.5 to 4.0" piece of 1/2" emissions hose from the other end of the previously installed hose and connect this to the top fitting on the AOS and secure with supplied size 6 or 12-22mm clamp (or lower profile pinch clamp). **NOTE: Included are two different types of clamps, a worm drive type and a lower profile crimp type. The crimp type clamp requires the use of a nipper/single ear crimping tool to secure. If you are not familiar with this type of clamp, install the supplied worm drive clamp.**

e. Install one of the dual legs of the "Y" connector to the hose coming off the top of the AOS. Then route hose from the PCV valve junction (from the steps above) across firewall to the remaining dual leg of the "Y" connector. This plastic connector is designed to NOT need a hose clamp to secure hose to fitting.



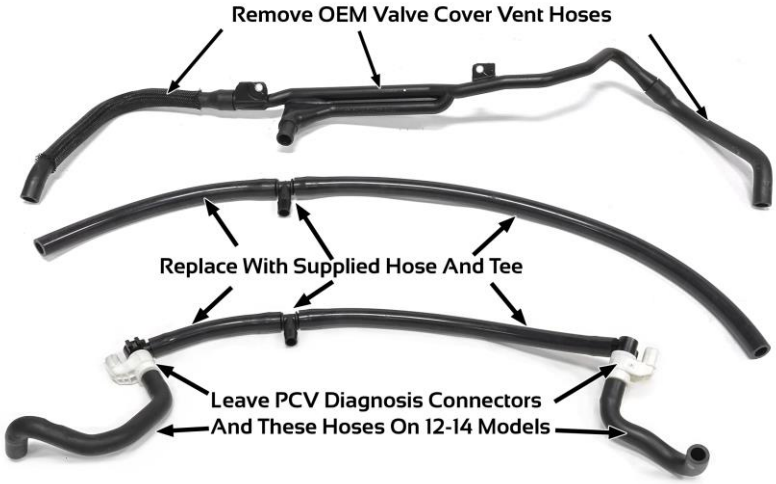
f. Temporarily install intercooler into engine bay and triple check the routing of this hose is still to your liking and free of pinched off hoses, kinks and clear of moving parts. If hose routing is to your liking, remove intercooler from car to continue with last part of the installation.



6. Valve Cover Vent Connections

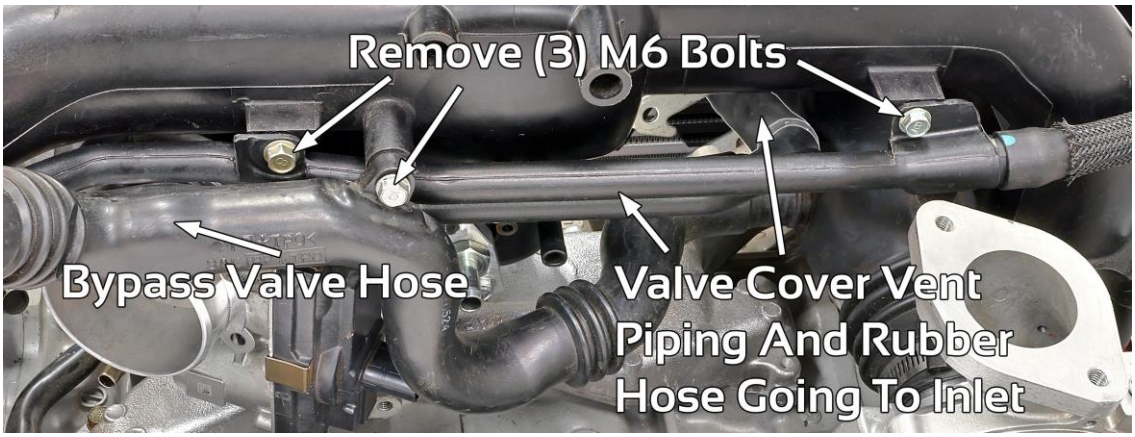
There are a few options for how to connect the valve cover vent pipes to the AOS. Depending on the year of the car, and if an aftermarket turob inlet hose is insatlled, will depend on which method is best. Familiarize your self with the options using the pictures above and below, as well as reading through all the valve cover vent hose connection instructions before proceding.

- The valve cover vent piping varies between the 2008-11 models and the 2012-14 models. The 2012-2014 models have PCV diagnosis connectors at the ends of the valve cover vent pipes, whereas the older models don't. In all cases, the OEM plastic piping connects the valve cover vents (on the heads of the engine) to the turbo inlet hose. When these connections are made correctly, the valve cover vents will be joined together with a T, then ran to the side fitting on the AOS.
- Extra 1/2" hose and an extra 1/2" T is included with each kit. These parts can be used to replace the OEM plastic valve cover vent piping that is bolted to the intake manifold. We recommend replacing the OEM piping if:
    - The OEM pipe is broken.
    - Aftermarket turbo inlet hose is installed.
    - Aftermarket front mounted intercooler is installed.
    - Custom routing of hose is desired.

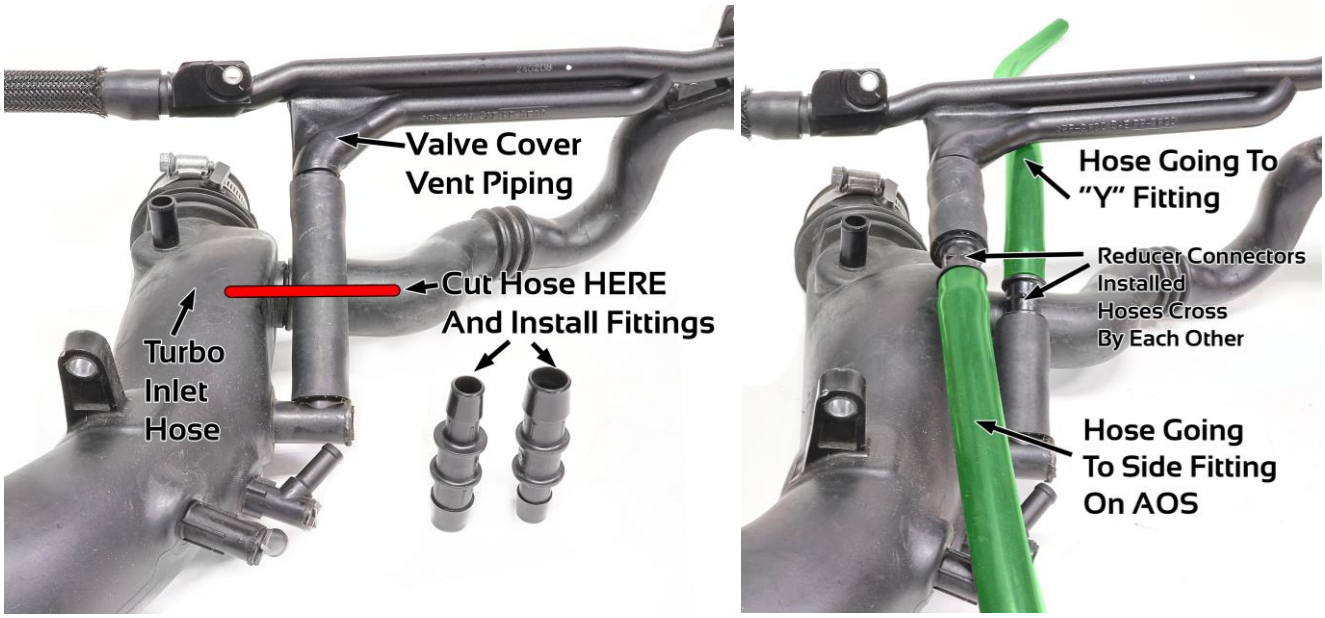


Above diagram shows the OEM plastic valve cover vent hose that is bolted to the manifold (as seen in steps below) as well as the alternative method of replacing it with the supplied hose and "T" connector.

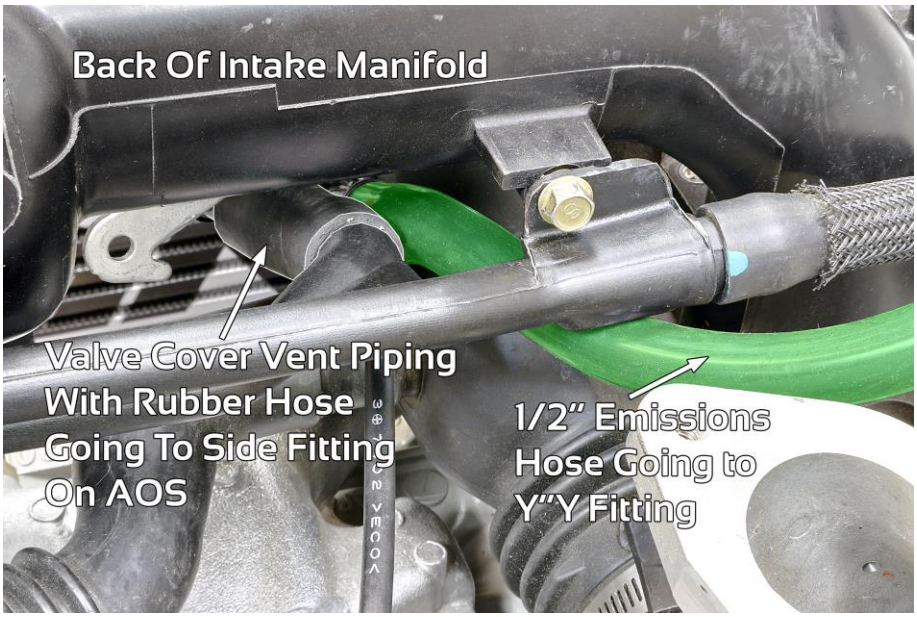
a. Locate plastic valve cover vent piping, wire harness and bypass valve pipe bolted to the back of the intake manifold. Remove wire harness and (3) M6 bolts securing them to the manifold and pull the piping away from the manifold. As this is done, take note of the rubber hose that connects to the turbo inlet hose. This hose may stay connected to the turbo inlet hose or the valve cover pipe. In either case, remove hose from engine.

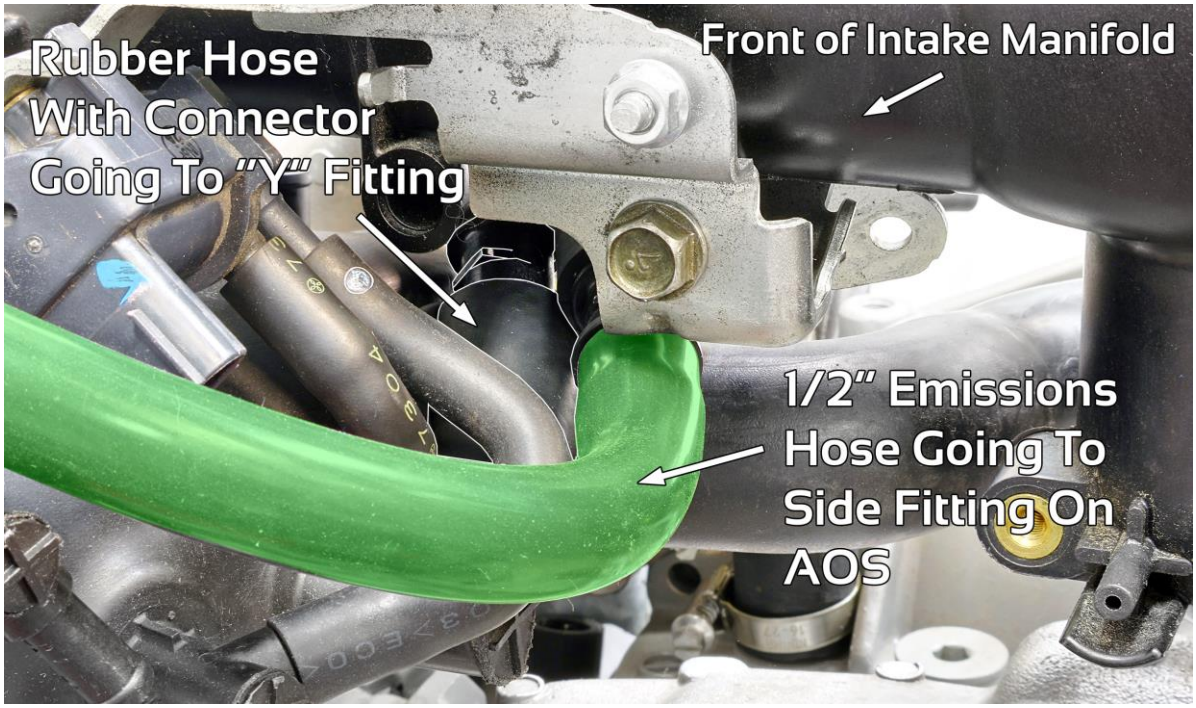


b. Using picture below as a guide, cut hose in half and install supplied 1/2”-5/8” reducer connectors into each piece and reinstall hoses with fittings back onto the turbo inlet hose and valve cover vent piping. AS these hoses are installed to their respective fittings, you will need to route one hose next to the other as shown below. See special notes below:
   i. **If aftermarket turbo inlet hose is installed, you may not need to install the 1/2"-5/8” reducer fitting on the hose connecting directly to the inlet hose. In most applications, this fitting is a 1/2" size, which means you can connect a hose to it directly.**
   ii. **If you are replacing the OEM plastic valve cover vent piping with the supplied hose and “T”, you will not need to use the 1/2"-5/8” reducer, as the “T” connector is already a 1/2" size.**



c. Using picture above and below as a guide, connect remaining 1/2" emissions hose to the reducer fitting connected to the turbo inlet hose and route hose under intake manifold, around the turbo, then toward the open fitting on the “Y” connector attached to the top of the AOS. Trim hose to best fit to this connector. Both plastic connectors are designed to NOT need a hose clamp.





d. Using the pictures above, connect remaining 1/2" emissions hose to the reducer fitting connected to the valve cover piping and route hose under intake manifold and toward the front of the car.
    i. **If aftermarket turbo inlet hose is installed, you may want to route the hose slightly differently as the aftermarket part is much larger and may be difficult to route as shown. See picture below showing this routing.**
    ii. **If you are replacing the OEM plastic valve cover vent piping with the supplied hose and "T", you will be connecting this hose directly to the "T", not to the reducer fitting.**



e. Route the 1/2" emissions hose from the turbo inlet hose, under intake manifold, around intake system and coolant tank, then connect hose

to the open side fitting on the AOS. Secure hose with supplied size 6 or 12-22mm clamp (or lower profile pinch clamp).

f. With hoses connected some alignemnt of hoses and fittings will be needed to ensure the routing is as clean as possible. Reinstall (3) M6 bolts to secure the valve cover vent piping and bypass valve hose to the intake manifold.



Special notes about aftermarket turbo inlet hose and OEM valve cover vent pipeing replacment. If an aftermarket inlet hose is installed and or the OEM plastic valve cover vent piping was replaced with the supplied hose, the hose routing can be setup differently.

- As long as the hose from the valve cover vent piping (joined with a "T"), goes to the side fitting on the AOS the routing will not matter.
- As long as the hose connector to the turbo inlet hose (the side vacuum connection), connects to the "Y" fitting connected to the top of the AOS, then routing will not matter and the AOS will work as designed.

7. Final Checks

a. Double check that all hoses and vacuum lines are connected and secured using a clamp (where noted to use a clamp). Any leak in the system can cause the engine to run poorly and will lead to unsafe engine conditions.
b. Check that all bolts and hardware securing AOS are tightened down.
c. Using supplied zip ties, secure emissions hoses to engine and other hoses to reduce the chance of abrasion wearing down hoses over time.
d. Reinstall throttle body to intercooler coupler
e. Reinstall intercooler to engine and bypass valve to intercooler. This may require some alignment of the throttle body coupler to get it to fit correctly. Once aligned, tighten clamps and bolts to secure.
f. Reconnect battery.
g. Start engine and let it run for about 30 seconds. Turn off engine and inspect hoses for leaks.
h. Restart engine and allow engine to warm up completely, then triple check all hose connections (mostly looking for coolant leaks). Fix any leaks that you find and then proceed to the next step.
i. After roughly 10 minutes of driving, recheck all fittings for signs of leaking. If leaks are found stop and fix ASAP.

Optional PCV Delete for Cars with Built Engines

For those who understand the reason they may want to remove the PCV valve from the engine (to reduce further oil getting into the manifold) please follow the below alternate instructions below. While we do not recommend this for street driven cars, some racecars may want to disconnect the PCV side of the system as this can lead to additional oil vapors getting into the intake manifold.

You will NOT use the included "Y" connector for the top connection on the AOS, and you will also NOT use the PCV valve and adapter if you follows these instructions. If done correctly, you will have a single hose coming off the top of the AOS and going to turbo inlet connection.

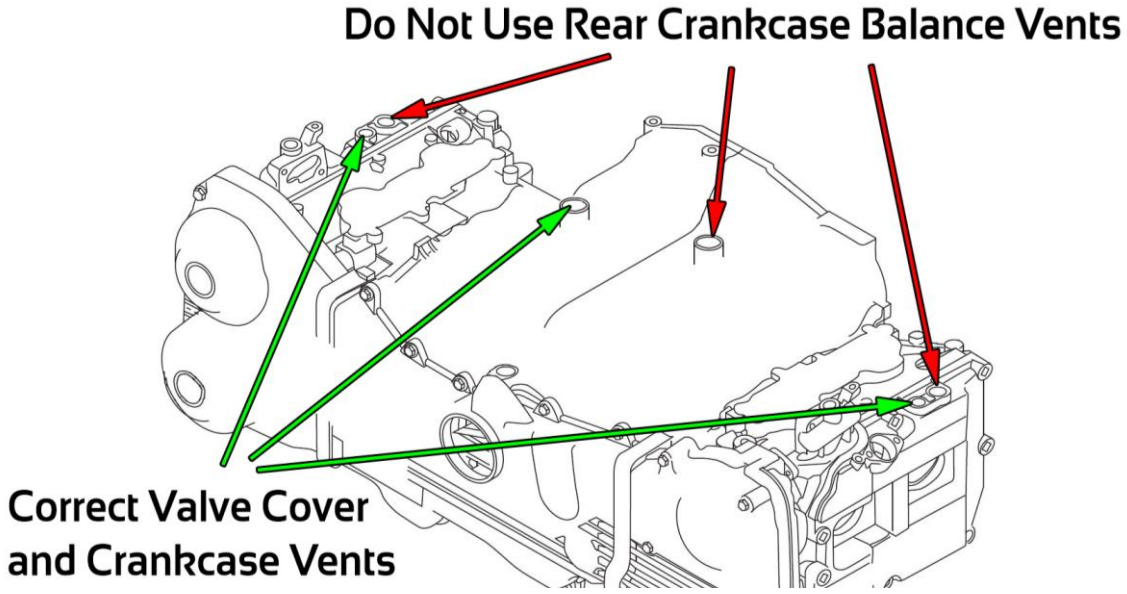
1. Locate and remove the PCV hose fitting from the flange bolted to the back of the intake manifold.
2. Install supplied 1/4NPT plug into manifold. **NOTE: This is a tapered type of fitting and seals when tight, not when bottomed out. Take care in not over tightening fitting as this can damage intake manifold. See NPT Notes above regarding installation of this fitting.**



Optional Dual Valve Cover Vent Installation

The PERRIN AOS has an extra port on it that can be used to connect both the left and right valve cover vents separately to the AOS. If the above instructions are followed, both left and right vents are jointed together (using the piping on the intercooler), then connected to the AOS. Alternatively you can remove these pipes, and run separate hoses from the AOS to the valve cover vents. This method may work better or be a "cleaner" installation when aftermarket parts such as front mounted intercoolers are installed.

Use the diagram below to help with guidance as to where the valve cover vents are located.

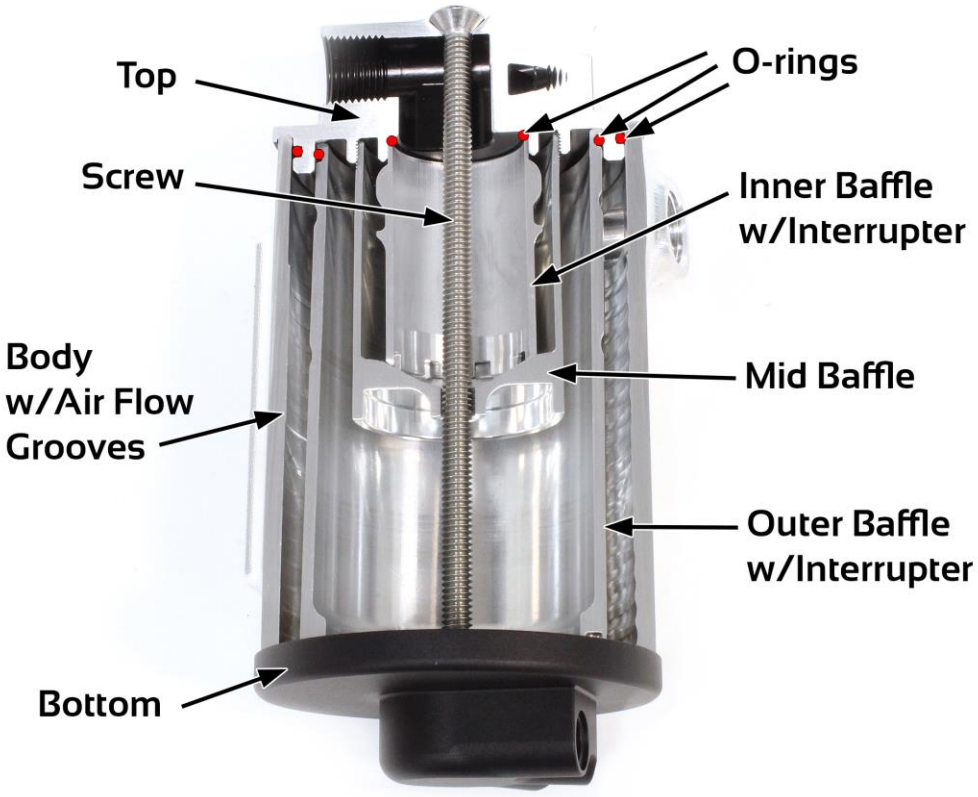


Optional Rear Crank Case Vent for Cars with Built Engines

We have found that to help control oil entering the AOS you can remove the rear crank case vent hose from the system, leaving only valve cover vents to do the job of venting crank case pressures. Consult your tuner to decide if this is the best setup for your car. The valve cover vents will easily handle the amount of blow-by coming out of the engine.

1. Remove fitting on AOS body used for the rear crank case vent and install supplied 3/8NPT plug into the body.
2. Remove 1/2" fitting on PERRIN crank case vent junction and install supplied 1/4NPT plug.
3. This turns the PERRIN crank case vent junction into a drain-only for your AOS.

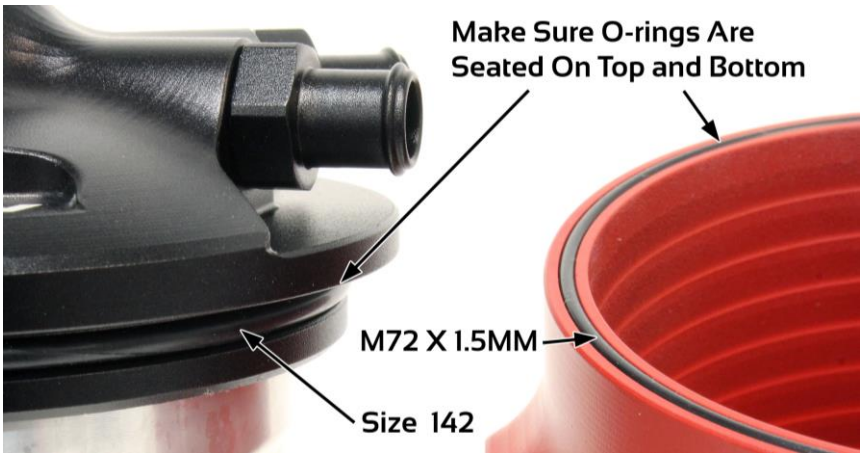




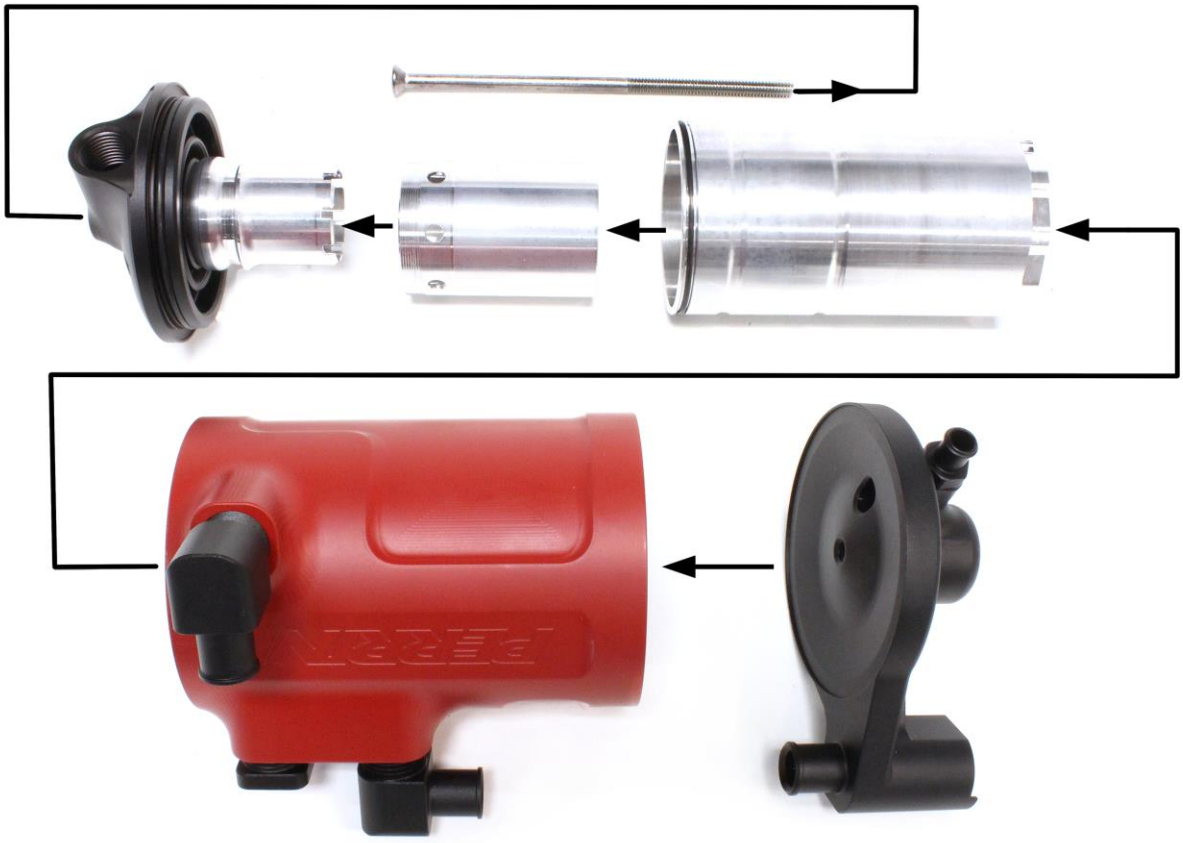
Maintaining your Air Oil Separator

There is very little maintenance required with the PERRIN AOS. From time to time, you may want to remove it and clean out some of the oil residue from the inside. Before taking apart, double check you have the spare O-ring for the body in case you find the O-ring is damaged.

- Disconnect crank case hoses from AOS. Leaving coolant hoses and oil drain hoses attached to the top and bottom, remove bolt from top of AOS, then pull AOS away from the bottom and carefully remove body from top.
- Remove outer baffle w/ interrupter from top (held in with an O-ring), unscrew the mid baffle and then the inner baffle can be removed. NOTE: The inner baffle may fall out with the mid baffle or may require a slight amount of force to pull it out.
- Using paper towels and/or a biodegradable degreaser, clean out as needed until AOS is free of sludge.



- Locate and remove O-rings from the AOS top and AOS body. Inspect them thoroughly remove them from bottom to ensure it is not cut or cracked. **NOTE: Do NOT use brake cleaner to clean O-ring as damage may occur.**
- Reinstall O-rings into their respective grooves, making sure they are fully seated and not sticking out. Applying a small amount of oil or grease to these will make the next few steps easier to install and align.
- Using the diagram below, start with installing the smallest diffuser into the top, then screw in the next largest one to lock them both in place. Tighten this diffuser firmly by hand and do not use a wrench to tighten. Install the largest diffuser into the top making sure that the O-ring is installed.



- Install the AOS body to the top, then install the entire assembly to the bottom. Make sure that the small O-ring on the bottom of the AOS body is in the groove and not sticking out, or the O-ring can become damaged and create a leak.
- Reinstall the long screw through the AOS, make any alignment changes to the top and body, then tighten screw to hand tight.
- Reattached the crank case hoses as they were before.
- If you find any leaking afterward, check that the o-rings are lined up and check that the AOS body is lined up with groove in bottom.

Questions, Comments and Suggestions Contact: Tech@PERRIN.com
Visit Our Website for Instant Chat Options at www.PERRIN.com
Call Our Tech Team at 503-693-1702