



2013+ Scion FR-S/Toyota 86/Subaru BRZ
Jackson Racing Engine Oil Cooler Kit – JRSC Version
Installation Instructions



Congratulations on your purchase of the Jackson Racing FR-S/BRZ Engine Oil Cooler Kit!

This Jackson Racing Engine Oil Cooler Kit is designed to be installed with a Jackson Racing supercharger system. If you are looking to install an oil cooler for your naturally aspirated FR-S/BRZ, we recommend using our NA version of the Jackson Racing Engine Oil Cooler Kit. If you have decided to complete the installation on your own, please be sure that you have the tools to handle the installation and ability to follow all instructions completely.

Please review the complete instruction manual before starting your installation. Please follow the instruction manual step by step and do not skip ahead.

Please refer to the Genuine Toyota or Subaru Service Manual for all mechanical and safety procedures.

Many stock parts are reused/reinstalled during installation. Do not damage or discard any pieces during disassembly or installation. We recommend marking any hose or wire before disconnecting to avoid confusion during reassembly.



You will be working under the car during this installation. Be prepared to raise the car up with a floor jack and support stands or a professional hydraulic vehicle lift. Do not work under your car without proper vehicle support!

Always wear safety glasses while performing your installation. Do not smoke while performing this installation.

Tools Required:

- Set of Metric wrenches from 8mm to 19mm
- Set of Metric sockets from 8mm to 19mm
- Set of Phillips and Flat Blade Screwdrivers
- Set of Metric Allen wrenches
- Set of Pliers

Special Tools Recommended:

- The plastic trim panel retaining clips, or push-pin clips, on the FR-S/BRZ are difficult to remove. We recommend buying a set of KD Tools Push-Pin Pliers Set.
- 25mm, 27mm, 29mm Wrenches
- 25mm, 27mm, 29mm Sockets
- 1-5/16" Low Profile Wrench
- Torque wrench capable of reading in Inch Pounds and Foot Pounds.

NOTICE: One (1) quart of additional engine oil is required to complete this installation.

For track use, we recommend using a high performance synthetic 0w/20 or 5w/30 engine oil (i.e. Torco SR5).

MAINTENANCE:

Proper vehicle maintenance is essential to any high performance vehicle. Do not neglect your vehicle. Change your engine oil/filter every 3 months/3,000 miles. Use a factory recommended oil and filter. Approximately one (1) quart of additional engine oil is required for future maintenance.

Part Numbers will be listed throughout the installation instructions in parentheses. (1234-56-789) or (12345-67890)



DISASSEMBLY OF FACTORY COMPONENTS:

1. Disconnect the negative battery cable from the battery.
2. Raise the car up so that the front tires, under side plastic panels and front bumper can be removed.
3. Remove Front Bumper:
 - A. You will either need a small screwdriver and patience to pry the auto locking plastic clips on the plastic trim parts or the KD Tool listed in the "Recommended Tools" section above to remove the plastic clips.
 - B. Remove the plastic clips and bolts that hold the under tray to the front bumper and the radiator support.
 - C. Remove the front wheels to gain access to the inner fender plastic liner. Remove the three plastic Phillips screws from each side of the leading edge of the front bumper that hold the inner fender liner to the bumper. These small Phillips screws open by turning them a half turn counter clockwise. Remove the single Phillips plastic screw that is located directly behind the side-marker lights. Pull the plastic inner fender liner back so you can see the back of the side-marker light. Insert a small screwdriver through the hole in the side-marker mounting bracket and carefully push the spring-loaded tab until the side-marker can be pulled from the front bumper. Use a great deal of patience with these clips as they can be easily damaged. Unplug the side-marker at this time. Remove the vertically mounted plastic retaining clip that is behind the side-marker light that retains the bumper ends.
 - D. Remove the two plastic clips and the five bolts that hold the upper bumper to the chassis from the upper radiator area.
 - E. Pull on the outer corners of the front bumper to get it to "pop" off of its mounting points. Unplug the headlights/fog lamps and set the bumper in a safe place.
4. Remove the three (3) 10mm headed bolts that hold the lower radiator panel to the chassis and remove the panel.
5. Remove the Jackson Racing Air Filter at this time. It will open up the area where the oil cooler hoses will be routed.
6. Remove the Button Head Cap Screws from the lower support brackets on the bottom of the intercooler. Loosen the 10mm locking nuts that hold the lower support brackets to the chassis and swing them towards the radiator to make room for the Jackson Racing Engine Oil Cooler to be installed later in the installation.
7. Remove the four (4) M6x1.0x18mm flange bolts that hold the existing 10-Row Setrab Rotrex oil cooler to the intercooler mounting bracket. Save the bolts, cushions and threaded hardware. These will be reused later in the installation.
8. Hang the 10-Row Setrab Rotrex oil cooler up temporarily using the extra large plastic ties. Route the plastic ties through the top radiator support and around the oil fittings on the oil cooler as you prep the new Dual Oil Cooler Bracket for installation. You will not be bolting anything to

the original oil cooler mounting points on the intercooler bracket when reinstalled. These holes will be used to secure the oil hoses for the new Engine Oil Cooler.

9. The 10 Row Setrab Rotrex oil cooler that came with your supercharger system will be relocated from the center of the front bumper area to the driver side of the front bumper area to make room for the new 15 Row Setrab Engine Oil Cooler. In most installations there is enough excess hose coming from the supercharger to the oil cooler to allow it to easily be moved to the driver side of the front end (approximately 6"). For installations that require additional hose, a short length of Rotrex oil hose, a brass connector, and two (2) Rotrex spring clamps are supplied to extend the hose as necessary. Be sure to clamp off your Rotrex oil hose before pulling it from the 10 Row Setrab Rotrex oil cooler and be prepared for a quick hose change or you will lose Rotrex traction fluid.



10. Remove the silicone coupling hose on each end of the intercooler and slide the coupling hoses back onto the intercooler tubing. The intercooler tubing does not have to be removed from the engine compartment.

11. Loosen the M6x1.0mm flanged nylock nut on the intercooler mount on the passenger side.

12. Remove the M6x1.0mm flanged nylock nut on the driver side of the intercooler mount and remove the intercooler assembly.

DUAL OIL COOLER BRACKET PREP:

Locate the new Jackson Racing Dual Oil Cooler mounting bracket. Pay close attention to the new mounting bracket as it is designed to fit on the car in one direction only. The Jackson Racing Dual Oil Cooler mounting bracket supports the 15 Row Setrab Engine Oil Cooler on the passenger side of the car and the 10 Row Setrab Rotrex oil cooler on the driver side of the car. The side of the bracket with the spacers and threaded bosses will face up and the non-threaded holes will be the mounting points for the oil coolers. The bottom of the bracket is shown below.



13. Bolt the new 15 Row Setrab Engine Oil Cooler to the new Jackson Racing Dual Oil Cooler mounting bracket using four (4) M6x1.0x18mm flange bolts and two (2) cushioned cooler mounts. Thread the four (4) M6x1.0x18mm flanged bolts through the bottom of the Dual Cooler bracket, the engine oil cooler, and then into the cushioned cooler mounts. Apply a small amount of thread locking adhesive to the bolts prior to installation. Torque to 9 ft-lbs. This Engine Oil Cooler assembly will be installed after the oil lines are installed.

OIL COOLER ADAPTER INSTALLATION:

14. Remove the oil filter from the engine and set it aside in a clean place and cover the oil filter with a shop towel to keep debris out of the oil filter. If you are planning to replace your oil and filter at this time you can disregard this instruction.

15. Install the new Jackson Racing Oil Cooler Adapter Spacer to the original oil filter mounting location with the O-ring seal side down on the engine. Lubricate the O-ring with grease before installation.

16. Install the Thermostatic Oil Cooler Adapter, with the -10AN fittings loosely installed, onto the previously installed adapter spacer. The O-ring side of the sandwich adapter should be placed against the smooth side of the aluminum adapter spacer. Lubricate the O-ring with grease before installation.

17. Thread the oil filter M20 extension through the Thermostatic Oil Cooler Adapter and tighten the extension on the oil cooler adapter/spacer until it contacts the surface. Rotate the oil cooler adapter so that the -10AN fittings are close to the oil filler cap facing towards the front of the car,

then tighten the 27mm hex on the M20 oil filter extension a further $\frac{3}{4}$ of a turn. You will need to finalize this last tightening sequence once all the oil lines are tightened in place so that you get the rotation correct and you have clearance between the oil lines and the supercharger compressor exit tubing.

18. Now that the Thermostatic Oil Cooler Adapter is solidly mounted, it is time to finalize the -10AN fitting installation. Install the M22x-10AN male fittings with O-rings into the side/horizontal ports on the Thermostatic Oil Cooler Adapter and tighten using a 27mm socket.

19. Install the M22 blank plugs in the top ports of Oil Cooler Adapter using a 29mm socket/wrench.



OIL COOLER HOSE INSTALLATION:

Locate the two oil cooler hoses in your kit:

- -10AN Oil Hose - 41" Long
- -10AN Oil Hose - 29" Long

They will have a M22 male threaded fitting on one end and a female -10AN fitting on the other end. The M22 male end has a full-floating internal O-ring seal so that it can rotate freely after its threaded portion is fully tightened onto the oil cooler. Apply some lubricating oil to the top of the fitting and rotate it so that the lubricant can work its way into the O Ring seal prior to installing the hoses. This will make the fitting easier to turn during installation.

20. Route the 41" oil hose from the front of the car through the foam that seals the area between the radiator and the front radiator support on the driver's side. Route the hose with the -10AN female fitting into the foam by starting just above the aluminum air conditioning pipe on the drivers end of the radiator but just below the black air conditioning condenser mounting bracket.

21. Pull the hose through the radiator foam from the engine side and check the inlet for any debris that might have gotten in the end of the hose. Route this hose up to the fitting next to the oil filler cap. You can install the hoses on either fitting as it is a closed-loop oiling system but we recommend the fitting closest to the filler cap for ease of hose routing. Apply a small amount of lubricant to the male threads of the -10AN fitting and then thread the hose onto the fitting and tighten the 25mm hex fitting at this time. Leave the open end hanging in the front of the car at this time.



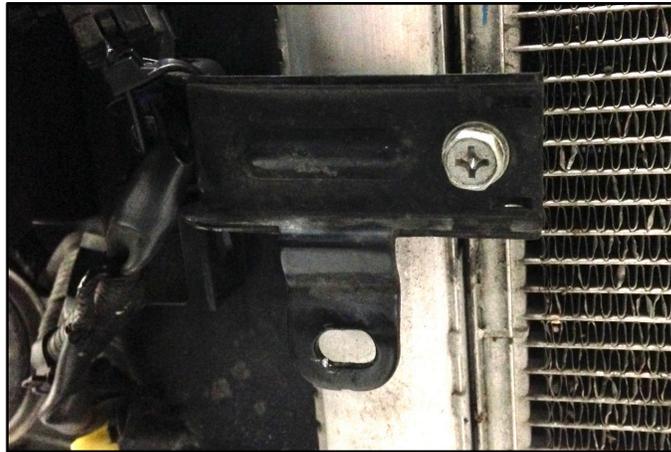
22. Route the 29" oil hose from the front of the car through the foam the seals the area between the radiator and the front radiator support on the driver's side. Route the hose with the -10AN female fitting into the foam by starting just below the aluminum air conditioning pipe on the drivers end of the radiator. Route this hose below the 41" hose previously installed through the radiator area.

23. Pull the hose through the radiator foam from the engine side and check the inlet for any debris that might have gotten in the end of the hose. Route this hose up to the open fitting on the oil cooler adapter. Apply a small amount of lubricant to the male threads of the -10AN fitting and then thread the hose onto the fitting and tighten the 25mm hex fitting at this time. Leave the open end hanging in the front of the car at this time.



24. At this time rotate the oil cooler adapter so that the -10AN hose fittings clear the supercharger discharge tube and the oil filler cap. Tighten the 27mm extension screw completely at this time. Lightly grease your oil filter seal and install your oil filter at this time.

25. Remove the clip that holds the external air temperature sensor to the air conditioning condenser bracket on the lower passenger side. Route it to the backside of the bracket and secure it in place using a plastic tie. Bend the horizontal portion of the bracket down using pliers to make room for the new 15 Row Setrab Engine Oil Cooler.



26. Install the M22 male fittings into the top of the 15 Row Setrab Engine Oil Cooler. Apply a small amount of lubricant to the external O-rings on the M22 threaded fittings so that the O-rings don't bind during installation. Carefully thread the 41" oil hose onto the fitting on the passenger end of the 15 Row Setrab Engine Oil Cooler. It is useful to have a helper hold the oil cooler as you thread the 22mm male fitting into the cooler. Hold the 1-5/16" hex on the oil cooler while tightening the 27mm hex on the male fitting to avoid stressing the oil cooler. Repeat the process for the 29" oil hose.

OIL COOLER INSTALLATION:

27. Using the extra large plastic ties, temporarily hang the 15 Row Setrab Engine Oil Cooler from the top radiator support as you reinstall the intercooler assembly.



28. Install the intercooler onto the front bumper support using the original hardware and following your original supercharger system instructions.

29. Swing the two lower support brackets from the area near the radiator that they were placed in during the disassembly process back to the lower mounting bosses on the intercooler. Reinstall the M8x1.25x16mm Button Head Cap Screws through the lower supports and into the bottom of the intercooler. Leave the bolts loose at this time.

30. Cut the extra large plastic tie from the 15 Row Setrab Engine Oil Cooler and lower the engine oil cooler and bracket onto the lower intercooler support brackets. Install the four (4) M6x1.0x12mm Button Head Cap Screws through the lower supports and thread them into the dual oil cooler bracket. Apply a small amount of thread locking adhesive to the bolts prior to installation. Torque securely to 9ft lbs.



31. Torque the M8x1.25x16mm BHCS on the bottom of the intercooler to 16ft lbs.

32. Cut the extra large plastic tie from the 10 Row Setrab Rotrex Oil Cooler and lower the cooler onto the Dual Oil Cooler bracket. Bolt the 10 Row Setrab Rotrex Oil Cooler to the Dual Oil Cooler bracket using the four (4) M6x1.0x18mm flange bolts and two (2) cushioned cooler mounts that were removed earlier. Apply a small amount of thread locking adhesive to the bolts prior to installation. Torque to 9 ft-lbs.

33. Route both -10AN oil hoses below the original Setrab Rotrex oil cooler mounting points behind the intercooler and secure the hoses to these locations using a plastic tie provided.



34. Reinstall the Jackson Racing Air Filter at this time.

35. Check the oil hose routing. Make sure the hose is not rubbing on any sharp edges.

36. Start your engine and check for oil leaks prior to reinstalling your bumper and undertray. Your new Jackson Racing Engine Oil Cooler will increase your oil capacity approximately 1 full quart. Check your oil after running the engine for a few minutes. Check your Rotrex traction fluid level if you lost any fluid during installation.

37. Reinstall the front bumper and undertrays.

Your installation is complete! Check for leaks once again post installation. Once you finish your first test drive, always double check the all hoses, fittings, and fluid levels. Enjoy!