Killer B Motorsport

EJ Series Air/Oil Separator Installation Guide

This install is performed on a 2017 STI

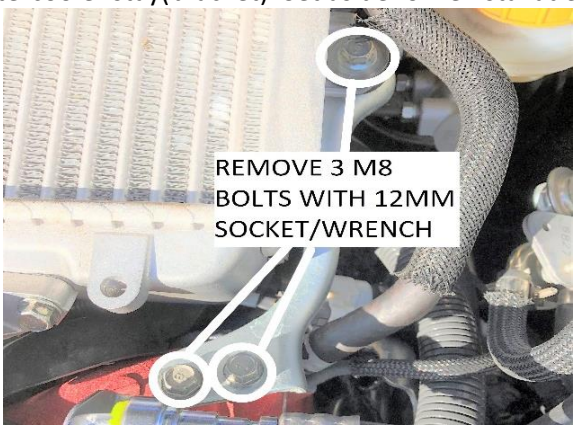
Tools needed:

Flathead screwdriver
3/8” drive assorted sockets: 8/10/12/14mm, socket wrench and extensions
¼” drive assorted sockets: 7/8/10/12, socket wrench and extensions
Metric wrenches
Hose cutters
Pliers

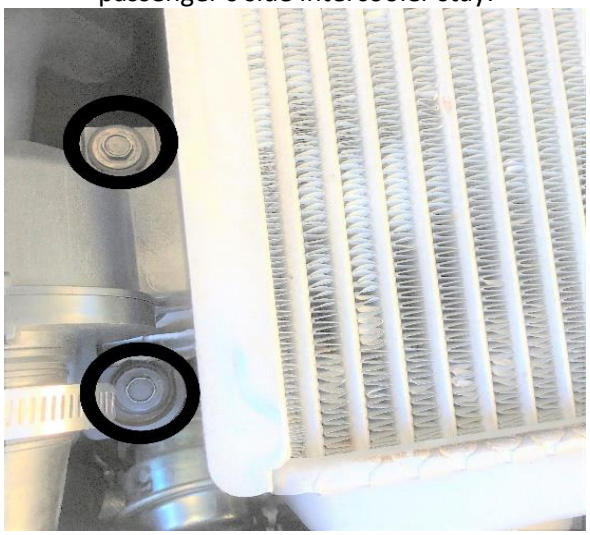
<u>REMOVE INTERCOOLER:</u>

Raise the hood. Loosen these two intercooler worm clamps with a flathead screwdriver.

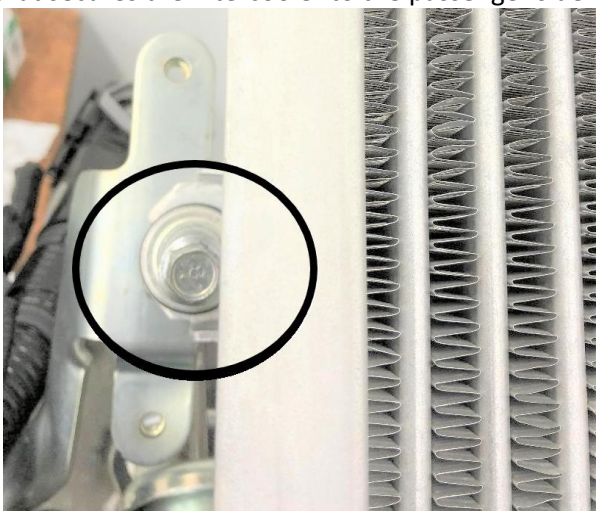
With a 12mm socket, socket wrench and extension, unfasten and remove the 3 bolts on the driver’s side intercooler stay(bracket). Set aside for reinstallation.



For 2015-2017 STI: remove the two M6 bolts(10MM head) securing the sound generator to the passenger's side intercooler stay.

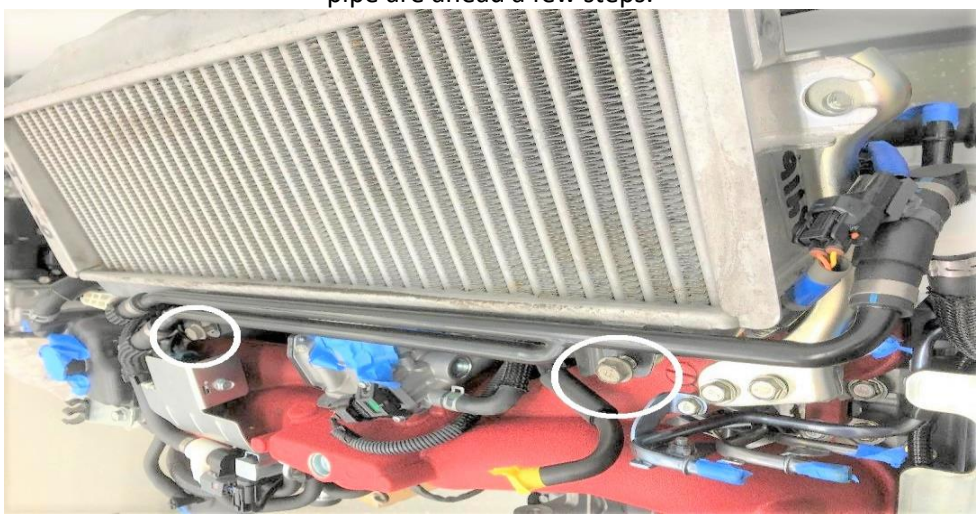


Remove the 12mm bolt that secures the intercooler to the passenger side intercooler stay(bracket).



Remove recirculation hose from bypass valve by compressing the hose clamp with pliers until they lock in the open position. Push the recirculation hose off the bypass valve fitting. Disconnect boost/vacuum hose from the bypass valve.

(Removing the intercooler from the vehicle with bypass valve attached prevents you from having to replace the single-use bypass valve gasket.
***If you choose to remove the bypass valve, be sure to replace the gasket (OEM P/N 21896AA072)
Look for the “pipe assembly: PCV valve” (the black pipe fastened to the intercooler): Using a 12mm socket or wrench, remove the 2 M8 bolts and set aside for storage. The instructions for removing the pipe are ahead a few steps.

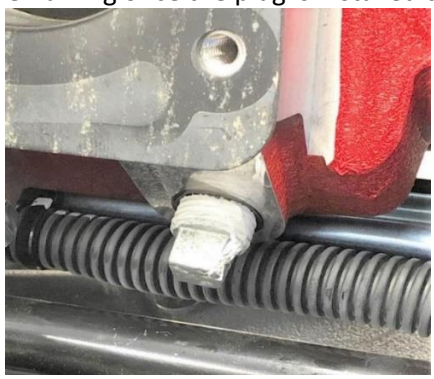


Remove intercooler from vehicle and set on a workbench, in a clean area.
Apply tape over inlet and outlet.
Wipe oil (with microfiber) from throttle body, intake manifold and intercooler if found)

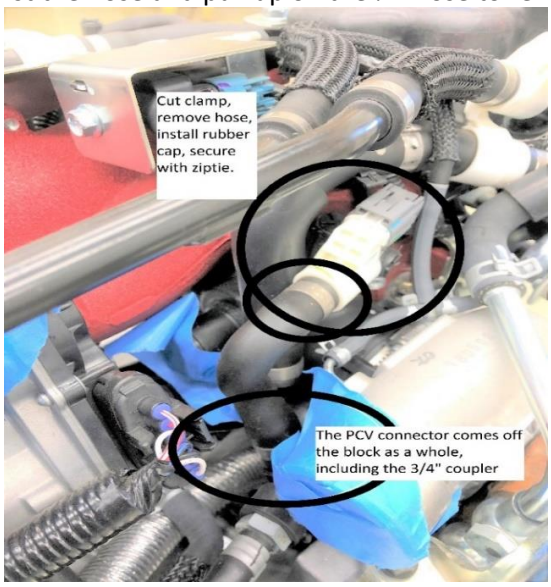
<u>REMOVE PCV VALVE AND OEM HOSES:</u>
In order to remove the pcv valve/connector/hose assembly, start by removing the hose clamp that secures the pcv hose on the intake manifold fitting.
NOTE It may be beneficial to remove the throttle body to perform this step.
REPLACE the throttle body gasket if you do so- torque to 4.8ft-lbs.
Throttle by WIRE: OEM P/N 16175AA243
Throttle by CABLE: OEM P/N 16175AA223

Using a 19mm deep well socket, remove the barbed fitting from the intake manifold. Set Aside for storage.

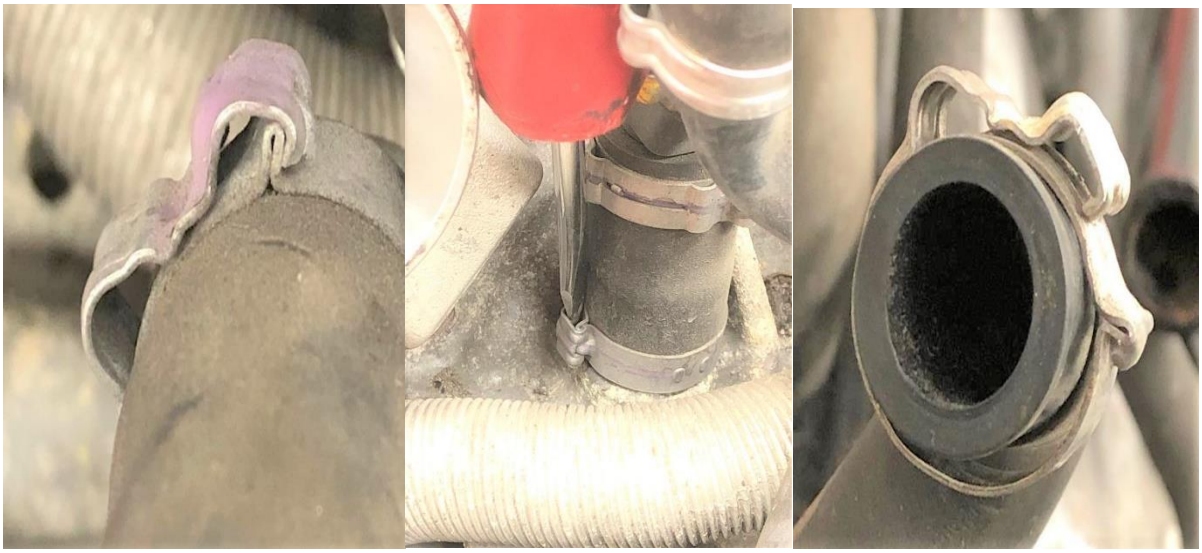
Install the supplied NPT plug in the intake manifold with teflon tape or thread sealer. Expect to see 4-5 threads remaining once the plug is installed correctly.



To remove the pcv assembly from the vehicle, locate the OEM ¾" diameter hose that the pcv connector is installed in. Loosen the clamp closest to the block (the clamp closest to the engine block, furthest down) by using a narrow flathead screwdriver: insert it into the gap in the side of the clamp and twist. With the clamp unlocked, twist the hose and pull up on the ¾" hose to remove it. Set aside for storage.



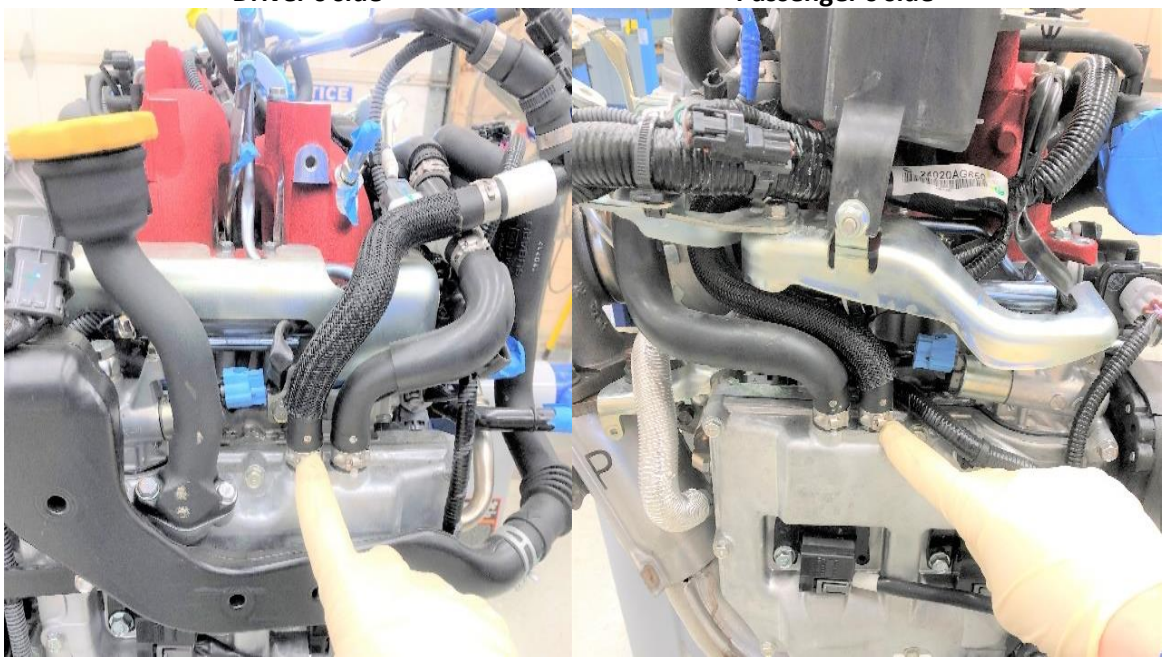
Locked: Insert screwdriver and twist: Unlocked:



Remove one ½” clamp and hose from the smallest of the two rocket cover ports:

***NOTE: 2002-2005 WRX: there is only one hose and port on each rocker cover. The driver side rocker hose goes to a short hard pipe. The passenger side hose goes to the black PCV pipe (mounted to the intercooler)

Driver’s side **Passenger’s side**



Perform this once on each rocker cover. Use a narrow flathead screwdriver to release the locking clamps: insert screwdriver in the gap on the side of the clamp, twist screwdriver to disengage clamps. Remove one ½” hose from each rocker cover port. Leave these hoses attached to the black breather pipe, which was fastened to the intercooler- leave it in place for future removal.

*Do not remove both hoses from each rocker cover, only remove the smaller (½”) hose from each side.

**If your model is not equipped with reusable clamps, they will need to be cut and discarded.

EMISSIONS CONNECTOR SERVICING:

*On a ‘08- ‘14 GR chassis, there are 6 of these white connectors, you will need to service 3.

*On a ’15-’20 VA chassis, you could see up to 6. They don’t all need to be disassembled.

-2 get removed with both ½” rocker hoses. (Remove as one big piece, with PCV pipe)

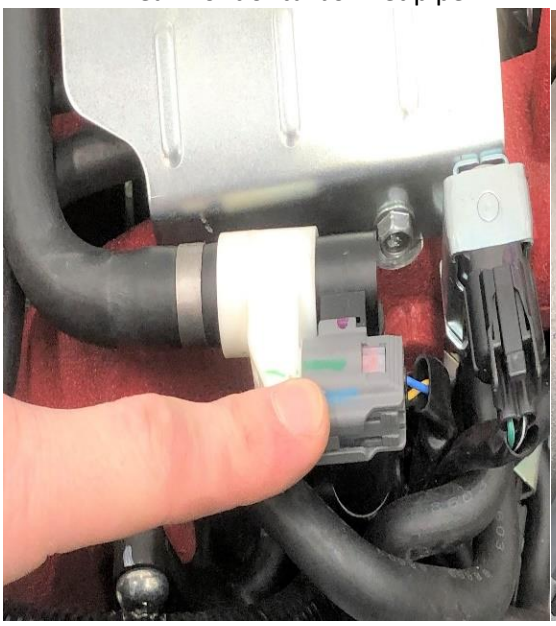
-2 remain in place on the 5/8” rocker cover fittings.

1- gets disassembled from the front of the turbo inlet behind the power steering pump. (You can remove the clamp and 5/8” to ½” hose segment from the inlet, OR you can remove the clamp located to the left of the white connector and use the supplied 5/8” to ½” hose adaptor.

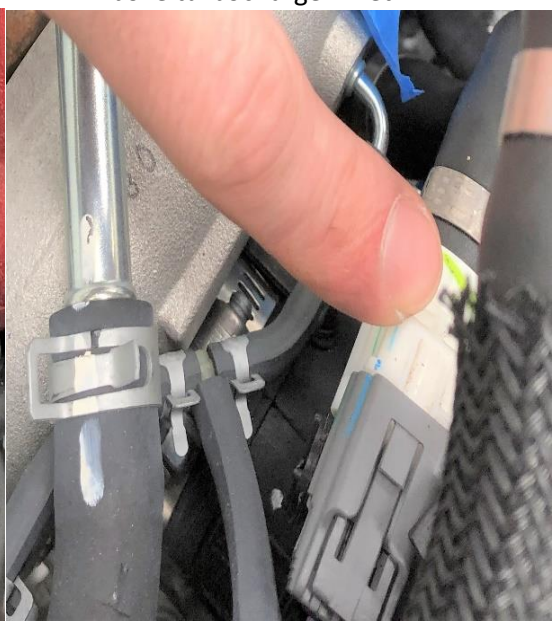
-1 gets capped (but not removed) above the compressor inlet.

Locate the white/grey connectors that you need to disassemble:

Near front of turbo inlet pipe:



Above turbocharger inlet:

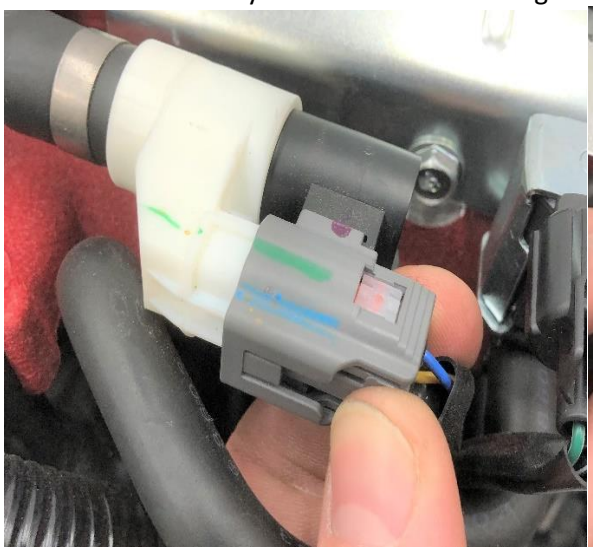
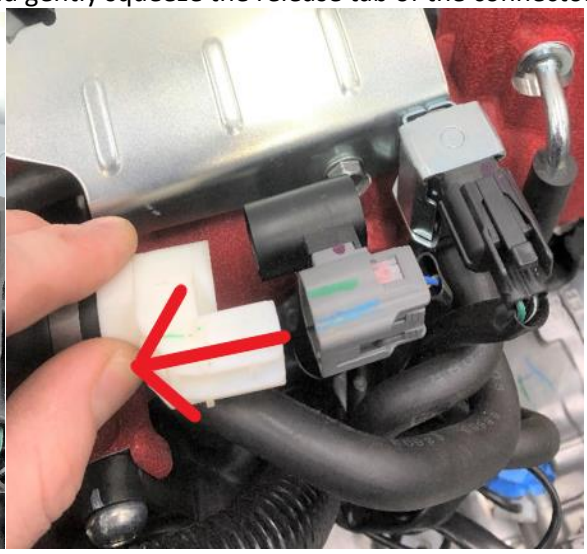


Driver’s side rocker cover:

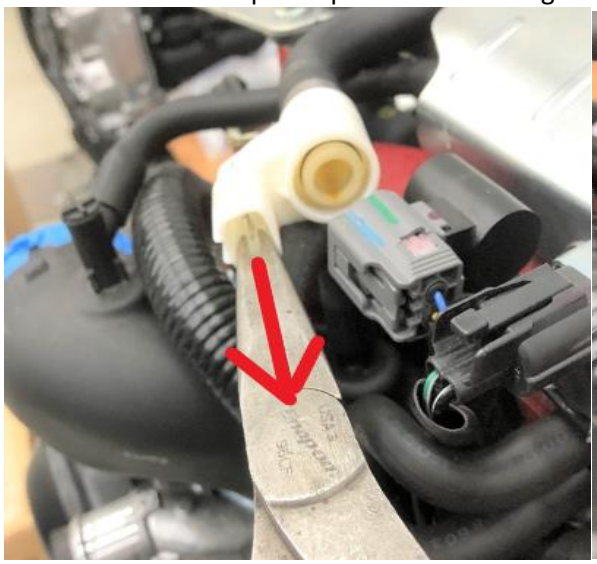
Passenger’s side rocker cover:

INSTRUCTIONS FOR CONNECTOR DISASSEMBLY:

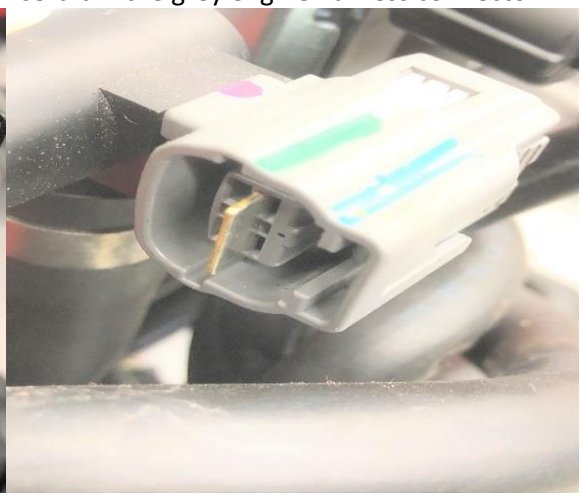
Locate the connector you will be disassembling and gently squeeze the release tab of the connector:

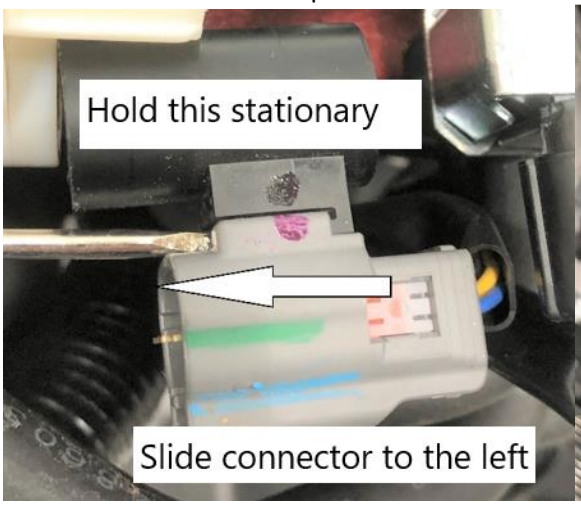
With needle nose pliers: pull metal shorting bar straight back while holding white connector:



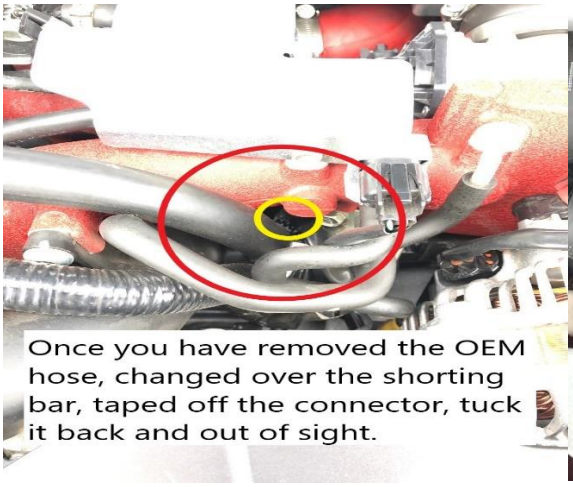

Flip the shorting bar around 180 degrees and insert it in the grey engine harness connector:

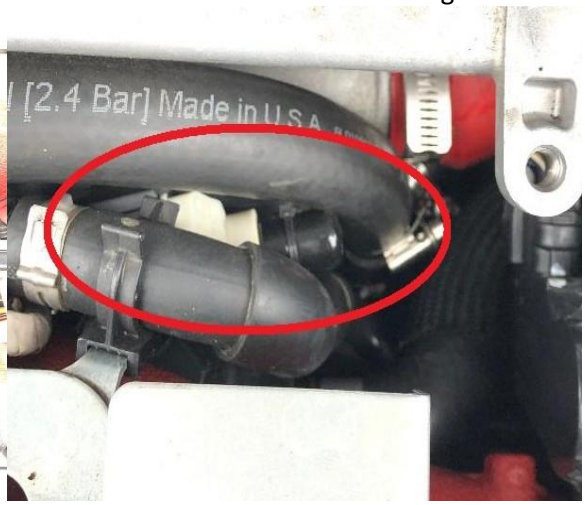
Using a small flathead screwdriver, release the tab and separate the hose fitting from the electrical connector and tape over the inlet of the connector to prevent liquid intrusion:



Connection at turbo inlet:



Connection above turbocharger:

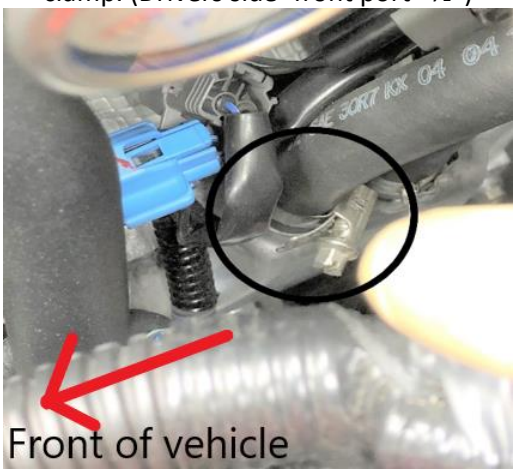


INSTALL NEW HOSES, CLAMPS AND FITTINGS:

Install the ½”x32” drain hose to the perpendicular fitting on the supplied tee. Fasten the supplied hose clamp to the tee with a flathead screwdriver or a 7mm socket and wrench.

(Skip to next step if you already installed the ¾”x2.5” hose and tee with the drain hose)

Install the ½”x39” LH rocker hose on the driver’s side rocket cover port. Fasten the hose with a supplied clamp. (Drivers side- front port= ½”)



Install the ½”x28” RH rocker hose in the passenger side rocket cover port with a supplied hose clamp. (Passenger’s side- front port=1/2”)

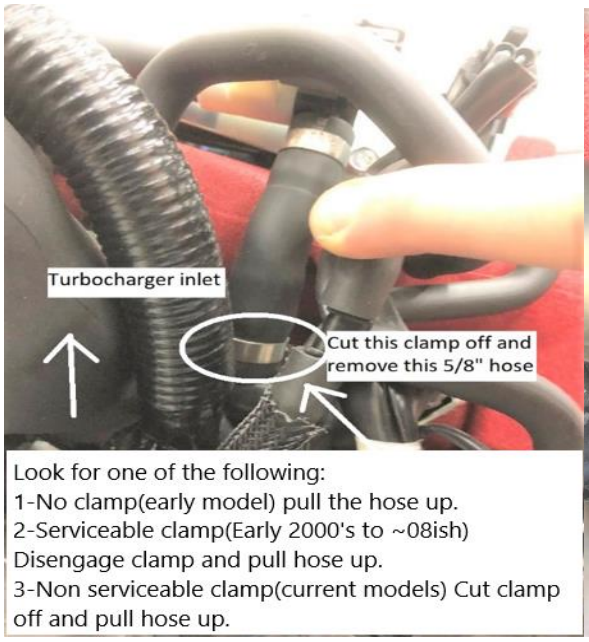
Install ¾”x2.5” coupling hose on crankcase breather port. Orientate clamps so YOU can effectively tighten them. Tighten the clamp that secures the bottom of the tee in the ¾”x2.5” coupling hose. The Tee, the drain hose and the 2.5” long section can be installed on the engine as one.
This picture shows one possible way to align the clamp.

Once the hose is installed on the block and secured, insert the tee into the ¾”x2.5” hose and secure it with a clamp. Be sure to position the ½”x32” drain hose so that it points back toward the firewall. This hose will soon be routed to the bottom of the AOS.

Install one end of the ¾”x30” over the remaining upper fitting on the tee, secure with clamp.
The following 2 pictures show the same step from two angles:
Clamp positioning comes down to what works best for your setup.

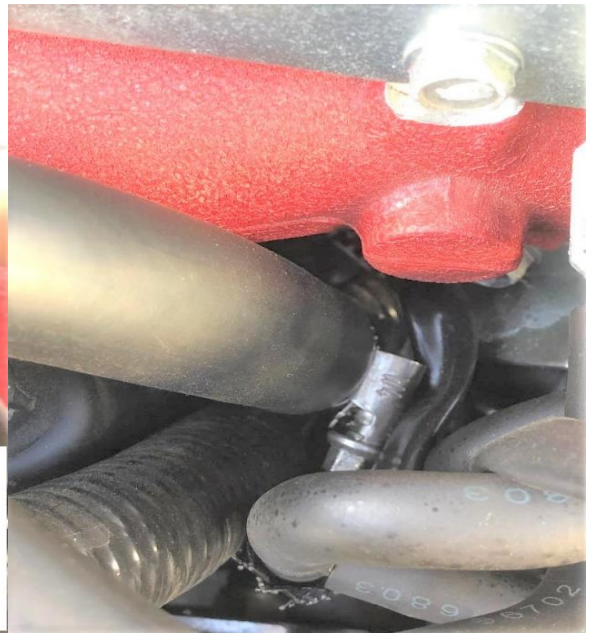
Install one end of the 5/8”x24” hose on the fitting on the front of the turbocharger inlet, with a clamp.
White connector is removed, clip transferred to engine harness grey connector and sealed off.

Before



Look for one of the following:
1-No clamp(early model) pull the hose up.
2-Serviceable clamp(Early 2000's to ~08ish) Disengage clamp and pull hose up.
3-Non serviceable clamp(current models) Cut clamp off and pull hose up.

After



INSTALL MOUNTING BRACKET AND AOS:

Remove the engine harness mounting bracket from the body using a 10mm socket and socket wrench.

With a small flathead screwdriver, release the tab on the bottom of the connector to remove the bracket from the harness. Bracket is no longer used. Make sure to route the engine harness low by the passenger's frame rail.

*Reroute the harness under the power steering lines.

Try to route the harness so that it follows the same path past the shock tower and toward the firewall, just lower.

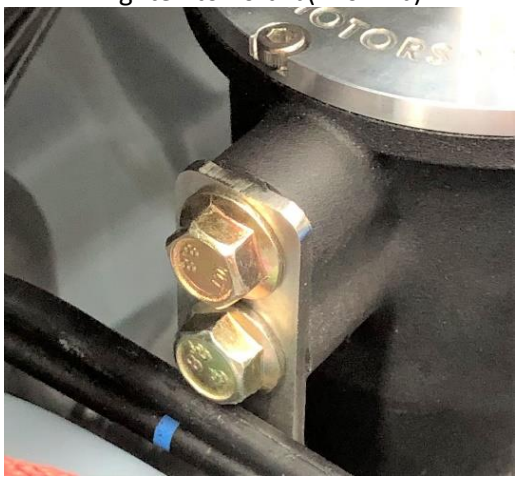
Install the AOS mounting bracket with the supplied M6 cap screws. Position the AOS vertically then torque M6 cap screws to 5 ft-lbs (60 in-lbs).

Loosely install the 3/8" NPT right angle drain fitting with Teflon tape or thread sealer.

Do not tighten the fitting yet

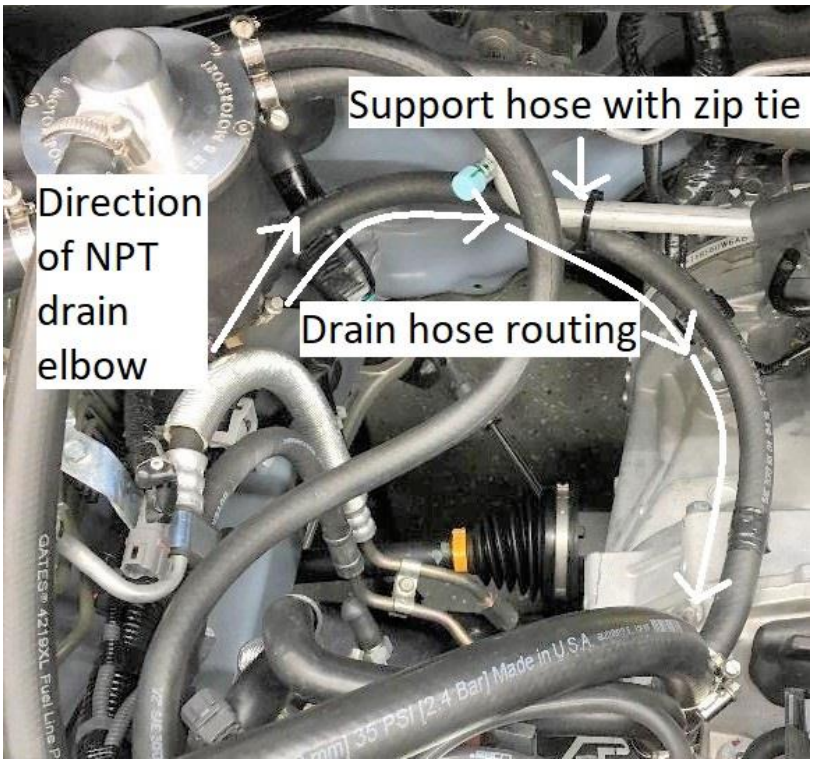
The 2 gold M8 bolts thread through the mounting bracket holes, into the side of the AOS. Make sure the vehicle is flat on the ground before tightening the AOS and mounting bracket.

Tighten to 10ft-lb(120in-lb)



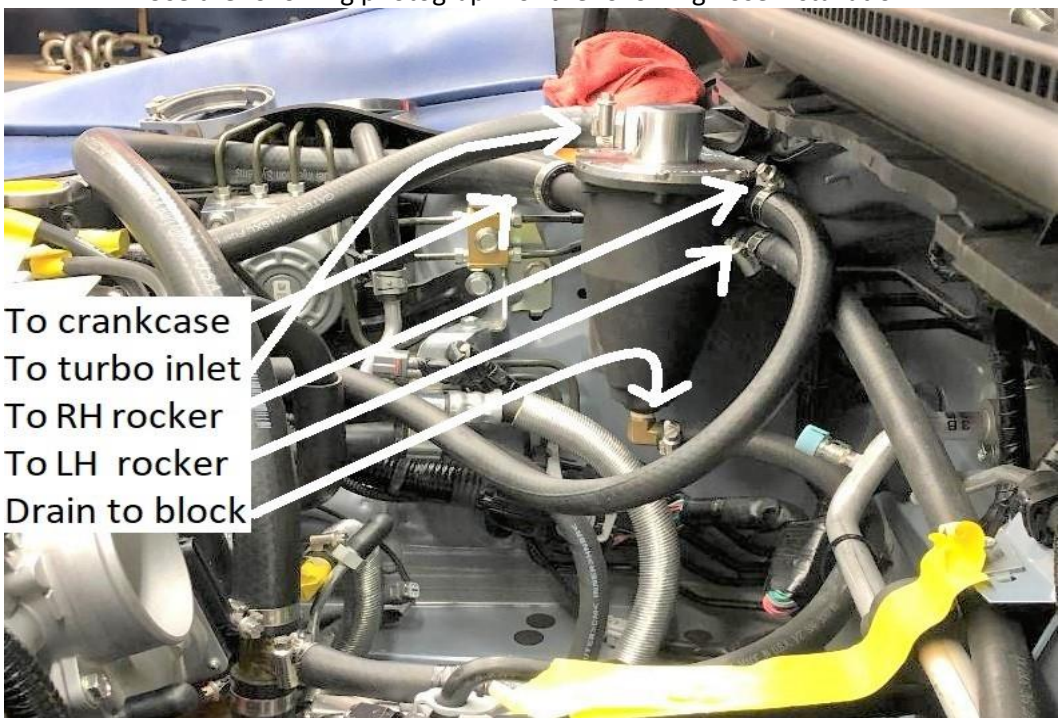
<u>The AOS should be perpendicular with the ground to effectively drain.</u>

*Once the vehicle is flat and the AOS has been secured into place, you may now **tighten the AOS drain fitting** and clock it to its desired orientation. Since you are tightening upside down, you are going to thread the fitting in counterclockwise. Stop BEFORE it points directly at the firewall. FOR EXAMPLE: imagine the fitting is in the 6:00 position, and the firewall would be 12:00. You want the drain fitting clocked (aimed) toward the firewall and slightly inward toward the centerline of the vehicle.



NOTE-This fitting is tapered- do not force the fitting to thread in beyond 60% of the fitting's thread length. The fitting should thread in approximately 3 revolutions before you need to use a wrench. Expect to see approximately 3-4 threads remaining once installed. The AOS may not drain effectively if the fitting is installed too deep/too tightly.

Use the following photograph for the following hose installation:



Take the unused end of the ½”x32” drain hose (the hose that intersects perpendicularly into the tee) and install it on the AOS drain fitting with a clamp. The hose should appear to route in a U-shape. You may secure it to an AC line with a zip tie, this will help prevent the hose from sagging and contacting the downpipe.

The ½”x39” hose that is secured to the driver’s side rocker cover can now be routed back to the firewall and toward the AOS. There are two ½” fittings on the side of the AOS, route the driver’s side rocker hose as close to the firewall as possible and install it on the lower fitting of the AOS.

The ½”x28” hose secured to the passenger’s side rocker cover routes to the upper fitting, right above the one you just used for the driver’s side rocker hose.
**The only fitting directly on the AOS to receive a clamp should be the drain hose on the bottom. Additionally, clamps are only supplied for hoses that attach to the engine.*
The 5/8”x24” hose on the front of the turbocharger inlet pipe is going to route to the top fitting of the AOS.
The ¾”x30” hose secured to the top of the tee gets routed to the ¾” fitting on the side of the AOS, the largest fitting. The hose may try to push up into the hood, you can loosen and twist one end of the hose so that it lays down closer to the engine, then re-tighten the clamp.
Here are two photographs that illustrate the correct hose routing:

Double check all clamps, hardware and fittings for secure fitment.
Reinstall the intercooler, secure related clamps and brackets.

We do not include fittings to go on the AOS except for the drain hose. This is because we use Push Lock fittings that work very well. All other connections to the engine or components get clamps supplied. Feel free to add clamps as you feel necessary.