

PERRIN

2002-14 WRX 04+STI Engine Oil Cooler

2022-12-13

PSP-OIL-110

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:

- **Customers with aftermarket headers must check for clearance before running car, especially when using aftermarket unequal length headers. Clearance from header should be at least 2 inches from oil lines. Damage to lines from headers is not covered by warranty.**
- 2002-2007 cars will need to purchase Subaru part number 21328AA140. These are found on 2008+ STIs.
- 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/STI Oil Cooler:

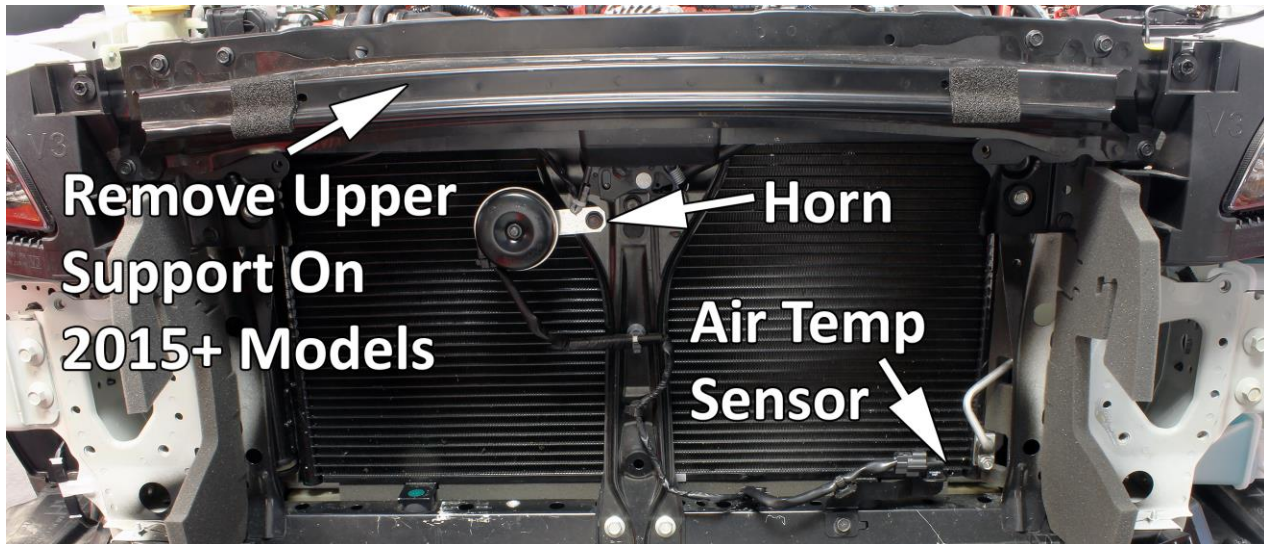
QTY	Part#	Description
3	X-TRM-002	Trim Door Edge
1	X-PSP-OIL-005P	Oil Cooler PERRIN 8 Row x 250mm Wide w/ M22 Inlets
1	X-HOS-114	1/2" Heater/Coolant Hose (28403)
1	X-PSP-OIL-008L	Oil Line Assembly for 02-14 WRX/STI (shorter)
1	X-PSP-OIL-008R	Oil Line Assembly for 02-14 WRX/STI (longer)
1	X-PSP-OIL-001BK	Oil Filter Spacer for BRZ/FRS Black Anodized
1	X-PSP-OIL-004-4	Oil Filter Sandwich Adapter Mocal 22mm with T-Stat
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
1	X-CON-009	Plastic 1/2"-1/2" Straight
1	ASM-BDY-500	License Plate Frame PERRIN
1	X-BLT-M6NS-SS	M6 Lock-Nut SS
8	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
4	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-003-1B	Bracket for Oil Cooler, Bottom SS Version 2002+ WRX/STI
1	X-PSP-OIL-003-1T	Bracket for Oil Cooler, Upper SS Version 2002+ WRX/STI
2	X-BLT-M6X25CSB-SS	M6 X 25 Button Head Socket Cap Screw SS
8	X-BLT-M8X10CSB-SS	M8 X 10 Button Head SS Screw
1	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

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:

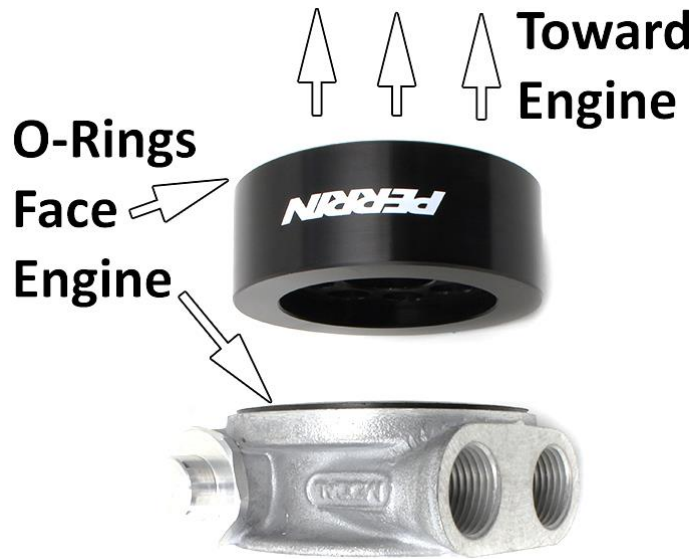
1. Raise front of vehicle off ground using proper jack and jack stands. Never work under a car solely supported by jack, death or injury may occur.
2. Let vehicle cool off for at least 3 hours to ensure engine oil and coolant will not burn you.
3. Remove front bumper skin from vehicle. This step will vary greatly from car to car, please see the factory service manual for specific instructions.
 - a. For 2015+ vehicles, 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.



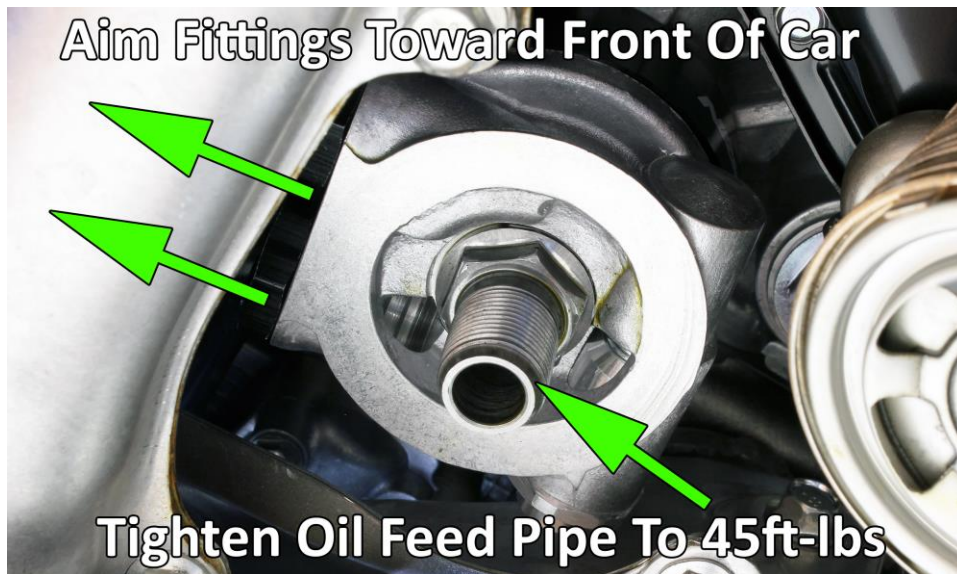
4. Remove lower splash guard to expose oil filter and lower portion of engine. This step will vary greatly depending on year of car.
5. Remove oil filter from engine. **NOTE: Make sure to catch and dispose of oil that will fall out of filter and engine during removal.**
6. When oil stops draining, remove large center oil feed pipe using a 24mm deep socket and wrench. This will allow you to remove OEM oil cooler and additional oil will drain out.
7. Install supplied male to male oil feed pipe adapter into block and tighten to 40ft-lbs.



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. You will reuse two OEM pinch clamps.
 - b. Locate coolant hose as shown and disconnect from black steel coolant pipe going toward front of car. **NOTE: 2002-2007 cars will replace this black steel coolant pipe with Subaru part number 21328AA140.**
 - c. Disconnect OEM oil cooler from shorter 90-degree coolant hose connected directly to engine block.
 - d. Install supplied 1/2" connector into small 90-degree hose and install supplied 1/2" coolant hose onto connector.
 - e. Trim 1/2" coolant hose to length and connect to metal coolant pipe going toward front of car.
 - f. Slide Clamps back over hoses behind the barbs to ensure they will not slide off.
9. Install PERRIN Oil Filter Spacer as shown making sure to place rubber seal toward engine block.

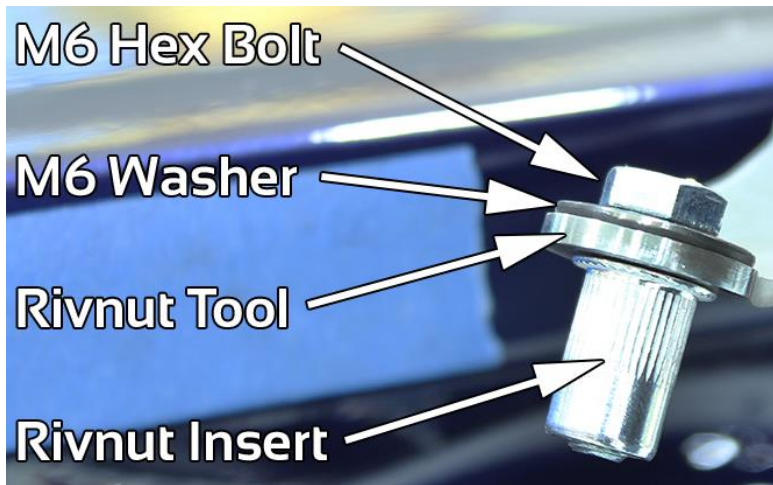


10. Install thermostat housing adapter on top of PERRIN Oil Filter Spacer making sure to place rubber seal toward PERRIN Spacer and engine.
11. Install supplied oil feed pipe (long male to female) through thermostat housing and spacer. Hand tighten oil feed pipe temporarily using a thin 26mm socket. **NOTE: Align so threaded oil fittings point in the direction shown in pictures above and below. This may need one final adjustment in later steps.**

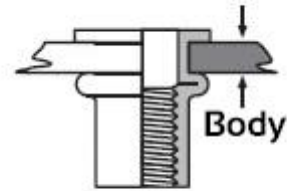


12. Locate lower core support and small hole on right side, located between two large holes. Enlarge hole using a 25/64 drill bit. Take care not to damage the AC condenser while drilling out. **NOTE: Using a stepped drill bit with a 13/32 size is also another option as these are more common and can be found at most hardware stores.**



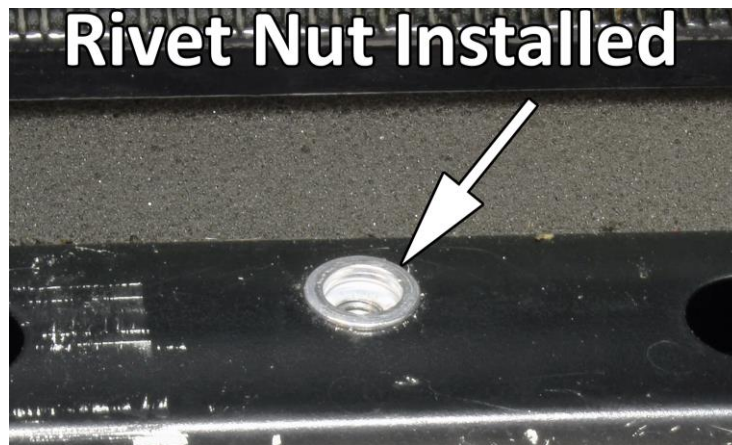


Rivet Nut Shown Compressed



Visual Representation Of When Tool Stops During Installation

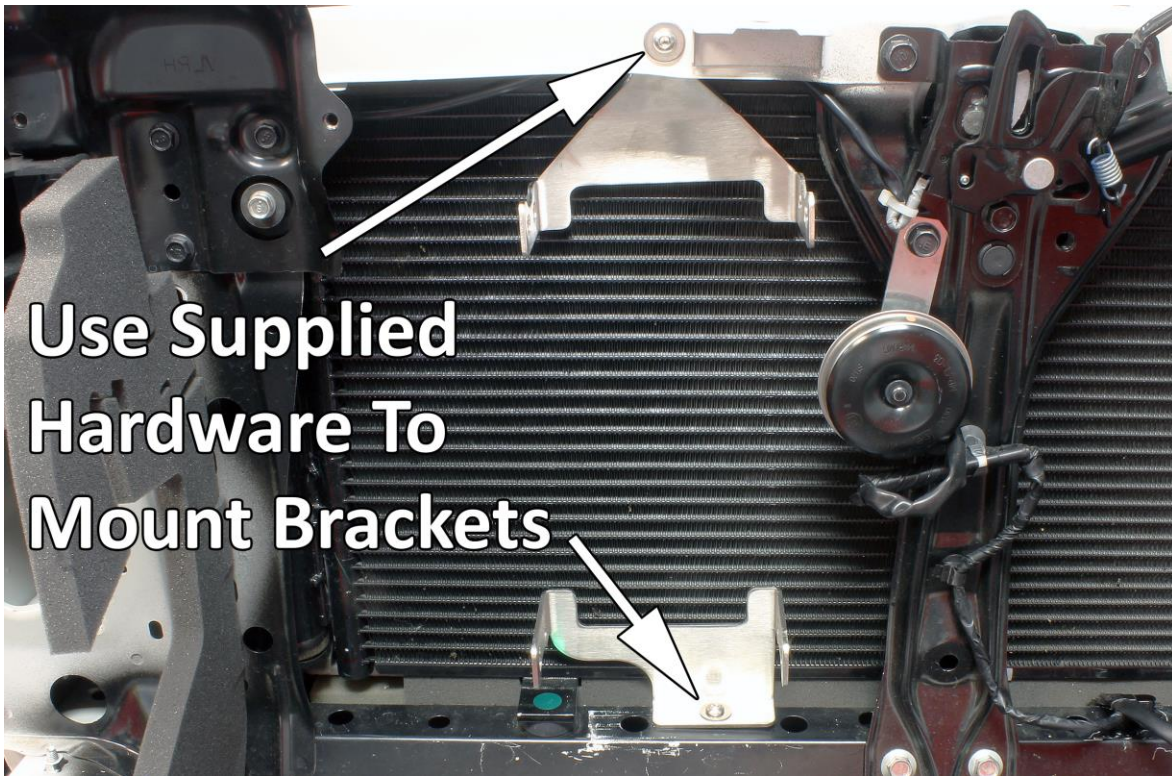
13. Using rivet nut tool, rivet nut, supplied M6 bolt and M6 washers install rivet nut into hole.
 - a. While holding tool and rivet nut tightly against core support, slowly tighten M6 bolt. **NOTE: You will feel some force on the wrench for the first couple of turns, then it will get much easier.**
 - 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.



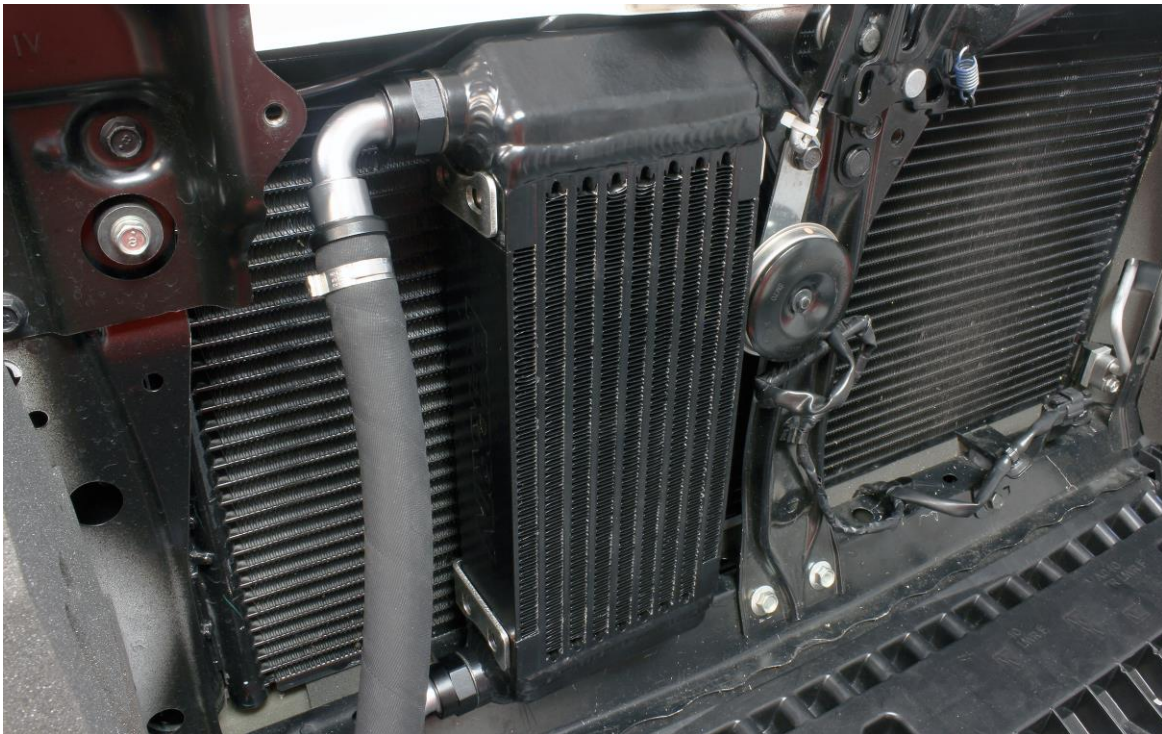
14. Locate horn mounted to core support and loosen bolt enough to allow horn to rotate/point toward the ground. Tighten bolt to secure horn.
15. Locate small hole on upper core support and remove plastic clip from hole. The harness that was attached to it can simply rest behind core support.



16. Install upper bracket behind core support as shown 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: This bracket is slotted and may need adjustment in the upcoming steps.**



18. Set oil cooler into brackets to check for alignment vertically and that 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-008R). 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. Take your time with threading in slowing and checking as it is tightened. 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-008L). 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. Take your time with threading in slowing and checking as it is tightened. 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.**

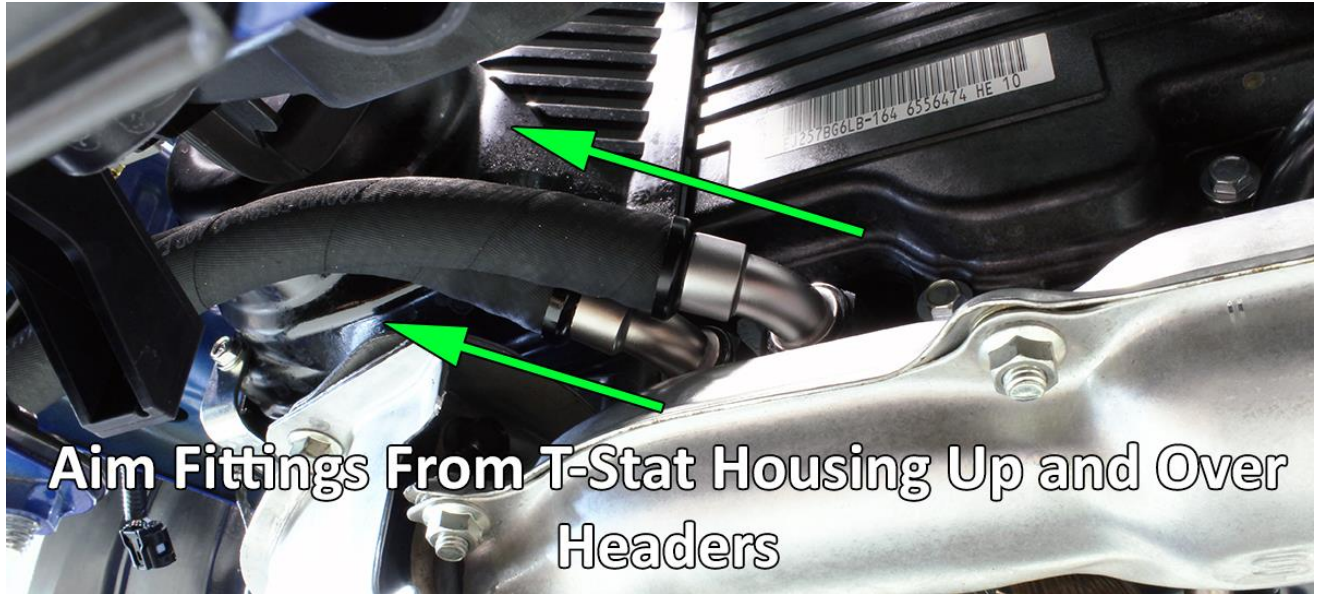


22. Slide oil cooler with oil lines attached back into the brackets and secure with supplied M8x10 bolts and washers. Tighten all bolts to roughly 15ft-lbs. **NOTE: It is extremely important to use the proper hardware and washers to ensure core is not damaged from bolts being too long. If improper hardware 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. Route 90-degree hose down and around right side of vehicle around toward T-Stat housing. Most cars will need to have the plastic splash guard modified to get hoses to fit through fender area into engine bay. This can be done using a simple box knife and/or a die-grind type tool. Thread female fitting into right male fitting on T-Stat housing. Temporarily snug fitting 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.**

24. Route 45-degree bent hose down and around right side of vehicle around toward T-Stat housing. Thread fitting into left fitting on housing. Temporarily snug fitting up. **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.**



25. Align fittings at T-Stat housing so they are routed far and up away from header. This step will require loosening and fully tightening fittings a few times until they line up perfectly.
- 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.**
 - If aftermarket headers are installed, check for clearance before running car, especially when using aftermarket unequal length headers. Clearance from header should be at least 2 inches from oil lines. Damage to lines from headers is not covered by warranty.**
26. 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 AN fittings will hold themselves in place when they are fully tightened.
27. 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.
28. Use included rubber trim to protect hoses from contacting sharp edges.
29. Make any adjustments to the angle of the thermostat housing to add clearance between oil lines and air box. 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.



30. Install your oil filter (not included) following the manufactures instructions.
31. Before starting/running the car, turn the 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 more 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 additional oil until it reads normal on the dipstick.
33. Start engine, let it run for at least 5 minutes, and check one more time for oil leaks.
34. Reinstall splash guard and bumper (upper support bracket found on 2015+ models) 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 of how tight you made them, double check the tightness after 2 hours of driving.

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