2022+ BRZ/GR86 Engine Oil Cooler

2023-01-23 PSP-OIL-114

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@PERRINperformance.com
Instant Chat off the main page of www.PERRINperformance.com
Or simply call our tech team at 503-693-1702

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:

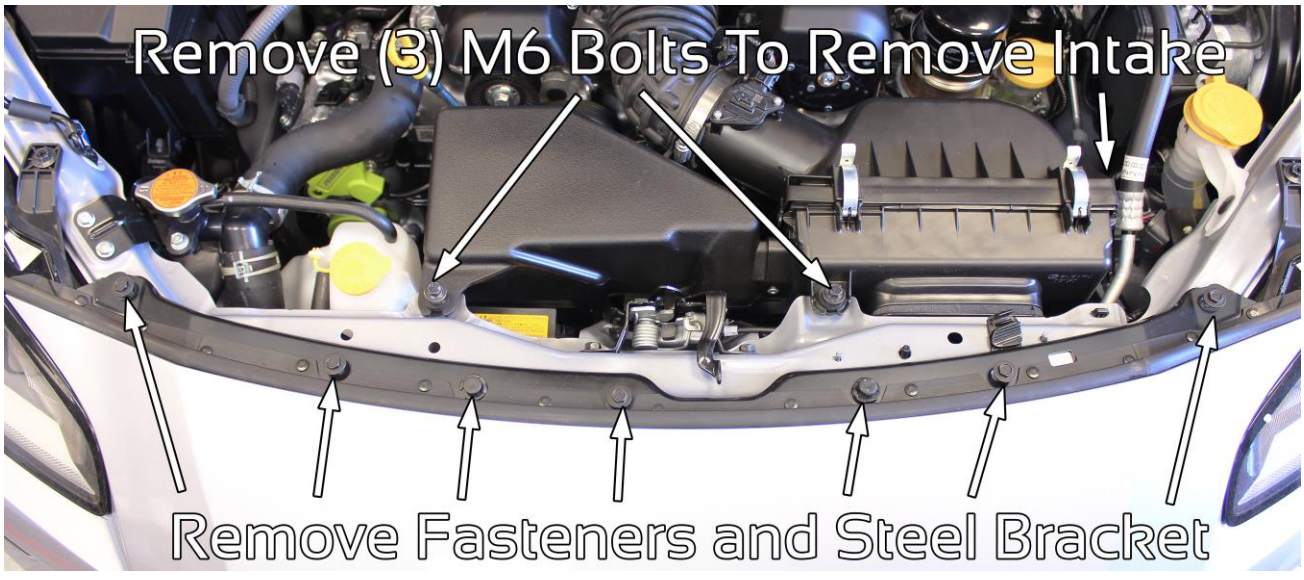
- You will need an additional QT of oil after installation is complete. Make sure and have a new QT of oil ready to be added or be prepared to do a full oil change after installation. For additional oil changes, check oil level after adding factory fill level, and add more if needed.
- Each connection where the hose meets the fitting can be rotated to allow better alignment. Rotate hose on fitting by slowly twisting. This step is very important as the routing of hoses and ensuring they do not rub on sharp objects is necessary to keep hoses from failing.

Parts Included with the PERRIN BRZ/FR-S Oil Cooler:

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
1	X-PSP-OIL-012	Male To Male Oil Feed Pipe
1	X-PSP-OIL-006-1	Threaded Adapter (standard length) for Mocal Sandwich Plate 20mm (Oil Feed Pipe)
1	X-PSP-OIL-012R	Oil Line Assembly for 22+ BRZ/GR86 Right Side (Longer)
1	X-PSP-OIL-012L	Oil Line Assembly for 22+ BRZ/GR86 Left Side (Shorter)
2	X-PSP-OIL-002-2BK	Bracket for PERRIN Oil Cooler 2022+ BRZ/GR86 Black
15	X-BLT-CT080B-18	Zip Tie 8" Long
2	X-BLT-M6X16CS-SS	M6 X 16 Socket Cap Screw SS
4	X-BLT-M8X14CSF-SS	M8 X 14 Flat Head Socket Screw SS
2	X-BLT-M8X25WF-Z	M8 Fender Washer
2	X-BLT-M618WF-SS	M6 x 18 Fender Washer SS
1	ASM-BDY-500	License Plate Frame PERRIN
1	X-PSP-OIL-100stencil	Stencil for all PERRIN Oil Coolers

WHICH WAY IS THE RIGHT WAY?

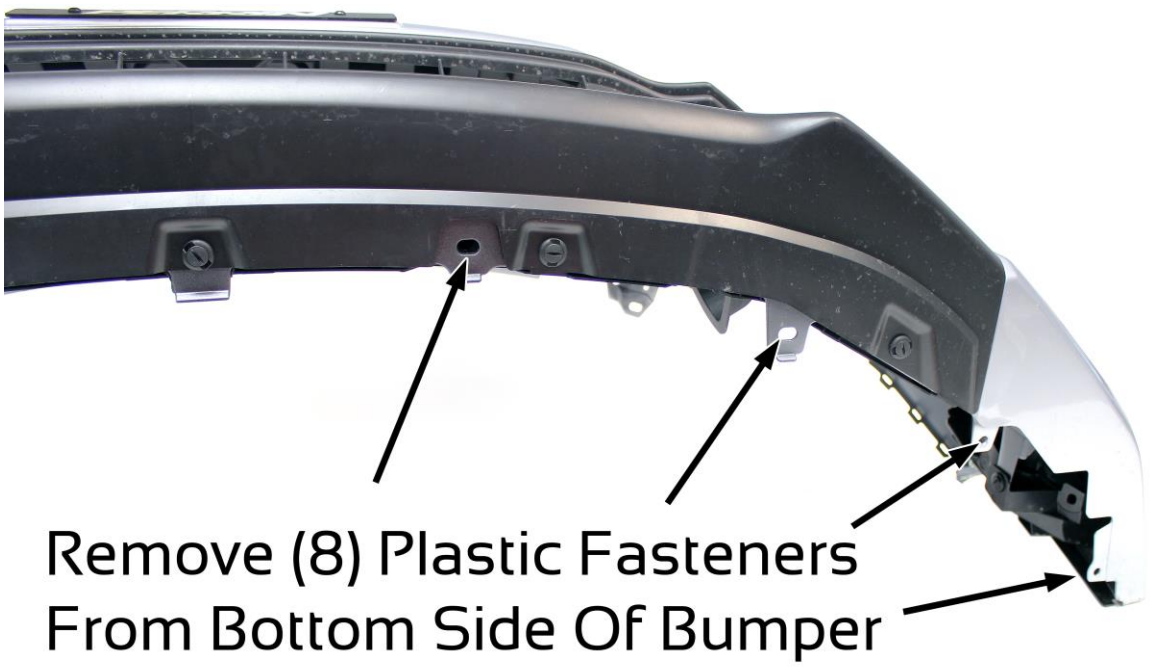
In ALL situations, when describing left and right sides of the vehicle it is always as though you are sitting in the driver's seat looking forward.
Example of a US Market Vehicle: If standing in front of the car, looking at the engine bay, the Drivers side is described as the LEFT side the vehicle.



Installation

1. Raise front of vehicle off ground using proper jack and jack stands. Never work under a car solely supported by jack, death or injury may occur.
2. Remove front bumper skin from vehicle
    a. Open hood and locate black steel hood seal/bracket. Remove (2) plastic fasteners and (5) 10mm bolts. Remove bracket from car.
    b. Starting in each fender well, locate and remove (4) plastic fasteners holding fender liner to bumper skin.

    c. Under car, locate and remove and (8) plastic fasteners holding lower portion of bumper skin to car.

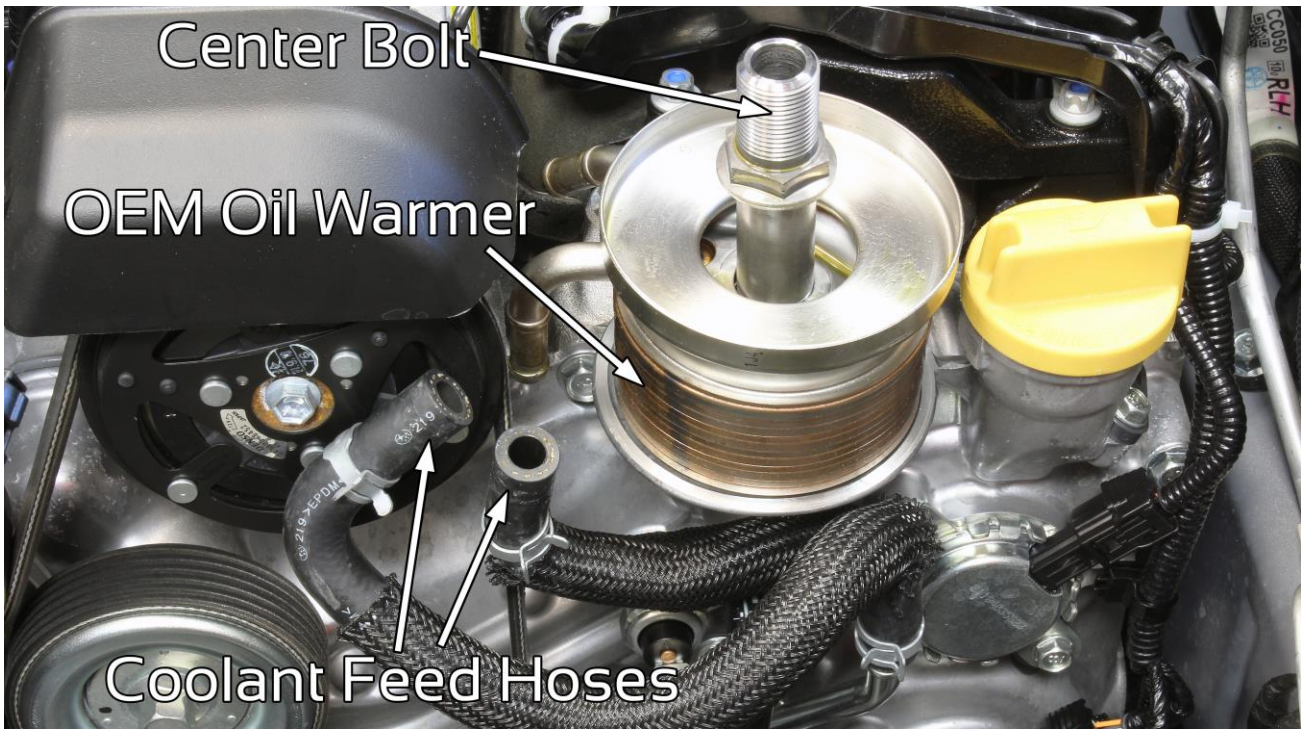


    d. Starting at corners next to side marker lights, pull bumper straight and away from car to unsnap from chassis. Do this to one side then the other before proceeding to next step.

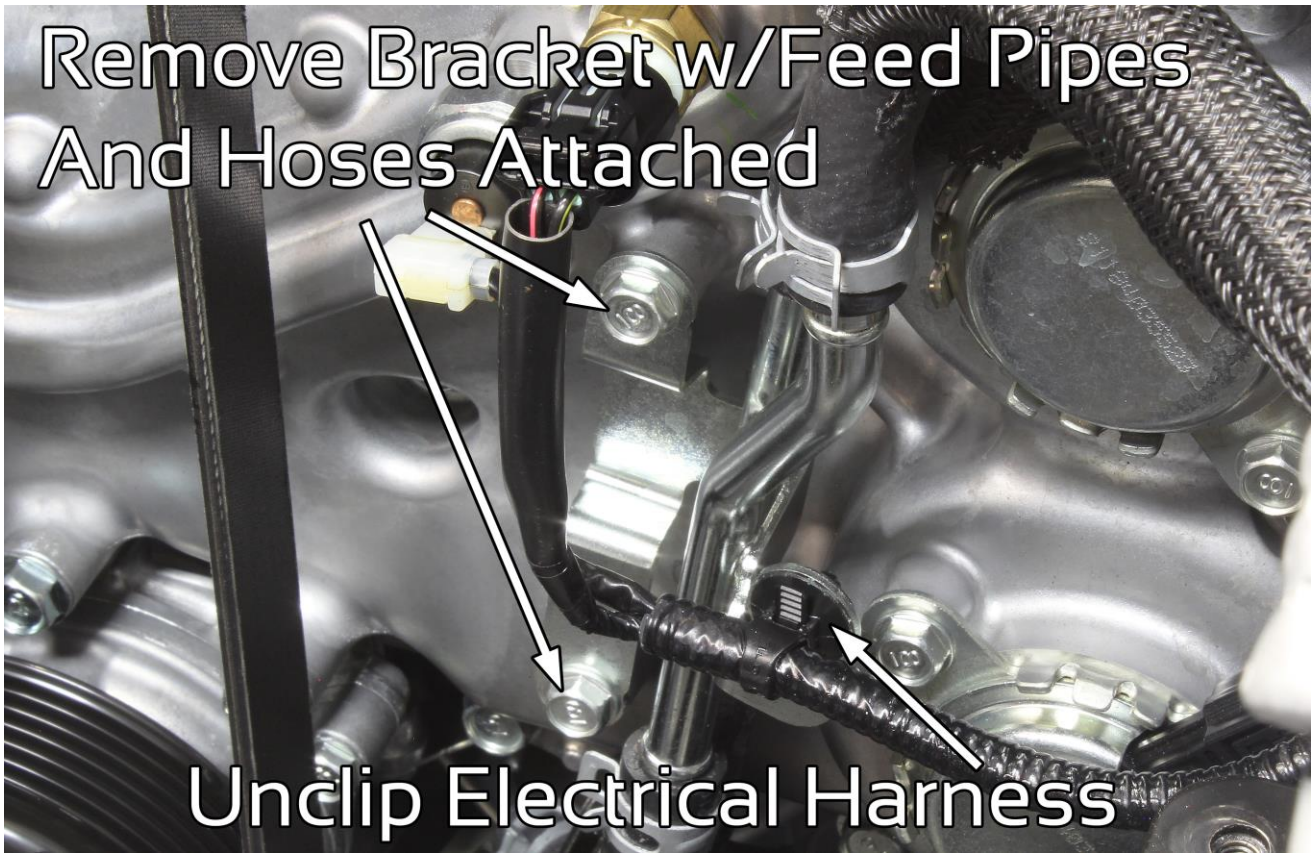
e. Continue with unsnapping bumper from chassis working from each side marker light toward front of car. During this step the bumper will become fully dislodged from chassis so be prepared to catch. **NOTE: Having a friend help with this step is a good idea to help prevent bumper from hitting the ground.**
f. Reach behind bumper and disconnect both left and right side marker light harnesses.

3. Locate and remove (8) M8 bolts and (5) plastic fasteners to remove aluminum splash guard from under car.

4. Remove intake system from car. This step may or may not be necessary depending on the parts that are installed. Below are instructions to remove the OEM intake/airbox from the car.
    a. Locate and remove (3) M6 bolts securing air box to chassis.
    b. Loosen hose clamp securing rubber intake boot to air box.
    c. Unplug MAF sensor and unclip MAF sensor harness from air box, then remove intake from engine bay.
5. Remove oil filter from top of engine. **NOTE: Make sure engine hasn't run for at least 10 minutes prior to removing oil filter.**
6. Remove center bolt holding OEM oil warmer to engine block. Be prepared to catch small amounts of oil that will drip out as this is freed from engine.

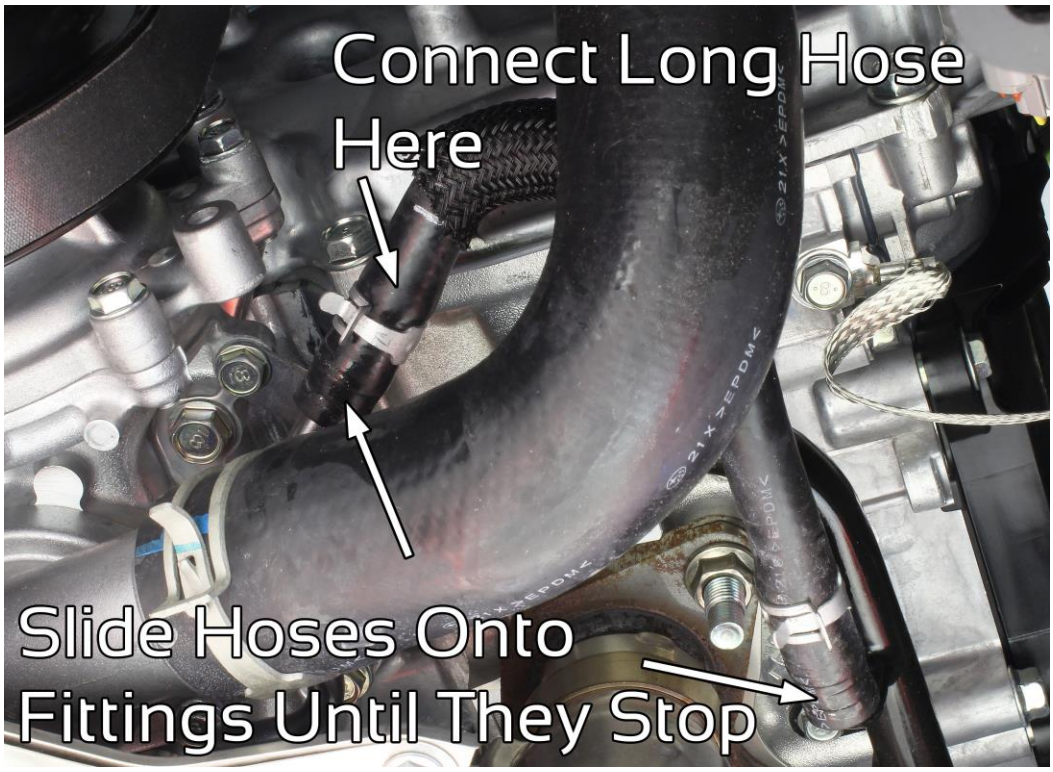


7. For these next few steps, we recommend having some hose pinching plyers to pinch off the OEM oil warmer coolant hoses at the bottom of the engine. These will significantly reduce the amount of coolant that spills out during the next few steps.
8. With oil warmer free from engine, remove (2) coolant hoses from side fittings. Engine coolant will come out of these hoses as they are removed, be prepared to catch coolant with paper towels.

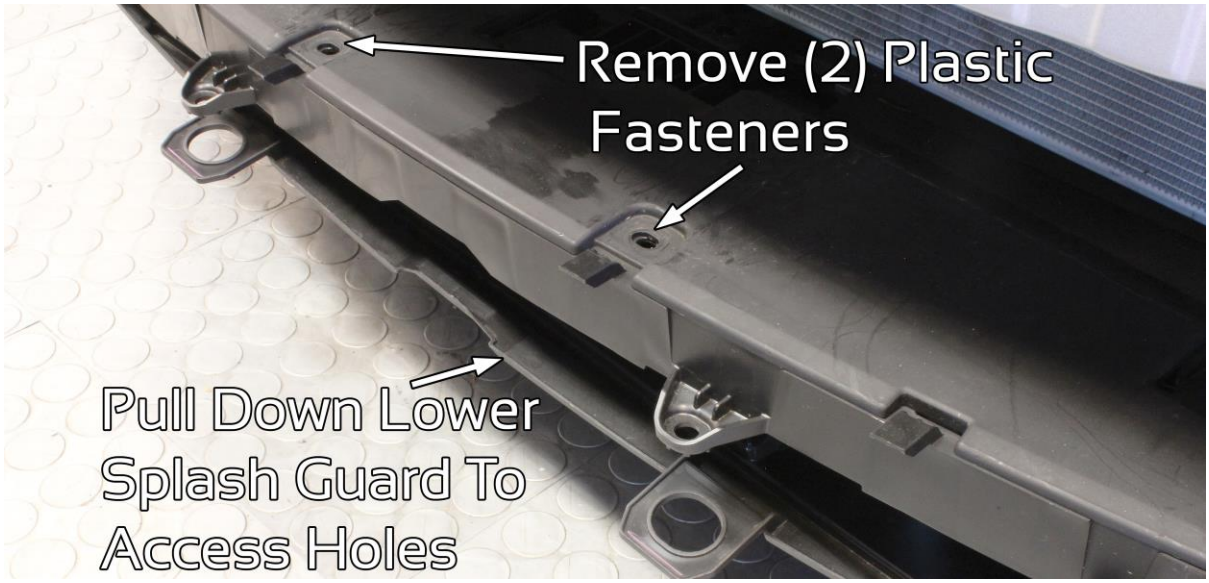


9. Locate and remove (2) M6 bolts securing steel bracket with the coolant pipes on front of engine. Unclip wire harness from bracket.

10. Remove (2) coolant hoses from the lower part of the steel bracket with coolant pipes. Be prepared to catch more coolant as these are removed.
11. Under car, locate coolant hoses that were feeding the OEM oil warmer and remove the shorter one (left side in picture) from the small tube coming off the engine. As quickly as possible install the longer one onto this same small tube.

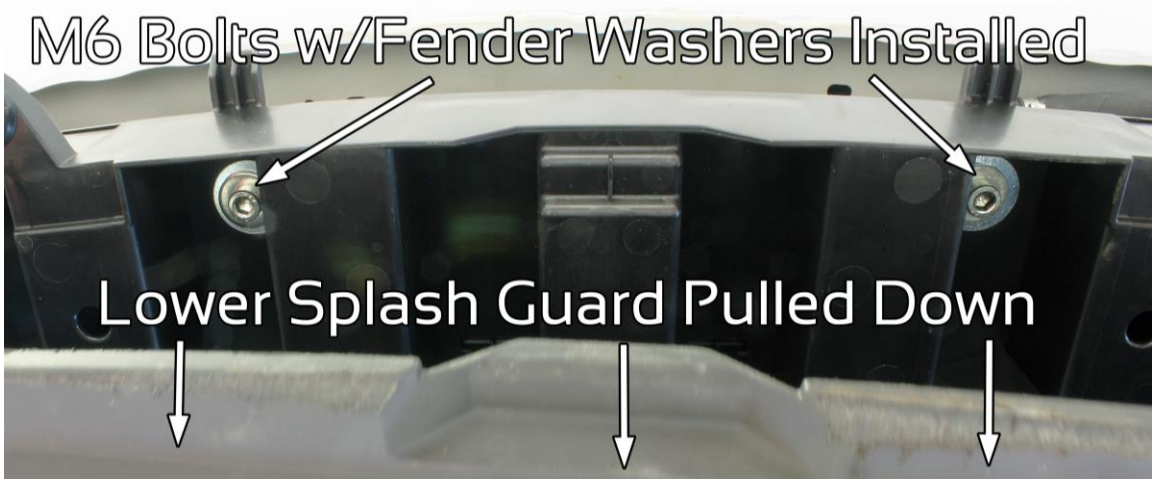


12. Slide hose all the way up to where it stops and secure with OEM pinch clamp. Then loosen other side of hose and slide it up to where it stops and secure with OEM pinch clamp. This step is done to shorten coolant hose and make for a smoother transition.
13. Remove any hose pinching pliers that may have been used and wipe up any excess coolant that may have spilled onto engine or ground.
14. Install supplied PERRIN mounting brackets to bottom (opposite side of the fittings) of oil cooler using supplied M8x15 flat head screws.
15. Remove plastic caps threaded into oil cooler and from hoses.
16. Apply motor oil to threads on cooler as well threads on oil line fittings. Failure to lubricate these threads can cause galling while tightening which could result in an oil leak. NOTE: A small amount of oil on the top side of the fitting where it spins on the 90-degree bent tube will help with spinning fitting into core.
17. With oil cooler laying on a flat surface, install longer oil line to left side of core and tighten until it bottoms out on core. **NOTE: Make 100% sure fitting is lined up 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 the thread as well as where the black fitting meets the silver tube, is a good idea to aid in fitting threading into oil cooler.**
18. Install remaining shorter hose to fitting on right side of core using the same special notes as above.
19. Tighten fittings to roughly 30ftlbs. Since these fittings are not under constant stress, have O-ring seals and are swivel type fittings, the actual ft-lbs you tighten them to are not vital to sealing the fitting. If you are unsure of how tight you made them, double check the tightness after 2 hours of driving.

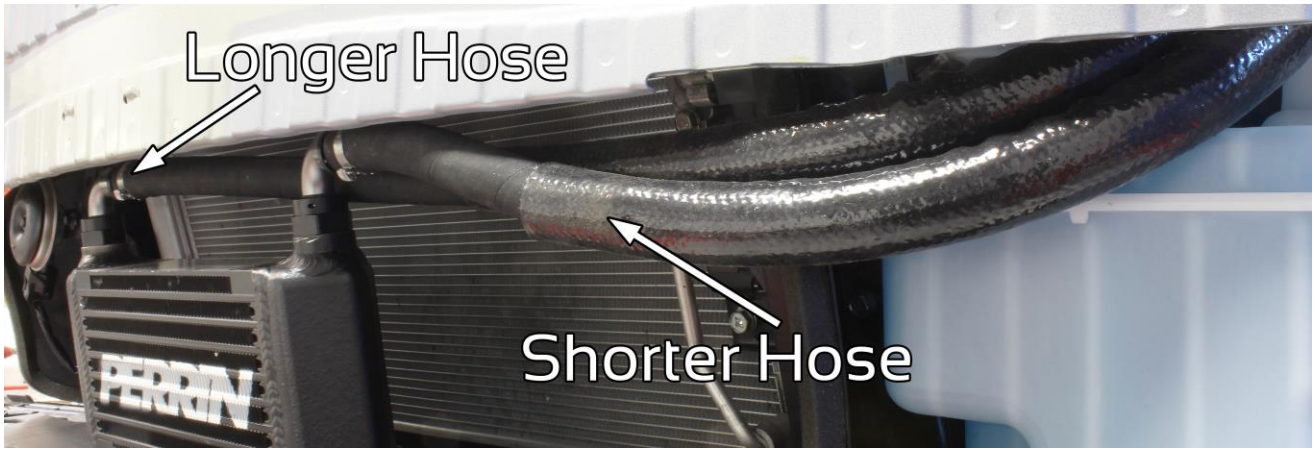


20. On upper portion of splash guard, remove (2) center plastic fittings.
21. Under car, locate lower half of plastic splash guard and remove (2) plastic fittings from the front center area. Pull down far enough to expose holes that pass through to the upper section. **NOTE: Picture shows additional fasteners removed from lower splash guard. This is done for illustration purposes. This is not necessary but can make these holes easier to reach.**
22. Set oil cooler onto upper splash guard so it rests in the small pockets where the plastic fasteners were removed. Make sure the longer hose is on right side of vehicle.

23. Install M6 fender washer then M8 fender washer onto supplied M6 bolts. Pull down lower splash guard and install them up through the holes in the splash guard and into the PERRIN Oil Cooler Brackets. Tighten bolts to roughly 10-15ft-lbs of torque.



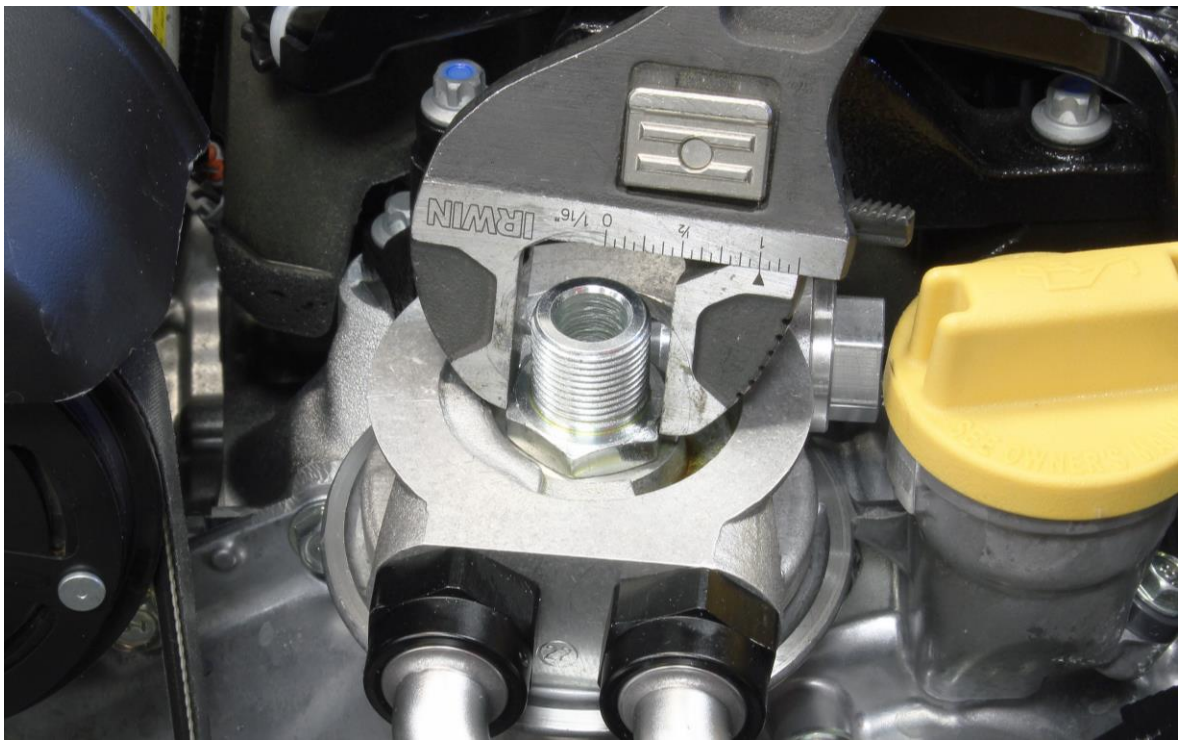
24. Reinstall plastic fasteners into lower splash guard.



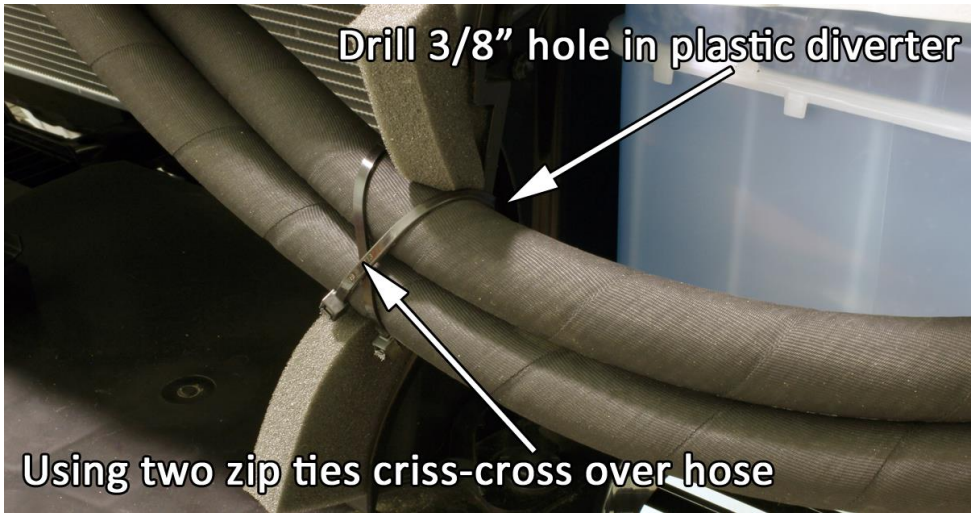
25. Run supplied oil lines through hole in chassis as shown below making sure to leave 45 degree bent fittings toward thermostat housing. Make sure and route hoses the same way as shown in pictures. This is done to provide the smoothest path from the oil cooler to the thermostat housing.

26. Install black male to male adapter into block and tighten to 40ft-lbs.

27. Install thermostat housing adapter over the male-to-male adapter so that both open ports are facing the front of the car. **NOTE: Make sure to place rubber seal down toward the engine.**



28. Install supplied M20 threaded adapter down through thermostat housing. Snug down temporarily.
29. Continue routing oil lines toward thermostat housing maintaining a smooth route though the engine bay.
30. Apply a small amount of oil to the threads on both the thermostat housing and oil line fittings.
31. Starting with longer hose, carefully thread fitting into right port (one closest to center of engine) on thermostat housing. **NOTE: It does not matter which line goes into which port on the thermostat housing, rather that they follow the smoothest path from the core to the engine.**
32. Install remaining hose into remaining port on thermostat housing and tighten fittings to roughly 30ft-lbs. Since these fittings are not under constant stress, have O-ring seals and are swivel type fittings, the actual ft-lbs you tighten them to are not vital to sealing the fitting. If you are unsure of how tight you made them, double check the tightness after 2 hours of driving.
33. Reinstall intake system back to car.
34. 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.
35. Slide pyroshield hose covering toward area as shown in above pictures on both hoses. This is done to help protect the hoses from parts of the chassis.
36. Do one last check of house routing of oil lines to the oil cooler. Using supplied zip ties secure line together every 6-10”. Do not secure hoses to any sharp parts of the chassis as this will lead to hose failure. **NOTE: The oil hoses will touch on certain parts of the car and this is perfectly ok. The pyroshield is used to protect the hose from rubbing through or chafing on items that can damage the hose. Sharp metal objects can still cut through cover, take great care to keep hoses away from these types of surfaces.**
37. Drill small hole in plastic diverter and zip ties hoses as shown.



38. Reinstall oil filter (not included) following the manufactures instructions on how to tighten.

39. Before staring car, turn key on 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.
40. Start your car like normal and let it run for 10 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.
41. Start engine and let it run for at least 5 minute and recheck all fittings and hoses for oil leaks. If no leaks are found, continue to next step. If leaks are found, repair or tighten fitting that is causing the problem before continuing.
42. Reinstall lower aluminum splash guard and then bumper back to car in the reverse order it was removed. **NOTE: Lower plastic splash guard (the part the oil cooler is sitting on) will droop down more than before making the bumper more difficult to install. Pushing up on this plastic piece while installing the bumper will be necessary to install the bumper.**
43. Start engine and let it run for at least 5 minutes and check one more time for oil leaks. If no oil leaks are found, take car for a 15-minute test drive, and recheck all fittings one last time and recheck oil level one last time.

FOR QUESTIONS & COMMENTS PLEASE CONTACT
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503-693-1702
Live Chat with us on our website