



Toyota GR Corolla Morizo Brake Cooling Kit

Installation Manual



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Introduction:

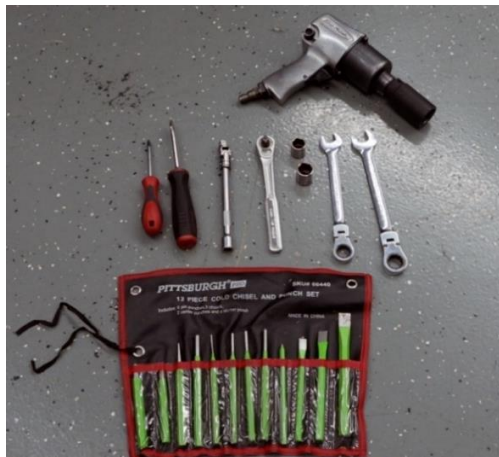
Overview: Detailed instructions on installing the Verus Engineering Brake Cooling Kit for the Morizo and Circuit Edition Toyota GR Corolla.

Difficulty: Moderate

Time Required: 2.5-4 Hours

Tools Needed:

- 17mm Socket
- 19mm Socket
- Ratchet
- 17mm Wrench
- 19mm Wrench
- Phillips Head Screwdriver
- Flat Head Screwdriver
- 30mm Socket (12 point)
- Impact Gun
- Punch or Chisel
- 6" Ratchet Extension
- Swivel Ratchet Adapter
- Utility Knife or Side Cuts
- Rubber Mallet
- Trim Removal Tool
- Racer's tape or Gaffer tape
- Sharpie or paint pen (optional)
- Drill (optional)
- ¼" Drill Bit (optional)



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Brake Cooling Kit Components

- Left-Hand Backing Plate Assembly
- Right-Hand Backing Plate Assembly
- Left-Hand 3D Printed Pancake Duct
- Right-Hand 3D Printed Pancake Duct
- (2) 2.5" High-Temp Silicone Hose Cut to Length
- Hardware Bag
 - (4) 2.5" Hose Clamp
 - (4) 24" Cable Tie
 - (2) 1" Section of Foam Tape
 - (2) M6 x 1.0, 16mm Long, Button Head Cap Screw (BHCS), Stainless
 - (2) M6 x 18mm OD Fender Washer, Stainless
 - (2) M6 x 1.0 Serrated Nut, Stainless

**Toyota GR Corolla Morizo/Circuit Edition Brake Cooling Kit Installation**

1. Verus Engineering is not responsible for damage to you or your vehicle by following this manual and/or installing Verus Engineering products. Please seek professional service/guidance if you are uncomfortable/incapable of installing this in a safe manner. Contact us at support@verus-engineering.com if you have any questions/concerns.

Caution: It is always a good idea to disconnect the battery when working on the car. This should be done by removing the negative terminal first.

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2. Begin by lifting the car and supporting it safely on jack stands with both front wheels off the ground. You may also use a lift if you have access to one.
3. Remove the front wheels to gain access to the brakes and fender liners.



4. The Morizo and Circuit Edition GR Corollas both have brake cooling ducting already built in from the factory. We will be utilizing this and capitalizing on the air that is already present through these ducts to more effectively cool the brakes.
5. We need to remove the fender liner so we can work on it and install the 3D printed pancake duct. Begin with removing the push clips and 10mm bolts located in the fender liner.



6. Moving to the bottom side of the vehicle, remove the remaining push clips holding this fender liner location on.

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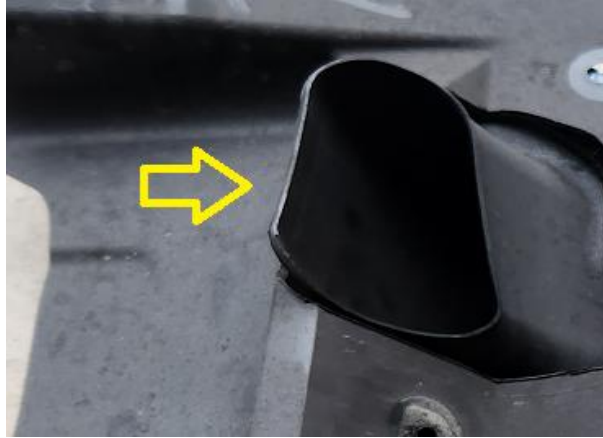
7. You should have the fender liner and the OEM duct removed at this point. Below is an image with this part off the vehicle.



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8. With the fender liner and OEM duct removed from the car we need to trim the duct flush with the fender liner as our duct sits very tightly against the fender liner when installed.



9. Use a sharpie to mark where you need to cut it using the fender liner as a guide.



10. Using a razor blade or a Dremel, cut along this line.



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- 11.** Reinstall the OEM duct onto the fender liner.
- 12.** We need to block off the area around the OEM duct to the fender liner as this will improve efficiency and effectiveness of the cooling kit. Use gaffer tape or racer's tape to fill in this area as shown below.



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- 13.** We will have to make a cut in the fender liner as well to allow the brake hose and pancake duct to pass through it. Loosely install the pancake duct and use it as a guide to show where cutting is necessary. This completed cut is shown below. **Note: Black rubber edge guard was used in the image below as the customer liked using it. This is not necessary.**



- 14.** Repeat cutting processes on the remaining side.
- 15.** If you feel it necessary, you may now test fit the pancake ducts and use a Sharpie or paint pen to mark where holes need drilled to utilize the third mounting tabs. In **Step 15 – Step 17**, cardboard has been used in place of the fender liners to more effectively show the hole drilling and mounting processes. **Note: If you choose not to use these third mounting tabs, skip to Step 18.**



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- 16.** After marking the place to drill, remove the pancake ducts and use a 1/4" drill bit to create a hole for mounting hardware to pass through.



- 17.** Reinstall pancake ducts using the (2) OEM fasteners and (1) provided BHCS, washer, and serrated nut per side.



- 18.** At this time, trimming/modifications are completed and the 3D printed pancake ducts, factory ducts, and fender liners can be reinstalled.



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19. With the 3D printed pancake duct installed and factory duct modification done, we can move to installing the backing plate.
20. Remove the brake caliper by unbolting the 17mm caliper bolts.



21. Secure the caliper away from the hub assembly using caliper hangers as shown below.



22. Remove the rotor. Below is a photo of the rotor removed.

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- 23.** Now we need to remove the axle nut. Utilize a punch or a chisel and a hammer to un-stake the axle nut (the part that is crushed into the keyway, we need to push this up and out of the slot).



- 24.** After the keyway is opened up, remove the axle nut using the 30mm socket and impact gun.

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25. After the axle nut is removed, we need to remove the hub assembly. Do so by using a combination of the 19mm wrench and 19mm socket with a 6" extension and swivel adapter.
26. Our ratchet setup can be seen below. This setup works best for the topmost bolt, whereas the wrench worked better for the other two locations.



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27. You might find that you need to free up the axle to gain more clearance for removing these bolts. To do so, thread the old axle nut back on until it is flush with the end of the axle. You may now tap it with your rubber mallet to push it in. **Note: The older the car, the harder you will need to tap.**



28. Once all three hub bolts are removed, you may now slide off the hub and the OEM backing plate. Below is a photo with both of these removed. **Note: Leave the hub bolts in place. We will need these bolts for locating the backing plate.**



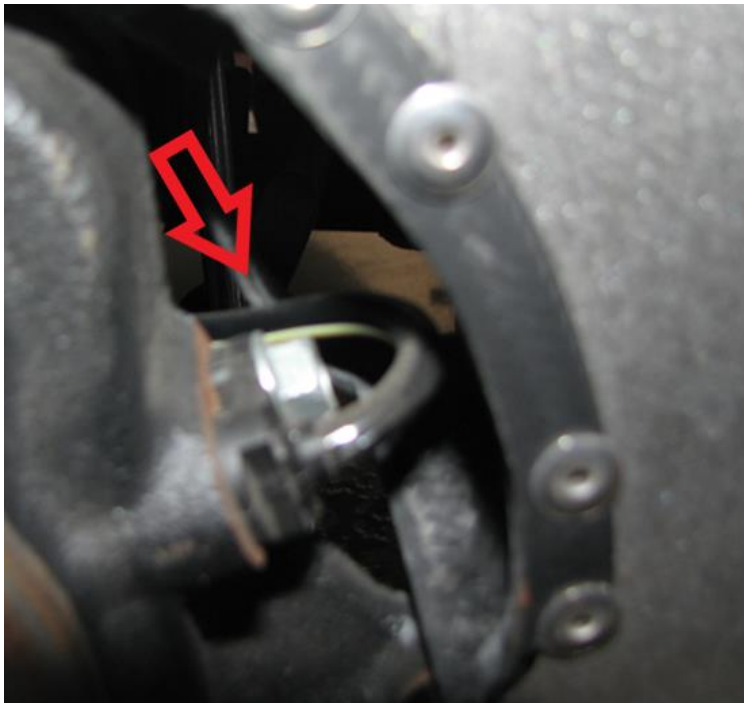
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29. Now we need to install the Verus backing plate kit. Start by using the hub mounting bolts for locating the backing plate. **Note: The carbon duct should face inward and should be towards the rear of the car as shown below.**



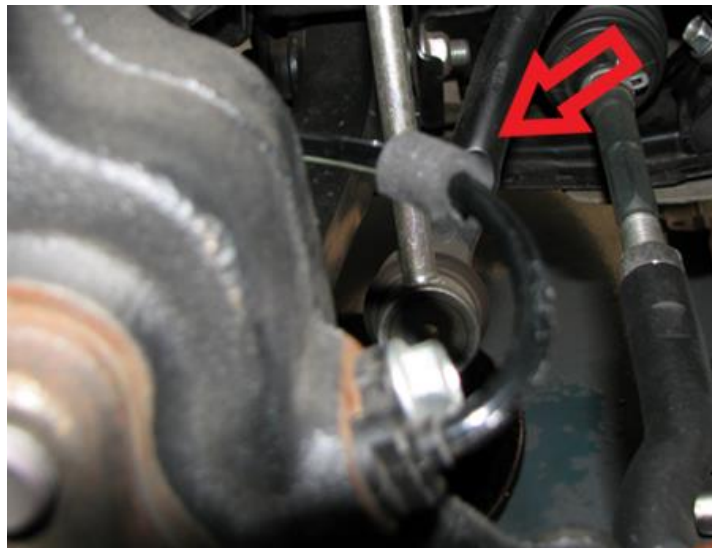
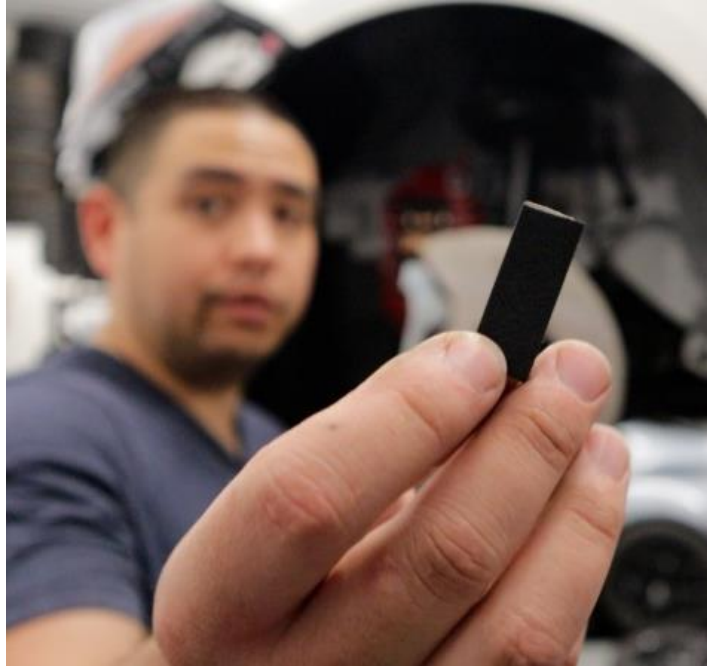
30. While the backing plate is sitting on the hub mounting bolts, push it inward so that it is flush with the knuckle assembly and figure out where the carbon duct is contacting the speed sensor wire.



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31. Once the contact point has been figured out, remove the backing plate and install the provided foam tape (shown below). This will ensure the speed sensor wire does not get abraded over time.



32. Reinstall the backing plate to ensure the foam is in the correct location. Below is a photo showing the foam tape protecting the wire as it is touching the carbon duct. **Note: The goal here is to have no movement and a snug fit to ensure the wire does not get abraded over time.**

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33. After you ensure the speed sensor wire is good and protected, you may now reinstall the hub assembly in reverse order from earlier. Start by tightening all three bolts by hand and then torque to factory spec.



34. Install the axle nuts and torque to factory spec. **Note: We highly advise using new OEM axle nuts when going back together.**
35. Reinstall rotors and calipers. Torque to factory specs.

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36. After the backing plates have been installed, it is now time to route the hoses. Slide one hose clamp over the hose, install the hose onto the pancake duct, and route the hose as shown below.



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37. With the hoses routed, slide the remaining clamps onto the hose ends and tighten them down to the ducts on the backing plates.
38. After both hoses are routed and secured using zip ties, you may now go about reinstalling your wheels and tires.
39. Once wheels are reinstalled, turn your wheels fully side to side to ensure no binding or rubbing occurs. Make adjustments as needed.
40. Congratulations on installing your new brake cooling kit! Please email us at support@verus-engineering.com with any concerns, comments, or feedback.

