VA WRX/STI Brake Cooling Kit

Installation Manual

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Approvals: P. Lucas

Document Revisions

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1.1. **Overview:** Detailed instructions on installing the brake cooling kits for the VA WRX and STI.

1.2. **Difficulty:** Beginner to Novice

1.3. **Time Required:** 2-4 hours

1.4. **Tools Needed:**

- Drill
- Drill Bits
- 8mm socket
- 10mm socket
- Ratchet
- Screw drivers
- Plastic rivet pulling tool
- 9/16 wrench
- 12mm socket
- 14mm socket
- 17mm socket
- 2.5mm allen wrench
- 4mm hex socket
- 5mm hex socket
- Side cuts
- Jack and jack stands

1.5. **Assembly Components**

1.5.1. Backing plate only:

- (2) Backing Plates with carbon ducts riveted on
- Hardware Bag
  - (6) M8x1.25 Flanged Button Head Cap Screw (BHCS)
  - (6) Hard anodized aluminum spacers
  - (2) Small pieces of foam with adhesive

1.5.2. Full Kit, all of the above and:

- (2) Inside fender plastic duct
- (2) Fog Light plastic duct
- (2) 2.5” High Temp Silicone Hose cut to length
- (2) 3.0” Neoprene Hose cut to length
- (1) Hardware Bag
  - (2) Fog Light Duct Bracket
  - (2) Fender Duct Bracket
  - (2) 3.0” Hose Clamps
  - (2) 2.5” Hose Clamps
  - (4) 21.5” Cable Ties
  - (1) Bolt/Washer/Nut Hardware Bag
    - (1) M6x1.0 rivet nut installer tool
    - (2) M6x1.0 rivet nuts for sheet metal
    - (4) M5x0.8 x 16mm length SS BHCS
    - (6) M5x0.8 SS Serrated Nut
    - (4) M5 SS Washer
    - (2) M6x1.0 x 16mm SS BHCS
    - (2) M6 SS Washers

2. Install

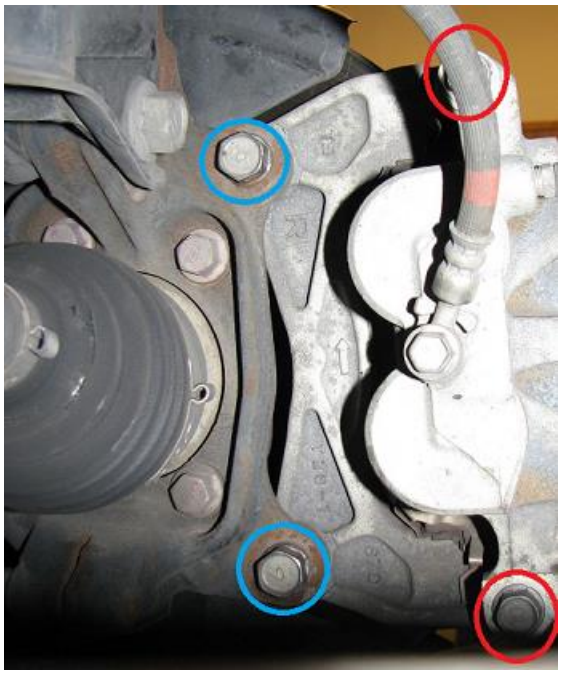
2.1. We are not responsible for damage to you or your vehicle by following this manual and installing Verus Engineering products.

2.2. Begin with disconnecting the battery, negative first, if this makes you feel more comfortable working on the car. It is always a good idea to disconnect the battery anytime when working on the car.

2.3. Break the lug nuts loose on the front two wheels.

2.4. Jack the front of the car up enough to fully remove front two wheels and comfortably work on the knuckle area of the car. Place the car on jack stands at appropriate locations, the pinch weld works as does the frame rail behind the front wheel well.

2.5. Remove the front two wheels.
2.6. Remove the caliper first by unbolting the two 14mm bolts (circled in red). Place the caliper on the LCA.



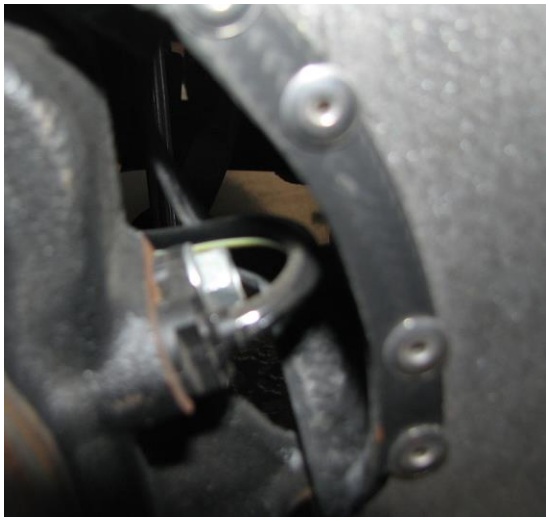
2.7. Then remove the brake pad bracket by unbolting the 17mm bolts (circled in blue above).

2.8. Remove the rotor. Dependent on how long the car has sat, if it sees snow/salt, the rotor may need to be forcibly removed. You can do this with a rubber mallet or the bolt holes on the rotor surface. Below is a photo of the rotor removed.

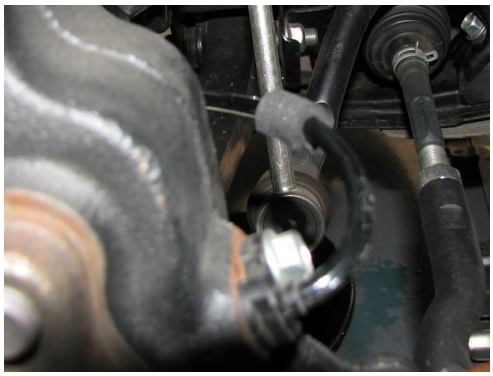
2.9. Remove the OEM backing plate by unbolting the (3) 12mm bolts circled in yellow above.

2.10. Loosely install the new Verus Engineering backing plate on the knuckle. Place the hard anodized spacers behind the backing plate. The wheel speed sensor should remain installed and will be placed between the knuckle and the carbon duct.

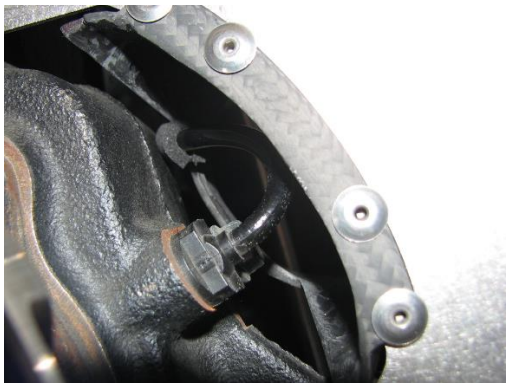
2.11. With the backing plate and the carbon duct installed, you may note that the speed sensor hits on the carbon duct slightly. Mark this location and remove the backing plate.



2.12. Using your mark as a guideline and one of the two strips of foam, wrap the wire to protect it against damage.



2.13. Re-install the backing plate with the supplied hardware and position the wire so that it is safely and nicely squeezed between the knuckle and the duct. The goal here is to have no movement and a snug fit to ensure the wire does not get abraded over time.

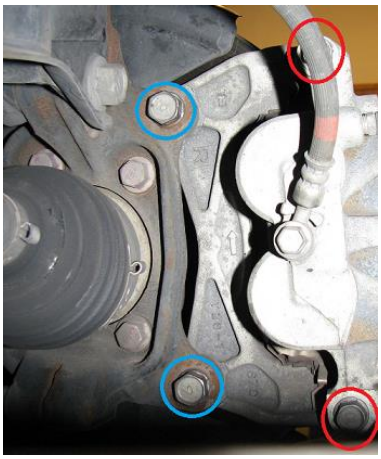


2.14. Fully tighten the (3) 5mm hex flanged BHCS to 10 ft-lbs.

2.15. Re-install your rotor and tighten it down fully with (2) of the lug nuts. Spin the rotor and ensure no contact between the rotor and the backing plate takes place.

2.16. Repeat this test at full lock both ways. If by chance the backing plate does hit the rotor, make note of where on the backing plate and gently bend the backing plate away from the rotor. The backing plate is stainless steel so bending it will not be detrimental to its life. In some severe cases it may be necessary to cut the backing plate, but most installs require slight tweaking and nothing else.

2.17. Reinstall the pad holding bracket and caliper. Torque bracket (blue circled bolts) to 59 ft-lbs and the caliper (red circled bolts) to 19 ft-lbs.

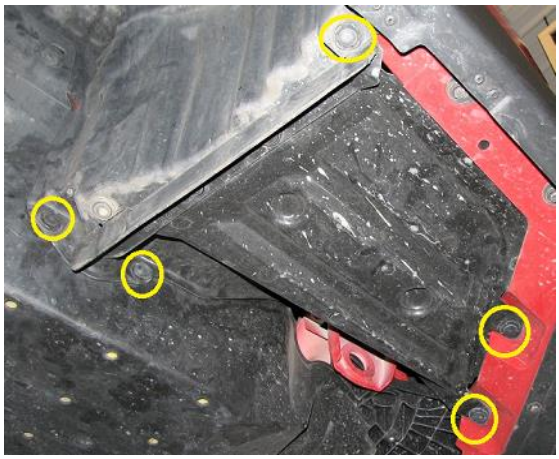


2.18. ***At this point, the backing plate install is concluded. Reinstall wheels, torque to factory spec, and enjoy your freshly installed backing plates which except 2.5" brake duct hose. Full kit installation continues below!***

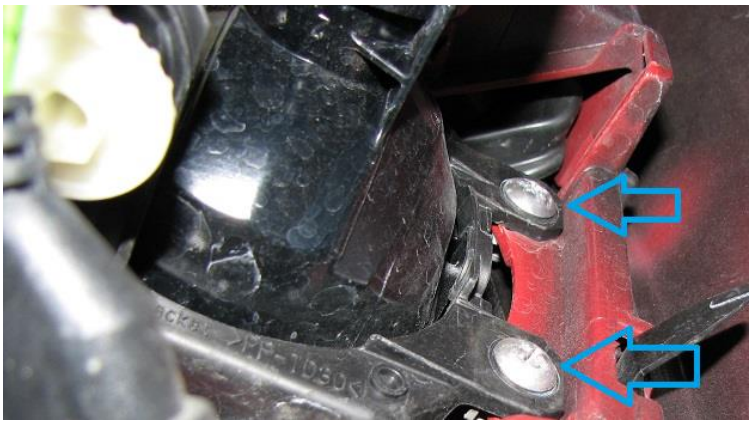
2.19. **Note: For the full install, it is necessary to have an OEM style fog light bezel! This is used for the inlet. Subaru fog light bezels can be purchased from the dealer or various other units are available.**

2.20. Starting from where we left off, we have the view below. We need to remove the fender liner from under the front bumper area and a little into the fender liner.

2.21. The fender liner is removed with various styles of plastic rivets and push pins, using your best judgement and the plastic removal tool, remove these.

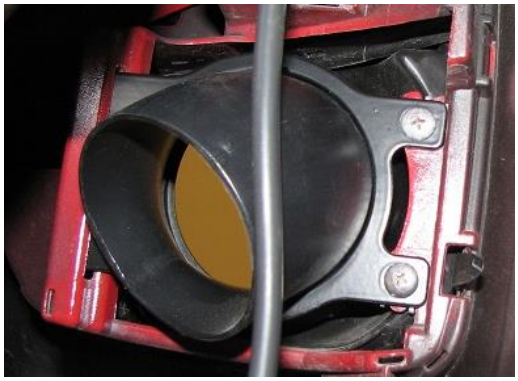


2.22. With fog lights installed, we need to remove the two Philips head screws circled in yellow below and unplug the connector from the fog light.



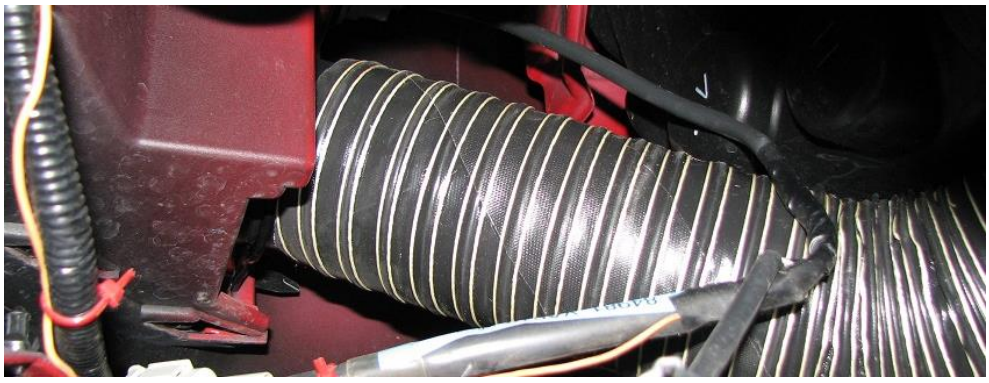
2.23. We used electrical tape on the fog light plug to do our best at keeping the water out of the connector for possible future use.

2.24. Place the fog light bracket around the duct and then the duct/bracket assembly into the hole where the fog light used to reside. Using the OEM screws, tighten the bracket down. The plastic fog light should have a little play but not a lot.

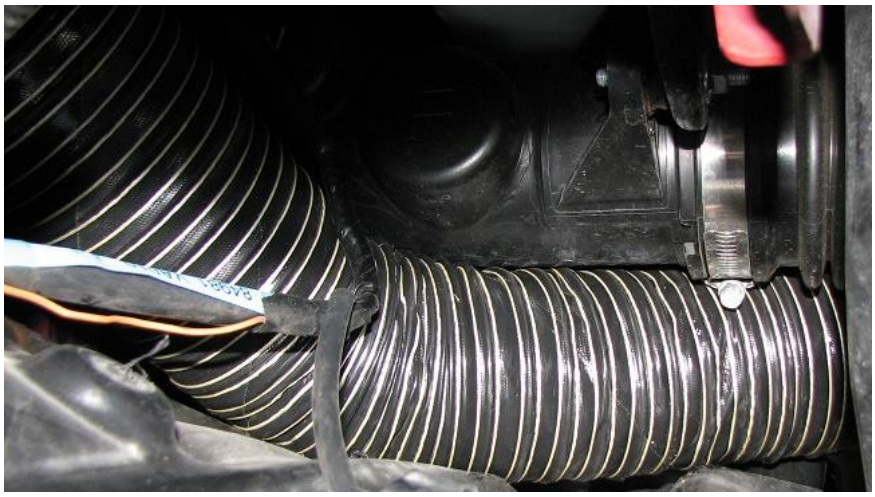


2.25. From the front, this is the view of the fog light duct.

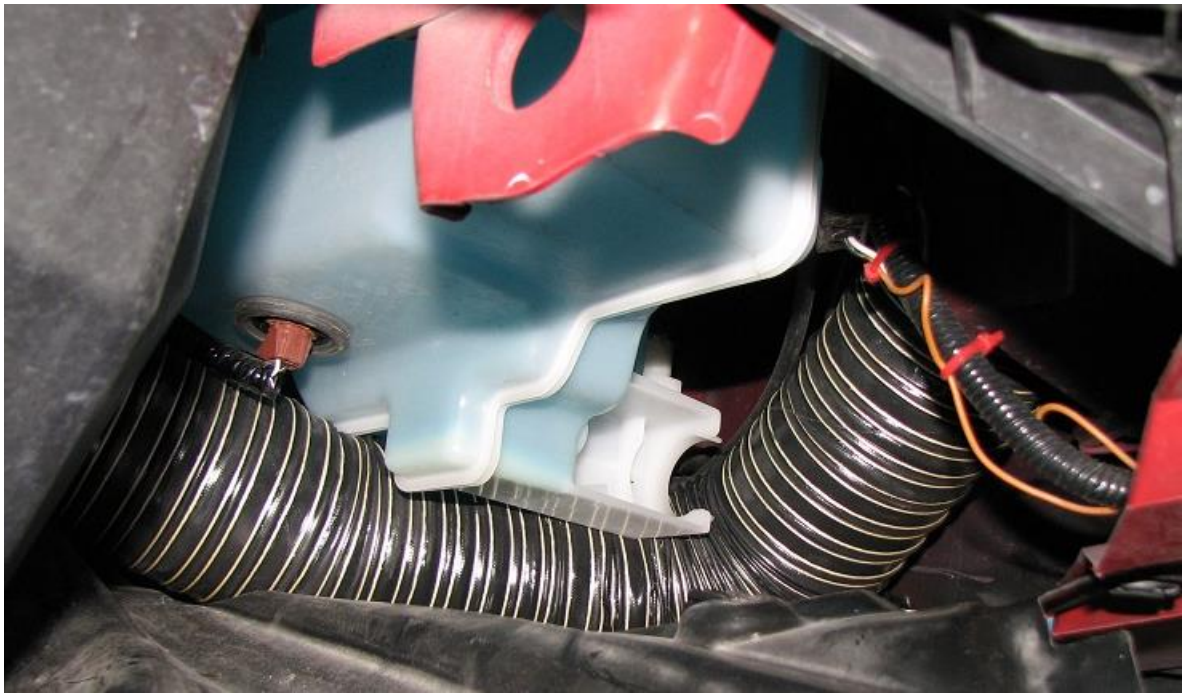
2.26. We can install the 3” brake duct hose now, use a 3” hose clamp on the fog light duct side.



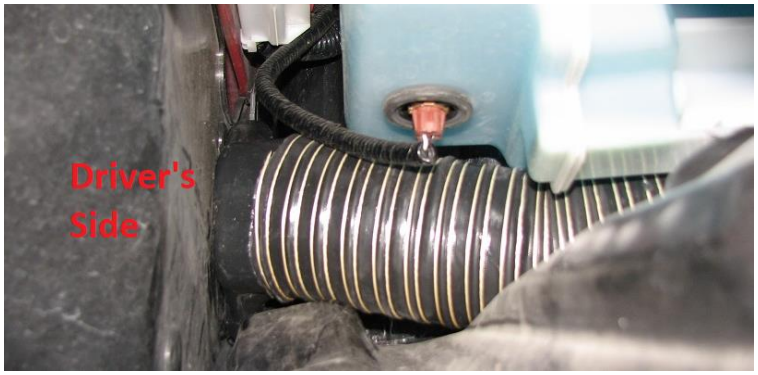
2.27. The hose is routed underneath the intake on the WRX. See below for a good picture of this.



2.28. On the driver's side, the hose will go between the fender liner and the washer fluid reservoir, as shown below.

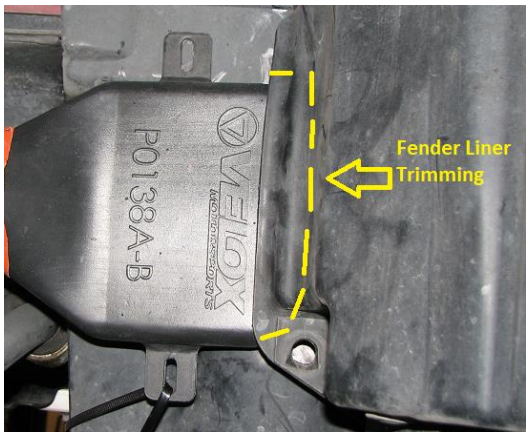


2.29. We will begin working on locating the fender liner duct, also referred to as the pancake duct by some. This duct will stick through the fender liner as shown below. This photo is taken from the front of the vehicle. Utilize a 3" hose clamp on the fender duct as well.

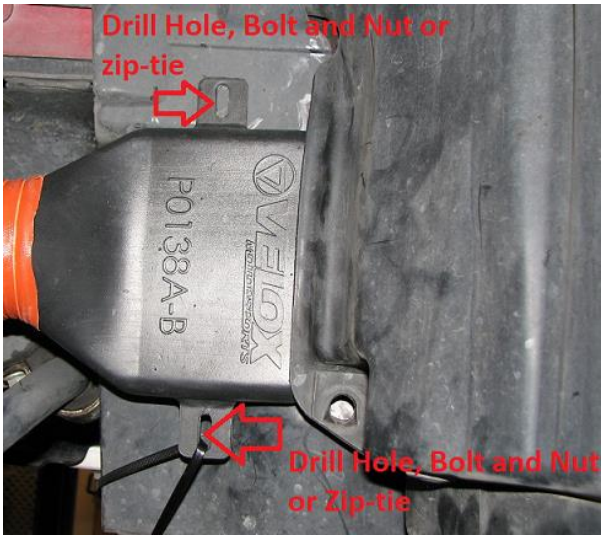


2.30. These hoses can be cut shorter for a more direct route if the washer fluid reservoir is removed, we supply the longest hose necessary for an OE install. Shown below is a more direct routing of hose after cutting took place.

2.31. The below photo shows how we can snake the pancake duct through the fender liner; in between the engine bay and the fender liner. We recommend trimming the fender liner to allow use of the plastic push rivet but it is not necessary.

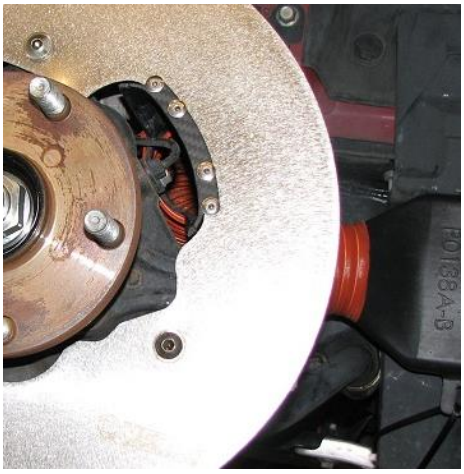


2.32. There are a few ways to install the fender duct, zip-ties through holes that we will drill, or bolts, spacers, and nuts, through the holes we will drill. We personally chose the zip-tie route, but we include hardware for both installs.



2.33. With the duct installed, it should not move much when wiggled.

2.34. Grab a 2.5” pre-cut high-temp hose and install it between the fender liner duct and the backing plate duct. Utilize a 2.5” hose clamp on either side.



2.35. Reinstall the fender liner with all the OEM plastic rivets, push pins, etc. The fender liner duct will push the liner slightly outward, this is okay and the wheel should not have issues clearing this.

2.36. If the wheel is still removed from the vehicle, reinstall and torque to factory specs.

2.37. At this point, the install for the brake cooling kit is concluded. Ensure that all bolts/plastic pins/hose clamps are tightened and installed.

2.38. Enjoy your brake cooling kit! Please contact Verus Engineering with any concerns, comments, or feedback. We continually strive to bring the highest quality components and appreciate the feedback. E-mails can be directed to sales@verus-engineering.com.