

PERRIN

BRZ/FR-S Engine Oil Cooler

2020-10-14

PSP-OIL-103

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:

- The use of a factory service manual is highly recommended. This can be downloaded at <http://techinfo.subaru.com>.
- 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) PERRIN Oil Cooler Core
- (1) PERRIN Oil Filter Spacer
- (1) Thermostat oil filter/cooler adapter
- (1) M20 threaded adapter.
- (1) Longer High Pressure Hose
- (1) Shorter High Pressure Hose
- (2) PERRIN Oil Cooler Mounting Brackets
- (1) Subaru Factory Oil Filter
- (4) M6x10 Button Head Bolts
- (2) 1.25" OD Fender Washer
- (6) M6 Washer
- (2) M6x65 Socket Cap Screw
- (10) Zip ties

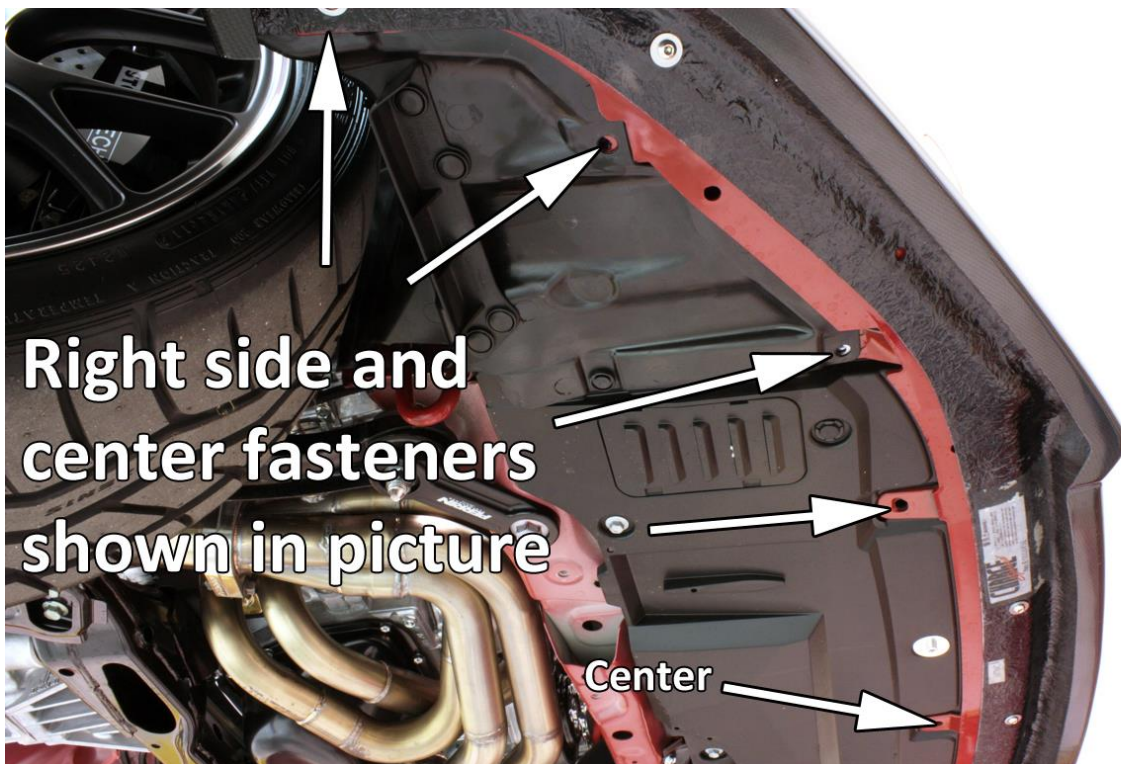


Installation

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 support bracket. Remove (2) plastic fasteners and (5) 10mm bolts. Remove hood seal 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 (2) 10mm bolts, and (6) plastic fasteners holding lower portion of bumper skin to car.



- d. Locate left and right side marker lights and pull from the top to unsnap from car. With side markers free of car, remove light bulb harness from back by twisting roughly 45 degrees. **NOTE: During removal of side markers, there are small clips that can become dislodged. Take note to not loose these small clips.**



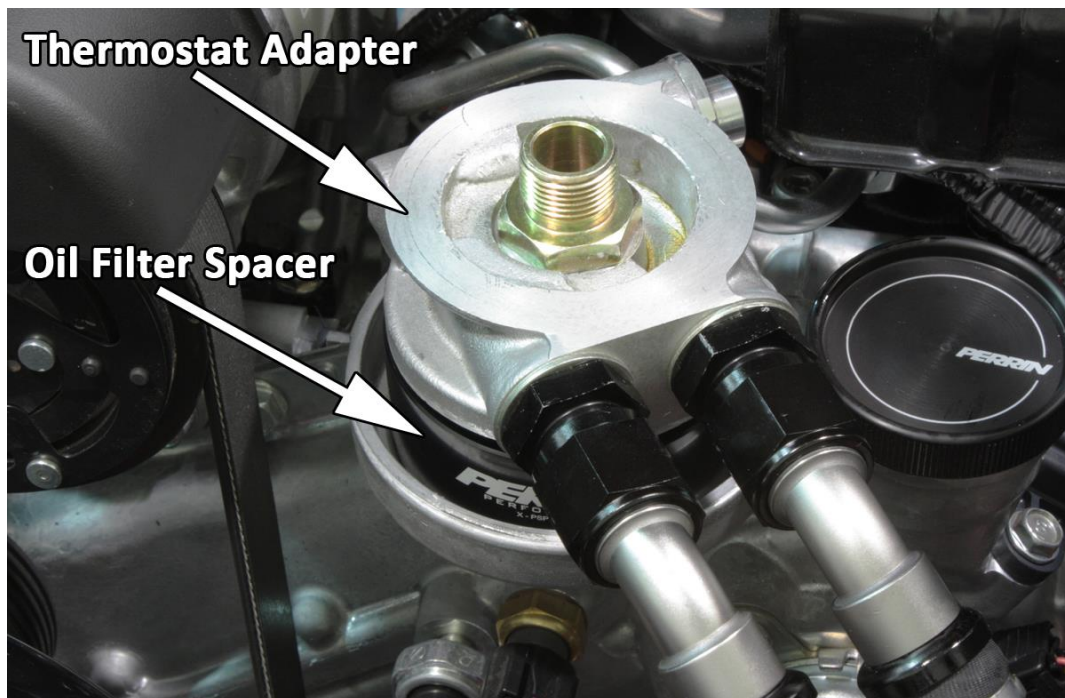
- e. Behind each side marker is a single plastic fastener that needs to be removed. This fastener is a little tricky and may require a pick tool and or a bent awl.



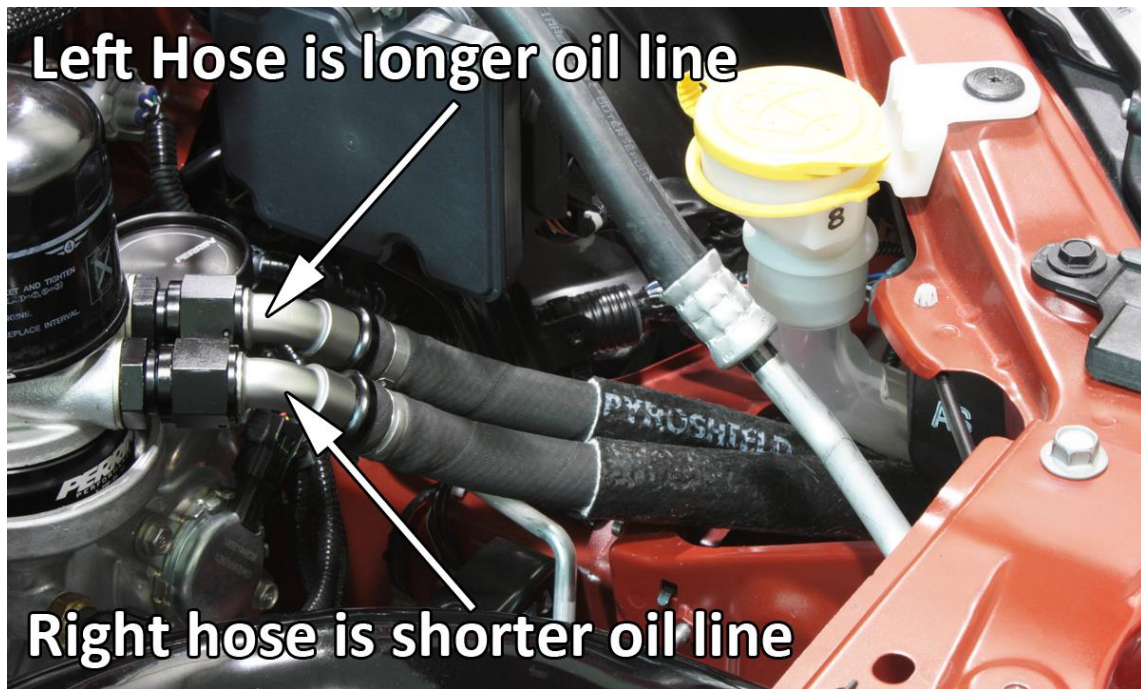
- f. Reach behind fender liner and disconnect both left and right fog light harnesses. **NOTE: These can be tricky and will require a flat head screwdriver to help release clip.**
- g. Starting at corners where side marker lights were installed, pull bumper straight out away from car to unsnap from chassis. Do this to one side then the other before proceeding to next step.



- h. 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 to be prepared to catch. **NOTE: Having a friend help with this step is a good idea to help catch bumper from hitting the ground.**
- 3. Remove oil filter from top of engine. **NOTE: Make sure engine hasn't run for at least 10 minutes prior to removing oil filter.**



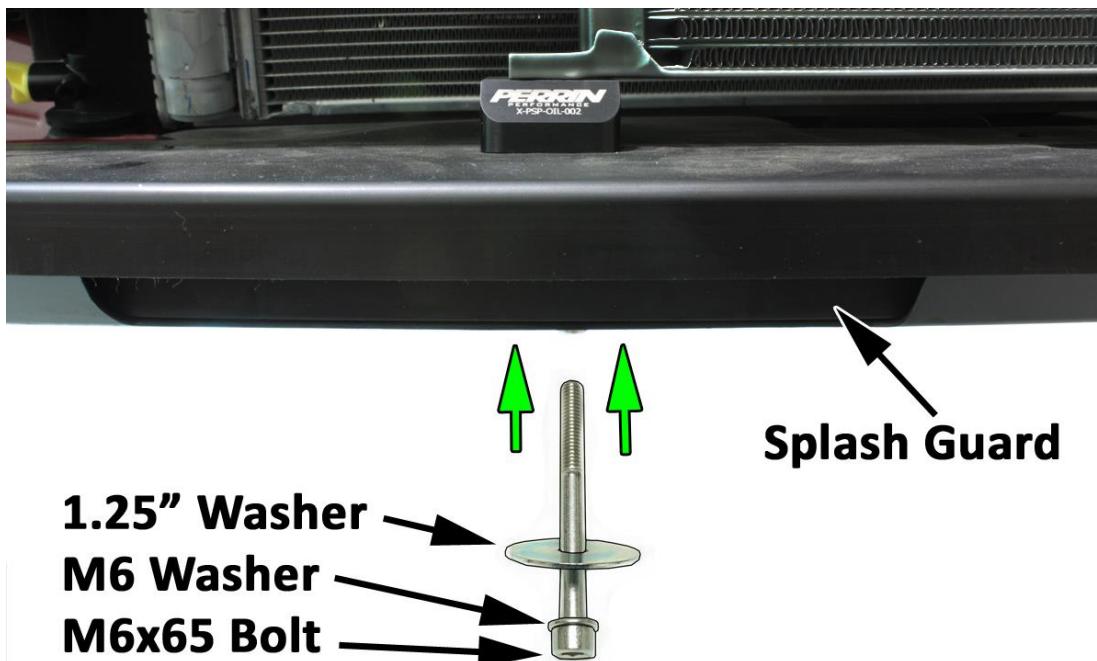
- 4. Install PERRIN Oil Filter spacer as shown making sure to place rubber seal down toward engine block.
- 5. Install thermostat housing adapter on top of PERRIN oil filter spacer making sure to place rubber seal down toward PERRIN Spacer and engine.
- 6. Install supplied M20 threaded adapter down through thermostat housing and spacer. Snug down temporarily. **NOTE: Align so threaded oil fittings point in the direction shown in pictures above and below.**



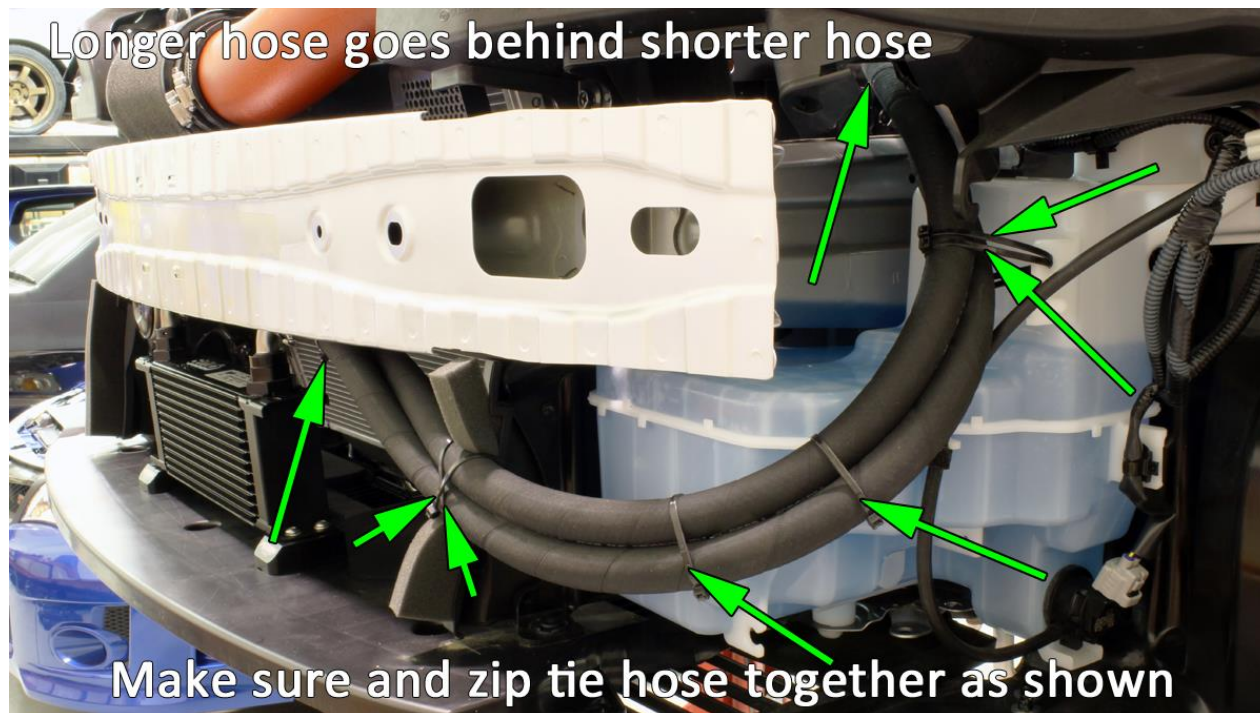
7. Run supplied oil lines through hole in chassis as shown below making sure to leave 45 degree bent fittings toward thermostat housing.
8. Connect longer hose to left fitting as shown below in picture, and connect shorter hose to right fitting. Tighten fittings down then back off one full turn to allow fittings to rotate for alignment reasons.
9. Make sure and route hoses the same way as shown in pictures. This is done to provide the smoothest path from the thermostat housing to oil cooler. If done properly hoses should line up in general location of oil cooler. **NOTE: It is ok to route hoses differently if other aftermarket parts interfere with them fitting. Make sure and route so hoses do not rest on sharp metal objects as this will lead to hose failure.**
10. Install supplied PERRIN mounting brackets to bottom of oil cooler using supplied M6x10 screws and washers (leave screws loose for now).
11. Remove plastic caps threaded into oil cooler.
12. 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. Install oil lines to top of oil cooler and snug up with a single wrench. Make sure and follow the hose routing as shown in pictures. **NOTE: It is ok to route hoses differently if other aftermarket parts interfere with them fitting. Make sure and route so hoses do not rest on sharp metal objects as this will lead to hose failure. 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.**
13. Using two wrenches (one holding hex on top of core, and one tightening down hex on fitting) tighten fittings to roughly 30-40ftlbs. 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.
14. Set oil cooler onto lower slash guard, behind bumper beam and line up with holes in lower section as shown.



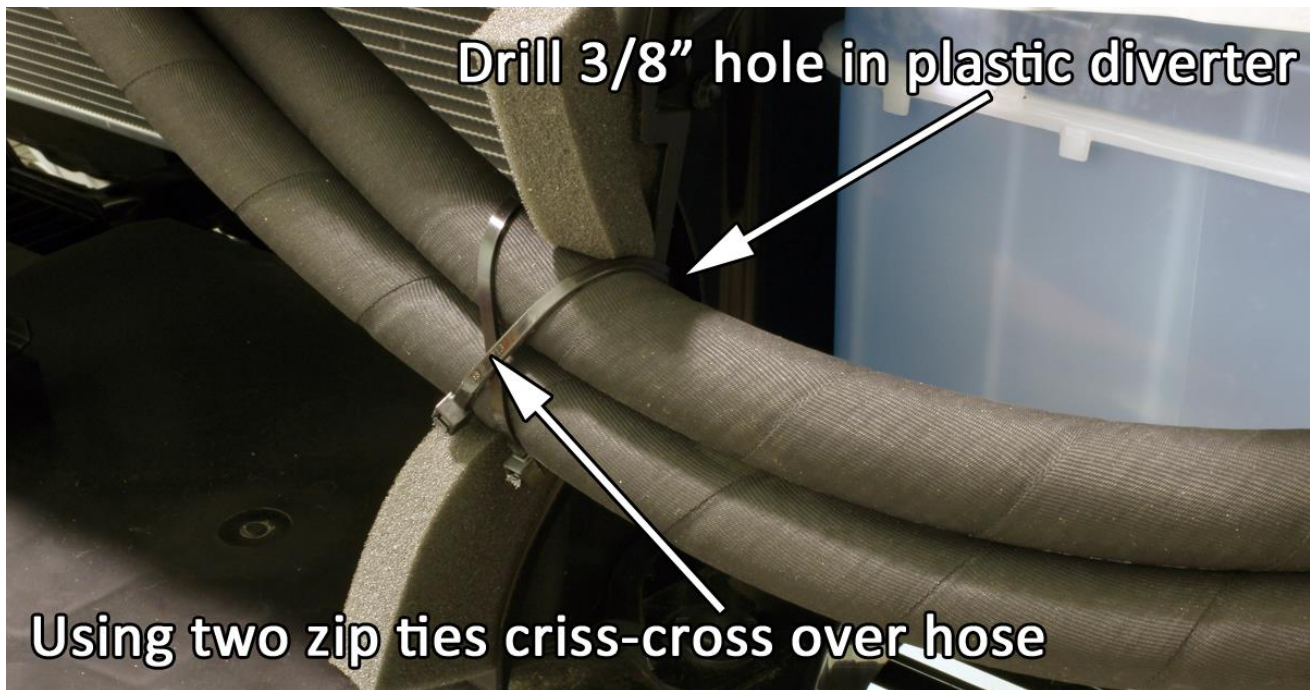
15. Install supplied M6 washer onto M6x65 bolt. Then install 1.25"OD washer onto M6x65 bolt. Install bolt with washers from bottom of car up through splashguard into PERRIN Oil Cooler Brackets. Tighten bolts down to roughly 15ft-lbs or just beyond hand tight. **NOTE: Do not over tighten these bolts, as they will eventually break through plastic part of splashguard.**



16. Tighten (4) M6 screws holding cooler to PERRIN brackets to roughly 12 ft-lbs.
17. Now it's important to go through all fittings and adjust the angles and then tighten them down. This step may require readjusting of hoses and fittings to ensure hoses line up and clear things properly. **NOTE: The oil hoses will touch on certain parts of the car and this is perfectly ok. The PERRIN 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.**
- Locate small wire harness located under hoses on top of frame rail behind headlight. Unclip from chassis and move out of way. **NOTE: Take notice of this area as there is a sharp edge that the hose can run into if hoses are not aligned properly.**
 - Starting at thermostat housing, aim fittings toward hole in chassis so they barely rest on frame rail. Snug down fitting on thermostat housing once adjusted.
 - Following hoses from engine bay over windshield washer tank, make sure that they are resting on tank as shown in pictures.
 - Following hoses toward oil cooler, make sure longer hose passes behind shorter hose.
 - Adjust fittings at oil cooler so hoses do not rub on anything except themselves.
 - Go back through oil lines and double check that everything lines up as shown in pictures.
 - Fully tighten thermostat housing adapter. Using a 27mm socket, tighten to roughly 25ft-lbs
 - Fully tighten all fittings. **NOTE: When retightening or checking oil cooler fittings, it's important to use two wrenches. You must support the fitting on the oil cooler with a wrench or damage can occur to the cooler and void warranty on cooler!**



- i. Place zip ties as shown in pictures. Starting at oil cooler, zip tie hoses together to keep them away from the bumper beam.
- j. Drill a 1/4" to 3/8" hole in plastic diverter, then use two zip ties and cross them as shown below.
- k. Continue with connecting hoses together with zip ties leading up to washer bottle, then into engine bay. **NOTE: Zip ties are used to secure hoses away from sharp metal objects that will wear through hose. If aftermarket items are installed, make sure to zip tie hoses away from them to ensure no wear will occur on metal objects.**



- 18. 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.
- 19. Before starting 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.
- 20. 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.
- 21. 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 move to step 23.
- 22. Reinstall bumper back to car in the reverse order it was removed.
- 23. Start engine 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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Live Chat with us on our website