

## Cadillac CTS-V Power Steering Cooler Kit 2009-2015 Model Year (6.2L LSA engine)



**PN: L320050709**

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Release date: 21 December 2015

## Parts List

### 2009-2015 CTS-V Power Steering Cooler Kit (PN: L320050709)

#	Description	Part number
1	Heat exchanger, 10 row, 9 series	SET50-910-7612
2	PS cooler bracket, CTS-V	XX03277-0009
2	90 degree swivel push to lock 3/8" hose fitting, M22	SET-22M22PL06-90
4	1/4-20x3/4" SS button top socket cap screw	93107
4	1/4-20 SS Nylon insert lock nut	30634
4	3/8" hose, per ft	H1937
2	1/4-20x3/4" thread forming screw	1132408
4	17mm Oetiker clamp	52545K55
2	3/8" hose joiner	LN-TT23
4	Black triple wall heat shrink, 2-4/0 gauge, 2" section	DC980845
2	Zip-Tie, 7.5", black	BARNES-23-923X
4	3/4" black braided split loom, per foot	20343K

### Tools & Materials Required

- Flat head screw driver
- 13 mm socket
- 10 mm socket
- Ratchet
- 7/16" wrench
- 5/32" allen wrench
- Oetiker pliers (or be careful with side cuts)
- Oil or O-ring safe lubricant
- Hose clamp pliers
- Drill
- 3/16" drill bit (carbide is highly recommended)
- Jack
- Jack stands
- 50/50 DEX-COOL
- 10-5030 Power steering fluid
- Heat gun

#	Description	Optional Items	Part number
1	High capacity intercooler radiator for 2009-2015 CTS-V		L320030709

The LPE power steering cooler kit is designed to keep the power steering fluid temperatures low during use to help the fluid last longer and protect the power steering rack, pump and lines through all conditions such as racing.

This is the same kit that is used in the LPE 2009-2015 CTS-V LSA High Capacity Intercooler Radiator kit and is designed to fit with and modification needed to the car.

### Notes:

- Read all the instructions before beginning the installation process in order to make sure you have all of the tools and equipment needed and that you feel comfortable performing the installation.
- Be careful on the torque specifications. Some torque specifications are in pound feet (lb-ft) and others are in pound inches (lb-in).
- Be sure to save all of the parts you remove from the vehicle. Many components will be re-used during the installation of this system.
- Be careful not to damage any components while removing them from the vehicle. Some parts cannot be purchased by themselves from GM and must be purchased as part of an entire assembly.
- Some steps will require two people.



1. If you have been using the vehicle, allow the vehicle to cool before beginning this installation.



2. Raise and properly support the vehicle, either on a hoist or with a jack and jack stands, using the GM specified lift locations for the vehicle.

Consult your owner's manual for details on the proper jacking/lifting points.



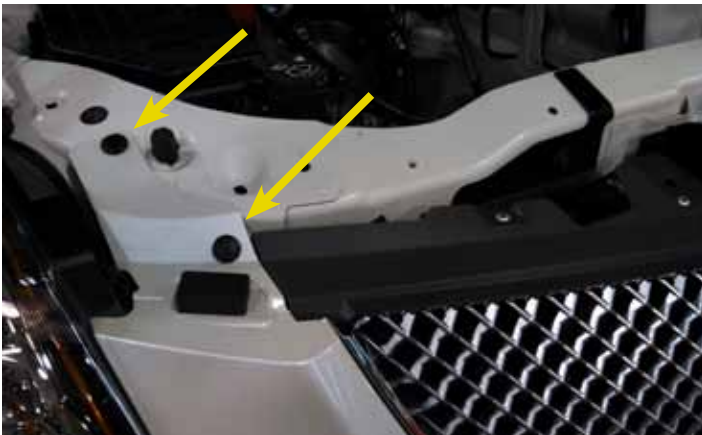
3. Disconnect the ground terminal from the vehicle's battery using a 10 mm wrench. The battery is located in the trunk on the passenger side of the vehicle.



4. Remove the front two wheels. It is recommended breaking the lug nuts loose in a star pattern.



5. Open the hood and remove the six plastic retainer clips from the sight shield by turning the clips counterclockwise. Remove the sight shield



6. Using a fork tool, remove the two (2) push fasteners from each side of the vehicle (four total) that secure the front fascia to the vehicle.



7. Remove the two M6x1.0 screws that secure the fascia to the bumper core support using a 10mm socket.

Tip: It may be easier to access the screws using a universal joint socket adapter and an extension.

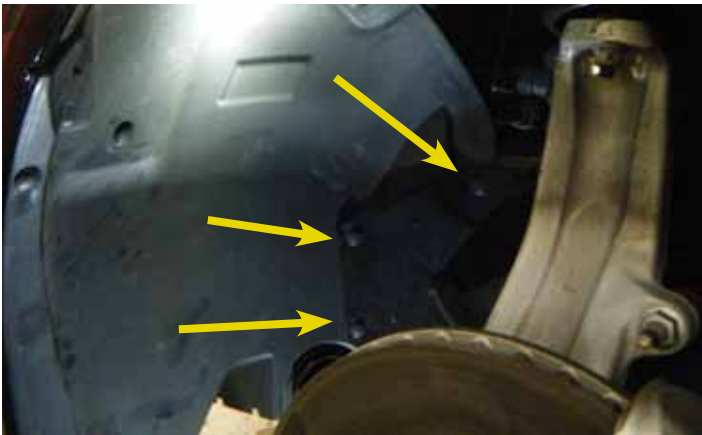


8. The front air deflector is located on the underside of the vehicle and is attached to the front fascia and the front portion of the frame. Remove the two (2) M6 bolts with a 10mm socket, remove the 10 push pins, and then remove the cover.

Note: The foam insert may come loose from the panel. Be sure to retain the insert and note its location, so that it gets put back in the correct location during re-assembly.



9. Locate the flexible rubber shrouds that are on either side of the radiator. Using a fork tool, remove the Christmas tree fasteners that secure the rubber shroud to the front fascia on both sides of the radiator (two per side, four total).



10. In each wheel well, an engine splash shield exists. This felt-like material shield is secured to the wheel well liner with four push pins. Remove the four (4) push pins and remove the splash shield. Repeat this process for both the passenger and driver side splash shield.



11. Remove the eight push pins holding in the front part of the fender liner and remove the fender liner. Repeat this process for both the passenger and driver side front inner fender.



12. Using a 10 mm socket and extension, remove the four bumper fascia bolts (2 per side) that secure the front fascia to the bumper beam. Access these bolts from each front wheel well.



13. Disconnect the electrical connector from each fog light.



14. The washer fluid pump is located on the passenger side of the vehicle behind the fog light area. Remove the line from the washer fluid pump that is used for the headlight washers. A rubber vacuum cap may be used to prevent washer fluid from leaking until reassembly.

15. With the help of an assistant, carefully remove the front bumper and set it somewhere safe so it will not be damaged.



16. Locate the power steering (PS) hose bracket that is found where the PS lines cross under the intercooler radiator and engine radiator on the driver side. Using hose clamp pliers to relieve the tension on the clamps, slide the hose with the attached clamps off of the metal lines and drain the fluid into a basin.

**Note:** Power steering systems are very sensitive to dirt. Do not re-use the fluid you have removed. Dispose of the fluid properly.



17. Using a 10 mm wrench undo the bolt holding the bracket for the PS hoses.



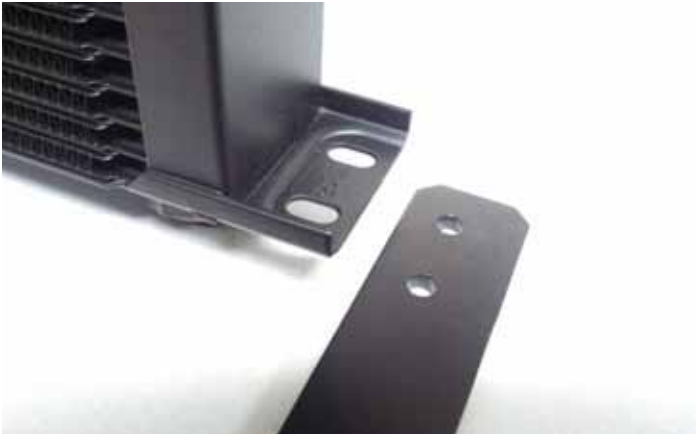
18. Using a 13mm wrench, remove the bolt on the passenger side power steering cooler bracket.



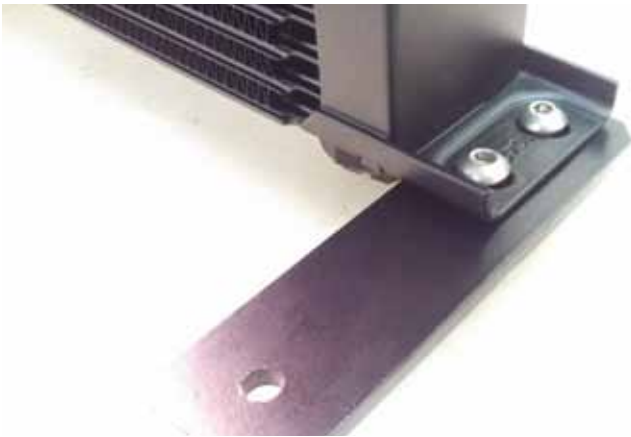
19. Remove the remaining bolt, located on the passenger side of the vehicle, that secures the OEM PS cooler to the front bumper impact bar.



20. Remove the OEM power steering cooler assembly.



21. Locate the two brackets (PN:XX03277-0009) and the supplied power steering cooler (PN:SET50-910-7612). The bolt holes on the brackets are offset with the holes being closer to one edge. Be sure to position the brackets such that the side of the bracket with the holes closest to the edge is next to the cooler (as shown).



22. Attach the brackets to the cooler using the four (4) 1/4"-20 Nylon insert lock nuts (PN: 30634) and 1/4-20x3/4" button head cap screws (PN: 93107). Using a 5/32" Allen wrench and 7/16" socket, tighten the bolts to 6 lb-ft (8 Nm).



23. Place the power steering cooler in between the diagonal support braces on the front of the core support with the mounting brackets setting on top of the front bumper impact bar.

The power steering cooler may not fit completely between the diagonal support braces. You will address that in the following steps.



24. Locate the passenger side support brace above the power steering cooler. Using a 13mm socket, loosen the top bolts, one on each brace.





25. Then loosen the bottom bolts. These are located between the impact bar and AC condenser.



26. To allow the most room for the power steering cooler, tighten the top bolts while pushing up and out on the brace.



27. Using a 13mm socket, torque the four bolts to 20 lb-ft (27 Nm).



28. Mark the locations for the holes for mounting the power steering cooler with a scribe or marker pen.



29. Make sure your hole locations do not line up with the two weld marks in the bumper beam (examples shown here).



30. Using a punch, mark the center of the holes. Using a 3/16" drill bit drill out the two marked holes. It is recommended to use a carbide drill bit or have a few brand new drill bits as they will dull out quickly when trying to drill through the hardened steel.

31. Cut the supplied 3/8" hose (PN: H1937) into two sections of equal length (24" each).



32. Remove the plastic plugs from the supplied power steering heat exchanger. Apply a light coating of oil or O-ring safe assembly lubricant to the threads of the 3/8" push-to-lock 90 degree fittings (PN: SET22-M22PL06-90). Install the 90 degree hose end fittings into the power steering cooler as shown.



33. Slide the supplied 17mm Oetiker clamps (PN: 52545K55) over the 3/8 hoses from step 27, and then push the hoses (H1937) onto the barbed ends of the fittings. Using Oetiker pliers, crimp the clamps over the hoses to secure them onto the fittings. Install a piece of the supplied heat shrink tube over the hose.

34. Cut the supplied 3/4" mesh loom into two sections (2 feet long each). Then slide each of the two sections onto the power steering hoses attached to the cooler.

Angle both of the fittings and hoses inwards (towards each other). Once the fittings are clocked properly use a 1-1/16 inch (27mm) wrench to tighten the fittings. Tighten to 30 lb-ft (40 Nm).



35. Place the power steering cooler back into place on the impact bar. As indicated previously, it is recommended to have the hoses point inwards towards each other. This will help with the packaging of the hoses. Tighten the screws in place using a 3/8" socket and wrench. Torque to 5 lb-ft (7 Nm).



36. Insert one end of each of the two supplied brass barbed unions (PN: LN-TT23) into the ends of the power steering hoses that are attached to the power steering cooler.



37. Slide one piece of the supplied shrink tubing (DC980845) over each hose section and then install one 17mm Oetiker clamp (PN: 52545K55) onto each of the hoses . Use the Oetiker pliers to secure the brass barbs in place.



38. Connect the OEM power steering hoses, from the rack and P/S pump, to the brass barbs. Using a pair of hose clamp pliers, release the tension from the clamps and slide the hose and the clamps into place. These clamps are attached to the hose and cannot be moved or rotated.

Use a heat gun to secure the heat shrink tubing to the loom and hose.



39. Zip tie the hoses to the fan shroud.

40. Fill the power steering system (approximately 240 mL) with 10-5030 power steering fluid. Be sure to replace the fluid cap on the reservoir so that no dirt or moisture enters the system.



41. Reconnect the battery.

42. Turn the steering wheel lock to lock 20 times and check the reservoir, if the level went down top it off. If the level went down or there are bubbles, repeat this step till there are no more bubbles and the level remained constant.

43. Make sure everything is clear of the engine accessory drive and of the electric fans. Start the car and let it run while turning the steering wheel lock to lock 20 times and then shut off the car and check the reservoir level and check it for air bubbles, if there are bubbles, repeat.

44. Shut off the vehicle and check the power steering system. Check all hoses and attachment points for leaks.

Note: It is recommended to do this step before re-installing the fascia and other components in case a leak is found and to make it easier to identify a leak quickly.

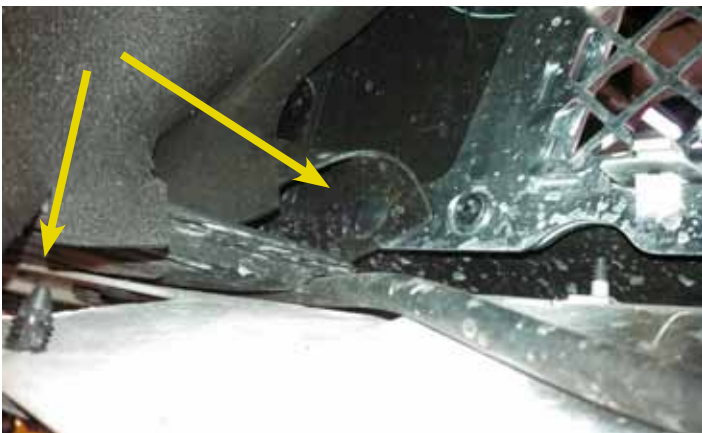
45. Gently lift the facia and place it on the car.  
Start the bolts accessed from the wheel well  
but do not tighten them at this time.



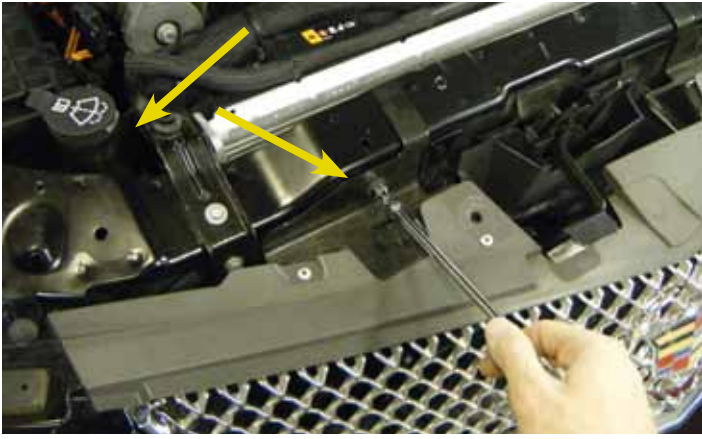
46. Connect the hose to the washer fluid pump.



47. Connect the fog lights.



48. Secure the rubber shrouds on either side  
of the radiator with the Christmas tree  
fasteners (two per side).



49. Install the M6x1.0 screws that secure the fascia to the bumper core support using a 10mm socket.



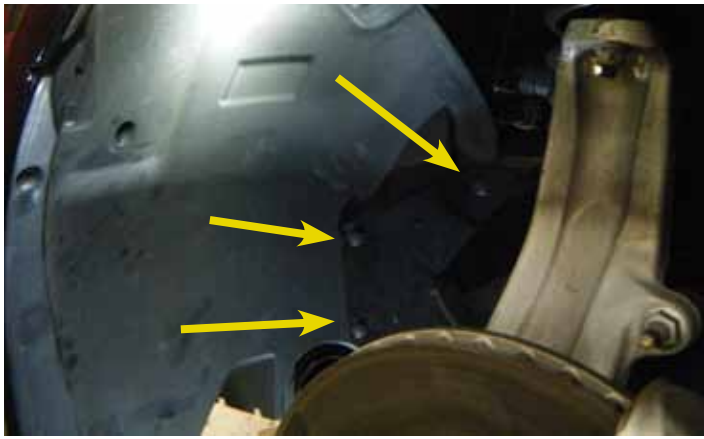
50. Install the two (2) push fasteners on each side of the fascia.



51. Check that the bumper is aligned with the body panels and now torque the side bolts, accessed from the wheel wells to 18 lb-in (2 Nm).



52. Install the front fender liners and secure with eight (8) push pins.



53. Install the engine splash shield and secure with four (4) pins.

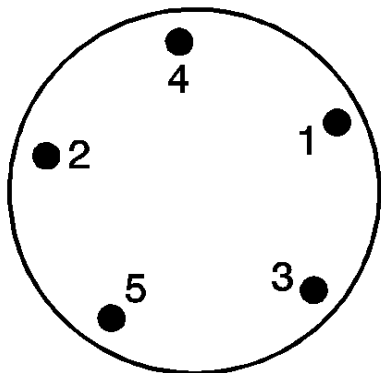


54. Install the front air deflector under the engine.

Note: The foam insert may have come loose from the panel. Be sure to place the insert in the same location it was in before the insert was removed.



55. Install the sight shield and secure in place with the six plastic retainer clips (clockwise to tighten).



56. Install the front two wheels. Have the assistant hold the brakes or lower the vehicle to the ground while you torque the lug nuts. Use a star pattern to tighten.

2009-2013: 140 lb-ft (190 Nm).

2014-2015 Coupe/Wagon: 122 lb-ft (165 Nm)

2014-2015 Sedan 11 lb-ft (150 Nm)



57. Lower the car back on the ground. Test drive the vehicle and then check the vehicle again for leaks.

**Congratulations, the installation of the LPE power steering cooler kit is now complete.**

## NOTICES:

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