

MAGNUSON

PERFORMANCE

2022+ Toyota Tundra Charge Air Cooler Installation Guide



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Important Note: Before installing the Magnuson Performance charge air cooler kit, please read through the installation procedure and verify that all items are present.

LIMIT OF LIABILITY STATEMENT

The information contained in this publication was accurate and in effect at the time the publication was approved for printing and is subject to change without notice or liability. Magnuson Performance Products reserves the right to revise the information presented herein or to discontinue the production of parts described at any time.

SAFETY PRECAUTIONS

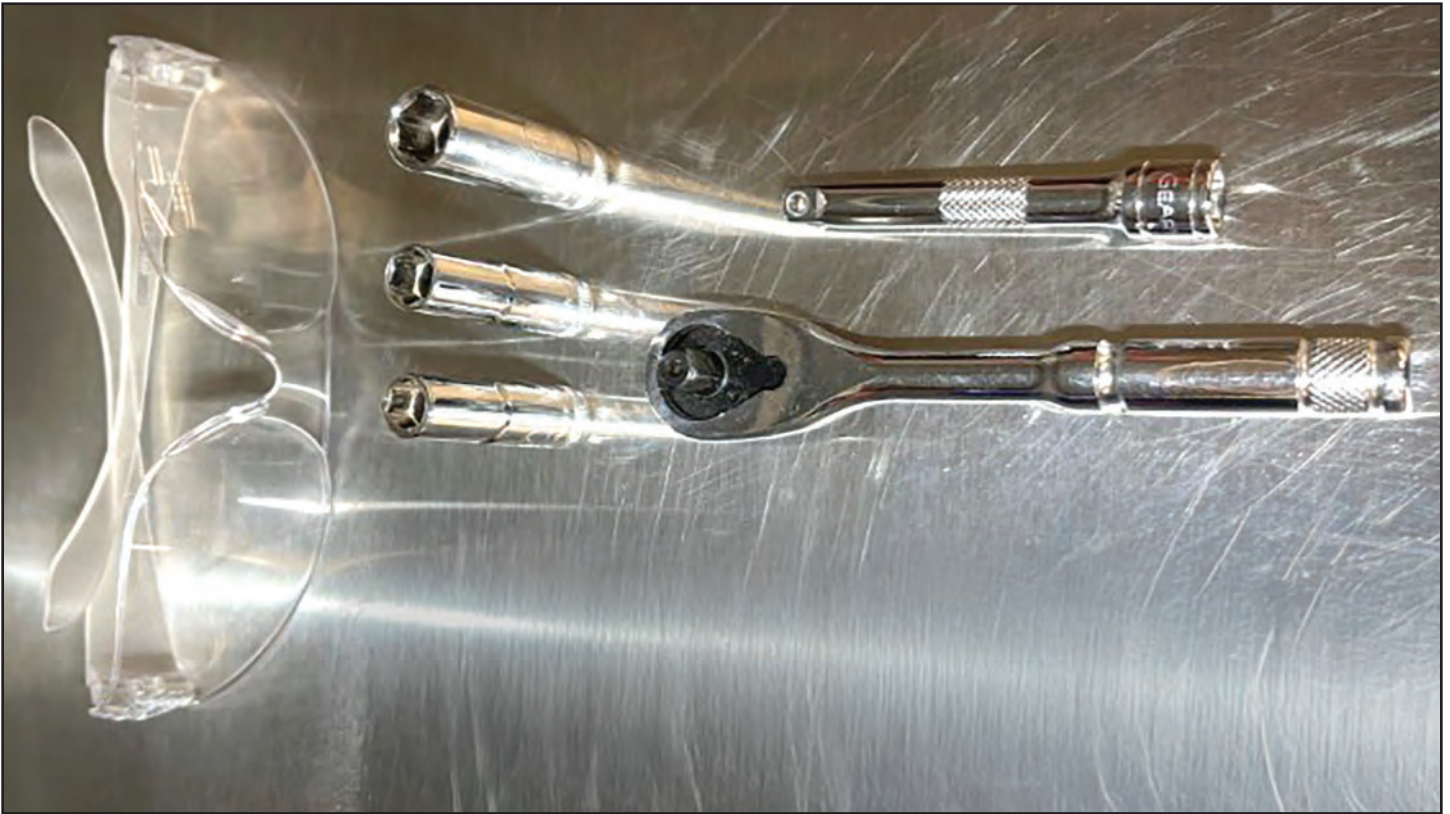
STOP! CAREFULLY READ THE IMPORTANT SAFETY PRECAUTIONS and WARNINGS BEFORE PROCEEDING WITH THE INSTALLATION!

Appropriate disassembly, assembly methods and procedures are essential to ensure the personal safety of the individual performing the kit installation. Improper installation due to the failure to correctly follow these instructions could cause personal injury or death. Read each step of the installation manual carefully before starting the installation.

- Always wear safety glasses for eye protection.
- Place ignition switch in the OFF position.
- Always apply the parking brake when working on a vehicle.
- Block the front and rear tire surface to prevent unexpected vehicle movement.
- If working with a lift, always consult vehicle manual for correct lifting specifications.
- Operate the engine only in well-ventilated areas to avoid exposure to carbon monoxide.
- Do not smoke or use flammable items near or around the fuel system.
- Use chemicals and cleaners in well-ventilated areas.
- Batteries produce explosive gases, which can cause personal injury. Therefore, do not allow flames, sparks or flammable substances to come near the battery.
- Keep hands and any other objects away from the radiator fan blades.
- Keep yourself and your clothing away from moving parts when the engine is running.
- Do not wear loose clothing or jewelry that can get caught in rotating parts or scratch surface finishes.
- Allow the engine, cooling system, brakes and exhaust to cool before working on a vehicle. **WORK SAFELY!** Perform this installation on a good clean level surface for maximum safety and with the engine turned off.

Tools Required:

- Safety glasses
- 10mm socket
- 8mm socket
- 7mm socket
- Ratchet and extensions
- Fork tool for fir tree connections on wiring harness
- Coolant (consult your owners manual for the correct type)
- Vacuum filling device for your coolant system (recommended)
- Torque Wrench



Contact Information:

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Any reference to left hand (LH) or right hand (RH) side of the vehicle is given from the driver's seat perspective looking forward.

1. Before beginning the installation, locate the battery under the access panel on the LH side of the rear seat.

Using a 10mm socket, disconnect the negative battery cable. Remove the negative connection and place a rag over the connection to insulate it.

2. Use of an organizing tray or plastic bags is recommended to make re-assembly easier.

IMPORTANT: A number of the factory fasteners are re-used with your Magnuson charge air cooler.

Identify the location of each piece of hardware using a marker or tape, noting where it was removed from, so that it can be re-installed back in the same location later.

Keep the fasteners together with the factory brackets as many of them are re-used.

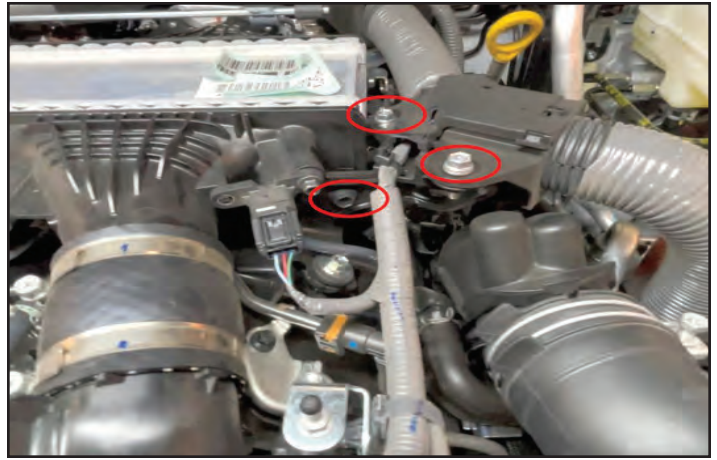
3. Remove the engine cover by pulling up to disengage it from the mounting posts.

Set the cover aside, it will not be re-used.

4. Disconnect the harness from both sensors shown in the photo.



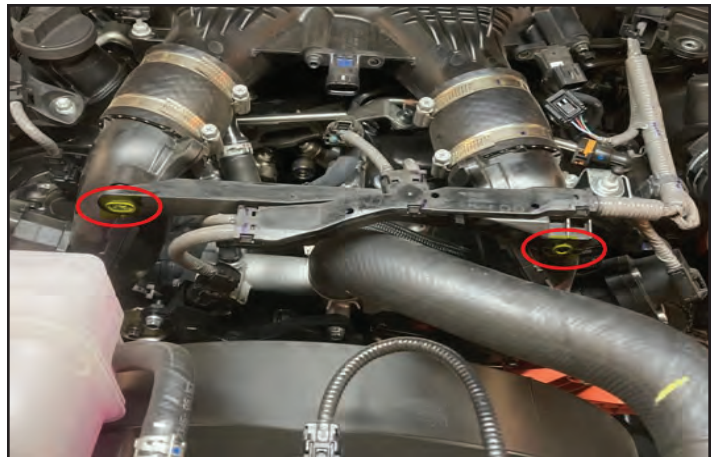
5. Remove (3) fasteners in the locations shown in the photo.



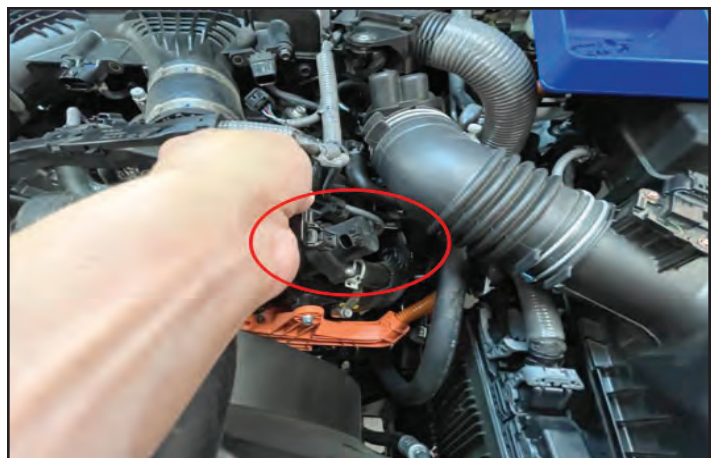
6. Using a fork tool, disconnect the harness from the bracket at the location shown.



7. Remove (2) fasteners from the locations shown and set them aside.



8. Disconnect the wiring harness from the location shown.



9. Working from the RH rear corner of the engine, remove the fastener shown in the photo.



10. Remove the fastener securing the bracket at the LH rear corner of the factory intercooler.



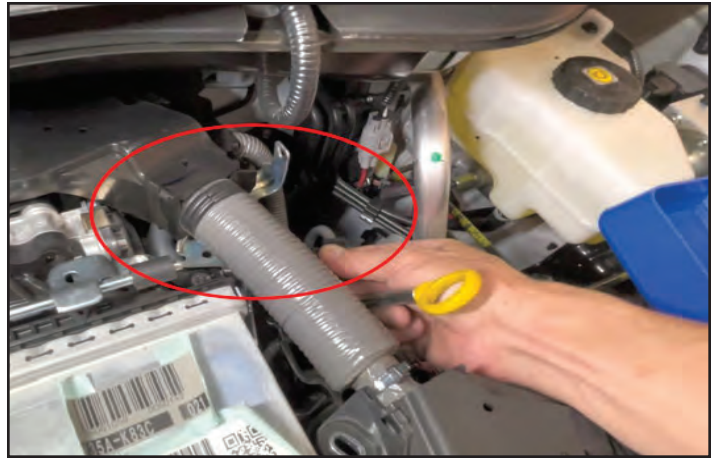
11. Loosen and remove the fastener securing the two brackets together, located along the LH side of the factory charge air cooler.



12. Remove the electrical connector from the sensor that is attached to the bracket.



13. Remove the bracket shown in the photo.

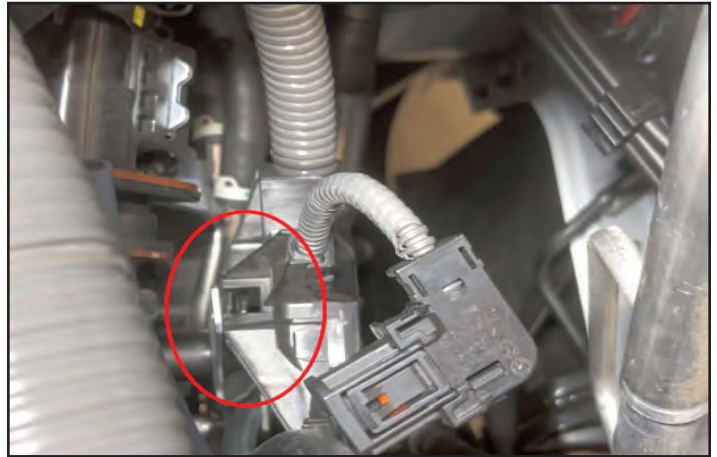


14. Remove the hose that is attached to the sensor.



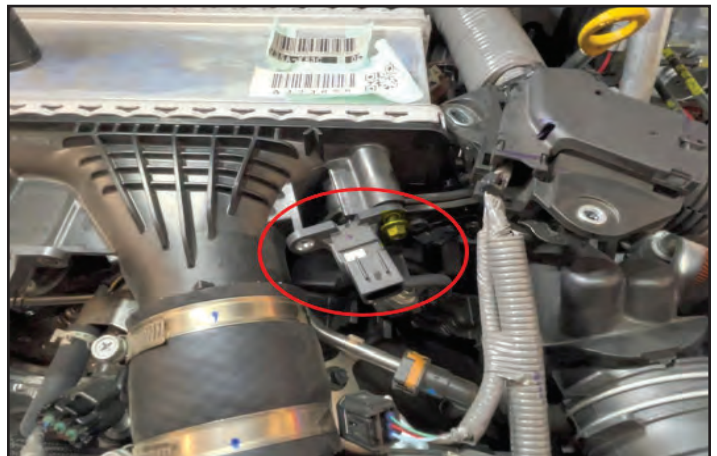
15. Cycle the plastic tab that secures the wiring harness bundle to the metal bracket at the LH rear corner of the engine.

Lift the harness bundle up and disconnect it from the bracket.

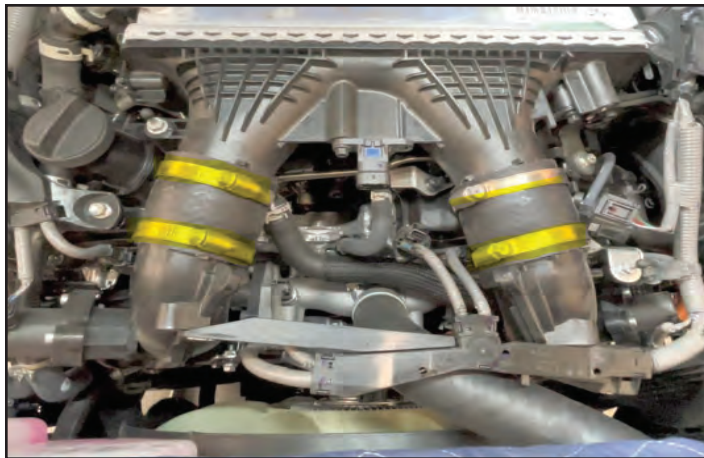


16. Remove the fastener securing the sensor at the LH front corner of the factory charge air cooler.

Set the fastener aside, it will be re-used.



17. Loosen all (4) of the factory clamps that secure the hoses to the factory Charge Air Cooler (CAC).



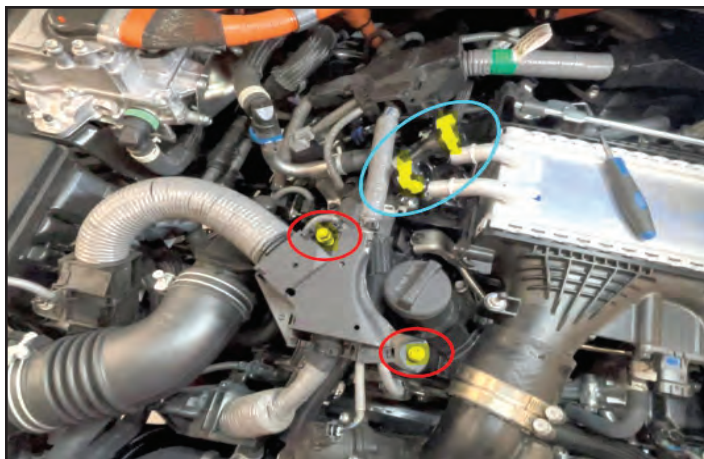
18. Loosen and remove the fastener shown at the LH front corner of the factory CAC.



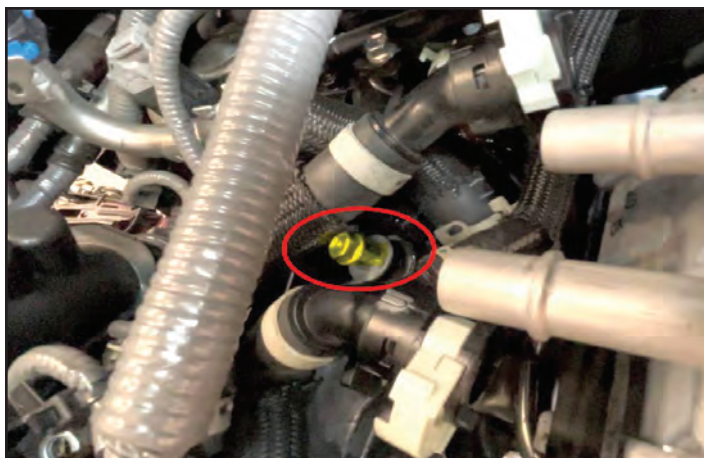
19. Loosen the two fasteners securing the wiring harness cover (locations circled in red).

This will allow the wiring harness to be shifted over enough to allow the CAC hoses to be disconnected.

Cycle the locks on both CAC connectors and step them off the tubes.

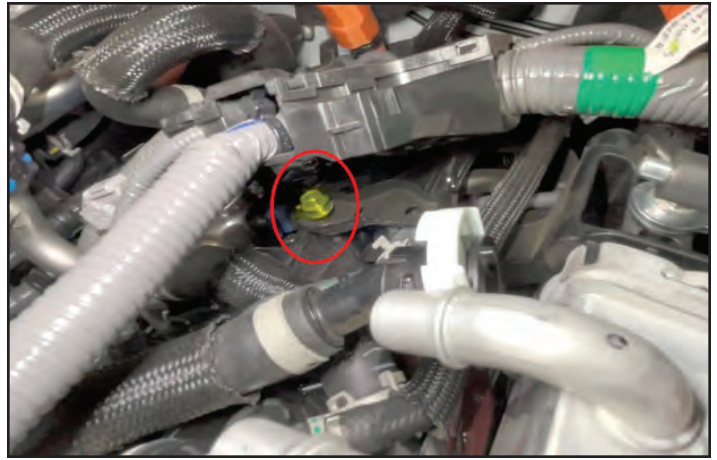


20. Loosen the fastener securing the CAC bracket to the cam cover at the location shown.



21. Remove the fastener securing a wiring harness bracket at the location shown (right hand rear corner of the CAC).

Remove the bracket from the engine.



22. Lift the wiring harness cover up to access a fastener that secures the factory CAC bracket at the location shown.



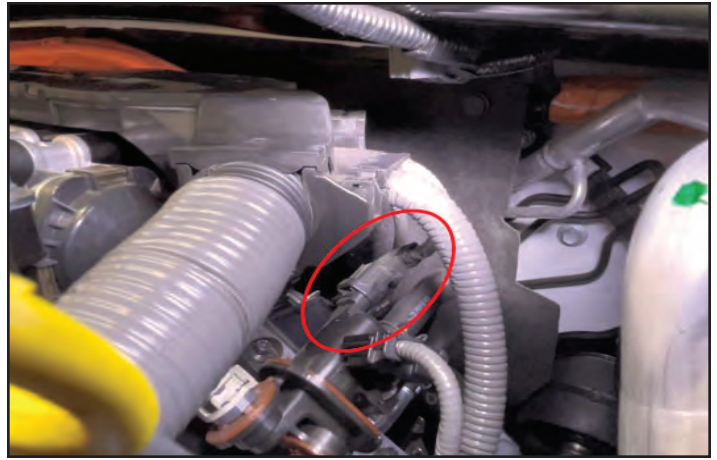
23. Remove the fastener securing a bracket at the left front corner of the CAC.



24. Working from behind the throttle body, loosen (4) fasteners securing the throttle body to the CAC.



25. Disconnect the harness at the EVAP solenoid. This is located at the LH rear corner of the engine.

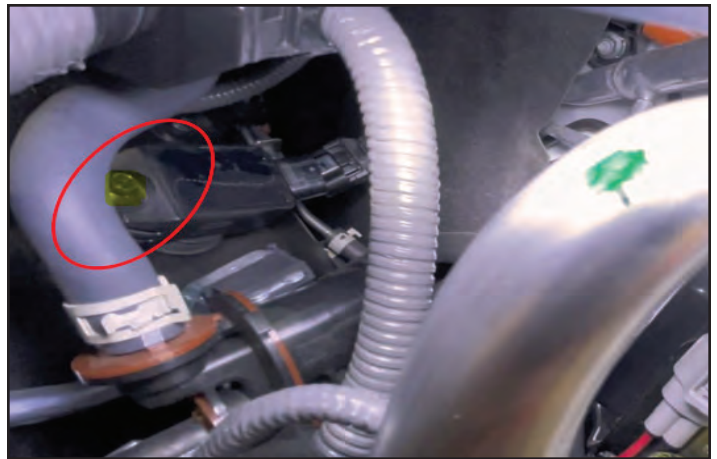


26. Disconnect the harness from the coil at the LH rear corner of the engine.



27. Loosen and remove the fastener securing the LH rear coil to the engine.

Pull the coil up and remove it from the engine.



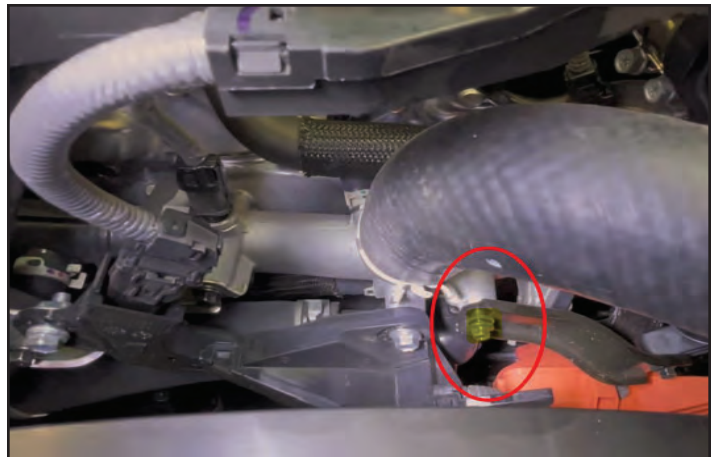
28. Disconnect the harness from the throttle body at the location shown.



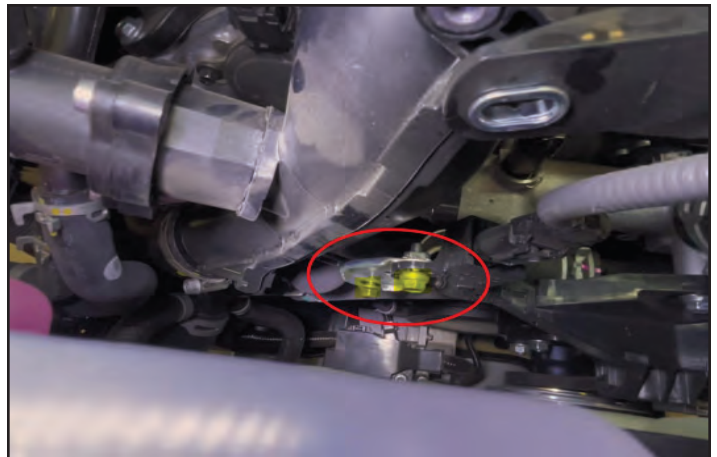
29. Disconnect the harness from the sensor located at the RH rear corner of the CAC.



30. Loosen and remove the fastener securing a bracket at the location shown.



31. Remove the two fasteners securing a bracket at the location shown.



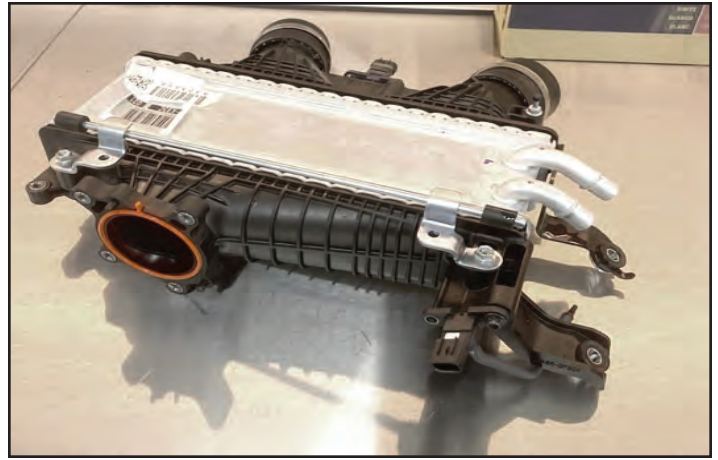
32. Begin to lift the factory CAC off the engine.

You will need to disconnect the vacuum hose at the location shown as you lift it up.



33. Set the factory CAC down on a workbench or other suitable location.

We will now transfer some hardware from the factory unit over to the new Magnuson CAC.



34. Remove the Magnuson CAC from the box and set it down next to the factory unit.

Remove the shipping caps and prepare to transfer hardware.



35. Harvest the sensor and factory hose from the OE CAC at the location shown.

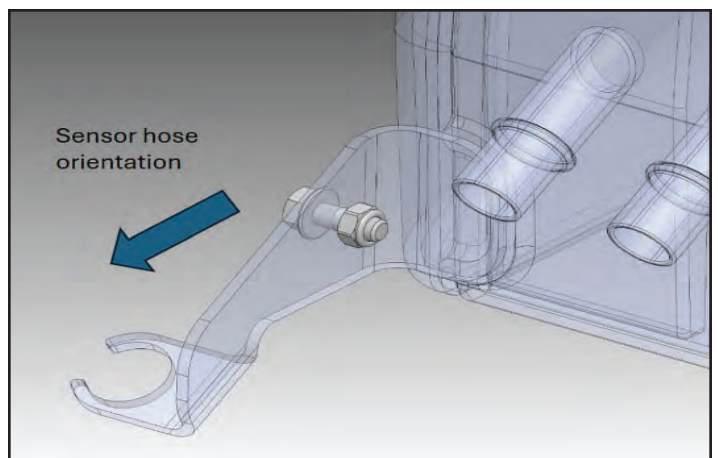
Keep the factory bolt as it will be re-used for the pressure sensor at the opposite corner of CAC, when it is installed onto the Magnuson unit in a later step.



36. Select an M6X16mm bolt and M6 nyloc nut from the kit.

Install the OE sensor and hose sub-assembly harvested from the last step onto the back side of the bracket, with the hose oriented as shown. The following step will show the sensor placement.

Secure the sensor using the bolt and nut.



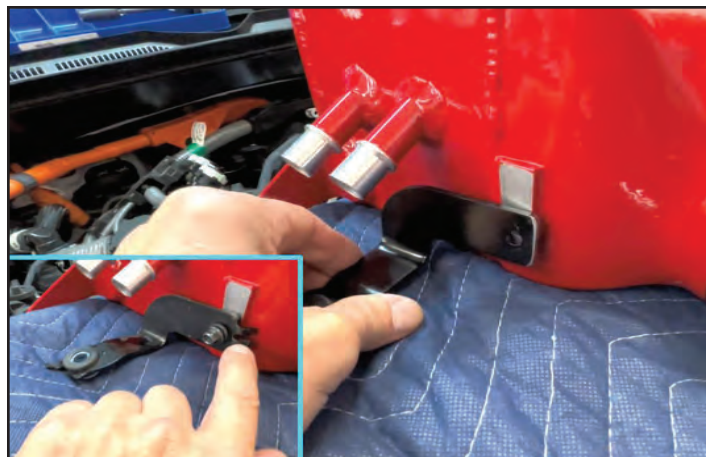
37. Sensor mounting location / hose orientation is shown behind the welded bracket.



38. Remove the fastener and bracket shown from the factory CAC.

Cut the anti-rotate tab features off the bracket then install it onto the Magnuson unit.

Run the fastener down until it contacts the bracket, but do not tighten it yet.



39. Remove the fastener, sensor, hose and constant-tension clamp from the factory CAC. Transfer everything but the factory fastener over to the Magnuson CAC.

Secure the hose to the barbed fitting on the new CAC using the factory clamp.

Select (2) M6X16mm fasteners from the kit and install them. **Torque the fasteners to 106 in-lbs.**

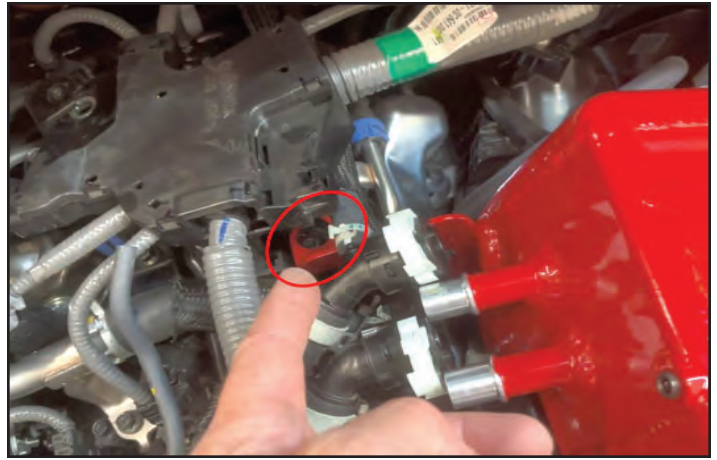


40. Remove the rubber grommet and metal isolator from the factory CAC at the right rear corner.

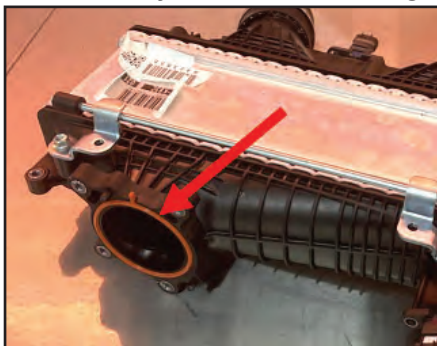
These will be transferred over to the new CAC in the following step.



41. Transfer the rubber grommet and isolator over to the welded-on bracket on the Magnuson CAC at the location shown.



42. Transfer the seal from the inlet of the factory CAC over to the Magnuson CAC. Ensure it is oriented and fully seated into the groove.



43. Carefully install the new Magnuson CAC into place on top of the engine, ensuring the brackets line up with the mounting holes on the engine.



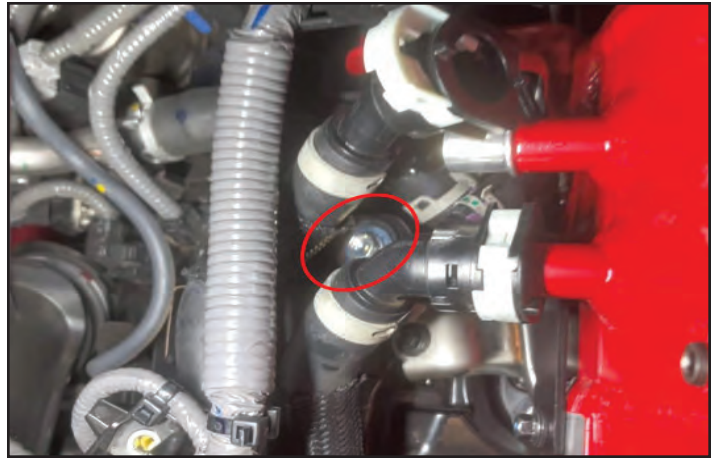
44. Re-install the original (4) throttle body bolts. Run them down and zero-torque them in a criss-cross pattern.

Final torque the bolts to 106 in-lbs.

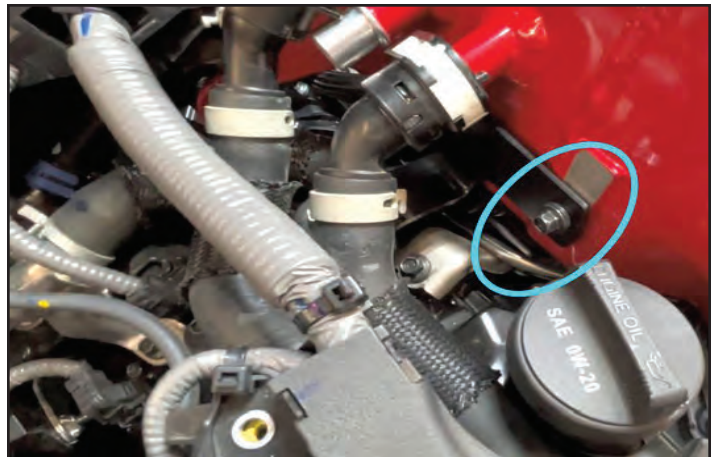


45. Re-install the factory M6 fastener into the location shown, ensuring the isolator has remained in place.

Torque the fastener to 106 in-lbs.



46. **Torque the fastener shown in the photo to 106 in-lbs.**



47. Re-install the original fastener that was removed from the RH rear corner of the CAC into the same location on the Magnuson CAC.

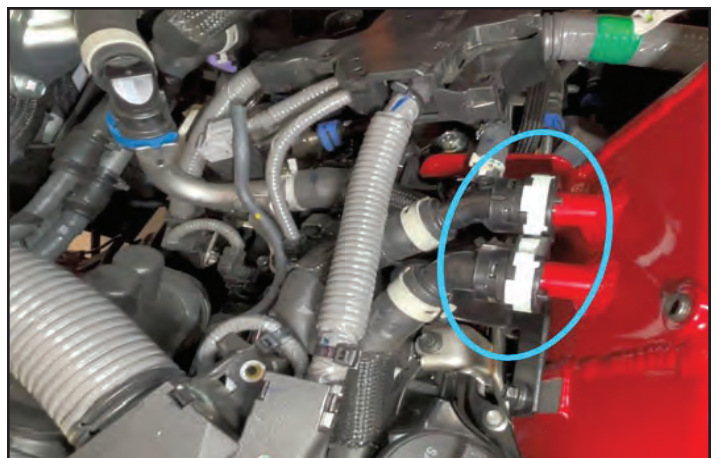
Torque the fastener to 106 in-lbs.



48. Lubricate the two SAE tubes with light oil then re-install and fully seat the plastic connectors.

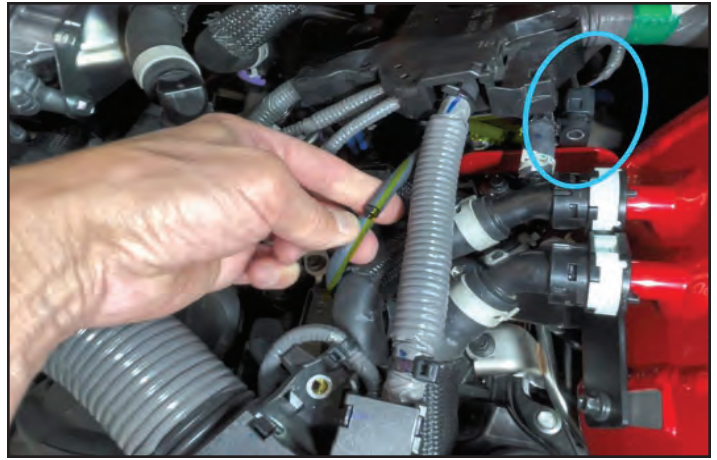
Ensure that you cycle the locking tabs.

Pull back on the connectors to ensure they are locked in place.



49. At the RH rear corner of the CAC, re-connect the sensor hose as highlighted in green.

Re-connect the wiring harness to the sensor at the circled location shown.



50. Remove the fastener and bracket shown from the factory CAC.



51. Remove the rubber isolator from the bracket.

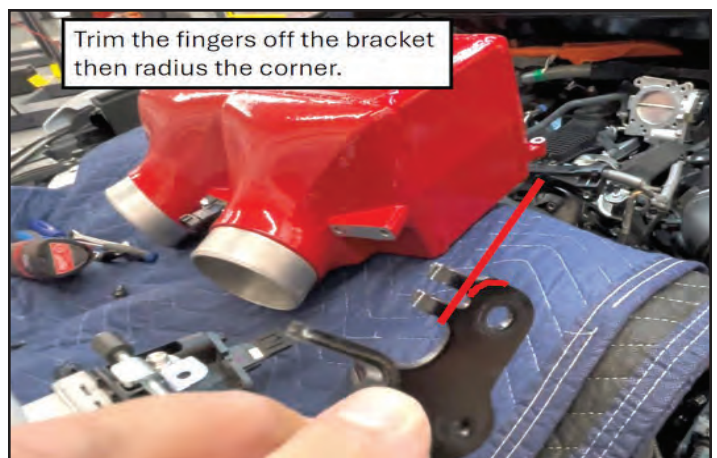
Extend the slot in the bracket approximately 1/4 inch as shown.

Re-install the rubber isolator into the bracket.



52. Trim the fingers off the opposite end of the bracket, then radius the corner and metal finish it at the location shown so that it will fit on the Magnuson CAC (see the following step).

Black spray paint or a paint pen can be used to coat the bare edges of the bracket so they won't rust.



53. Install the modified bracket to the location shown using the original fastener from the factory CAC over to the Magnuson CAC. You may have to drill the hole out in the bracket.

Re-install the rubber isolator into the bracket.

Run the fastener down until it just makes contact with the bracket (zero torque).



54. Re-install the factory M6 bolt through the rubber isolator in the location shown in blue circle.

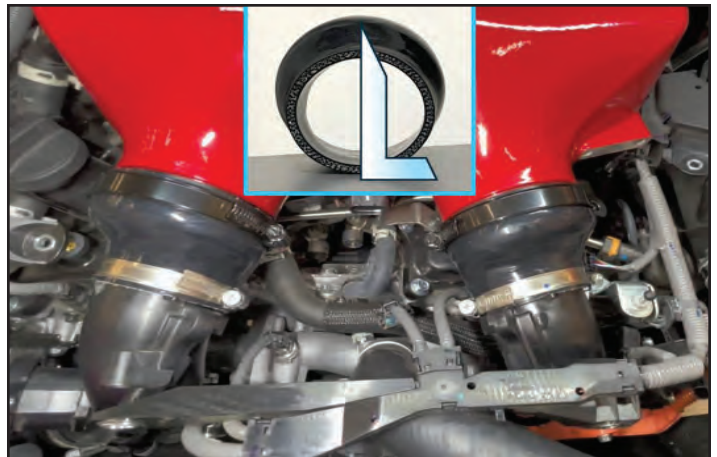
Torque both bracket fasteners to 106 in-lbs.



55. Select the silicone couplers and black clamps from the kit.

Pre-install the clamps onto the couplers then orient and install the couplers between the Magnuson CAC and the factory pipes as shown. The offset in the couplers must be in the vertical position.

Do not tighten the gear clamps yet as you may need to perform final orientation of them in the following step.



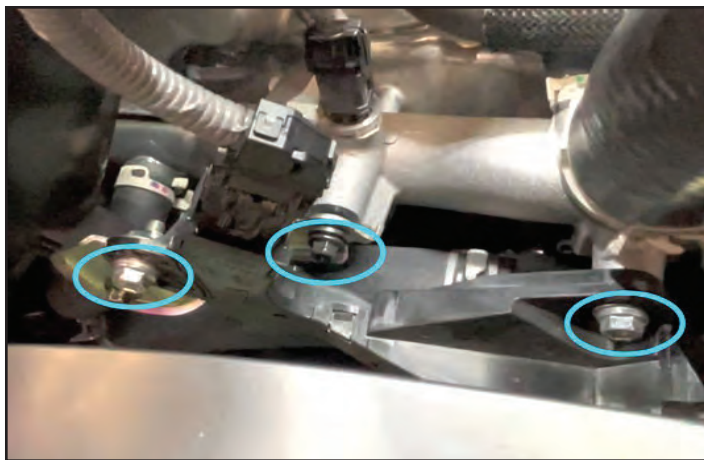
56. Re-install the factory fasteners in the locations shown. Run them down but do not torque them yet.

Note: If the holes do not line up, you will need to re-orient the silicone couplers so that the factory induction tubes are in the correct location to allow installation of these fasteners.

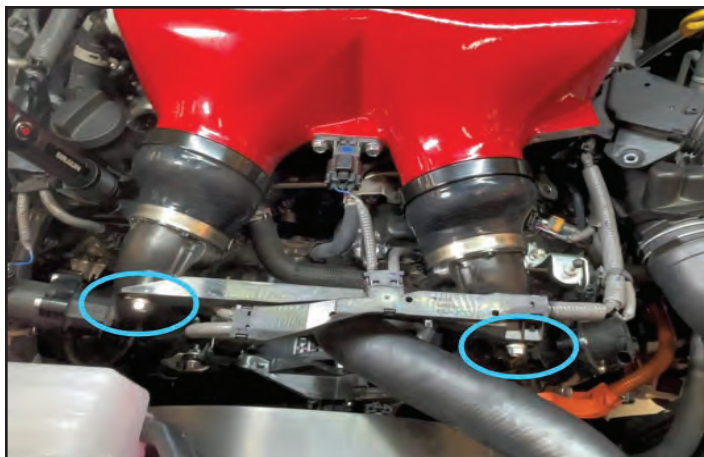


57. Re-install the (3) original fasteners that secure the brackets into the locations shown at the front of the engine.

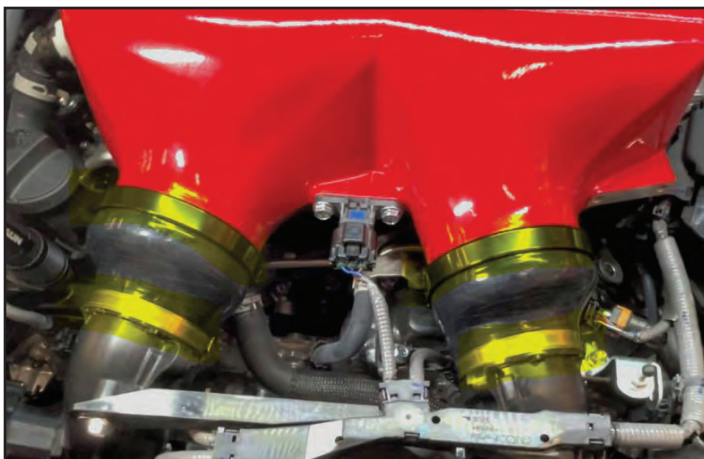
Torque the fasteners to 106 in-lbs.



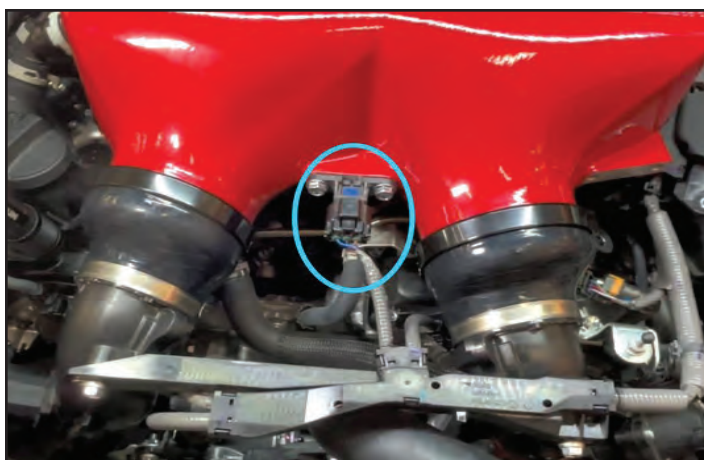
58. **Now you can torque the upper bracket fasteners (circled in blue) to 106 in-lbs.**



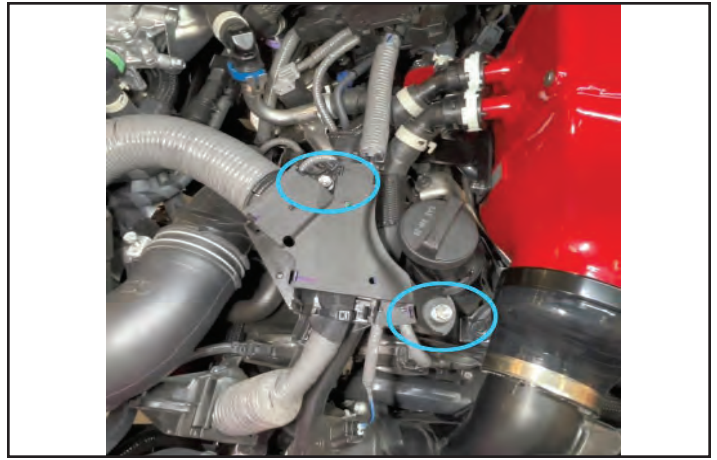
59. Ensure the silicone couplers are fully seated over the barbs at all locations, then **tighten the highlighted gear clamps to 35 in-lbs.** to secure the couplers.



60. Re-connect the harness to the sensor shown.



61. Re-install the original fasteners through the wiring harness cover in the locations shown at the RH front of the engine by the oil fill cap.



62. Re-install the original fastener through the harness bracket in the location shown at the RH rear of the engine.

Torque the fastener to 106 in-lbs.



63. Re-install the original fastener through the harness bracket in the location shown at the back of the engine.

Torque the fastener to 106 in-lbs.



64. Re-install the coil to the LH rear cylinder and secure it using the original fastener.

Torque the fastener to 106 in-lbs.

Re-connect the wiring harness to the coil, ensuring it is fully seated.



65. Select (2) M6 X 16mm long bolts from the kit. Secure the sensor using the supplied bolts.

Torque to the fasteners to 106 in-lbs.

Re-connect the wiring harness to the sensor.



66. Select the bracket shown.

Remove the tab in the photo then file and chamfer the corner to remove any burrs or sharp edges.

The modified bracket is shown in the next photo.



67. Modified bracket shown.



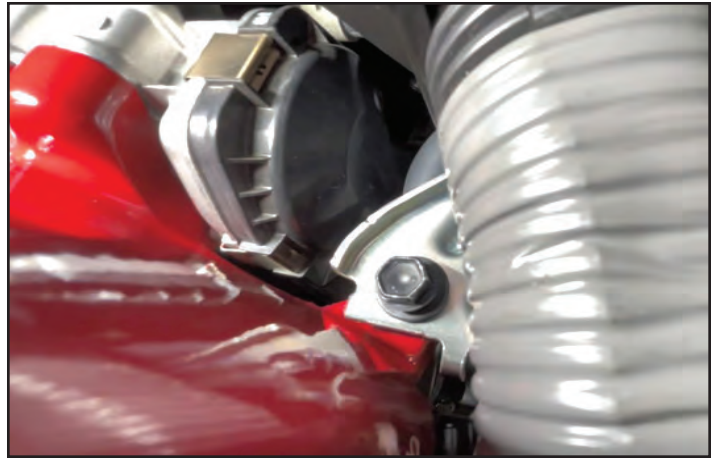
68. The photo shows the general location of the two brackets which will be installed next. The factory fasteners will be used to secure the brackets to the Magnuson CAC, as shown in the following photos.

Install the brackets then thread the fasteners loose. **After everything is in place, go back and torque the fasteners to 106 in-lbs.**

Start by re-installing the highlighted bracket that was modified in the previous step, to the LH rear corner of the Magnuson CAC.



69. Close-up photo of the factory fastener installed through the silver bracket into the Magnuson supercharger at the LH rear corner.



70. Re-install the yellow highlighted black bracket to the engine. It is secured to the other two brackets at both the front and back using the factory fasteners at the locations shown.

Additional photos are shown in the following steps.



71. Bracket fastening location at LH front corner of CAC. The factory fastener threads into a welded nut on the bracket located behind it.

Verify the bolt does not contact the front of the CAC. If it does, install a washer under the head of the bolt as needed to provide clearance.



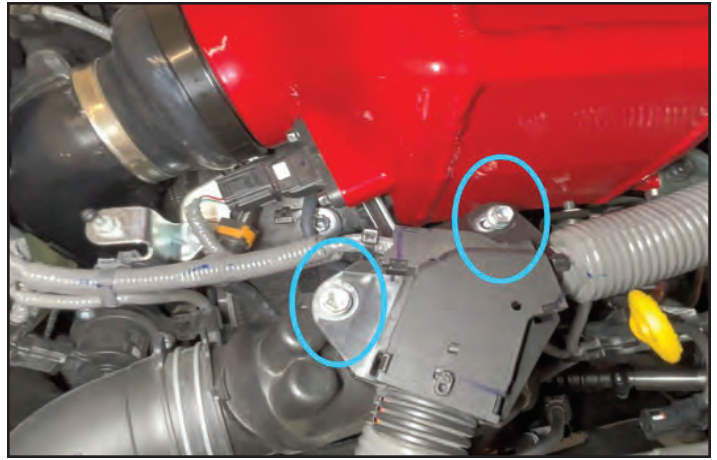
72. Bracket fastening location at the LH side of CAC. The factory fastener threads into a welded nut on the silver bracket located behind it to secure one bracket to the other.

You can now torque all 3 fasteners to 106 in-lbs. to secure the brackets.

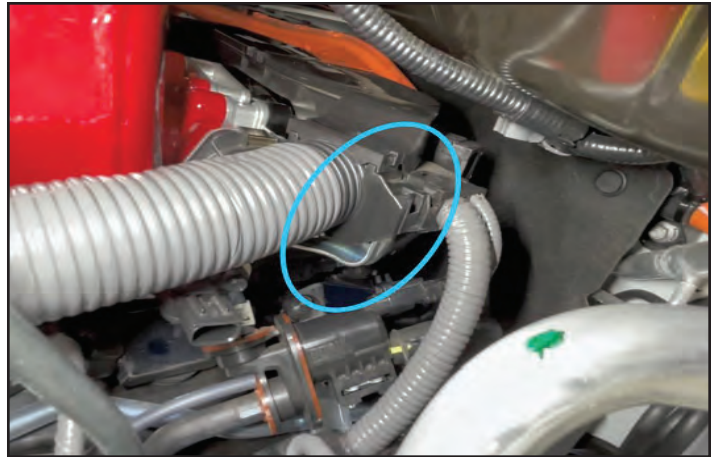


73. Re-install the factory fasteners at the locations shown to secure the harness cover to the bracket.

Torque the fasteners to 106 in-lbs.



74. Re-secure the wiring harness cover to the silver bracket at the LH rear of the engine in the location shown.



75. Re-connect the vacuum line (highlighted in yellow) to the sensor that is attached to the bracket along the LH side of the CAC.

Re-connect the wiring harness to the sensor (shown in blue).



76. Select the bracket and fastener shown.



77. Re-install the bracket to the RH rear corner of the engine, securing it with the factory fastener.

Torque the fastener to 106 in-lbs.

Re-secure the wiring harness cover onto the tab on the bracket.



78. Re-connect the battery. Tighten fastener to secure the terminal to the post.

Re-install the battery cover.



79. Inspect the entire under hood area for any loose or missing fasteners. Ensure all electrical connections have been made. Ensure no tools have been left in the engine bay.



80. Consult your owner's manual to verify the correct coolant type applicable for the model year of your vehicle. It is highly recommended to use a vacuum filling tool when re-filling the coolant system. Follow the instructions for your particular tool and re-fill the intercooler system to the line on the reservoir.

Start the engine and allow the pump to cycle. Top up the fluid to the correct level as indicated on the reservoir. Verify the vehicle runs smoothly. If the check engine light is illuminated, re-check your work and resolve the issue. This completes the installation of the Magnuson Charge Air Cooler kit.





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