

PERRIN

2022+ WRX Engine Oil Cooler

2022-12-14

PSP-OIL-115

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. 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: This product can expose you to chemicals including Lead which is known to the State of California to cause cancer birth defects or other reproductive harm. For more information, go to www.P65Warnings.ca.gov

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:

- You will need an additional quart of oil after installation is complete. Make sure and have oil ready to be added or be prepared to do a full oil change after installation. For additional oil changes, check oil level after adding factory fill level, and add more if needed.
- Each connection where the hose meets the fitting can be rotated to allow better alignment. Rotate hose on fitting by slowly twisting.

Parts Included with the PERRIN WRX Oil Cooler:

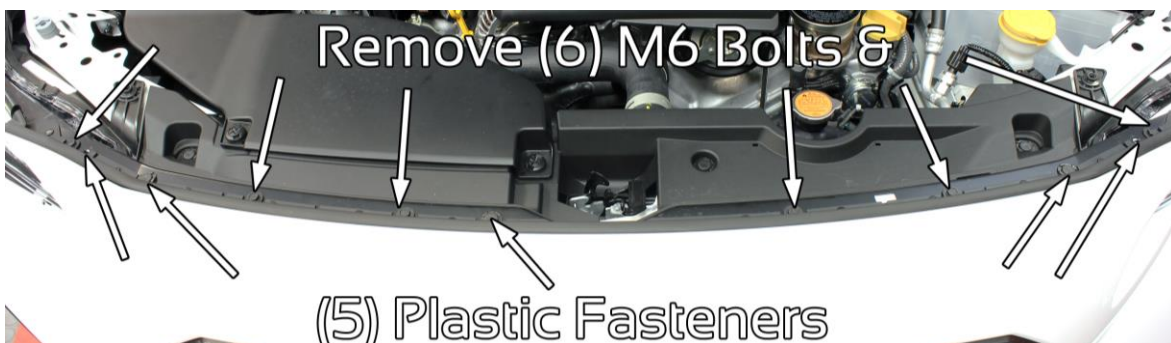
QTY	Part#	Description
1	X-PSP-OIL-013R	Bracket for Oil Cooler, Right Side for 2022+ WRX
1	X-PSP-OIL-201-2	Bracket for CVT Trans Cooler Upper/22+ WRX Oil Cooler Left
1	X-PSP-OIL-012	Male to Male Oil Filter Adapter for Subaru Engines
1	X-PSP-OIL-006	Threaded Extender Adapter (Long Length) for Mocal Sandwich Plate 20mm (Oil Feed Pipe)
2	X-BLT-M8X10CSB-SS	M8 X 10 Button Head SS Screw
2	X-BLT-M8WF-SS	M8 Flat washer Stainless Steel
2	X-BLT-M6X14CSB-SS	M6 x 14mm Button Head Socket cap screw SS
2	X-BLT-M618WF-SS	M6 x 18 Fender Washer SS
10	X-BLT-CT080B-18	Zip Tie 8" Long
1	X-CON-008	Plastic 1/2"-3/8" Reducer
2	X-CON-M22AN10-SE	M22 to -10AN Adapter Fitting Black
1	X-PSP-OIL-001BK	Oil Filter Spacer for BRZ/FRS Black Anodized
1	X-PSP-OIL-004-4	Oil Filter Sandwich Adapter Mocal 22mm w/185F T-Stat
1	X-PSP-OIL-005P	Oil Cooler Core PERRIN 8 Row x 250mm Wide w/ M22 Inlets
2	X-PSP-OIL-015	Oil Line Assembly for 2022+ WRX
1	X-TRM-002	Trim Door Edge
1	X-BLT-M60X4MM-V75	O-ring 60mm ID x 4mm Viton for PERRIN Spacer/Oil Pressure Adapter
1	X-PSP-OIL-100stencil	Stencil for all PERRIN Oil Coolers
3	S-14040	Zip Ties, Black UV Stabilized Nylon 21", 120 lb 100/pack

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.

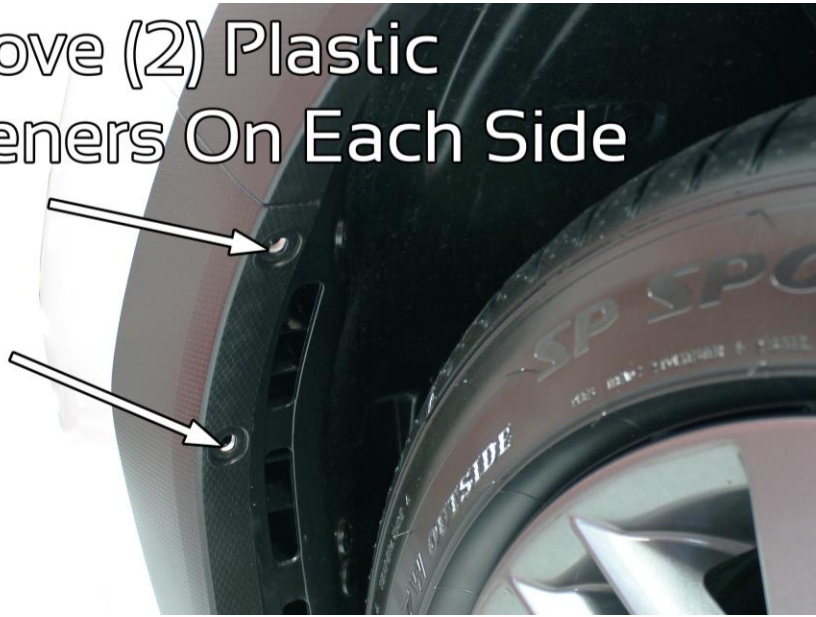
Remove Bumper and OEM Oil Cooler

- Raise front of vehicle off ground using proper jack and jack stands. Never work under a car solely supported by a jack, death or injury may occur.
- Let vehicle cool off for at least 3 hours to ensure engine oil and coolant will not burn you. This also give enough time for all the oil to drain out of the oil filter.



3. Remove front bumper skin from vehicle.
 - a. Remove (5) plastic fasteners and (6) M6 bolts securing the upper portion of the bumper to the car. on upper portion of grill. Remove black steel hood trim bracket after these are removed. See diagram above.
 - b. Locate and remove (2) plastic fittings on inside of each fender well. See diagram below.

Remove (2) Plastic Fasteners On Each Side

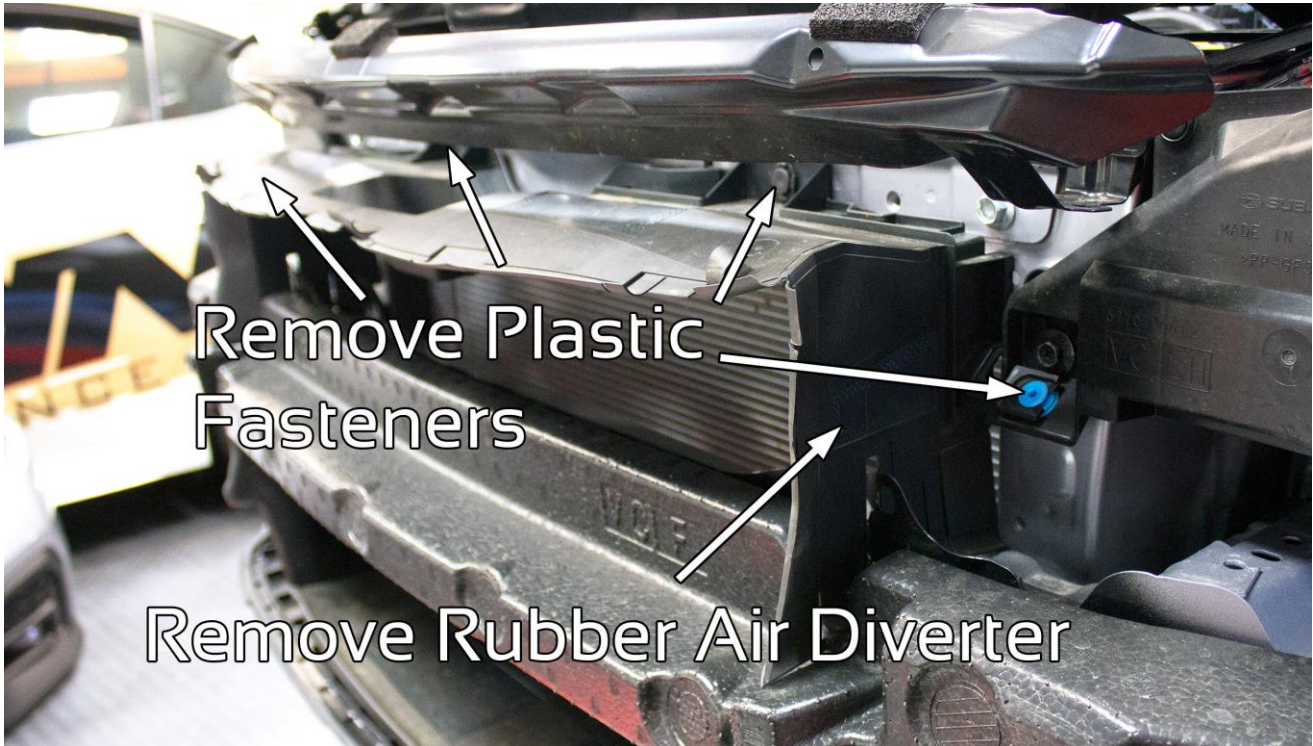


- a. Under the car, remove (8) plastic fasteners as shown above. Take note that not all of the plastic fasteners need to be removed.
- b. Starting at outer edges of bumper where it meets the steel fender, pull straight out. Do this on both sides.

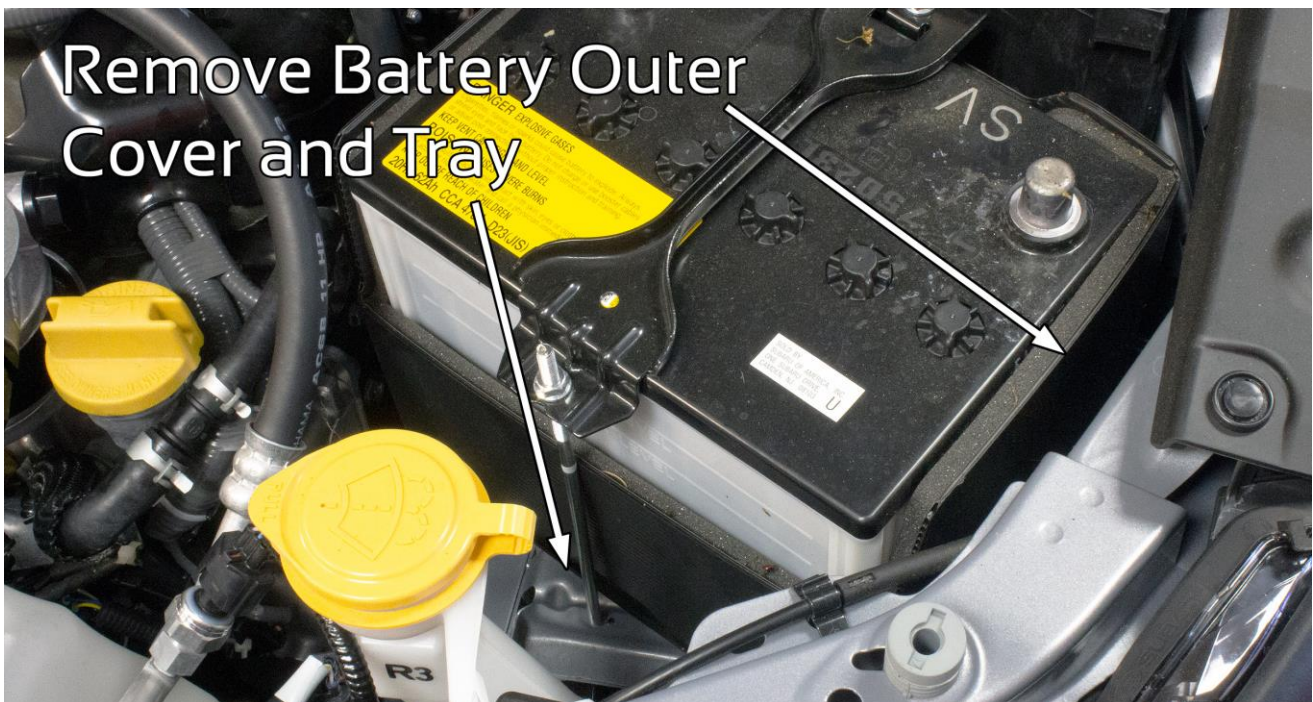
Pull Bumper Straight Out



- c. Pull bumper from around each headlight to be able to unplug each fog light/blinker. **Note: There are two plugs, one at the fog light and one more toward the chassis. Unplug only the one at the chassis as this is easier to reinstall.**
 - d. Carefully remove bumper from car and place in a safe area.
4. Locate and remove (2) plastic fasteners securing rubber air diverter to car. With fittings removed, unsnap corners from headlight brackets and removed rubber air diverter from car.



5. Disconnect battery and remove both battery tray (located under battery) and battery cover (foam and plastic part wrapped around battery). Reinstall battery and leave slightly loose at this time.



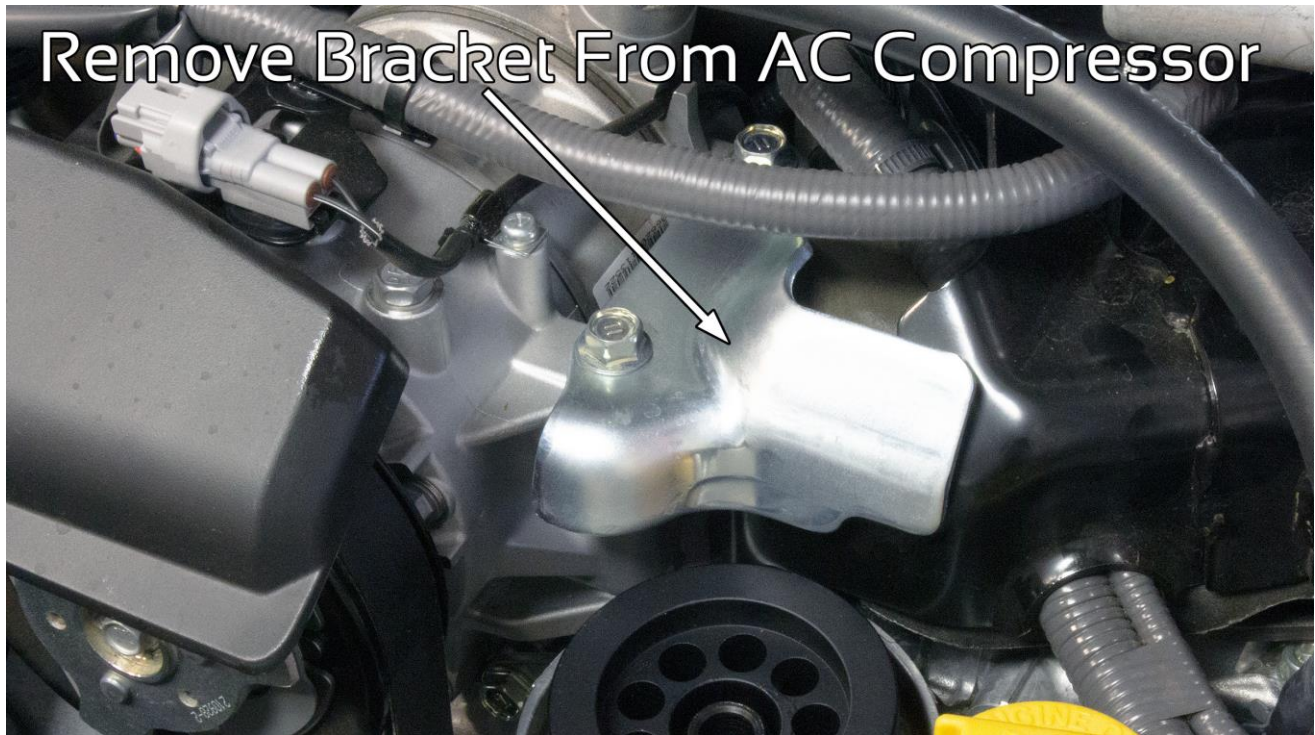
6. Remove oil filter from engine. If the car is completely cooled off, no oil will spill out. This filter may need to be reused if you are not doing a full oil change at the same time.
7. Remove large center oil feed pipe using a 24mm deep socket and wrench. This will free up OEM oil cooler and some additional oil may drain out.



8. These next few steps should be done quickly to reduce the amount of coolant lost.
 - a. Prepare to bypass OEM oil cooler and catch some amount of coolant.
 - b. Locate left coolant hose (shown above) and disconnect from OEM metal pipe going into OEM oil cooler.
 - c. Disconnect right side coolant hose at metal pipe going into OEM cooler. Remove OEM cooler from engine.
 - d. Join both hoses with supplied 1/2"-3/8" connector and secure with OEM pinch clamps.
 - e. Route hose around oil filler neck and shown in pictures below.

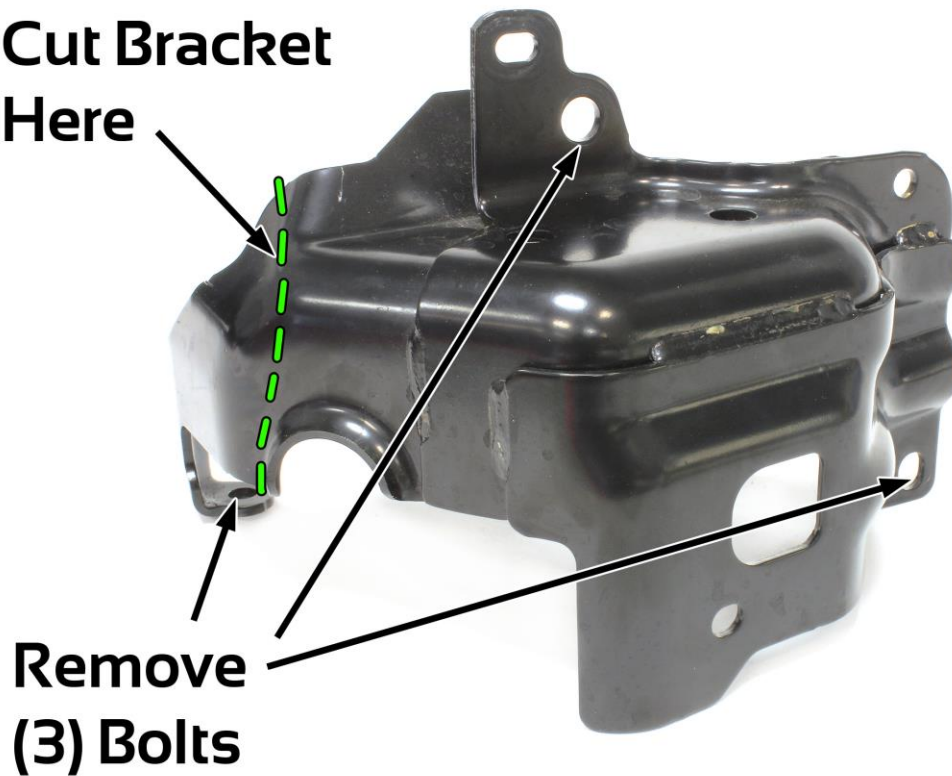


9. Remove silver bracket (as shown below) from AC compressor. Do not install bolts that were removed.



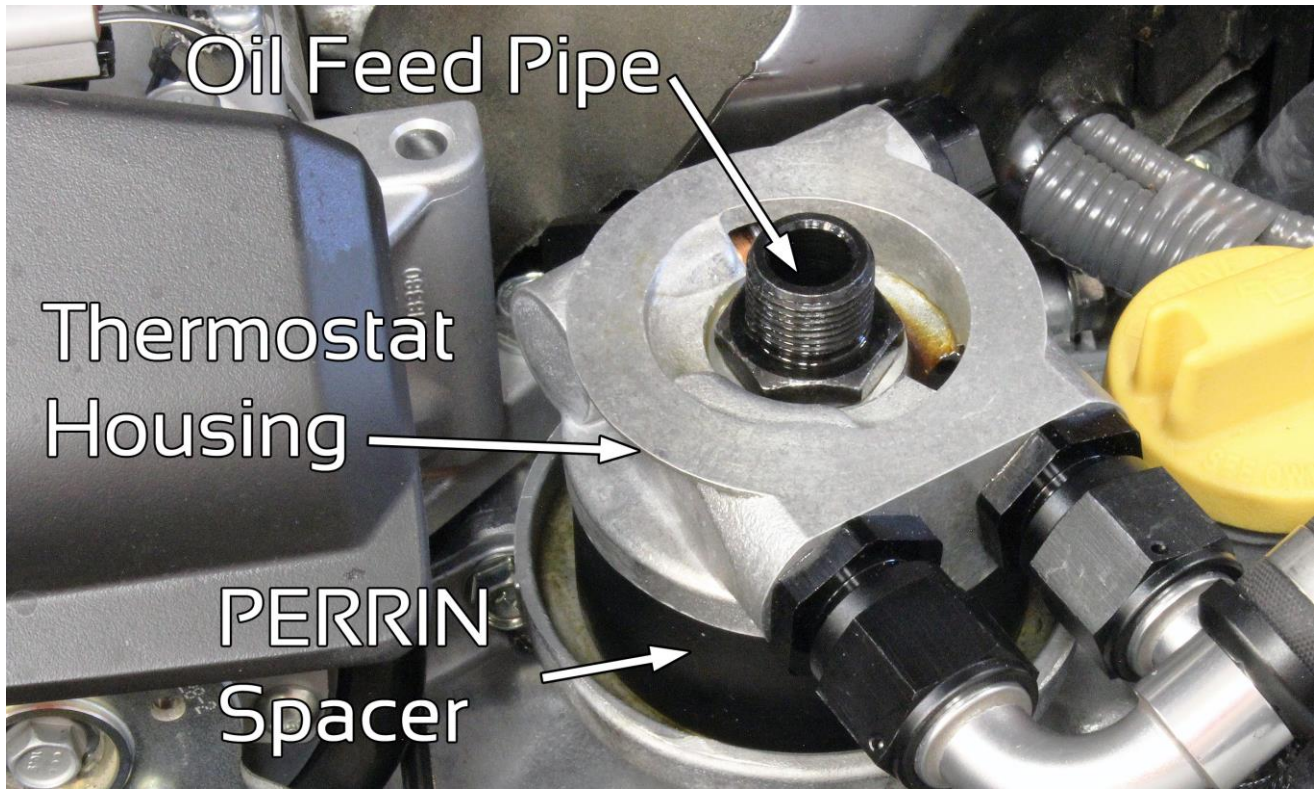
10. Located large black steel bracket just behind the silver bracket. **NOTE: Removing the oil fill cap makes taking this part off a little easier.**
- Either remove this from the engine and do not re-install, or...
 - Remove from engines, cut off bracket as shown in picture below, then reinstall back to the engine.

Cut Bracket Here

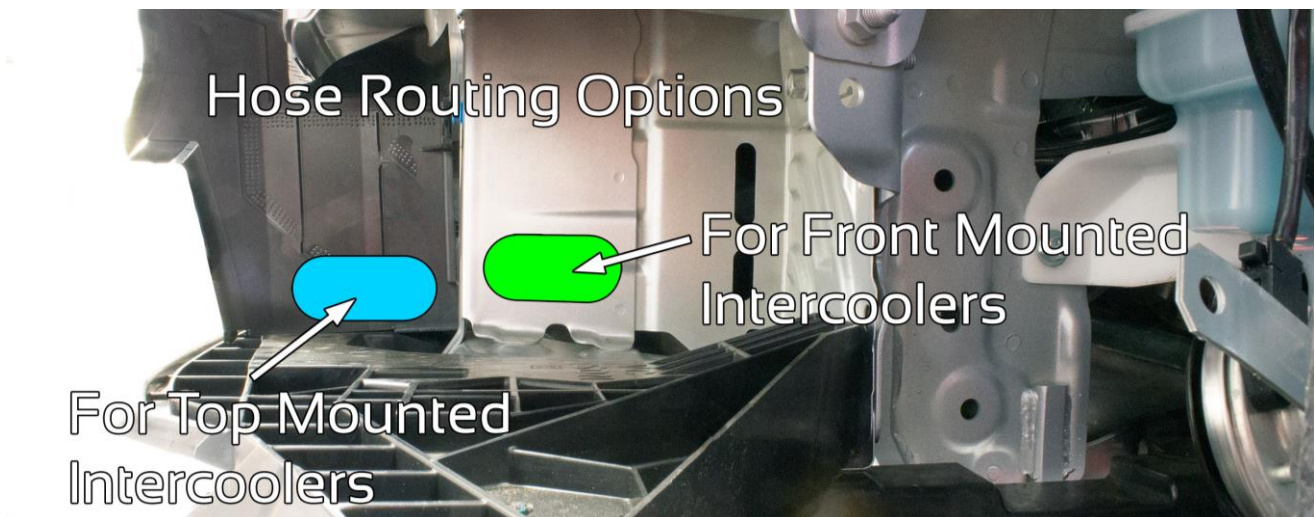


Install PERRIN Oil Cooler

1. Install supplied male to male adapter fitting into engine block (use picture from step 8 above) and tighten to 25ft-lbs.
2. Install PERRIN Oil Filter spacer as shown below, making sure to place rubber seal down toward engine block.
3. Install thermostat housing adapter on top of PERRIN Oil Filter Spacer making sure to place rubber seal down toward PERRIN Spacer and engine.



4. Install supplied oil feed pipe through thermostat housing and spacer. Snug down by hand for now, the final angle will be adjusted in later steps.
5. Using picture below, determine how you would like to route the oil cooler lines.
 - a. For cars with the OEM or aftermarket top mounted intercooler, cut a section of the radiator air diverter as shown below. While an oval is shown as the recommended shape, you can also remove the entire lower corner to allow clearance of lines.
 - b. For cars that are using (or will be using in the future) a front mounted intercooler, cut a large hole in the radiator support as shown. The shape and size of this is important to ensure the hoses pass easily through AND you can install the supplied edge trim around the hole. We recommend using a combination of air tools (small air saw, die grind tool, nibbler) and drill to complete this step. Take extra time in deburring the hole and making sure the hose fit. When hole is completed, trim raw metal edge with supplied edge trim.

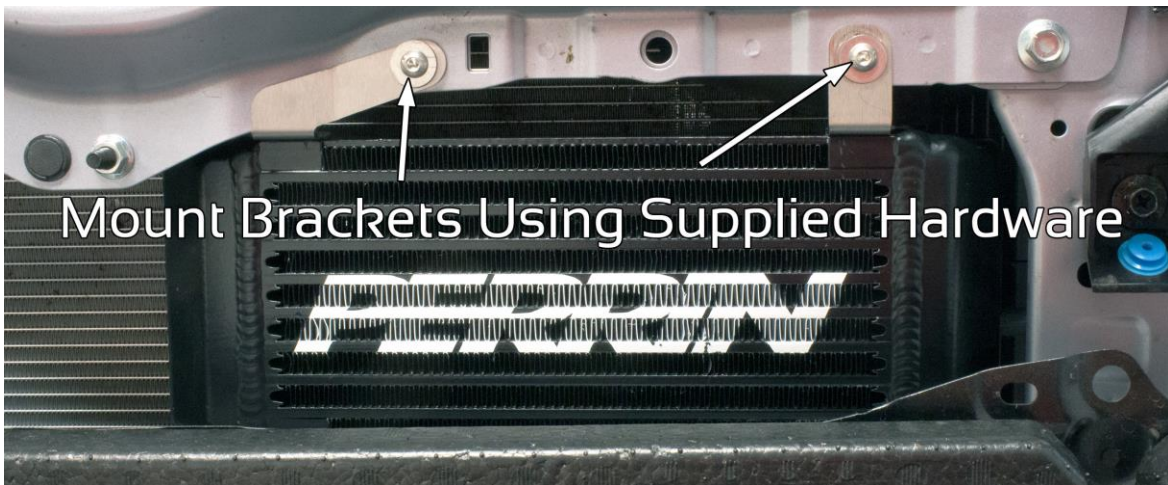


- Using supplied M8x10 bolts and M8 washer, secure supplied brackets to oil cooler as shown. Make sure taller/longer leg of 90 degree bracket is NOT mounted to the core. Lightly tighten bolts so the brackets can just barely move with force. **NOTE: Using any other size bolt will cause damage to oil cooler. Only use supplied M8x10 bolts!**

Mount Brackets As Shown



- Install both oil lines to oil cooler making sure to install the 45 degree bent ends to core. **NOTE: Both oil lines are the same, so it does not matter which hose goes where.**
- Locate upper radiator support and the (2) threaded holes where brackets will be mounted to. Drop oil cooler and hoses behind bumper beam and install oil cooler to core support using supplied M6 bolts and fender washers.



- Before tightening any of the bolts, align brackets to oil cooler and radiator support to achieve the desired position. Carefully remove oil cooler with brackets from radiator support and tighten M8 bolts to 15ft-lbs to secure brackets to oil cooler. This step may take a few times until oil cooler is in its desired position.
- Using below picture (bumper beam is removed to show hose routing), route hoses as shown.



11. Route hoses from oil cooler to engine bay. Use the below pictures to help with how to route hoses. This step will require some planning and test fitting to ensure that the routing is done properly.

- a. Below picture shows nice smooth bends coming from oil cooler to radiator support. Note: We recommend sliding the hose covering down hoses to ensure they do not rub directly onto anything. If hoses are secured using zip ties, this will reduce the chance of them rubbing through parts of the car.



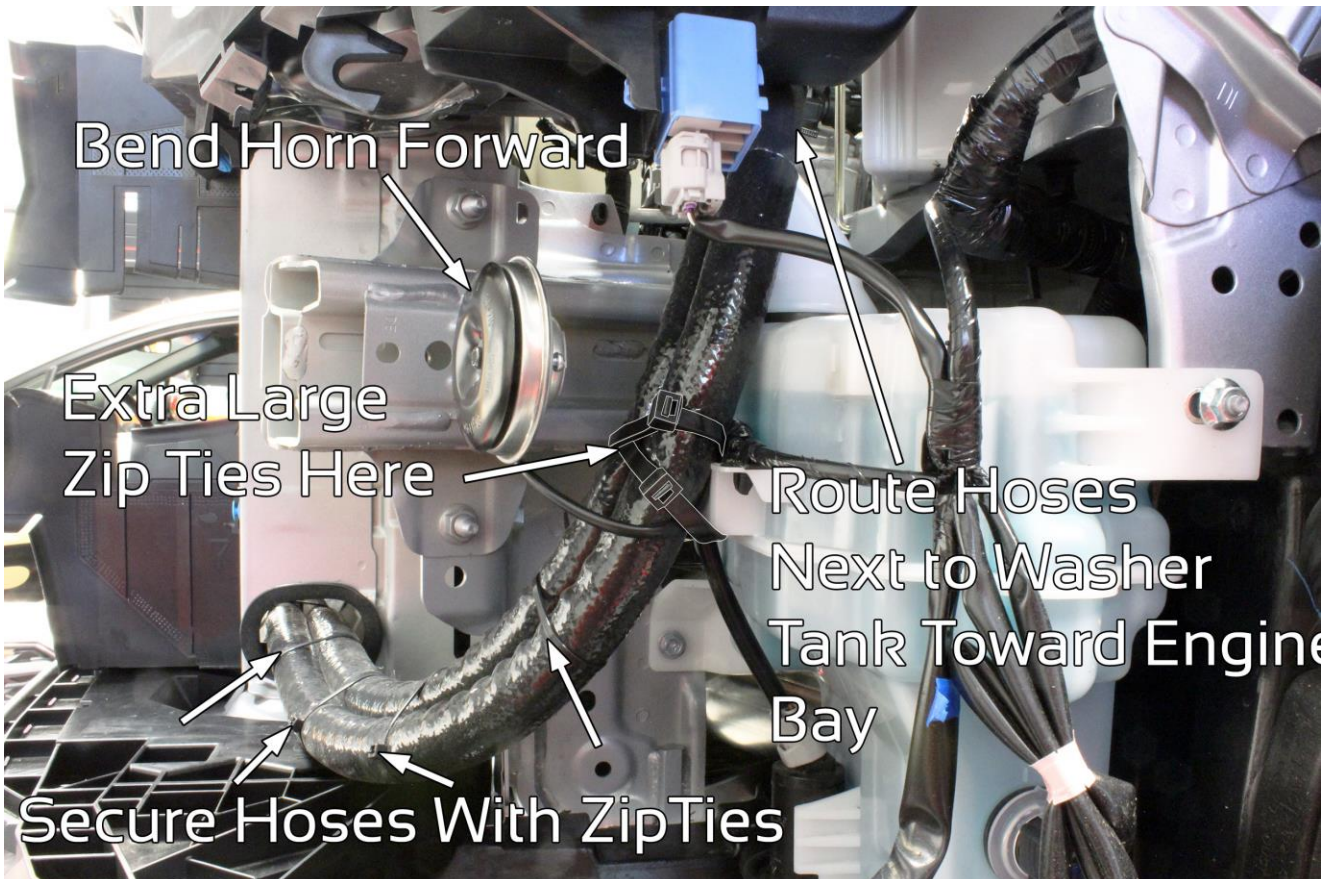
- b. If installing with front mounted intercooler, make sure that hoses are not rubbing on back of intercooler core. This may require some additional cutting of hole where hoses pass through radiator support, and/or require some additional zip-ties securing hoses together.



- c. As hoses run by windshield washer tank, bend horn and bracket toward the front of the car as shown in picture below, this is done to add clearance between hose and washer tank.
- d. Run hoses up into engine bay, making sure to go in front of AC line as shown. This AC line will need to be bent down in order to have enough clearance. Slowly push AC line down toward the frame rail until there is at least .5" of clearance between it and the oil cooler hose.



- e. Apply a small amount of oil to threads on the AN fittings, then connect hoses to AN fittings on thermostat housing.
 - i. The 90 degree ends will lay on top of each other and point slightly up when this step is complete.
 - ii. It does not matter which hose goes where, but rather that the routing is smooth and free of kinks.
 - iii. During this step, you will have to rotate the hoses on the fittings. With some decent force, this can be done slowly.
- f. Adjust battery rotation and position to gain extra clearance from oil lines, then re-tighten battery bracket to secure battery.
- g. Before tightening AN fittings to thermostat housing, re-check routing of hoses, and make any last adjustments to things including the placement of the hose covering (see picture below showing this), and the angle that the hoses are aimed coming off the thermostat housing. Once everything is aligned properly tighten AN fittings to roughly 30-40ft-lbs. **NOTE: Take extreme care lining up fitting with core to ensure cross threading does not occur. Thread slowly, take your time, and check as you tighten. Dripping a small amount of oil on area where the black fitting meets the silver tube is a good idea to aid in fitting threading into oil cooler.**



12. With hoses routed and safe from rubbing on sharp objects, secure hoses together with smaller supplied zip ties as shown.
13. Using (2) supplied extra-large zip ties, secure hoses to washer tank using a crisscross method as shown.
14. Make any adjustments to the angle of the thermostat housing to add clearance between oil lines and coolant overflow tank. When desired angle is found, using a thin wall 26mm socket, tighten center bolt to roughly 25-30ft-lbs. Using a socket to tighten it can be difficult given the clearances of the Mocal thermostat housing and the hex. Tightening with an adjustable wrench or 26mm open ended wrench as shown below is acceptable. Make to tighten enough that you cannot spin thermostat housing by hand.



15. Reinstall oil filter (not supplied) following the manufactures installation instructions.
16. Before starting/running the engine, turnkey to the on position and apply 100% throttle to your car, then try to start your car with the throttle still at 100% (or floored). Your engine will not start but turn over only. Do this for roughly 5 seconds and wait 10 seconds, then do this again for 5 seconds. Repeat this step 2 to 3 more times as this will help prime your engine with oil.
17. Start your car like normal and let it run for 5 seconds, then shut engine off. **Heavily inspect all oil lines and connections for leaks.** If no leaks are found, add your additional QT of oil at this time.
18. Start engine, let it run for at least 5 minutes, and check one more time for oil leaks.
19. Reinstall rubber upper air diverter.
20. Reinstall bumper back to car in the reverse order it was removed.
21. Take car for 5-10 minute test drive then, recheck all fittings and hardware to ensure it hasn't started leaking or come loose. **NOTE: You will notice that the throttle will feel a little sluggish after installation. This is from the battery being removed and the ECU being restarted. This is normal and to be expected.**
22. If you are unsure how tight you made the fittings on the oil cooler, double check the tightness after 2 hours of driving.

**Questions, Comments and Suggestions Contact: Tech@PERRIN.com
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