



CP Dual Chamber (V3) Air/Oil Separator Kit 2017+ STI with Top Mount Intercooler

S0699 Install Instructions

Item #	Qty	Description
S0701	1	Air/Oil Separator Unit for 08-14 WRX / 08+ STI with TMIC
H0470	40"	3/8" PCV Hose: from port #1 to PCV Nipple on back of Intake Manifold
H0470	20"	3/8" PCV Hose: from port #2 to PCV Nipple on Top of Block
H0478	43"	1/2" Ventilation Hose: from port #3 to White & Grey Intake Plug before Turbo
H0478	14"	1/2" Ventilation Hose: from Black Elbow / Grey & White Connector to Port #4 *WRX only
H0478	5"	1/2" Ventilation Hose: from port #4 to 1/2" Straight Fitting (STI only)
H0478	7"	1/2" Ventilation Hose: Intercooler Crossover Pipe Hose Extension (17+ STI only; Opt. 15-16)
F0343	1	1/2" Straight Fitting
C0265	13	S/S Worm Clamps for Hoses
O0613	2	O-Rings for AOS bracket bolts
B2034	1	AOS Mounting Bolt *WRX only
W0921	3	Bolt spacing washers *WRX only
P0201	1	Firewall Plug for Sound Generator (STI Only)
P0202	1	Intake Plug for Sound Generator (STI Only)
Z0108	4	8" Zip Ties

[Click here for Install Video](#)





Estimated Install Time: 3-4 hours

Install Difficulty: 5/10

What makes this install so difficult and long is the fact that it is a very tight fit. The newer model STI's have more components and wiring in the area of install, making it even tougher than on the 2008-2016 models.

Asking a friend to assist is a great idea, as the extra pair of hands will reduce install time and difficulty. In addition, if you have a long handled mirror or video scope (\$40 at Harbor Freight and worth every penny for any job), these tools will give you better visibility of the part of the install usually done by feel.



Tools Needed:

- Pliers
- Flathead Screwdriver
- 10mm wrench and/or socket
- 12mm wrench and/or socket
- Socket Extender
- Ratchet

Optional/Recommended:

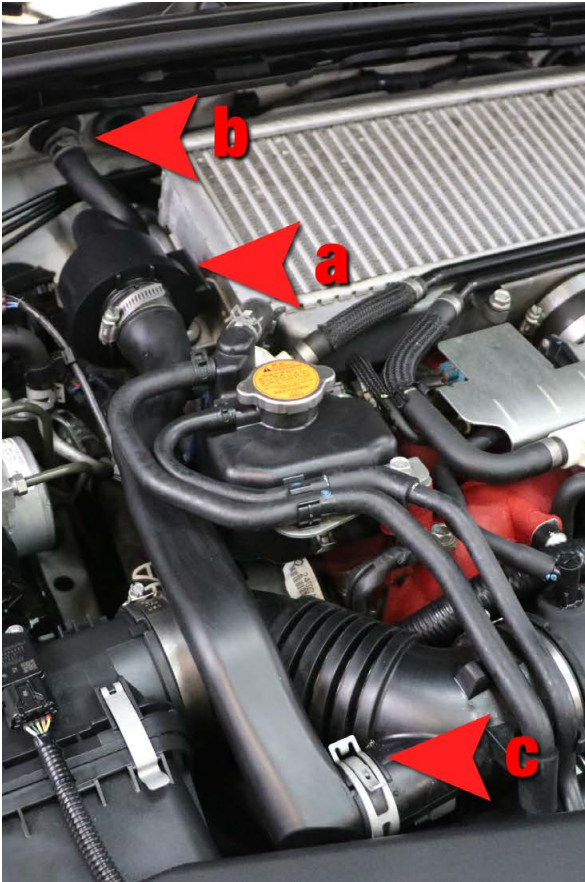
- Flush Cuts
- 7mm Socket
- Lubricant
- Long Handled Mirror or Video Scope

Step by Step:

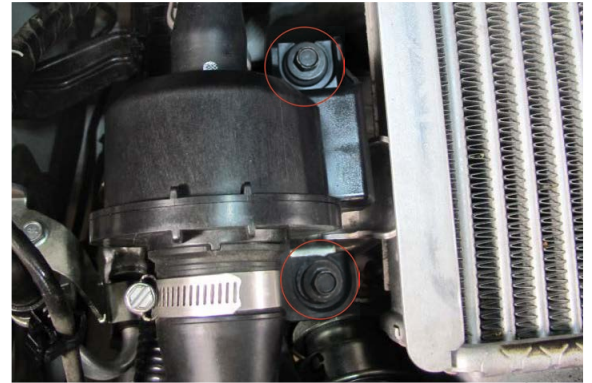
1. Disconnect Ground (-) on Battery using a 10mm wrench.



2. Disconnect Intake to Cabin Sound Generator. This part is deleted and will not be reinstated. If you have a 2019 or newer STI, skip this step.



a. Remove 2 mounting bolts with 10mm Socket and Ratchet.



b. Hold open and move rear clamp towards you with Pliers.



Pull grey port out of hose. Use supplied smaller plastic cap to plug, and reinsert port back into firewall.

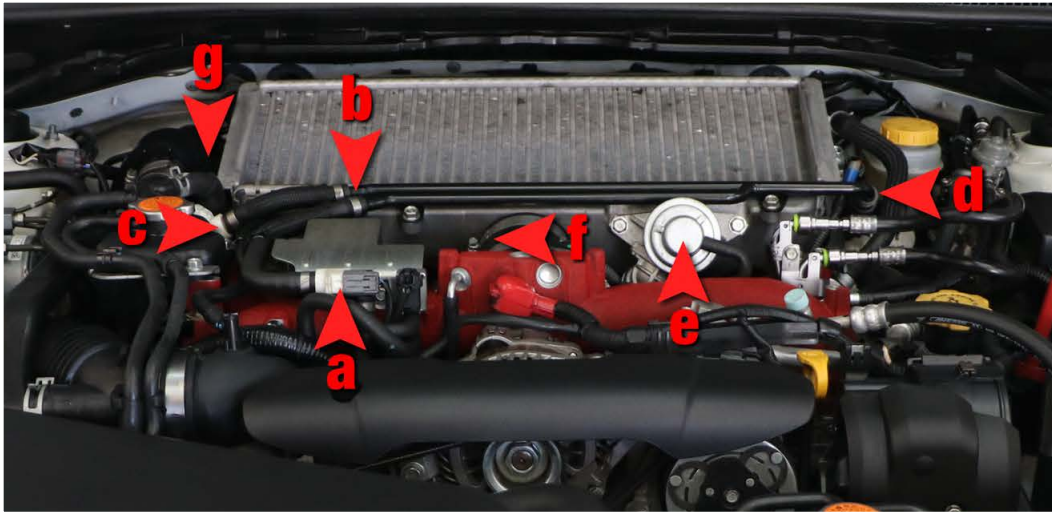


c. Hold open and move front clamp to the right with Pliers, then pull off Sound Generator.

d. Plug firewall with smaller supplied cap, and plug intake with the larger supplied cap. Use a zip tie to secure larger cap.

Do not re-use larger clamp with the larger intake plug. It will not secure the plug and it may fall out. Use supplied zip tie instead.



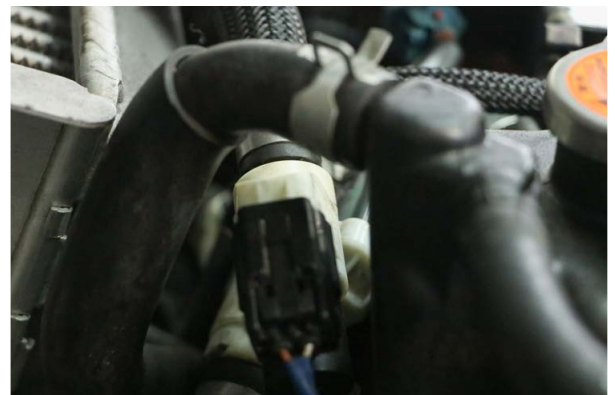


3. Remove Intercooler

a. Disconnect grey plug on the front of the intake manifold by pushing in the grey tab and pulling apart.

b. Remove lower hose from crossover pipe.

To remove, grab the hose and pull off firmly, while pushing end with fingers. The hose will not come off easily, so twist or wiggle the hose as you are pulling to release. Pull off band clamp and throw away.



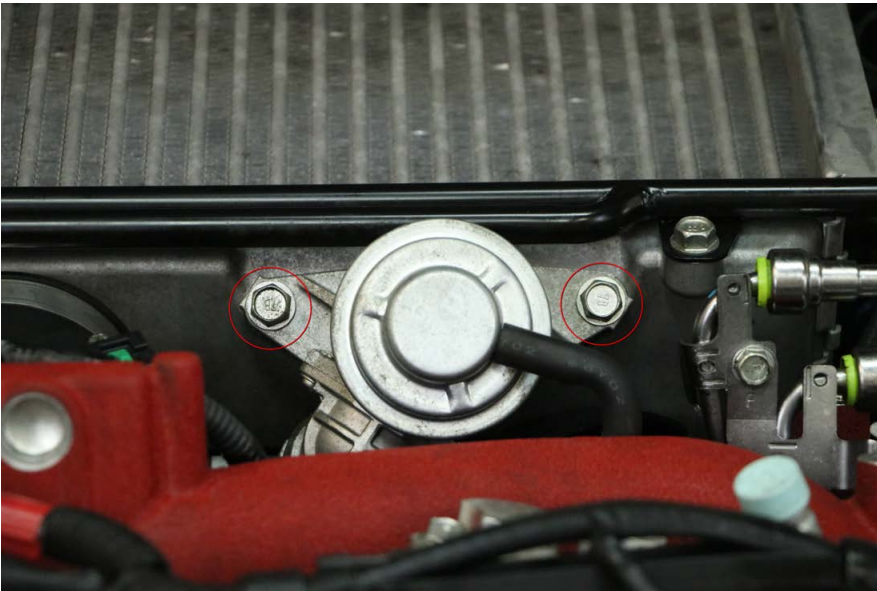
c. Disconnect the plug on the other end of the upper crossover pipe hose by pushing the tab on the black plug and pulling apart.

Remove the hose off of the crossover pipe in the same manner as the lower hose. Pull off band clamp and throw away.



d. Disconnect black plug by pushing down on the tab and pulling apart.

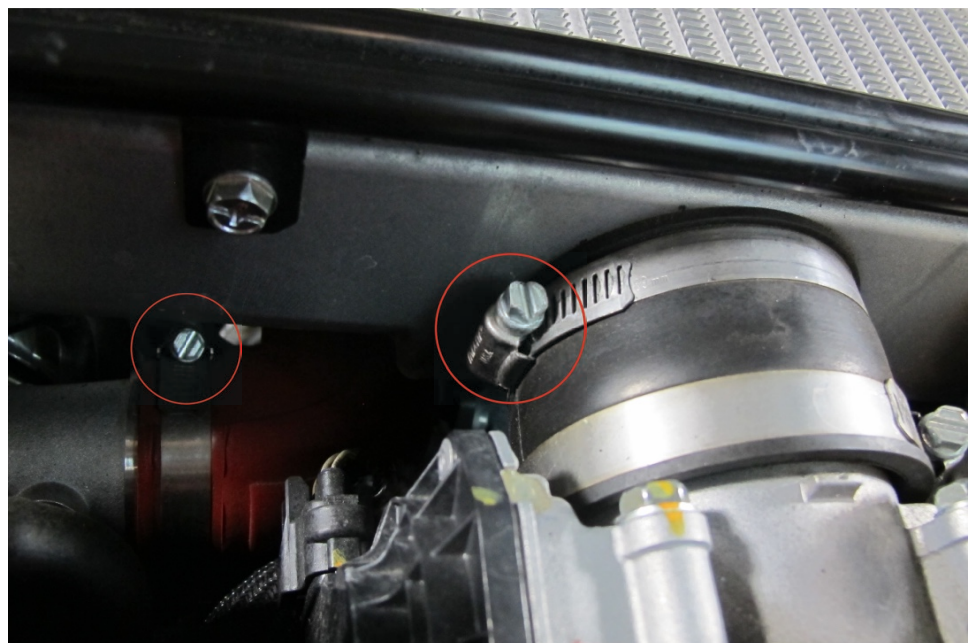
Pull off Crossover pipe hose from Drivers LH side of the intercooler. Pull off/discard the band clamp.



Use a 12mm ratchet and socket to remove all three bolts on the Intercooler Mounting Bracket.

e. Remove two 12mm bolts from the recirculation valve (BOV).

f. Using a flathead screwdriver or a 7mm socket and ratchet, loosen screws on the rear clamp on throttle body hose, and on the turbo inlet clamp underneath.



g. Remove 12mm bolt from Driver's Right Hand Side of the intercooler.



h. Grab both sides of the intercooler, and wiggle it away from you until it pops out of the throttle body hose, then to the right to pop off of the turbo inlet.



Notice all the oil in your intercooler.
Your new AOS will clear this all up!
If it doesn't, get a leak down/compression test to check for causes of excess blow-by.

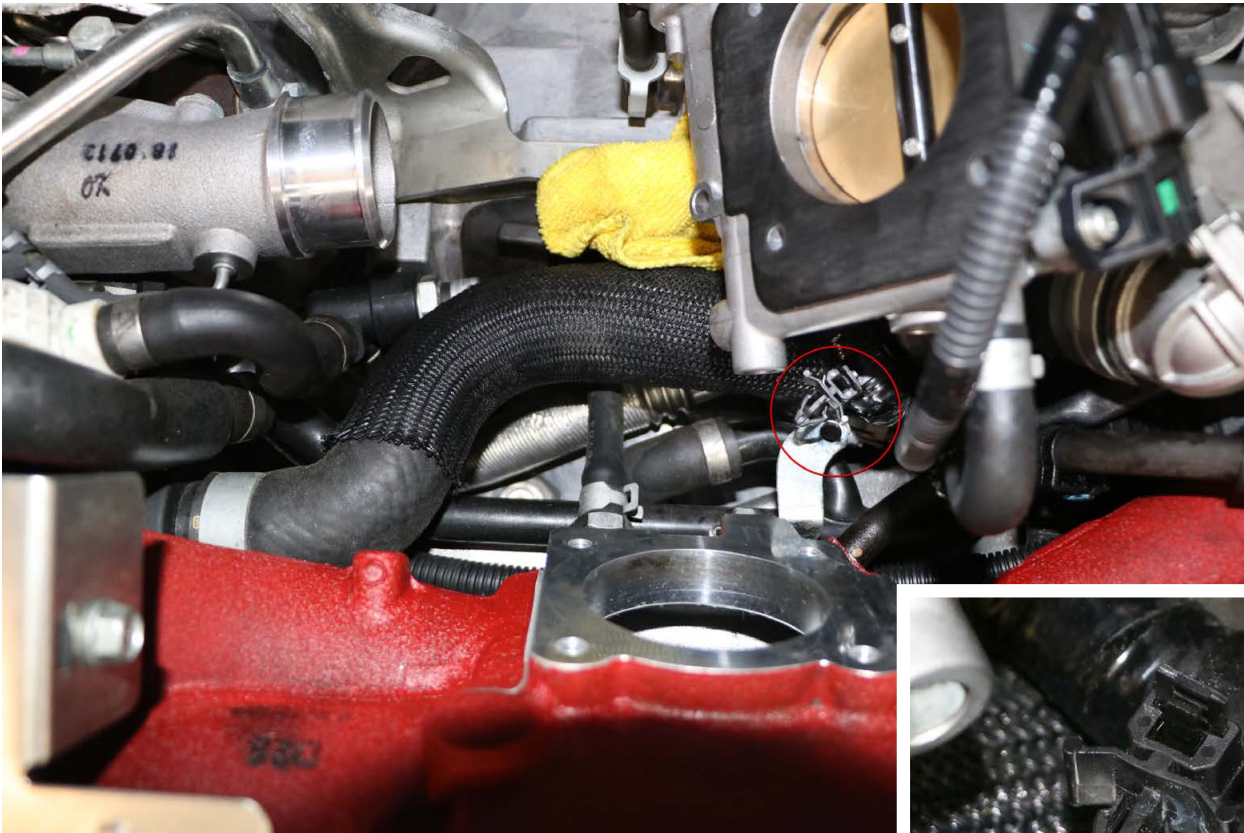
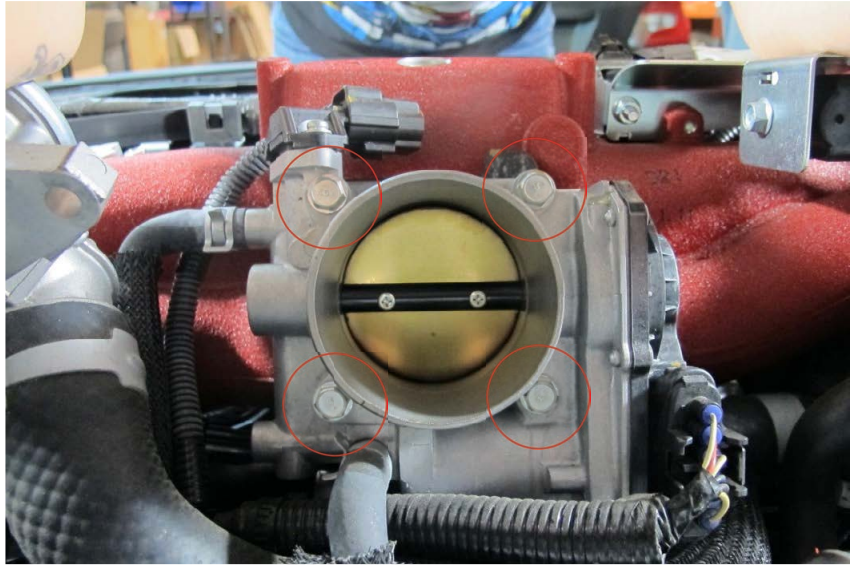
4. Remove throttle body from intake manifold.



a. Using a flathead screwdriver, loosen screw on the front clamp on throttle body hose. Pull off hose and set aside.

b. Remove four 10mm bolts from the back of the throttle body housing.

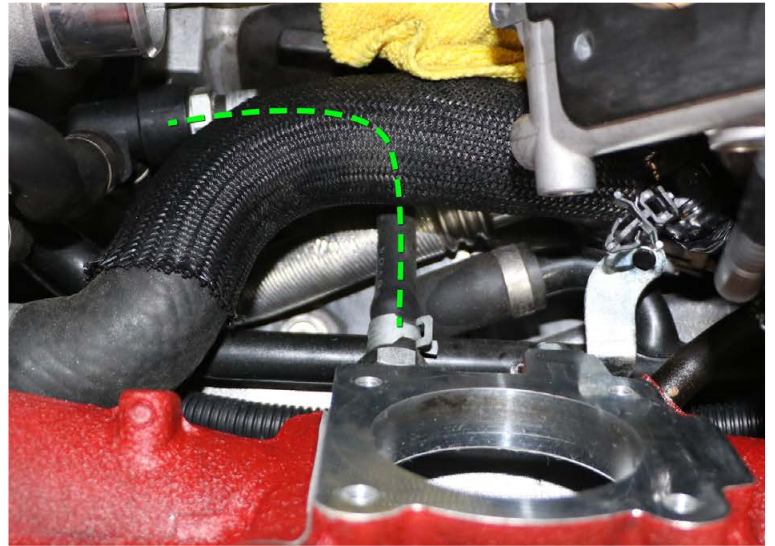
c. Move throttle body out of the way, and use a rag underneath to protect it against resting on other components and to keep it clean.



d. Unclip harness from tab using a flathead screwdriver to pinch clip while pushing up.



5. Remove PCV Hose from underneath the throttle body, marked with a green dashed line. Use pliers to squeeze open and move clamps to release.



This hose is deleted and will not be reinstalled. We recommend storing this part if you ever need to uninstall your AOS.



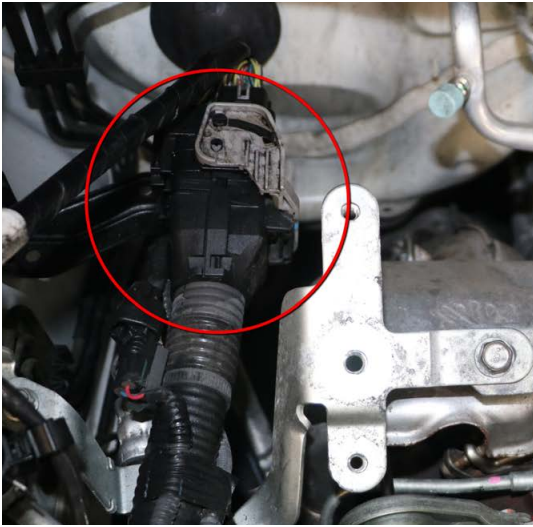
6. Disconnect two PCV Connectors circled.



Remove the white connector from the lower hose marked with the green dashed line, by pulling down on the hose and up on the connector. Be careful not to pull lower connection off the black plastic fitting. This white connector will be reinstalled in a different hose in step 20.

The upper sensor is only being disconnected for clearance. It will be reconnected the same way later in the install in step 22.





7. Disconnect Main Harness located to the left of the turbo, next to the US passenger's side strut tower. Disconnecting it will supply the slack and clearance needed for upcoming steps.

On the harness bracket, use a flathead screwdriver to push in black tab and lift to release and slide off bracket.

Press in tab on the other side by grey lock, then flip grey lock to release, and disconnect harness by pulling apart.



8. Using a 12mm socket and ratchet, remove the upper bracket bolt circled below on the left, and **loosen*** the lower circled below on the right with a wrench. This allows you to hinge the bracket out of the way in order to create clearance for the AOS mounting bolts. You can manipulate the harness by the lower bolt to get easier access to it, by pushing the harness towards the front of the car.

Upper (Above Turbo)

Lower (Underneath Coolant Reservoir)

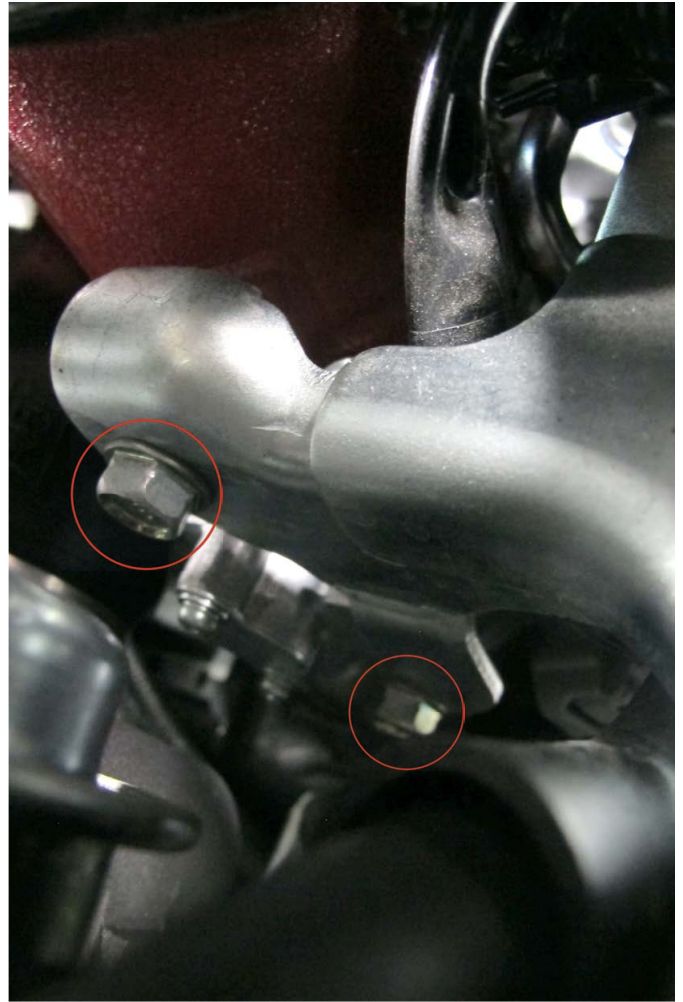


***ABSOLUTELY DO NOT REMOVE LOWER BOLT! ONLY LOOSEN!** This bolt is next to impossible to get to after the AOS is installed. Use a short wrench to access the bolt to loosen.

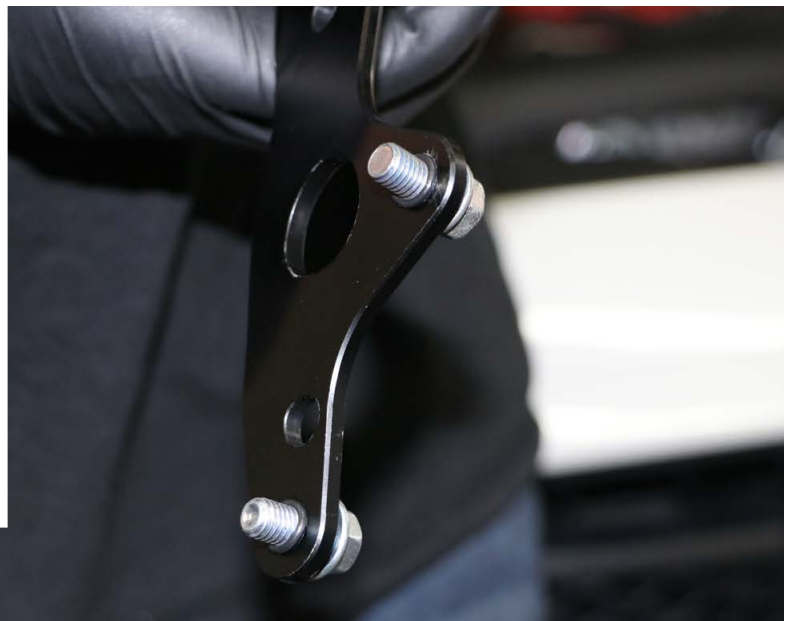
9. Remove Injector Cover bolts, located down and behind coolant reservoir, on the backside of the intake manifold.

Using a long 12mm wrench, remove the bolts. The lower bolts is easier accessed from the side of the engine from underneath vs. coming from the top. These 2 bolts will be used to mount the AOS using bolt holes A & C.

NOTE: Once the bolts are removed, the cover may shift, misaligning your bolt holes. This is where a friend can really help by pulling on the cover until the holes are lined back up in order to mount the AOS. A long-handled mirror or video scope can offer more of a clear visual. If you do not have either tool, have your friend rock the cover until the bolts slide in.



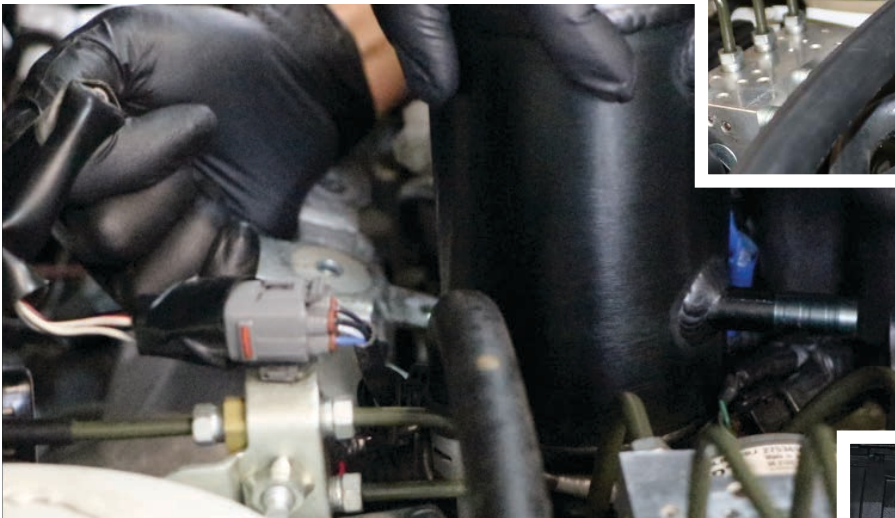
Feed both bolts into position, and use the supplied O-Rings to hold them in place while you mount your AOS.



- During the AOS mounting process, even with the O-Rings attached to hold the bolts in place, you can easily lose a bolt. We recommend removing your skid pan so that if you drop a bolt, it will fall all the way to the ground.
- Another recommendation prior to mounting the AOS is to apply painter's tape all over the canister to avoid scratching it in the mounting process. The one part that tends to always scratch not only the can but your hands is the coolant line clamp pictured below. Rotate the tabs underneath the hose to avoid this.



10. Place the AOS in its position by sliding the bracket down behind the coolant reservoir. The logo is orientated as shown in the picture to the right.



Use one hand to manipulate the IC bracket with your other hand moving the AOS until it settles into position.

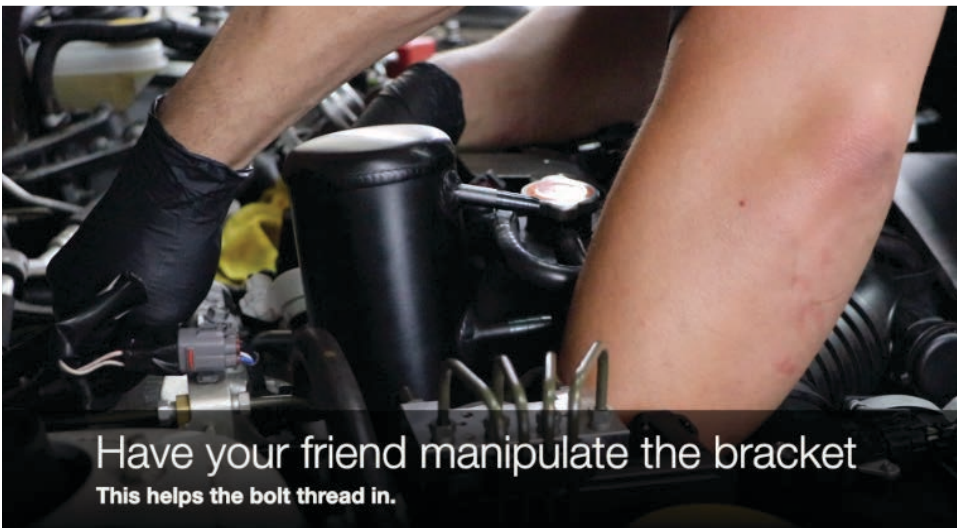
Once placed, replace upper intercooler bracket bolt and finger tighten so that the bracket stays in place.





Tighten both AOS mounting bolts all but a few threads out. A few tips for getting these bolts in:

- Work on the bottom bolt first. Feed hand in from the side for easier access.
- Use a tool to push the bolt in as you're tightening it. If you lose one, try using pliers to feed the bolt back in to place.
- As mentioned on the previous page, if the cover has shifted blocking the top bolt's way, have a friend pull back on the cover to help realign. Use a mirror or video scope for a visual if you have one. See scope view showing misalignment.



Have your friend manipulate the bracket
This helps the bolt thread in.

Once you have the bolts threaded, leave a few threads out and go back to the intercooler bracket bolt underneath the coolant reservoir you left loose and tighten. Then go back to the AOS bolts and tighten all the way. Lastly, tighten the upper intercooler bracket bolt from step 8.

11. Reattach Main Harness. Refer to step 7.



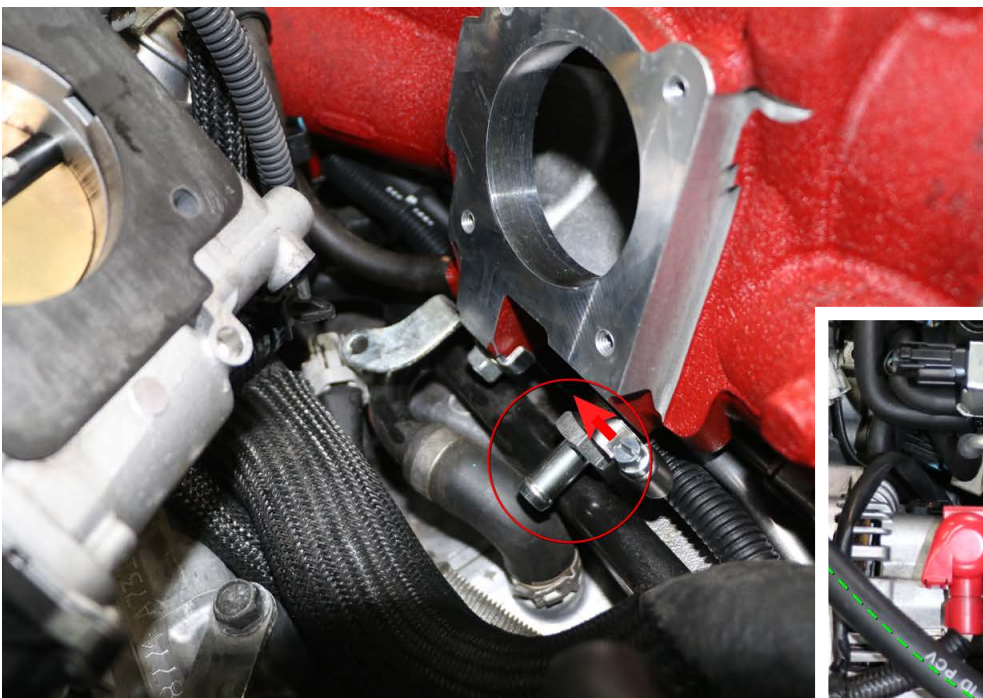
12. Attach supplied straight black fitting to supplied 5" hose. Use a supplied worm clamp to secure hose to fitting.



13. Slip over the 2nd worm clamp, then attach the other end of the straight fitting to the open PCV hose behind the throttle body from the top of the block. Slide the clamp over the fitting and tighten.

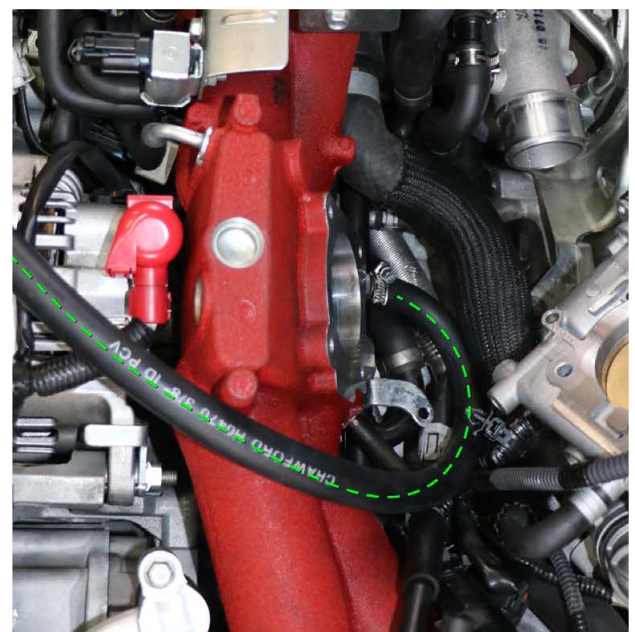


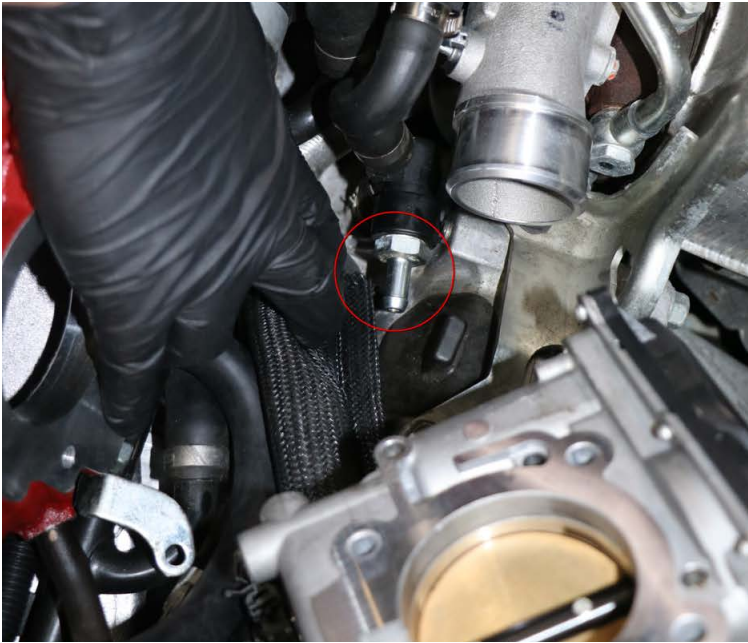
14. Slip over a supplied worm clamp, and attach the open end of the 5" hose to Port #4 on the bottom of the AOS. Make sure this line does not have any low points and **runs downhill away from the canister**, as this is an oil return line that utilizes gravity to function properly. See port diagram on Page 2.



15. Slip a supplied worm clamp on to the PCV nipple beneath the throttle body first, then push the supplied 40" 3/8 PCV Hose. Slide clamp into place over the hose and nipple and tighten.

NOTE: We have experienced alignment issues with the throttle body once reinstalled due to the orientation of this clamp. Turn the clamp so that the screw is on the US drivers side of the nipple (opposite as shown) or below the nipple. Route the hose up an over the intake manifold as shown.





16. Grab your supplied 20" Hose and a supplied worm clamp. Slip the clamp over one end of the hose, and attach it to the PCV nipple from the side of the plastic fitting on top of the block circled to the right. Place clamp and tighten.

17. Reattach black harness clip to metal bracket. Refer to step 4d.

18. Reattach Throttle Body by tightening the four 10mm bolts. Refer to step 4b. Check the state of your gasket and replace if necessary.

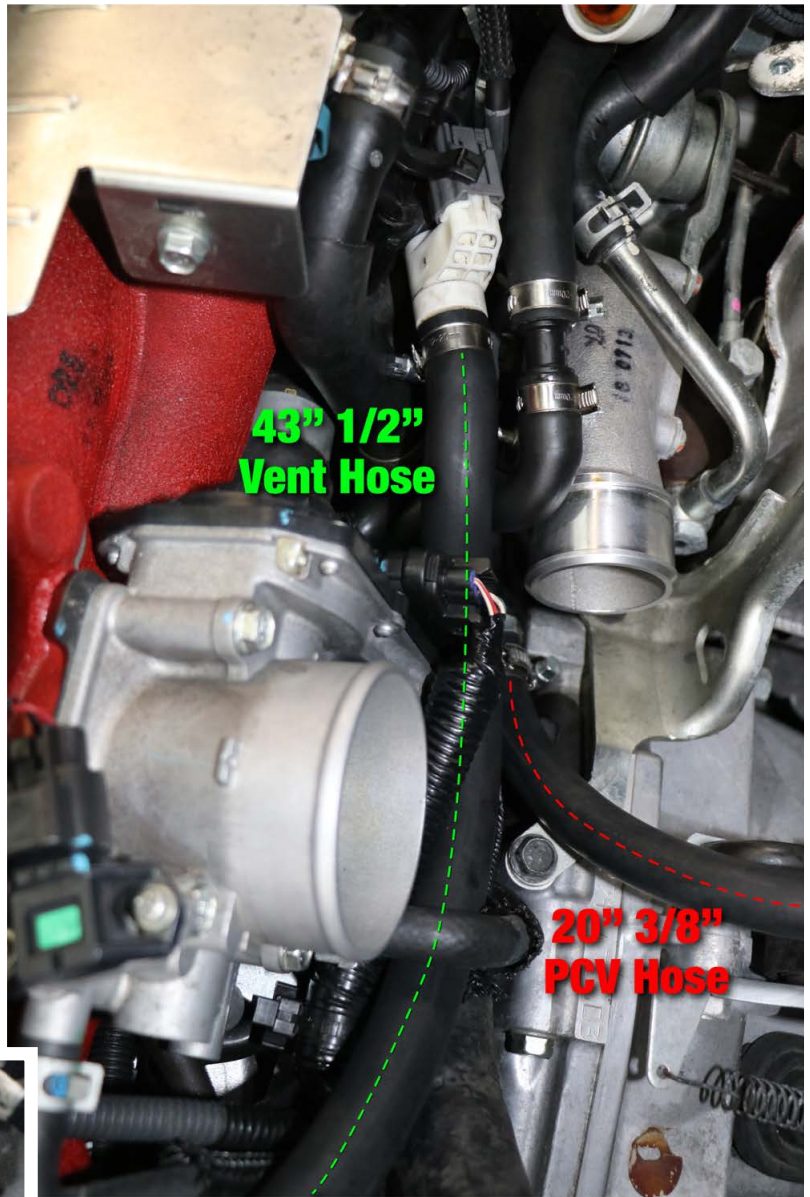
19. Route supplied 43" 1/2" vent hose underneath throttle body control plug and coolant line, then along the same path up and over the intake manifold as the 40" hose.





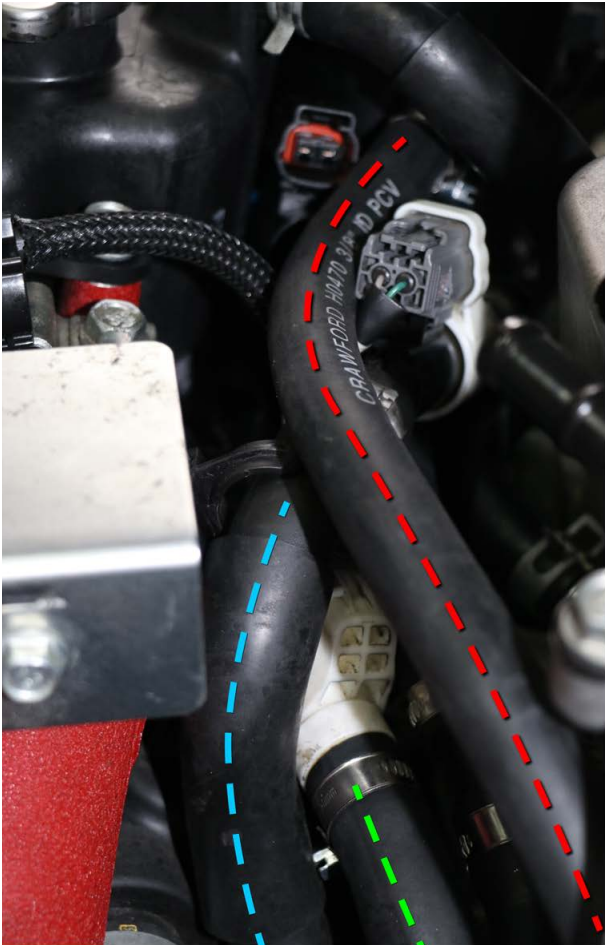
20. Grab the white PCV sensor removed in step 6, and a supplied worm clamp. Slip over the worm clamp on the end of the hose by the turbo, and push hose on to white PCV sensor. Tighten clamp with the screw head as shown, below the hose.

21. Reconnect white PCV sensor to grey plug. Make sure the screw on the clamp is not touching another hose.



22. Reconnect the other PCV Connector and replace hose in it's plastic holder clip.





23. Slip over another supplied worm clamp on the other end of the 20" hose, then attach the hose to Port #2 on the AOS. See port diagram on Page 2. Make sure this line does not have any low points and runs **downhill away from the canister**, as this is an oil return line that utilizes gravity to function properly. See hose routing below between the turbo and throttle body.



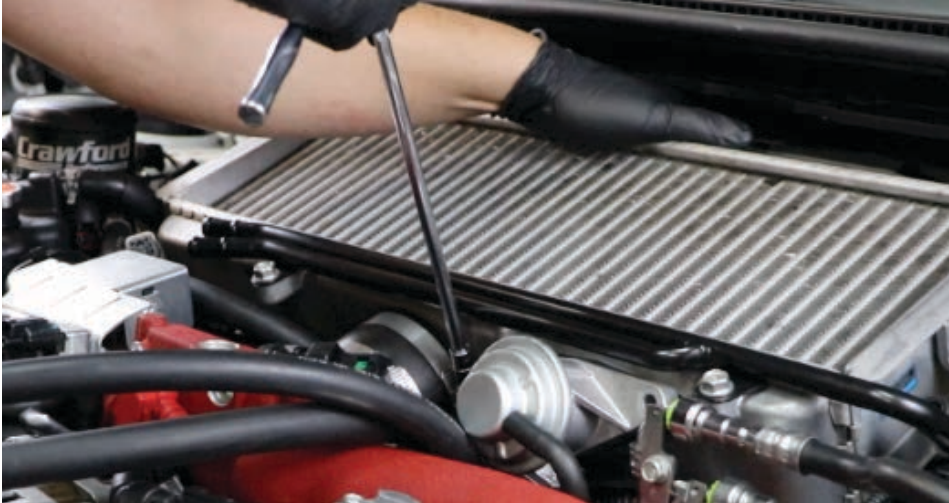
- Red Line:** 20" 3/8" PCV Hose Connected to Port #2 on the AOS
- Green Line:** 43" 1/2" Vent Hose Connected to the Grey Connector on Intake
- Blue Line:** Original Hose Reconnected to it's Original Location and Plastic Holder Clip

24. Reattach Throttle Body Hose and tighten the clamp closest to you with a fathead screwdriver or 7mm socket and ratchet.



25. Wipe the excess oil out of your intercooler before reattaching. Reattach intercooler by slipping on the turbo inlet hose first, then the throttle body hose. Tighten both clamps using a flathead screwdriver or 7mm socket and ratchet. Refer to step 3f. Use a mirror or scope to make sure the hose and clamp are in position.

Optional: rub a thin layer of lubricant on the inside lip of throttle body hose and the turbo inlet hose on the intercooler. This will help the hoses pop right on.



Pull on the back of the intercooler as shown while tightening the throttle body clamp.

26. Replace the intercooler mounting bracket bolt on the Driver's RH side of the intercooler. Finger tighten only.



27. Replace the intercooler mounting bracket on the driver's LH side, then replace and tighten the three 12mm bolts, starting with the bottom 2.

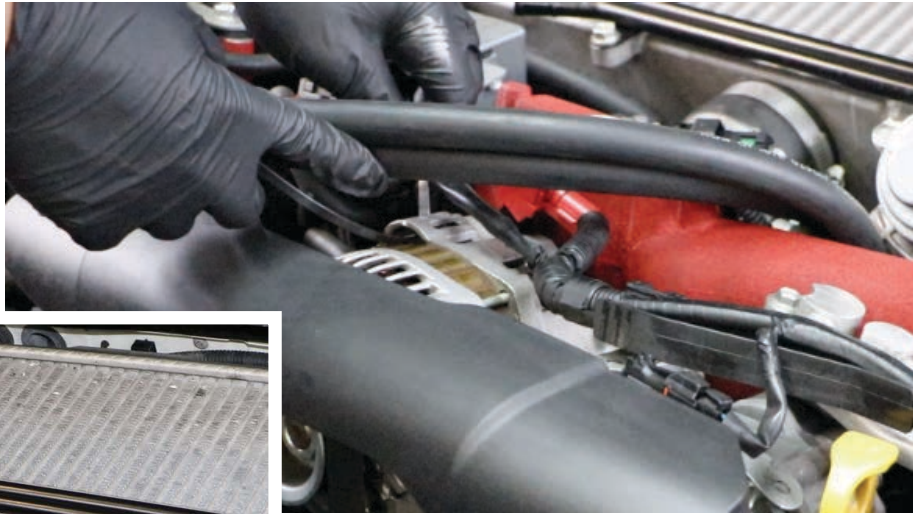
Go back to the single mounting bolt on the other side of the intercooler and tighten completely.



28. Reattach recirculation valve (BOV) by tightening the two 12mm bolts. Refer to step 3e.

29. Route 2 hoses coming over the intake manifold underneath coolant lines and attach them to their ports. One is 3/8" which connects to Port #1 on the AOS, and the other is 1/2" which connects to Port #3. Slip over a supplied worm clamp on each hose before attaching, push hoses on to ports, place clamps in position and tighten each clamp using a flathead screwdriver or 7mm socket and ratchet.

Lay hoses side by side and use a zip tie to connect the 2 hoses to the alternator to keep them in place.



30. Grab the hose and connector removed in step 3c. Pull hose off of the white connector, then attach it to the supplied 7" hose extension. Use a supplied worm clamp to secure the hose to the connector.





31. Push white connector on to plug shown to the left.

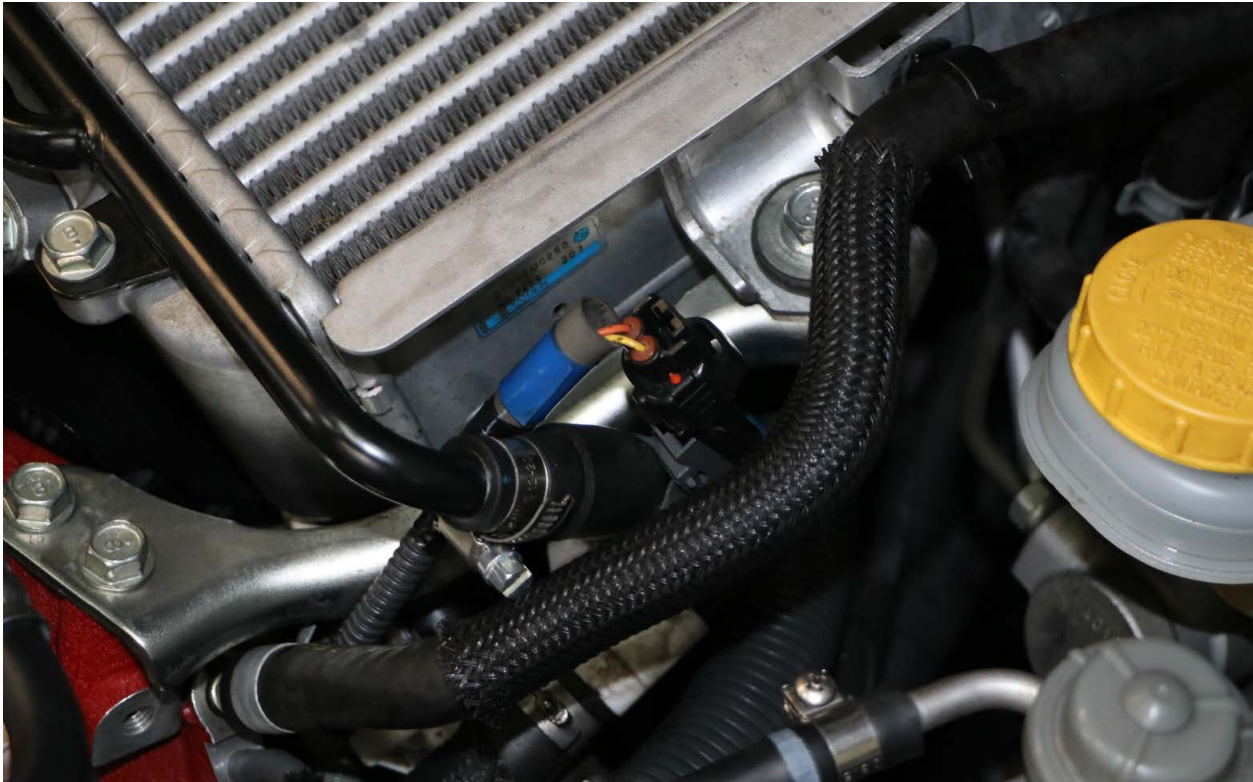
32. Slip over a supplied worm clamp over the other end of the hose, and attach the other end to the top crossover pipe on your intercooler. This hose may need trimmed to fit. Note its routing underneath the 20" hose connected to Port #2.



33. Slip over a supplied worm clamp, then replace the lower intercooler crossover pipe hose. Tighten clamp. Plug in connector.



34. Reattach the intercooler crossover pipe hose on the driver's LH side. Slip over a supplied worm clamp, push hose on to pipe, and tighten clamp. Plug back in the black connector. Replace hose back into its plastic holder clip.



35. Reconnect the ground (-) on the battery using a 10mm wrench.

36. Start your car and check for any leaks. Your car may change RPM's to adjust to the new setup, but should level out and run smoothly soon after. If you have a rough idle, it is possible you have a vacuum leak.

Possible causes are as follows:

- Clamp on hose beneath throttle body is not allowing the throttle body to seal. When the throttle body is removed, you can find wear marks on the housing for evidence. Switch orientation of the screw head or rotate away from the housing.
- Throttle body gasket is not seated properly or needs replaced.
- BOV/Recirculation Valve gasket is not seated properly or needs replaced.
- A hose connection is not tight enough or installed incorrectly.
- A hose is pinched or kinked.

It is common for the passenger side window not to roll down from the drivers door after disconnecting the battery. Go to the passenger door, roll the window half way down, then back up. Hold the up position on the button for 3 seconds once it closes, then release. This should reset the driver's door button.

Thank you for choosing Crawford Performance

Please feel free to contact us for any questions or comments! We are here to help. We understand this is a difficult install and we commend you for your efforts. Celebrate by cracking a beer and pouring one out for your chewed up arms.

Enjoy your new AOS and your healthier, more efficient engine!



Please tag us in any posts related to the part and the install [@crawfordperformance](#) for a possible feature on our page.

