

# PERRIN

## 2015-2021 WRX Engine Oil Cooler

2022-02-17

PSP-OIL-111

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](mailto:Tech@PERRIN.com)

Instant Chat off the main page of [www.PERRIN.com](http://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](http://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:

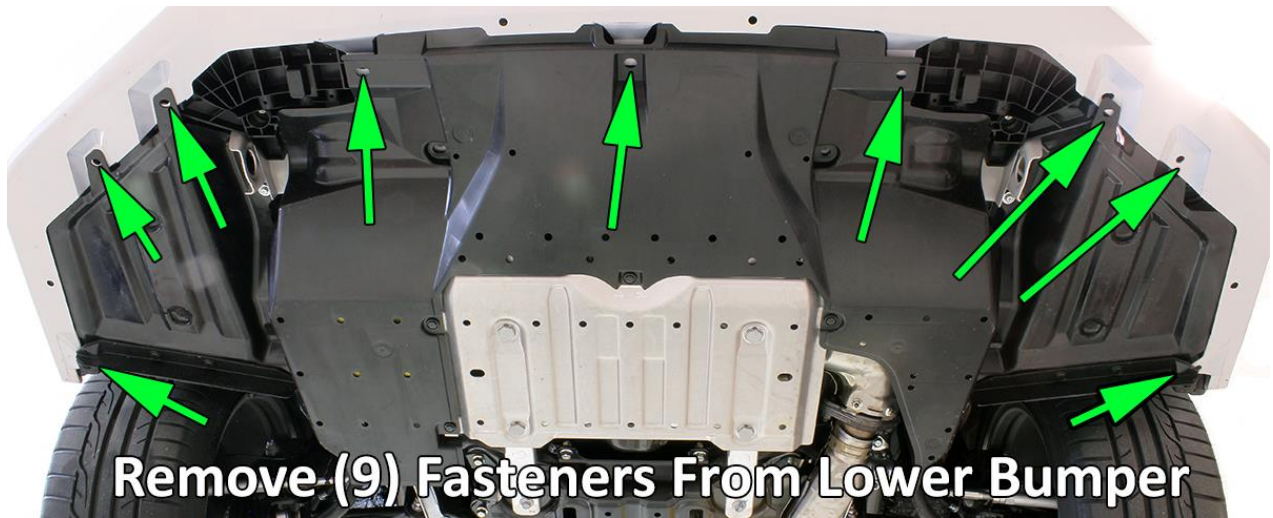
- You will need an additional quart of oil after installation is complete. Make sure and have oil ready to be added, or be prepared to do a full oil change after installation. For additional oil changes, check oil level after adding factory fill level, and add more if needed.
- Using an AN wrench to tighten fittings will greatly aid in being able to install all fittings tight and properly.
- 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-CON-008	Plastic 1/2"-3/8" Reducer
1	ASM-BDY-500	License Plate Frame PERRIN
1	X-BLT-M8NF-Z	M8 Nut
9	X-BLT-M8WF-SS	M8 Flat washer Stainless Steel
1	X-PSP-OIL-006	Threaded Extender for Sandwich Adapter 20mm (Oil Feed Pipe)
1	X-PSP-OIL-012	Male to Male Oil Filter Adapter for Subaru Engines
15	X-BLT-CT080B-18	Zip Tie 8" Long
5	X-BLT-M618WF-SS	M6 x 18 Fender Washer SS
2	X-BLT-M6X14.7NRA	M6 Rivet Nut Heavy Duty Aluminum
1	X-PSP-OIL-003-1T	Bracket for Oil Cooler, Upper SS Version 2002+ WRX/STI
1	X-PSP-OIL-003-2B	Bracket for Oil Cooler, Bottom SS Version 2015+ WRX
8	X-BLT-M8X10CSB-SS	M8 X 10 Button Head SS Screw
2	X-BLT-M6X20CH10.9-Z	M6 X 20 Hex Head Bolt 10.9
1	X-PSP-BDY-400-1ZINC	Rivet Nut Tool for M6 and M4 Zinc Plated
1	X-HOS-108	3/8" ID Heater/Coolant Hose (28409)
2	X-TRM-002	Trim Door Edge
1	SUB-15208AA130	Oil Filter for BRZ/FR-S & 15+ WRX
1	X-PSP-OIL-011L	Oil Line Assembly for 2015 WRX w/PERRIN core (Shorter)
1	X-PSP-OIL-011R	Oil Line Assembly for 2015 WRX w/PERRIN Core (Longer)
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 with T-Stat
1	X-PSP-OIL-005-1	Oil Cooler Setrab 13 Row x 235mm Wide w/M22 Inlets Black Series 6
2	X-CON-M22AN10-SE	M22 to -10AN Adapter Fitting Black
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

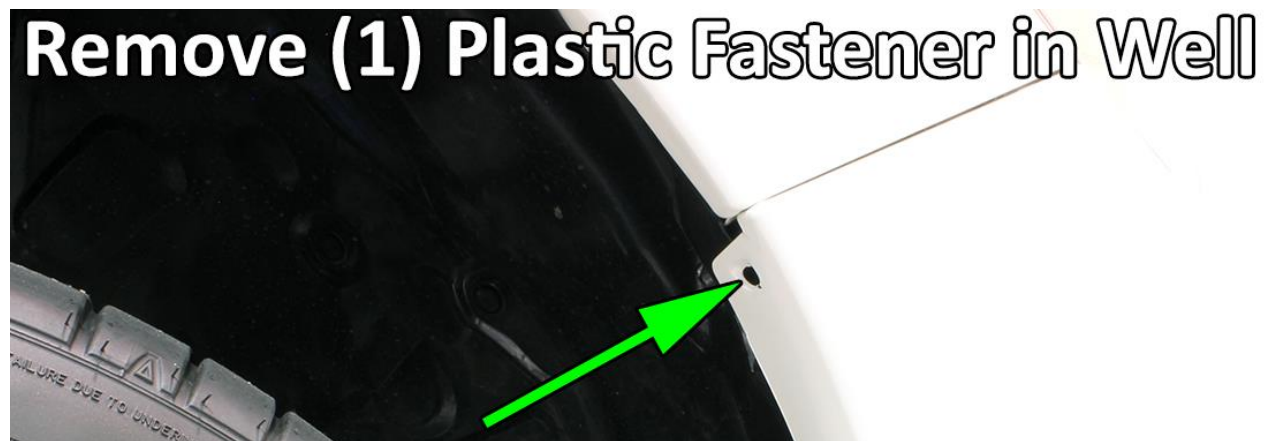
### WHICH WAY IS THE RIGHT WAY?

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.

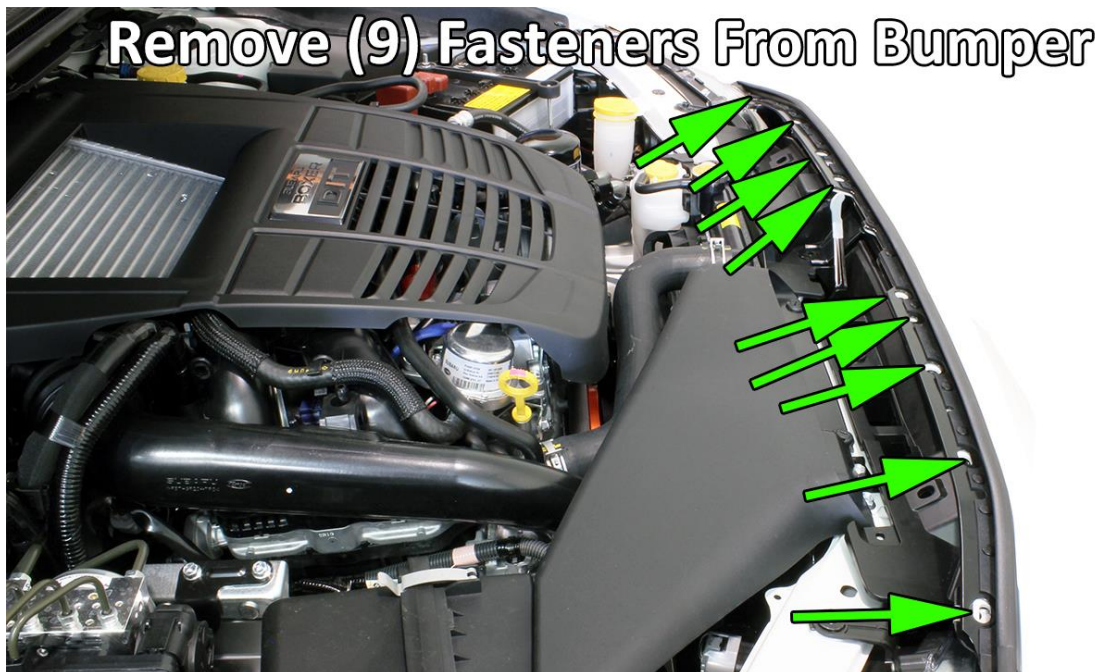


## Installation

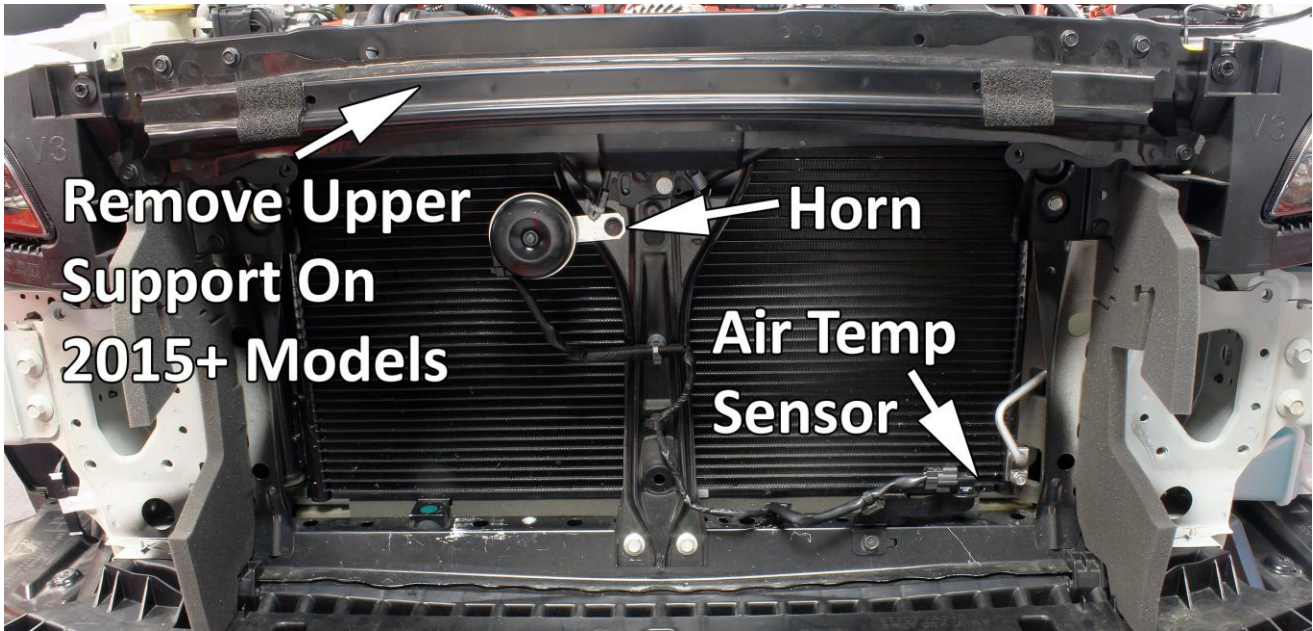
1. Raise front of vehicle off ground using proper jack and jack stands. Never work under a car solely supported by a jack, death or injury may occur.
2. Let vehicle cool off for at least 3 hours to ensure engine oil and coolant will not burn you.
3. Remove front bumper skin from vehicle.
  - a. Remove (9) plastic fittings under car. See above diagram.
  - b. Locate (1) plastic fitting on inside of each fender well. See diagram below.



- c. Remove (9) fasteners on upper portion of grill. See diagram below.



- d. Starting at outer edges of bumper where it meets the steel fender, pull straight out. Do this on both sides.
  - e. Pull bumper from around each headlight and pull bumper off just a few inches 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.**
  - f. Carefully remove bumper from car and place in a safe area.
4. Locate (6) plastic fasteners and (8) M6 bolts, then remove upper black steel support and plastic radiator diverter from car. See picture below for more details.



5. Remove oil filter from engine. If the car is completely cooled off, very little oil will drip out.
6. 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.



7. 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. You will reuse three OEM pinch clamps.
  - b. Locate left coolant hose (shown above) and disconnect from OEM metal pipe going into engine, NOT the OEM oil cooler.
  - c. Disconnect right side coolant hose at metal pipe going into OEM cooler. Remove OEM cooler from engine.
  - d. Install supplied 1/2"-3/8" connector into OEM rubber hose (right hose).
  - e. Install supplied 3/8" Heater Hose to left over metal fitting on engine block. Secure with OEM pinch clamps.

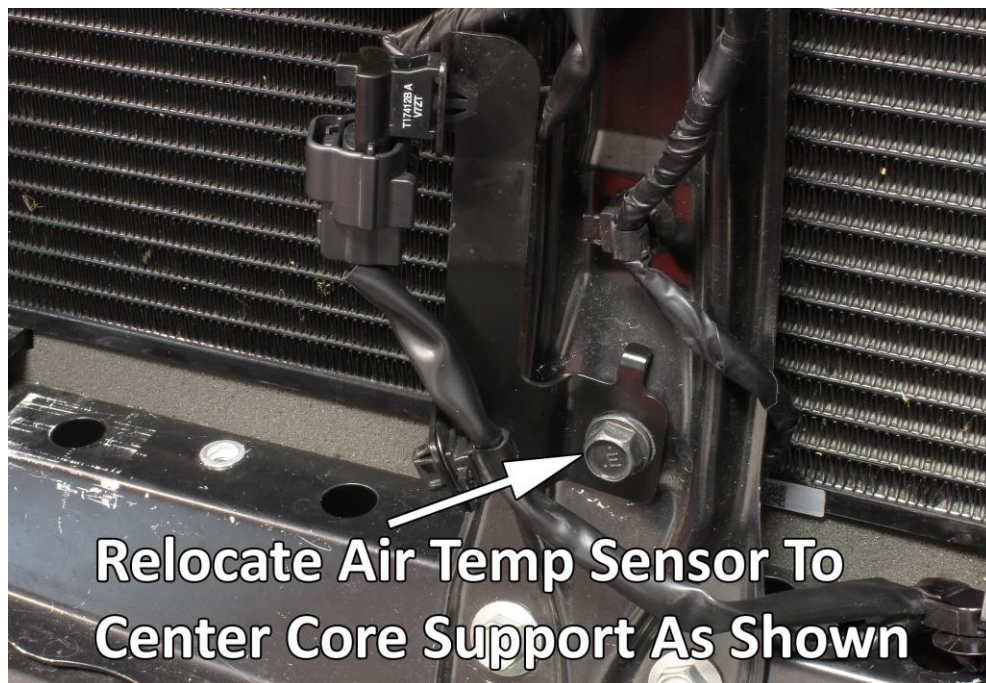
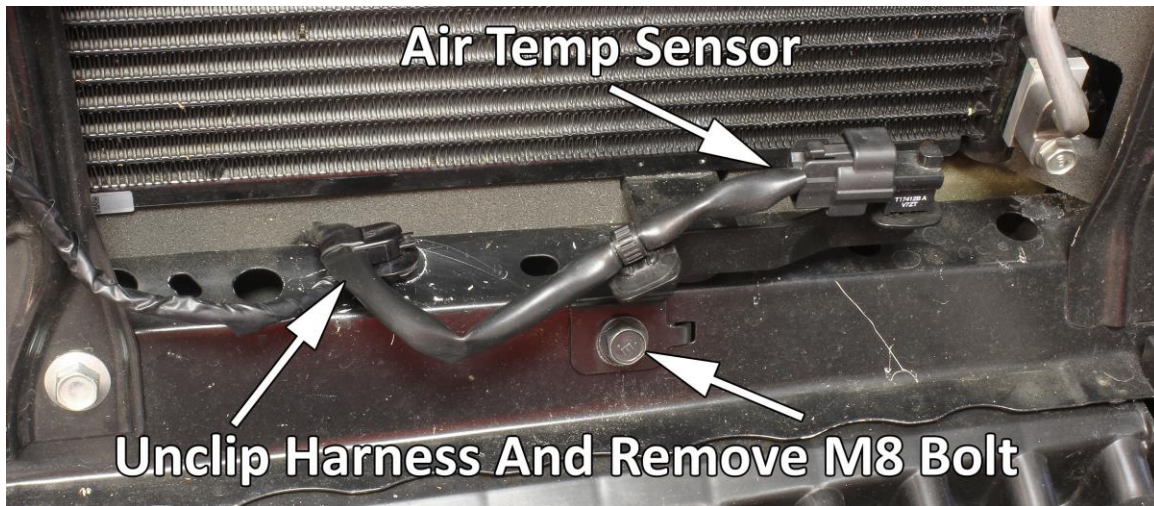
- f. Trim 3/8" Coolant hose to length and connect to plastic 1/2-3/8 connector. **Note:** Trim hose short enough that it keeps rubber hose (Right side) from rubbing into belt, but also long enough that it will not pinch the hose.
- g. Slide Clamps back over hoses behind the barbs to ensure they will not slide off.



8. Install supplied male to male adapter fitting into engine block as shown above. Tighten to 25ft-lbs.
9. Install PERRIN Oil Filter spacer as shown making sure to place rubber seal down toward engine block.
10. Install thermostat housing adapter on top of PERRIN Oil Filter Spacer making sure to place rubber seal down toward PERRIN Spacer and engine.
11. Install supplied oil feed pipe through thermostat housing and spacer. Snug down with 26mm thin-walled socket temporarily. **NOTE:** Align so threaded oil fittings point in the direction shown in pictures above and below. This may need one final adjustment later.

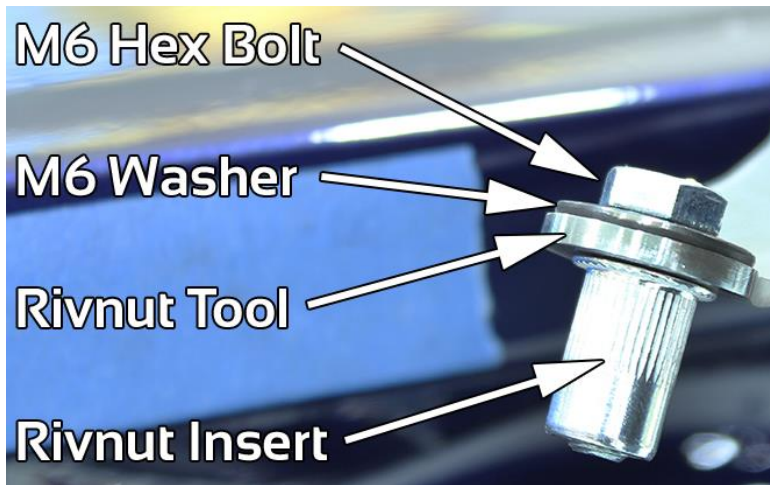


12. Locate and remove outside air temp sensor from lower core support. Unclip harness from core support and relocate sensor to center core support as shown. Secure with previously removed M8 bolt and supplied M8 washer and M8 nut.

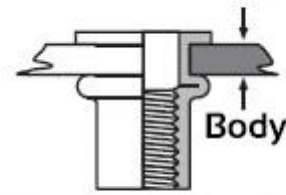


13. Locate lower core support and small hole on left side where wire harness clip was clipped into. Enlarge hole using a 25/64 drill bit. Take care not to damage the AC condenser while drilling out. **NOTE: A stepped drill bit with a 13/32 size is another option to enlarge the hole with. These are more common and can be found at most hardware stores.**



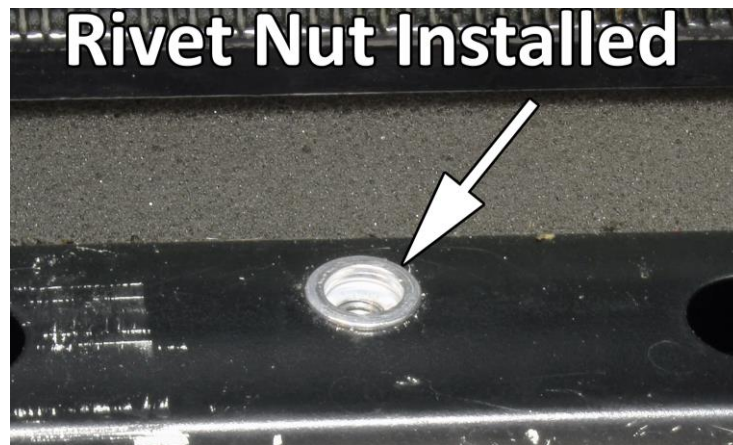


Rivet Nut Shown Compressed

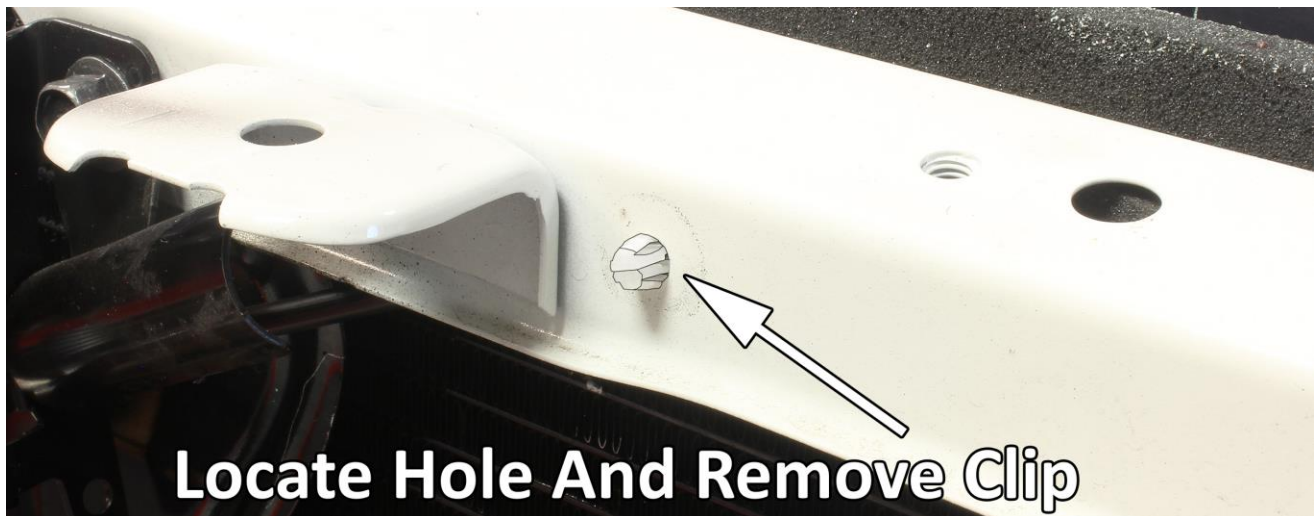


Visual Representation Of When Tool Stops During Installation

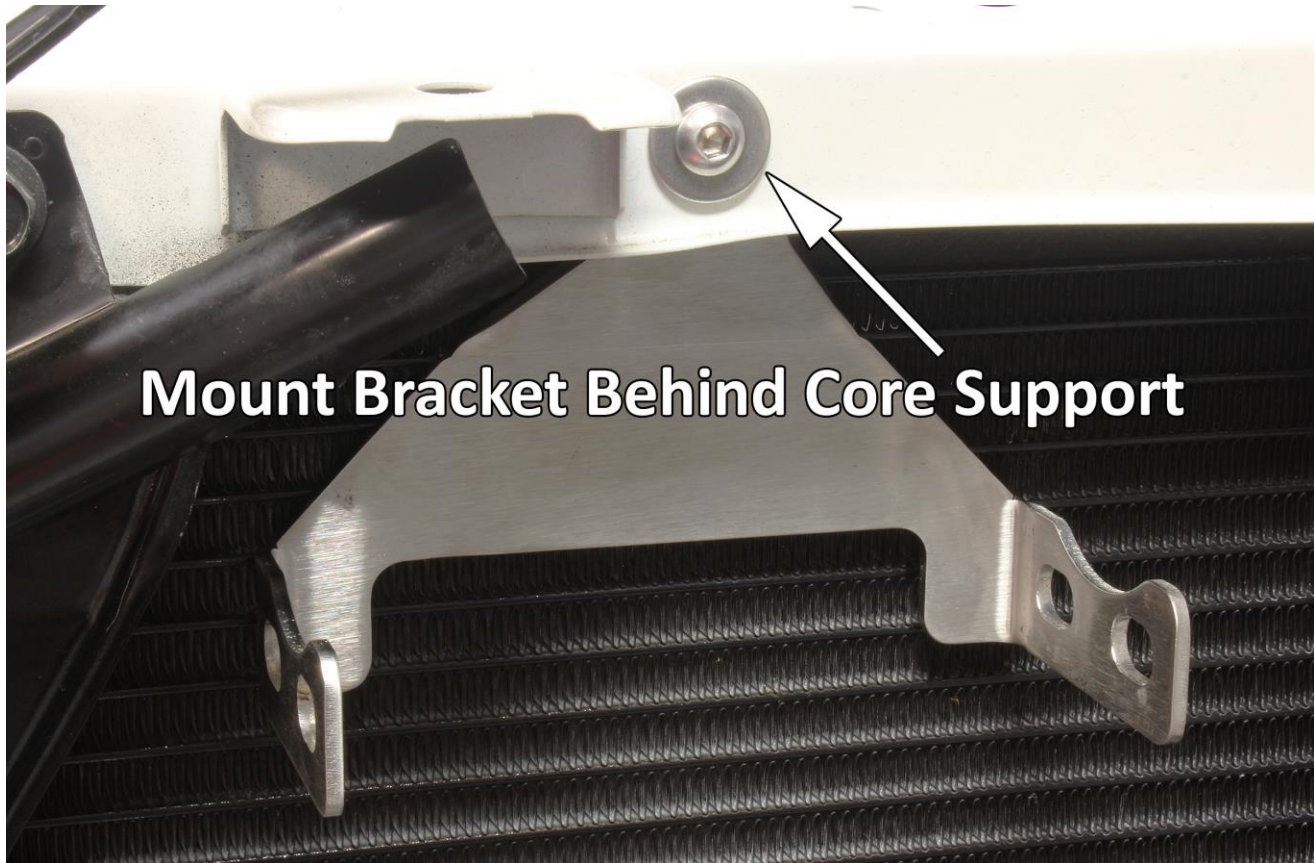
14. Using rivet nut tool, rivet nut, supplied M6 bolt and M6 washers install rivet nut into hole.
  - a. While holding tool and rivet nut tightly against core support, slowly tighten M6 bolt. **NOTE: You will feel some force on the wrench for the first couple of turns, then it will get much easier.**
  - b. Continue to tighten M6 bolt (while holding the tool steady) until the turning force becomes much harder, and/or stops. **NOTE: During this stage, the rivet nut is compressing and biting into the core support from the inside.**
  - c. Once the bolt/rivet nut have hit this stopping point, remove screw, washer, and tool and check that flange of rivet nut is sitting flush as shown below.



15. Locate small hole on left side of upper core support and remove plastic clip from it. The cable that was attached to it can simply rest behind core support.



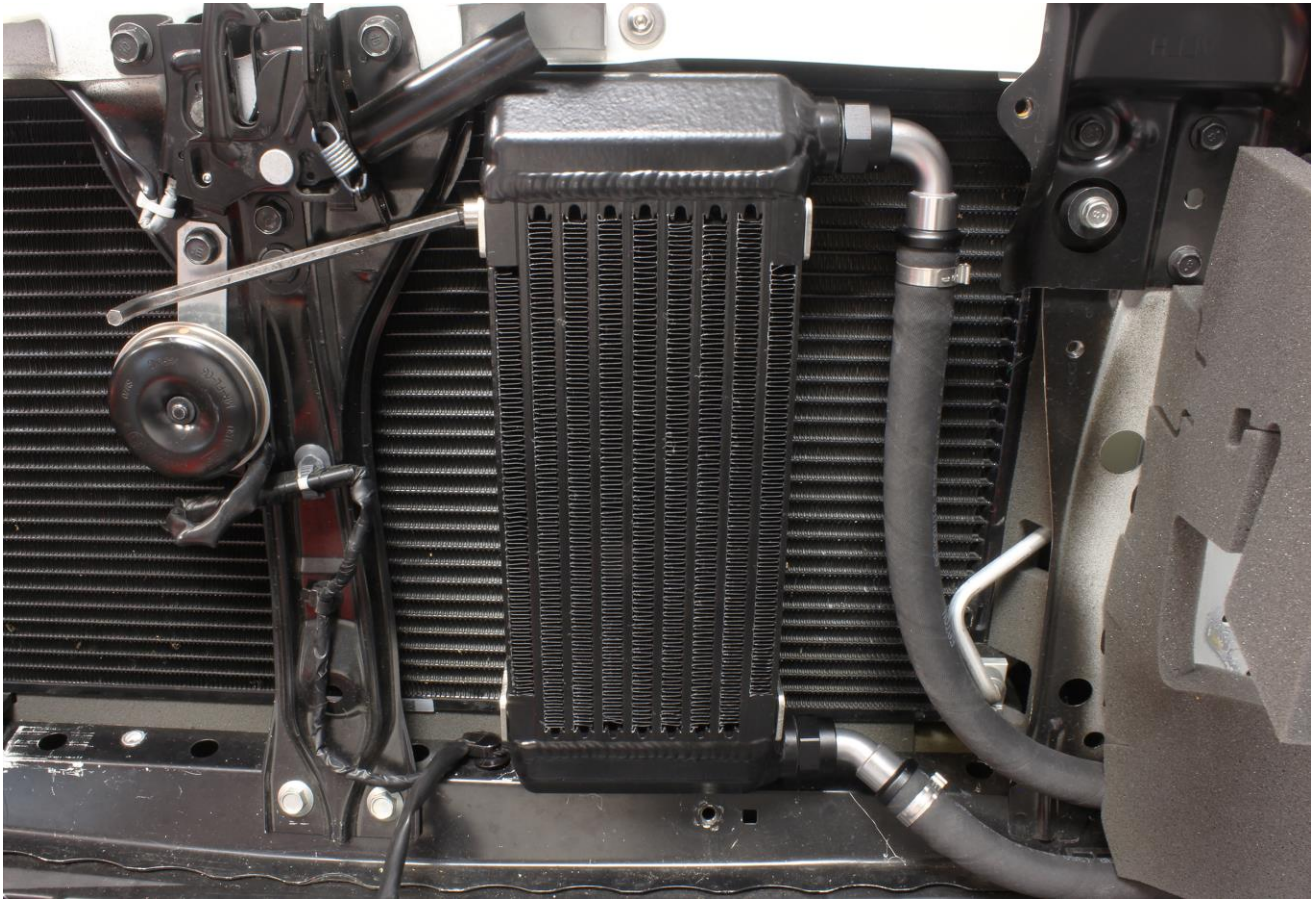
16. Install upper bracket behind core support as shown above and secure with supplied M6x25 screw, fender washers and nut. Leave bracket finger tight for now. **NOTE: This bracket is slotted and may need adjustment in the upcoming steps.**



17. Install lower mounting bracket to M6 rivet nut and secure with supplied M6x25 screw and fender washer. Leave bracket finger tight for now.  
**NOTE: That this bracket is slotted and may need adjustment in the upcoming steps.**



18. Set oil cooler into brackets to check for vertical alignment and all side mounting holes line up to the slots in the bracket. Make any adjustments to the brackets and carefully remove oil cooler from the chassis. **NOTE: The lower portion of the core may touch slightly on one of the brackets depending on how it is adjusted. This is normal and will not cause any issues.**
19. Tighten M6 bolts securing brackets to chassis to 10-12ft-lbs or torque.



20. Locate oil cooler hose with 90-degree bend on one end(x-psp-oil-011R). Thread this into upper fitting on oil cooler. Apply a small amount of oil to threads and o-ring and tighten 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.**
21. Locate oil cooler hose with 45-degree bend on one end (x-psp-oil-011L). Thread this into lower fitting on oil cooler. Apply a small amount of oil to threads and o-ring and tighten 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.**

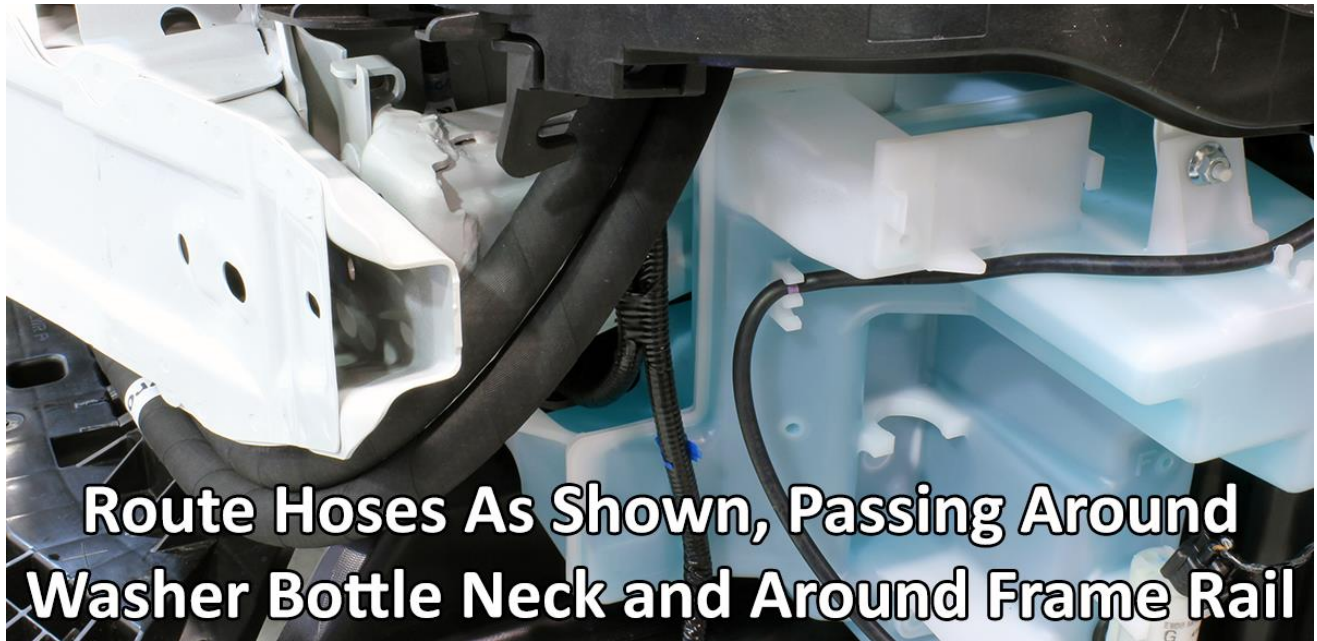




22. Slide oil cooler with oil lines attached back into the brackets and secure with supplied M8x10 bolts and washers. Tighten all bolts to roughly 15ft-lbs. **NOTE: It is extremely important to use the proper hardware and washers to ensure core is not damaged from bolts being too long. If improper hardware is used, this will void the warranty on your core. Second note, as shown above, the rear most upper bolt is best tightened with a ball type hex wrench.**
23. Locate small bolt protruding up through nut welded on to chassis. Remove bolt and install supplied shorter M6x20 hex bolt and fender washer. **Note: This is done to remove a potential object that could wear through the high pressure lines over time.**



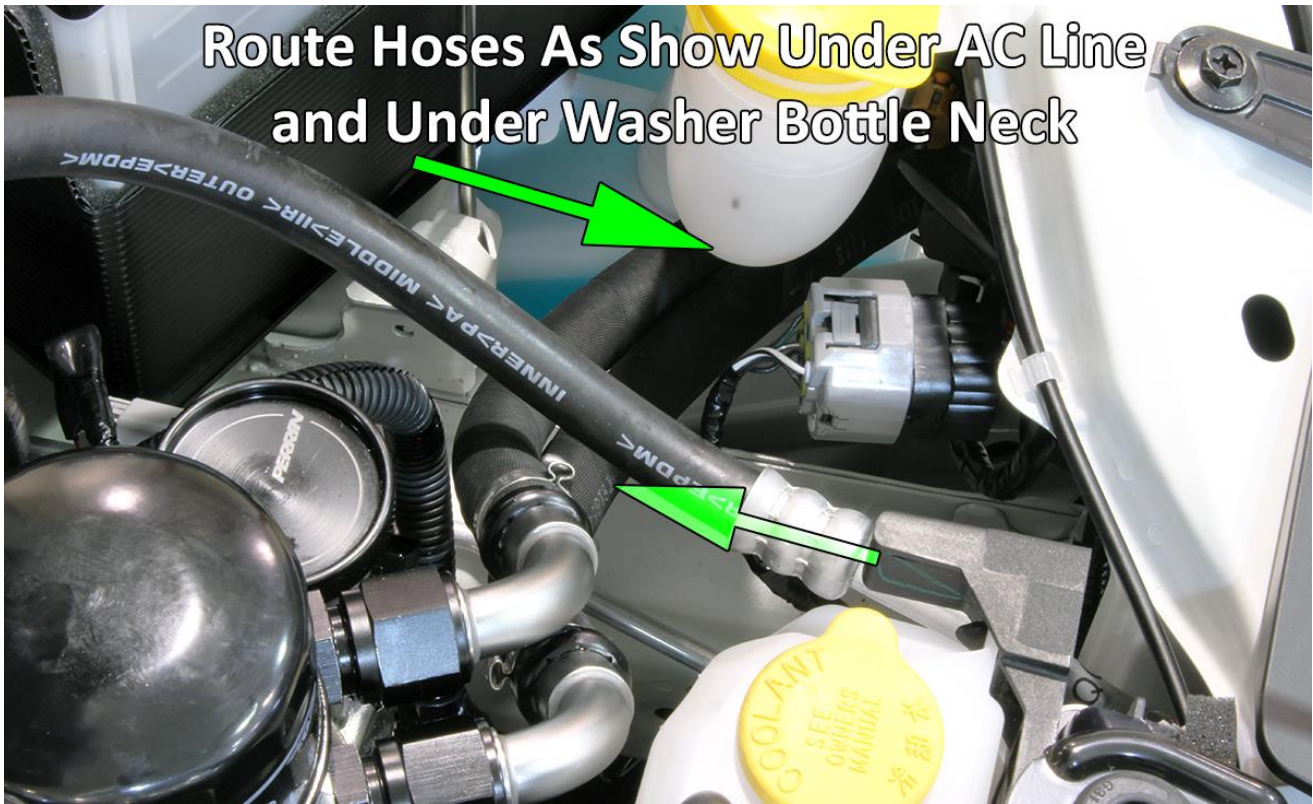
## Locate and Replace Bolt With Supplied M6 Bolt and Washer



## Route Hoses As Shown, Passing Around Washer Bottle Neck and Around Frame Rail

24. Route hoses down and around left side of vehicle around washer bottle tank, then up toward T-Stat housing, and under washer bottle fill neck. Temporarily snug fittings up as this will need to be adjusted after second hose is installed. **NOTE: It does not matter which port on the T-Stat housing the hose threads into. Thread it into the one that creates the smoothest routing of the hose.**

## Route Hoses As Show Under AC Line and Under Washer Bottle Neck



25. Align fittings at T-Stat housing so they are routed away from coolant overflow and engine block as shown above. This step may require loosening and fully tightening fittings a few times until they line up perfectly. **Note: During these steps, it's a good idea to have a -10 AN wrench to tighten each fitting as they are in close proximity to one another.**
26. Fully tighten down oil feed pipe to 25ft-lbs to lock orientation of T-stat housing and high pressure lines.
27. Starting at oil cooler, zip tie oil lines together in pairs. Slowly work your way to the T-stat housing. Keep in mind that zip ties too close to the header will melt. It's not necessary to zip tie hoses close to header as the tightened down AN fittings will hold themselves in place.
28. Using remaining supplied zip ties, secure hoses to the chassis. Making the hoses super tight isn't necessary as the engine will move around and require some slack in the hoses.
29. Use included rubber trim to protect hoses from contacting sharp edges.
30. Apply a small amount of oil to lubricate oil filter o-ring. Thread oil filter onto thermostat housing until o-ring starts to seal. Further tighten filter on 1/2 to 2/3 of a turn.
31. Before starting/running the engine, turn key 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 one more time for 5 seconds.
32. 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.
33. Start engine, let it run for at least 5 minutes, and check one more time for oil leaks.
34. Reinstall bumper back to car in the reverse order it was removed.
35. After roughly 15 minutes of driving, recheck all fittings and hardware to ensure it hasn't started leaking or come loose.
36. 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](mailto:Tech@PERRIN.com)

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