

PRECISION PERFORMANCE
SINCE 2002

BRS
Bilt Racing Service

**TECHNICAL
LIBRARY**

LN ENGINEERING / BRS POWER STEERING COOLER KIT TYPE 987 BOXSTER® AND CAYMAN®

INSTALLATION MANUAL

This instruction manual or bulletin is not intended to be substituted for proper judgement, or common sense. Always refer to the factory manual or to the information supplied by the manufacturer with your product for detailed assembly or installation instructions.

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Your Power Steering Cooler Kit contains:



Cooler with fittings



Large retaining plate



Line adapter



Line coupling



Small retaining plate with bolt



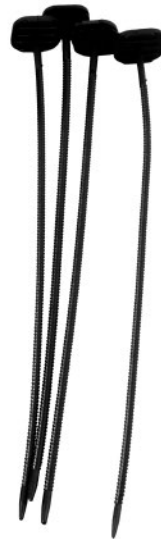
Cushioned hose clamps



Cooler line with straight fitting



Cooler line with U-fitting

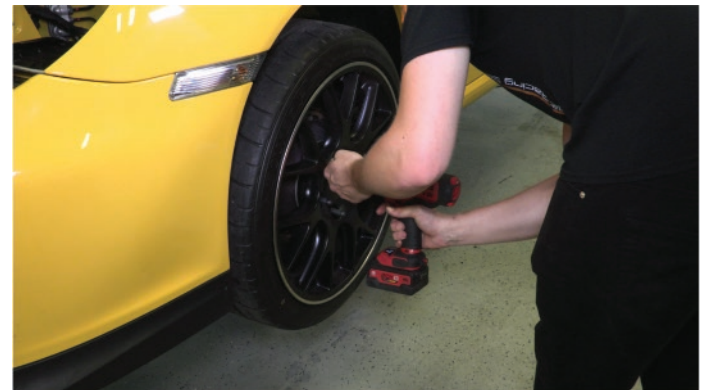


Mounting kit



PREPARATION

- ▶ Lift the car
- ▶ Remove front wheels



WARNINGS AND PRECAUTIONS:

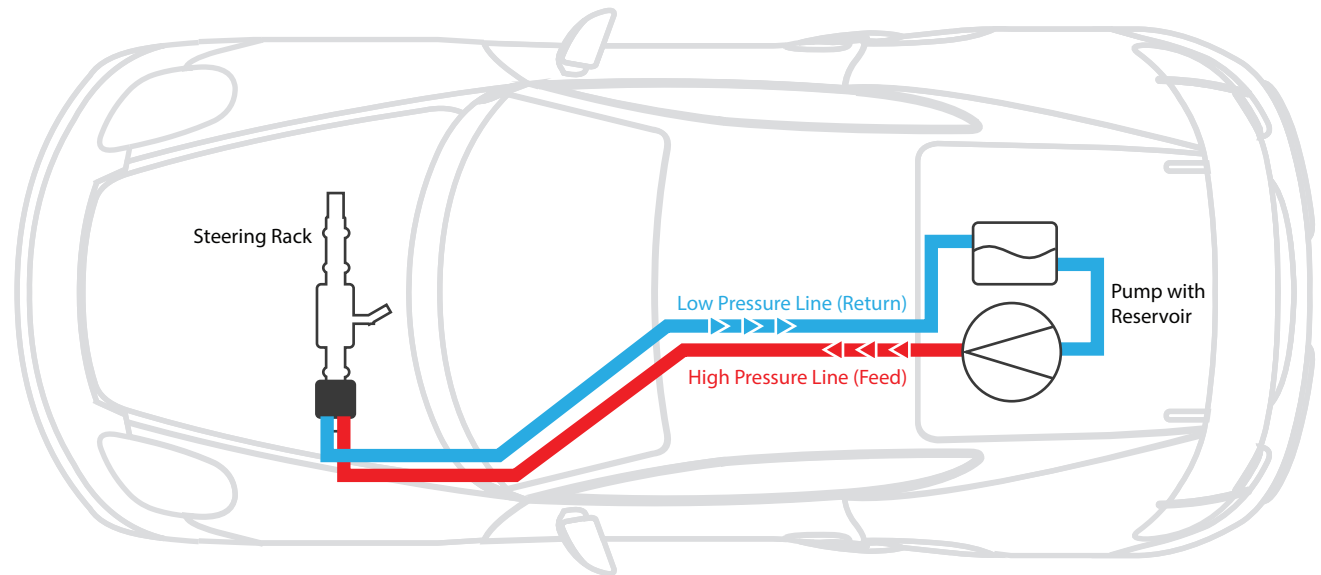
- Vehicle shown has aftermarket products fitted that vary from original equipment.
- Due to variations in models from year to year, some alterations to the installation of the kit may be necessary including but not limited to clearancing of ducting or shrouding.
- A complete flush is recommended. Refer to your car's user manual to determine proper type and brand of power steering fluid.
- If changing brand or type of fluid, a complete system flush is required. Do not mix fluids.
- Power steering fluid is corrosive and will damage paint.
- Bleeding the power steering system is required after installation.
- This would be a good time to clean the radiators and condenser of road debris to improve cooling or to install higher performance radiators

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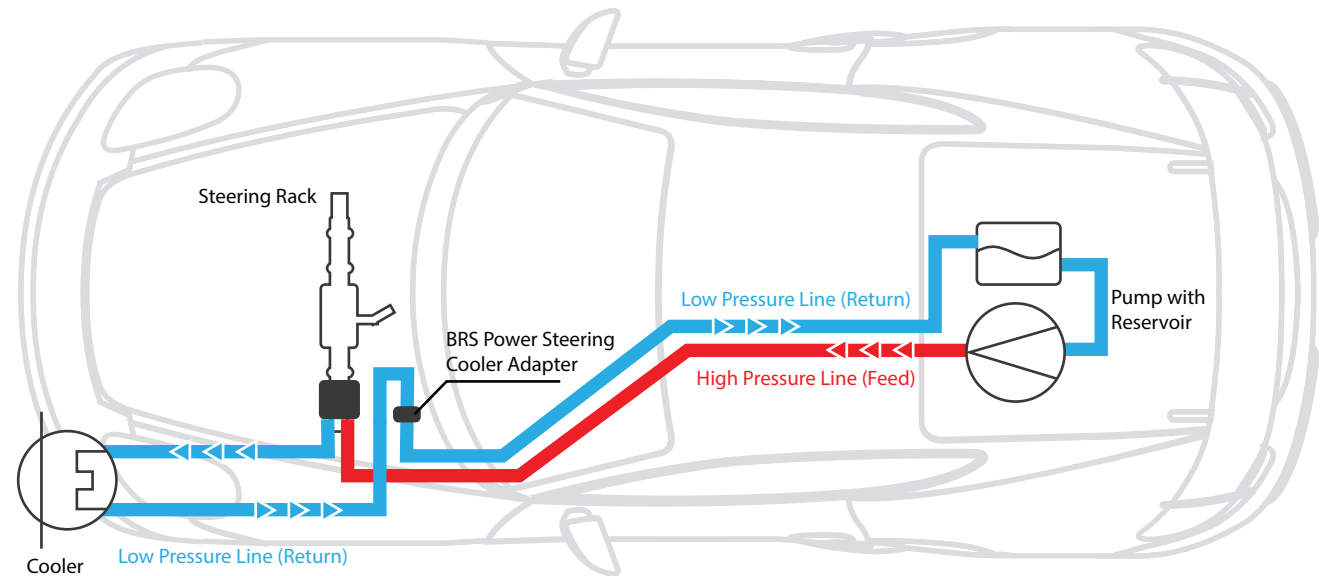
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Power Steering System Diagram:

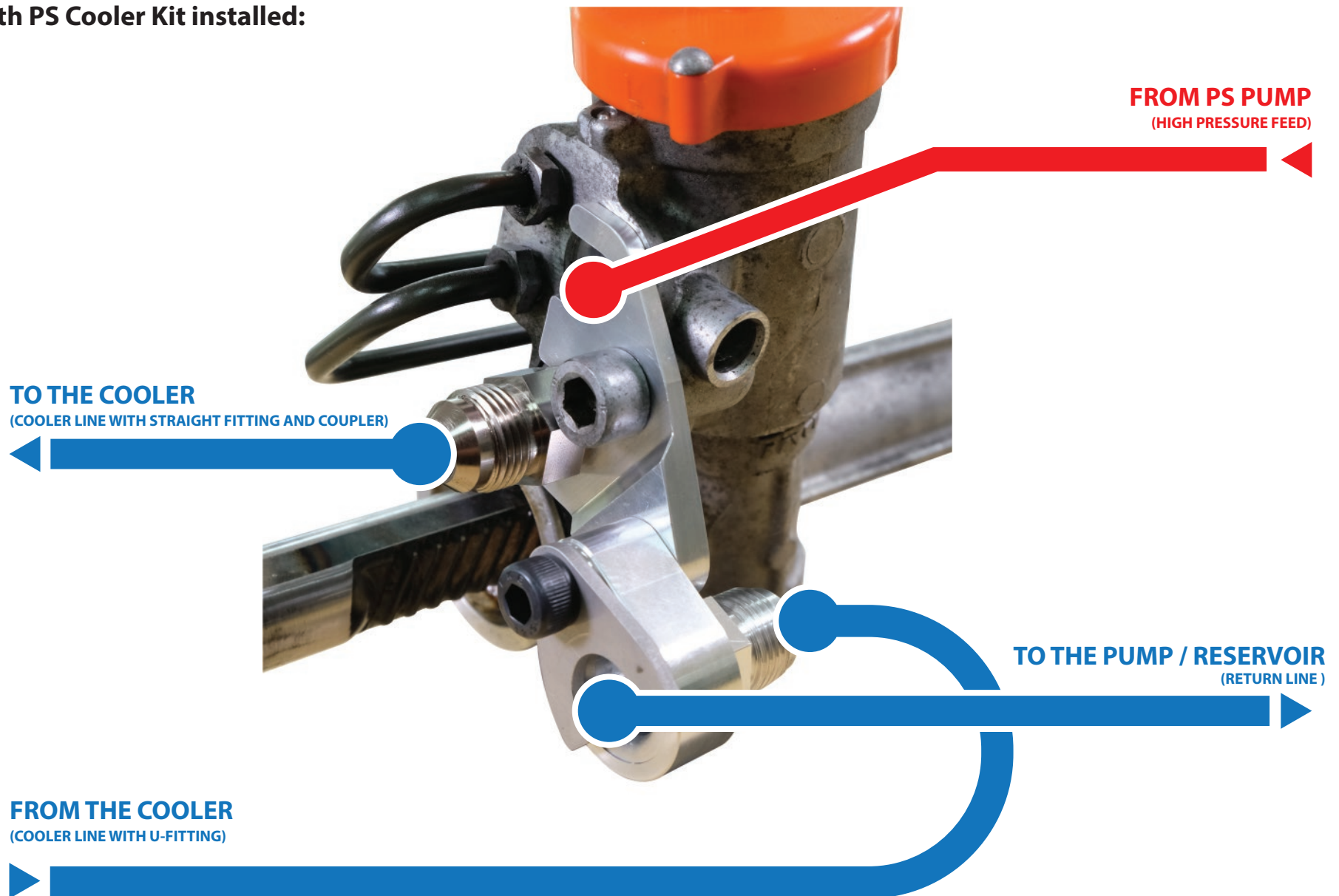
Without BRS PS Cooler Kit



With BRS PS Cooler Kit installed



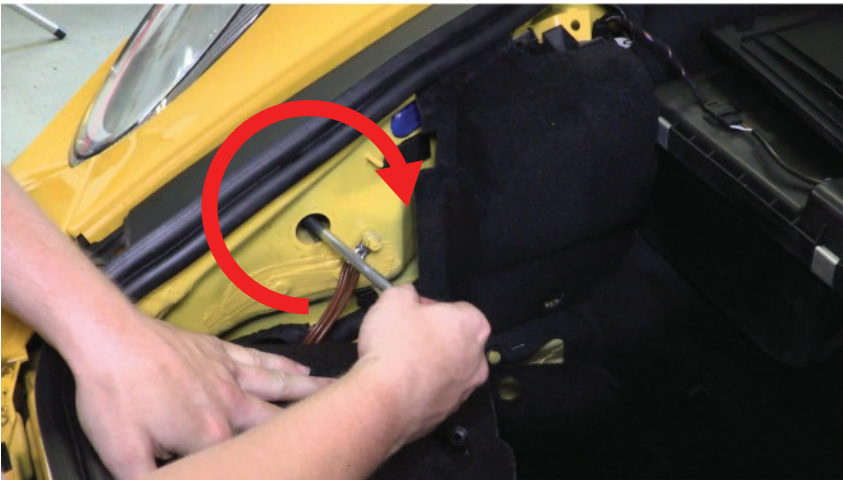
Line connections at steering rack with PS Cooler Kit installed:



1 Remove front bumper cover.

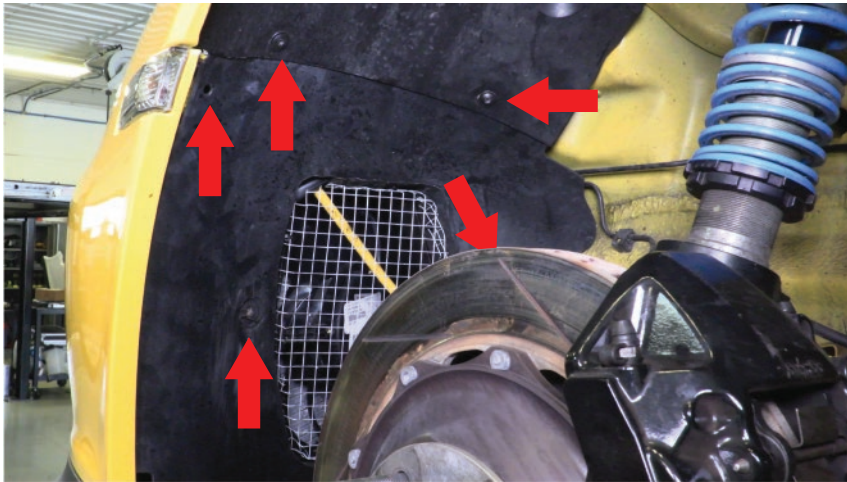


► Remove the top plastic radiator cover (between the bumper and trunk lid seal). The side (fender) covers don't need to be removed.

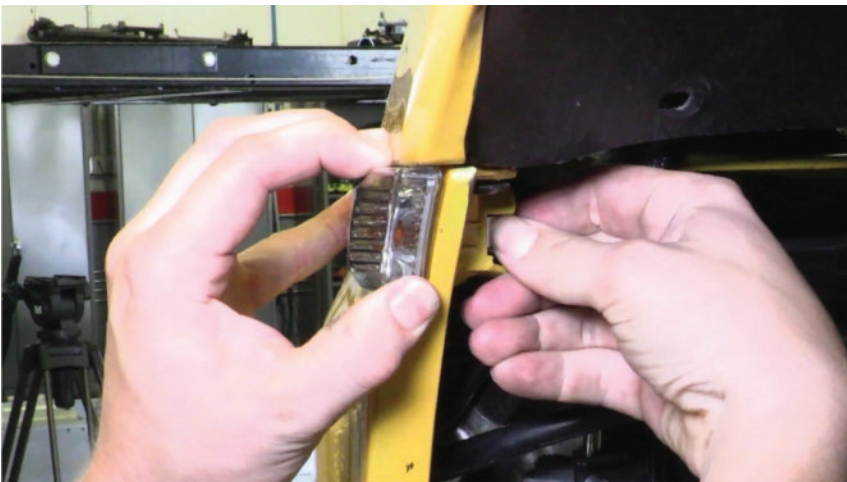


► Remove both headlights. Lift the trunk liner and release the headlight assembly using the headlight removal tool included in your car's tool kit. Turn the tool's handle towards the back of the car.

1 Remove front bumper cover - ct'd.

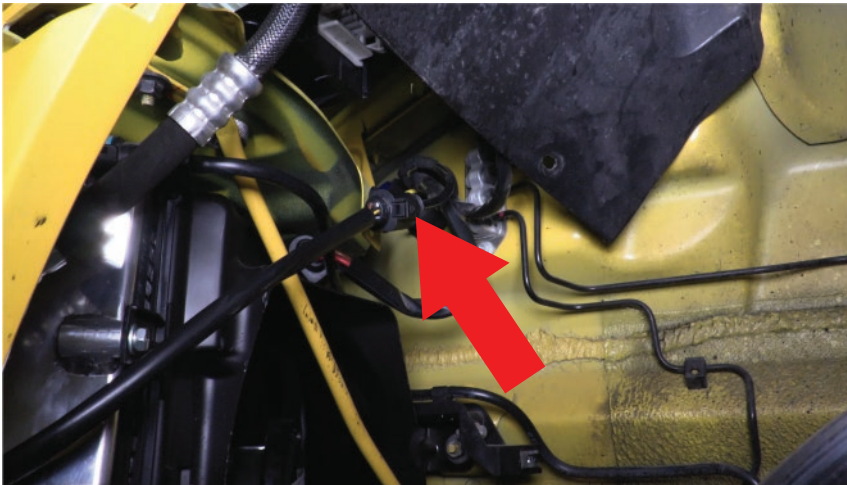


► Remove screws and the wheel well liners on both sides of the car.



► Remove side markers. Press the metal spring and push / pull the side marker out . Disconnect the wire harness (pull the plug while pressing the metal retaining spring / clip.)

1 Remove front bumper cover - ct'd.



- Disconnect the turn and parking lights wire harness. Press the plastic tab and pull the plug out.



- Remove all remaining screws holding the bumper cover. At the bottom, there are two screws on each side of the car and one center screw...

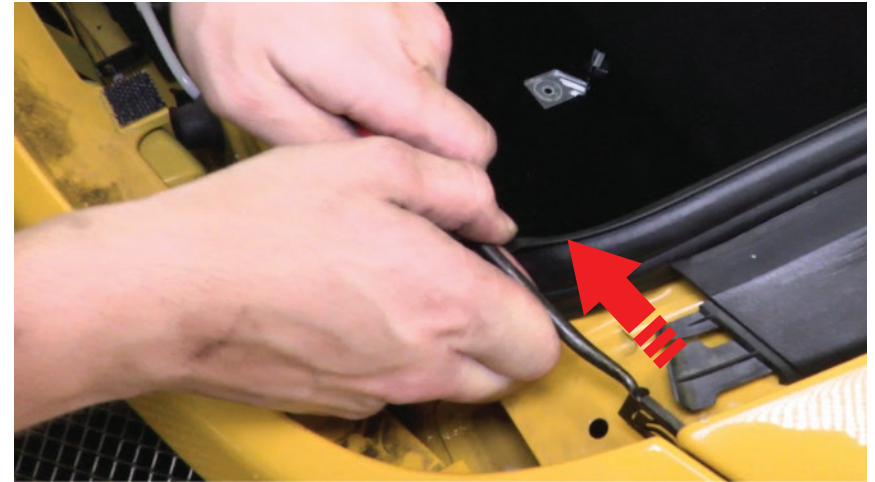


- ... one screw at each end of the bumper (accessible from the bottom)...



- ... and one screw inside the wheel well on each side of the car.

1 Remove front bumper cover - ct'd.

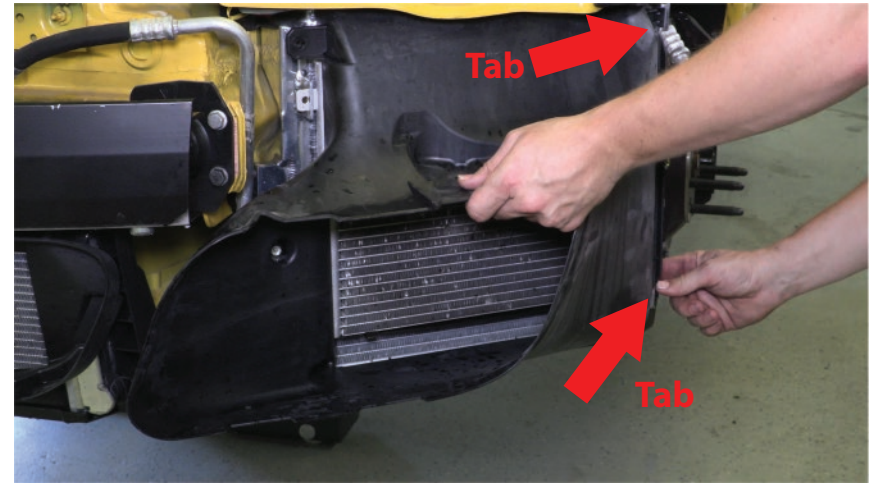
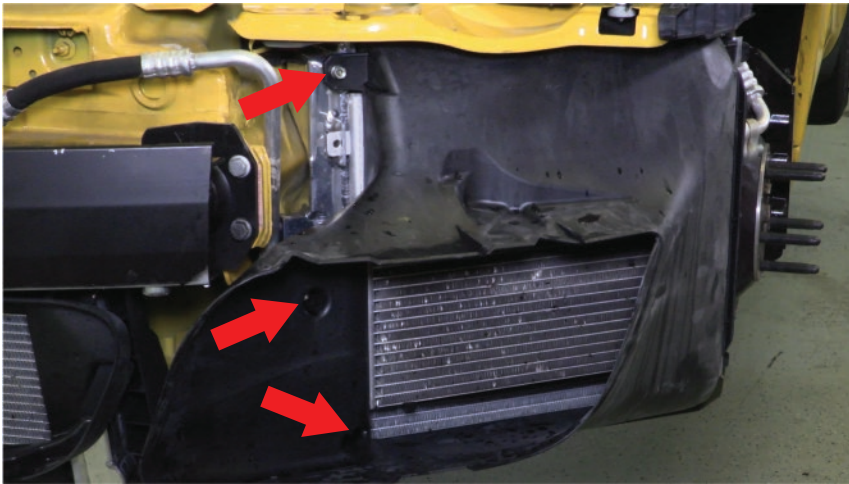


► Working from the top, remove two metal clips holding the bumper cover to fenders on both sides of the car.



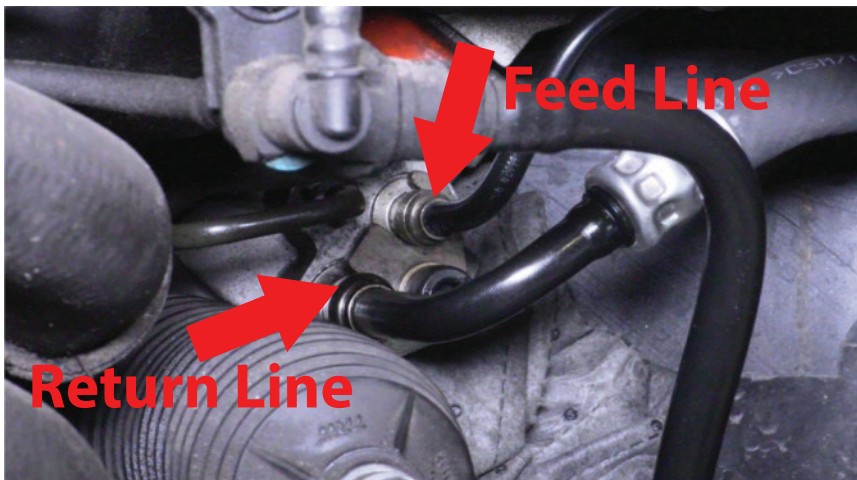
► Carefully remove the bumper cover. A second pair of hands is highly recommended.

2 Remove driver side radiator shroud.



► Remove three screws / bolts holding the shroud to radiator body. Remove the shroud carefully, do not break plastic tabs on the outer edge.

3 Disconnect the power steering return line (in driver's side wheel well).



► Locate and identify power steering lines connected to the steering rack. The top (smaller) line is a high pressure feed line coming from power steering pump. The bottom one is low pressure return line.

► Remove the Allen bolt...

3 Disconnect the power steering return line - ct'd.

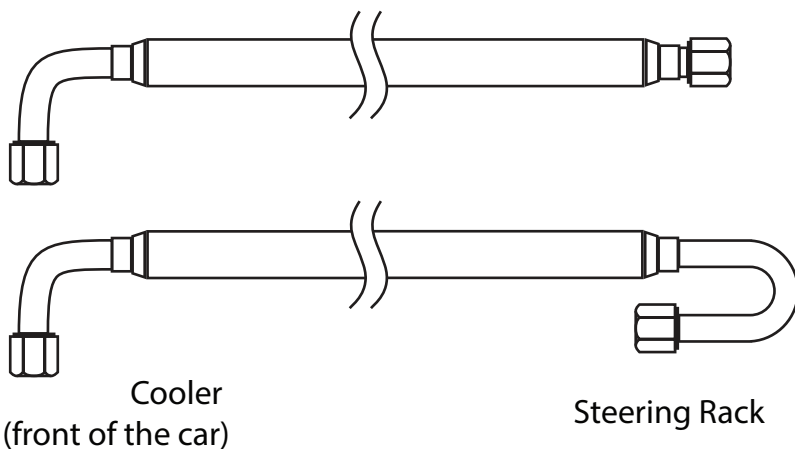


► ... and the retaining plate.



► Disconnect (pull out) the return line. Be ready to catch dripping power steering fluid .

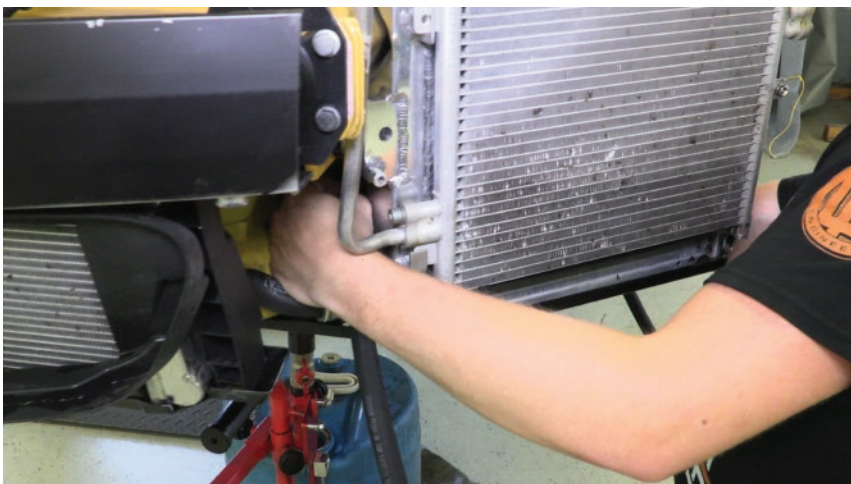
4 Insert and properly route cooler lines.



► Observe proper orientation of the lines. Both right-angle fittings should be on the cooler side (front of the car).

► Working from inside of the wheel well, insert both cooler lines in between radiator hoses...

4 Insert and route cooler lines - ct'd.



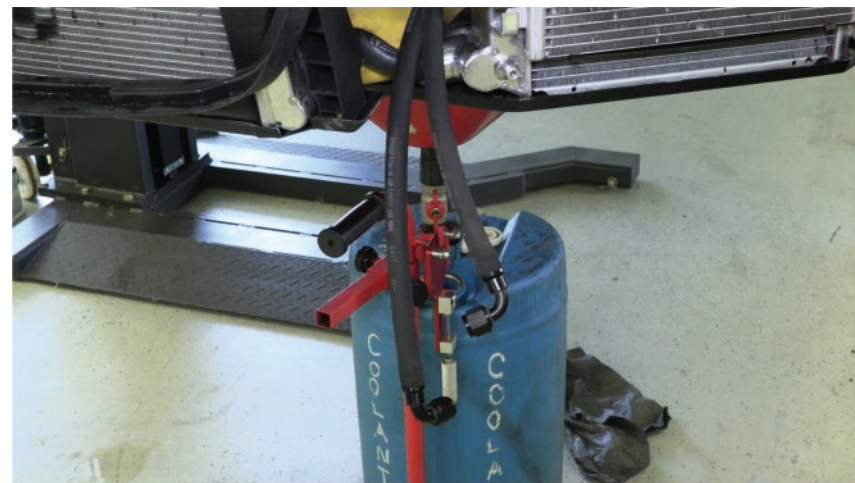
- ... and push them to the front of the car through the opening behind driver's side radiator.



- The space is tight there. Work from both sides of the radiator, pushing and pulling the lines simultaneously.



- Route the lines so that they aren't crushed, excessively bent or in contact with moving suspension parts.



- Make sure the lines are properly oriented. Both 90 deg fittings should be outside, in front of the car.

5 Connect cooler lines to the steering rack and line adapter.



- ▶ Working on the steering rack side, install and tighten line coupling in the straight fitting of the cooler line.



- ▶ Insert the fitting into steering rack's return port.



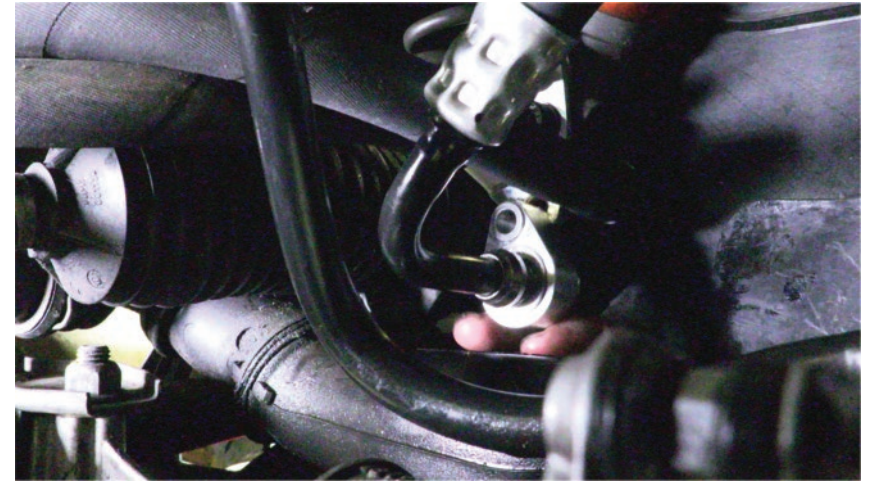
- ▶ Install the retaining plate included in your PS Cooler Kit that replaces the original one and provides support for the line adapter. Insert and tighten the bolt.



5 Connect cooler lines to the steering rack and line adapter - ct'd.



- ▶ Install the line adapter in the U-shaped fitting of the second cooler line. Tighten the connection.



- ▶ Insert the remaining return line's fitting into the line adapter.

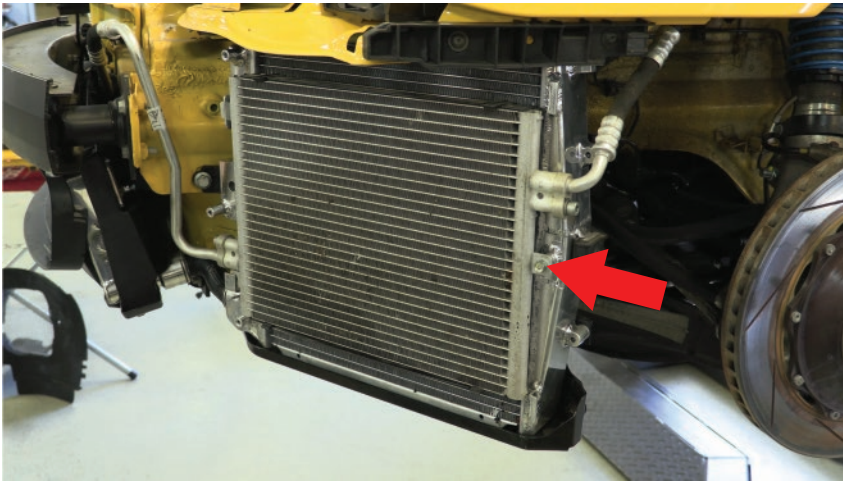


- ▶ Install the small retaining plate over the fitting.



- ▶ Align the holes, insert and tighten the bolt. The line adapter installation is now complete. Loctite is recommended on the retaining bolt.

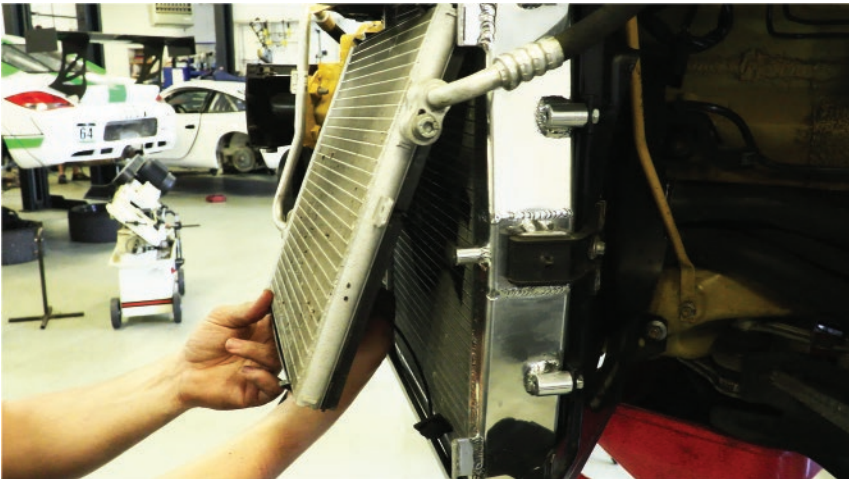
6 Attach the cooler and connect lines.



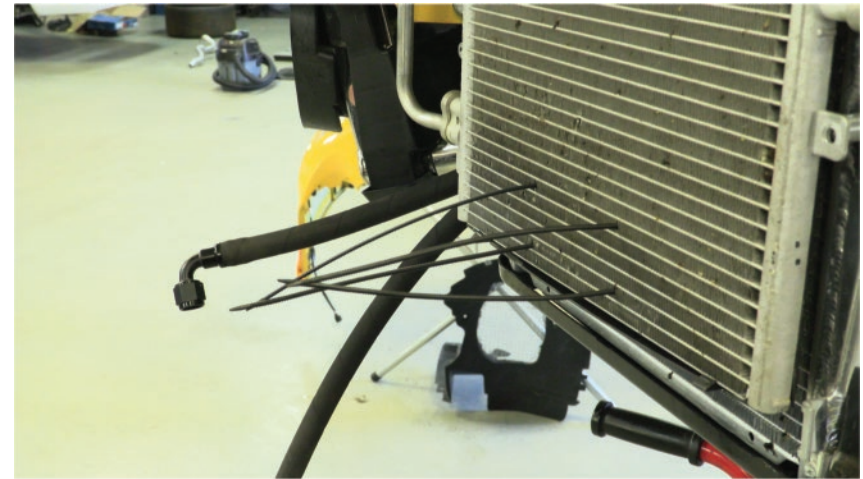
► Remove the bolt holding the A/C condenser.



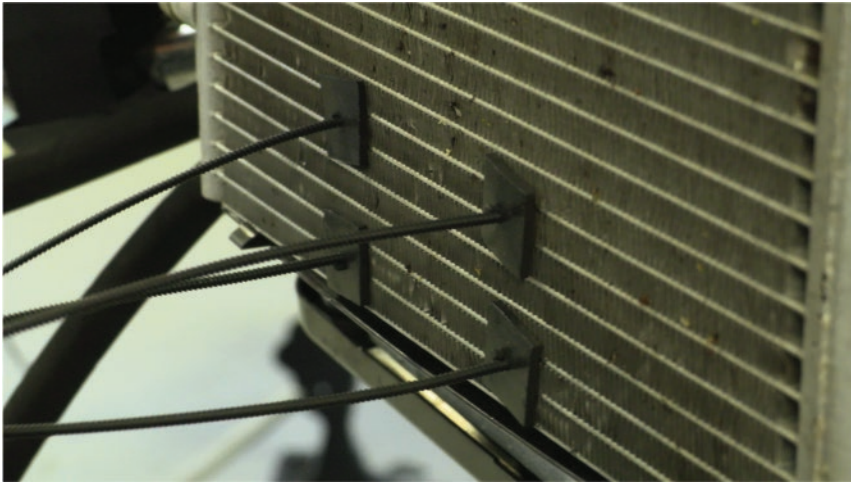
► Prepare the mounting kit. Put a foam pad at the end of each vinyl mounting rod.



► Carefully lift the condenser and thread four vinyl mounting rods through its fins, starting from the back side.



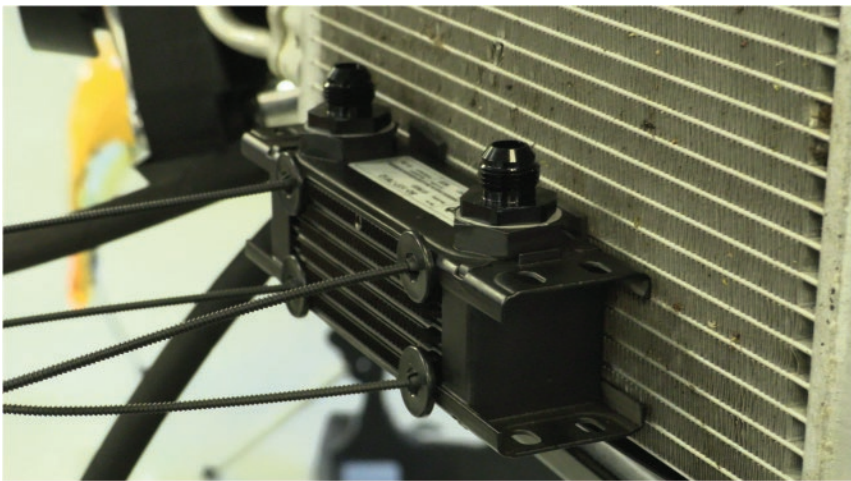
6 Attach the cooler and connect lines -ct'd.



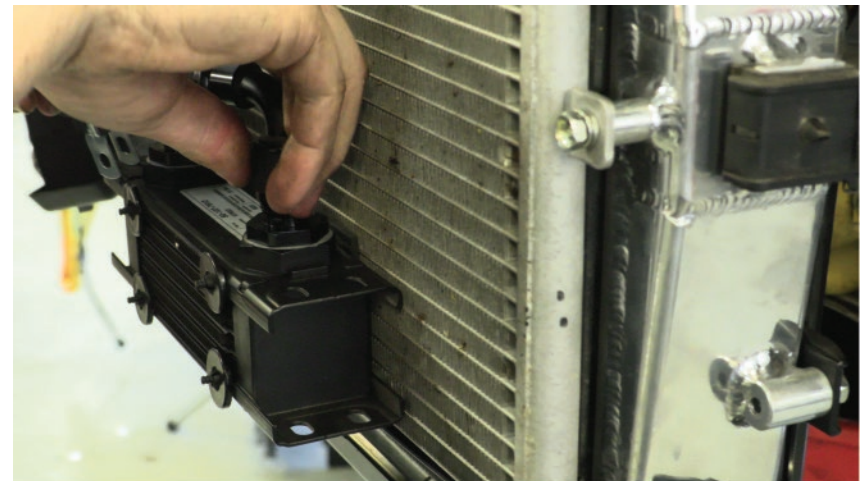
► Install the second set of foam pads on the outside of condenser.



► Carefully threading mounting rods through its fins, install the cooler.

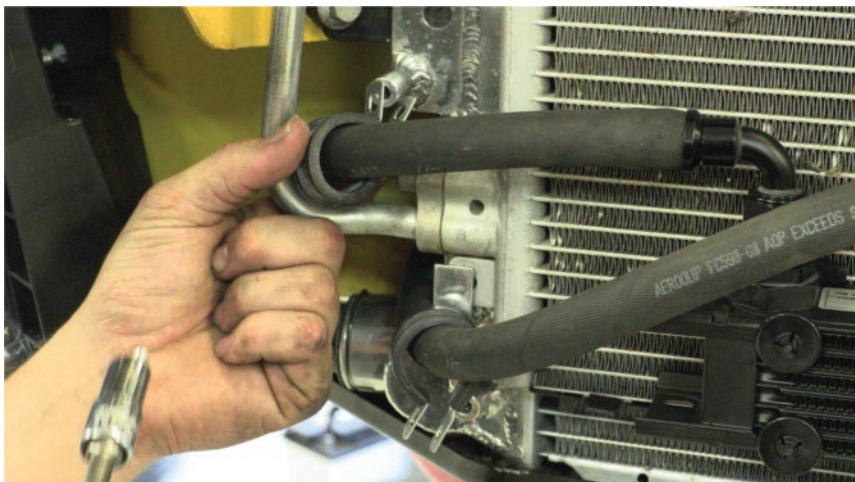


► Slide the locking buttons onto mounting rods, tightening the cooler to the A/C condenser. Cut mounting rods 1-2 threads above the button lock.



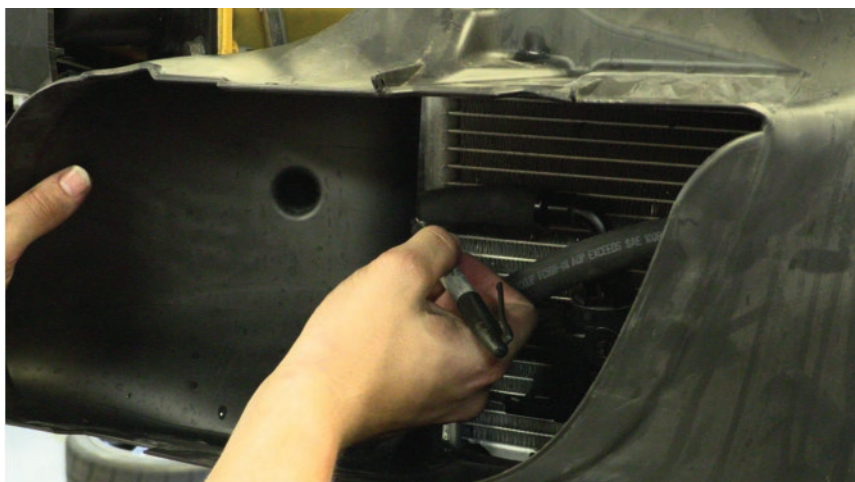
► Connect cooler lines.

6 Attach the cooler and connect lines - ct'd.

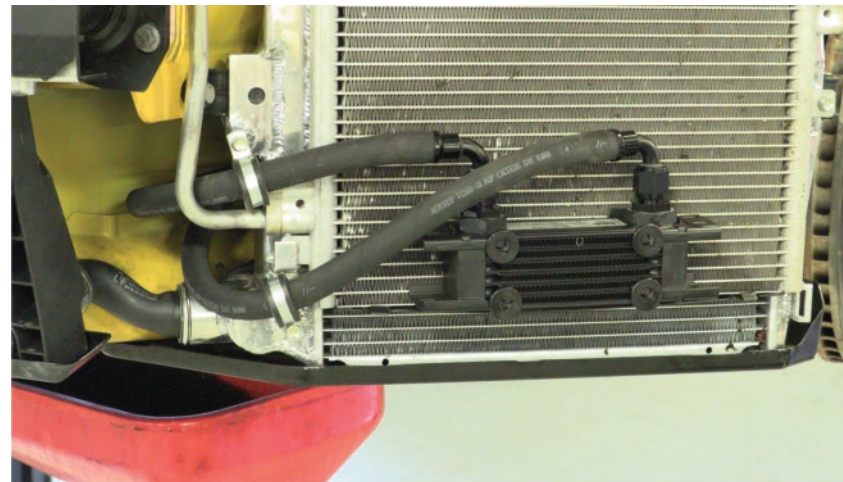


- Install cushioned hose clamps over the cooler lines.

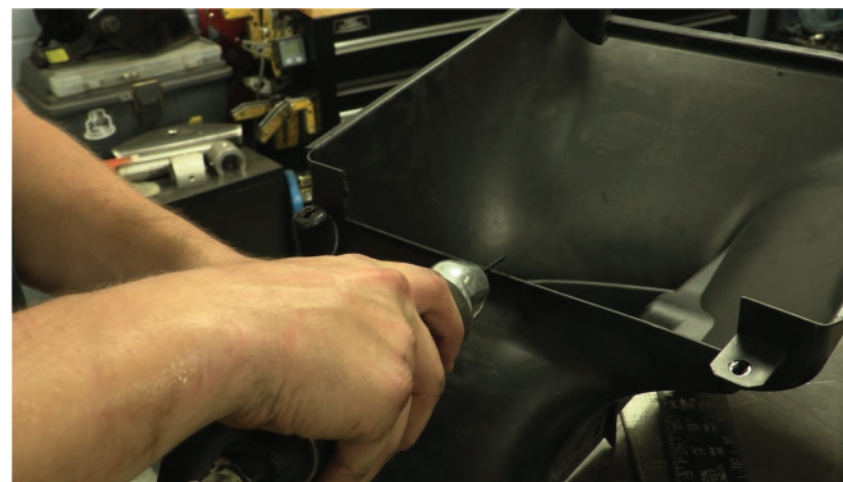
7 Adapt the radiator shroud.



- Align the radiator shroud and mark position of cooler lines on it.

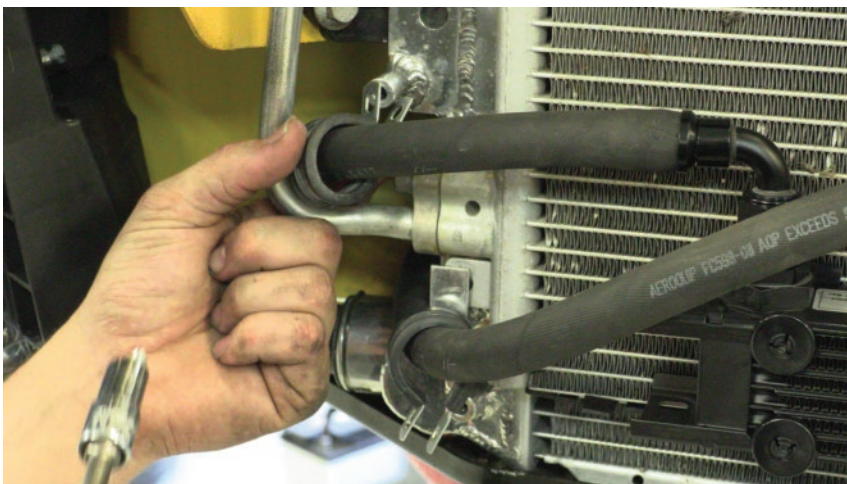


- Temporarily fix the clamps to radiator. Arrange cooler lines properly and partially tighten their fittings. Do not final-tighten any connections yet.

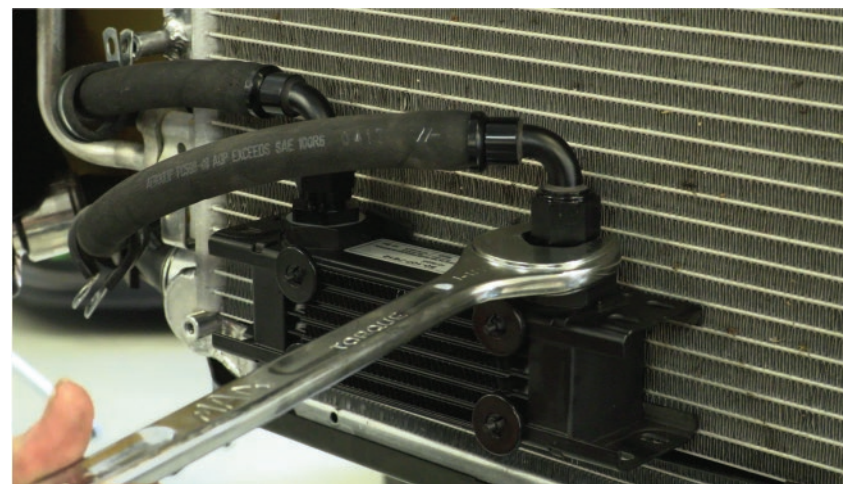


- Make cutouts in the radiator shroud using rotary cutting tool.

8 Install the radiator shroud. Complete the installation.



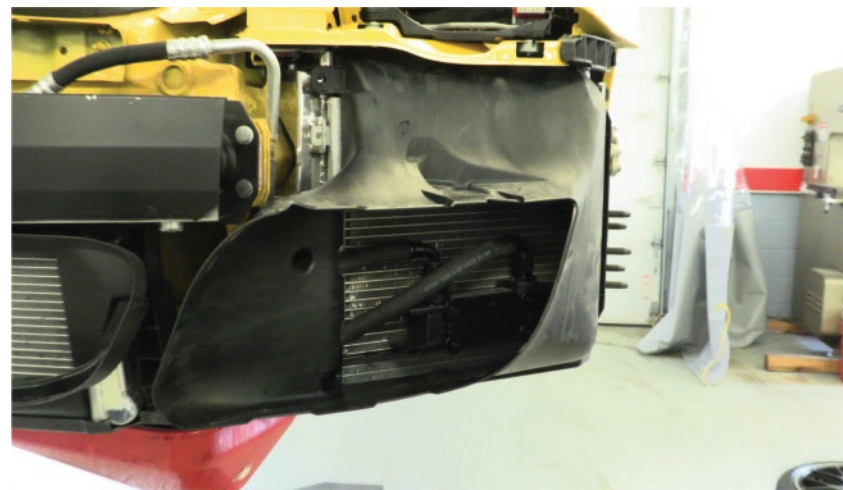
► Remove line clamp bolts.



► Tighten the cooler lines fittings.



► Install radiator shroud. Working behind the shroud, align line clamps so that the shroud mounting bolts can be pushed through their holes. Insert and tighten the bolts to radiator.



► The installation is now complete. Install the bumper cover, electrical connections, lights and all covers / liners in reverse order. BLEED THE STEERING SYSTEM.

9 Bleed the steering system.

1. To fill the whole system after the installation of new steering components or lines or after a substantial loss of hydraulic fluid, briefly start the engine a few times and, when it fires, switch it off again immediately. This procedure causes the fluid level in the reservoir to fall rapidly, so constantly add more fluid. The reservoir must not be sucked dry.
2. If the fluid level in the reservoir does not fall any further when the engine is briefly turned over, start the engine and let it run at idling speed.
3. Rapidly turn the steering wheel from full-lock to full-lock several times so that the air can escape from the cylinders. At the end positions of the piston, do not pull the steering wheel with more force than is necessary in order to turn the steering (to prevent unnecessary buildup of pressure initially).
4. Observe fluid level during this procedure. If it continues to fall, add fluid until the level in the reservoir remains constant and no more air bubbles rise in the reservoir when the steering wheel is turned.
5. Correct the fluid level with the engine at idling speed and without moving the steering.

Notes: