



Brake Cooling Kit - VB Subaru WRX

Installation Manual



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Release Date: 2025/07/02
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Document Revisions

Rev	Date	Author	Description
01	2025/07/02	M. Deckard	Issued for Release

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Introduction

Overview: Detailed instructions on installing the Verus Engineering Brake Cooling Kit for the VB Subaru WRX.

Difficulty: Moderate

Time Required: 2.5-3 Hours

Tools Needed:

- Impact
- Ratchet
- 19mm deep well socket
- 19mm shallow socket or wrench
- 12mm socket
- 10 mm socket
- 8mm socket or flat head screwdriver
- 12 mm wrench or ratcheting wrench
- Side or flush cuts
- Trim tool/panel clip remover
- Cutoff wheel and/or reciprocating saw
- Mechanic's wire or caliper hanger
- 50/50 mix of isopropyl alcohol and water
- Clean microfiber or lint-free rag
- Sharpie or paint pen
- Adhesion promoter (optional)



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Kit Components:

- (1) Left-Hand (LH) Backing Plate Assembly
- (1) Right-Hand (RH) Backing Plate Assembly
- (1) LH Brake Cooling Inlet Duct
- (1) RH Brake Cooling Inlet Duct
- (1) LH 3D printed template
- (1) RH 3D printed template
- (1) Die-cut 3M VHB double sided tape – Top Left
- (1) Die-cut 3M VHB double sided tape – Bottom Left
- (1) Die-cut 3M VHB double sided tape – Top Right
- (1) Die-cut 3M VHB double sided tape – Bottom Right
- (2) 2.5" High-Temp Silicone Hose Cut to Length
- (1) Hardware Bag
 - (4) 2.5" Hose Clamp
 - (6) 24" Cable Ties
 - (2) 1" Section of Foam Tape

**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.
2. Begin by opening your vehicle's hood. The hood release is located by the driver's left knee.



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3. Before we get the car in the air, remove the clips and bolts attaching the top of the bumper. In total, there will be (6) 10mm head screws (circled in red), (3) Center-pull type clips (circled in orange below), and (2) Center-push type clips (circled in yellow below).



4. Now, jack the car up and support it safely. You may also use a lift if one is available.



5. If you currently have a front splitter, this will need to be removed before we can proceed.

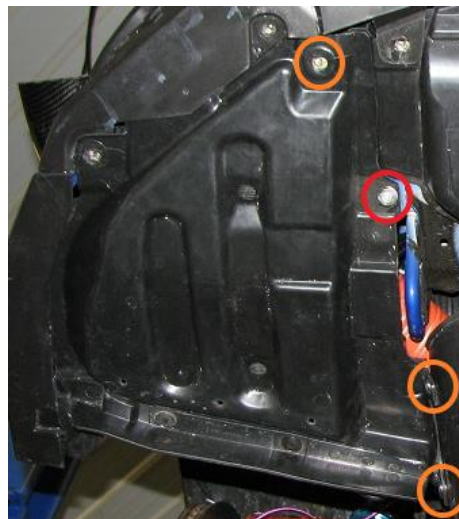


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6. Next, remove the (10) center-pull type clips on the underside of the bumper (passenger side is shown below). **Note: If you have a front splitter, some or all clips may already be removed.**



7. While still under the car, we need to loosen the front section of both wheel wells. This is done by removing (3 per side) center-pull type clips circled in orange below (there will only be (2) if you have our front splitter) and (1) 10mm screw that is circled in red below.

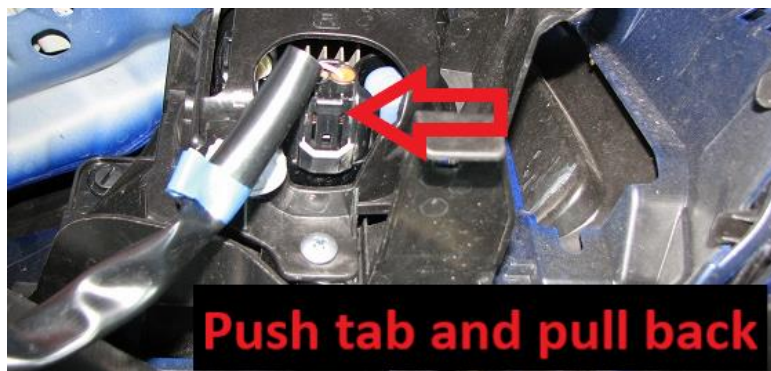


8. Having freed up the front section of both fender liners, pull them down and back. Note: The hose should not be installed right now as shown below but this is where the hose will be installed.

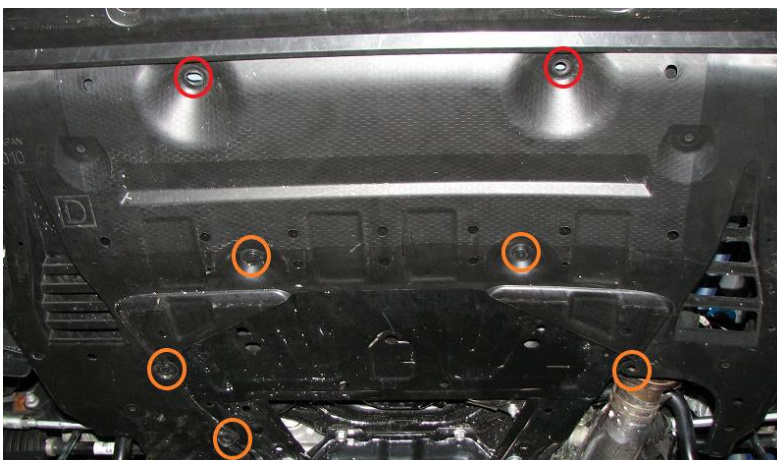
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9. You should now be able to see the backside of the fog lights (if equipped). Unplug both fog light connectors.

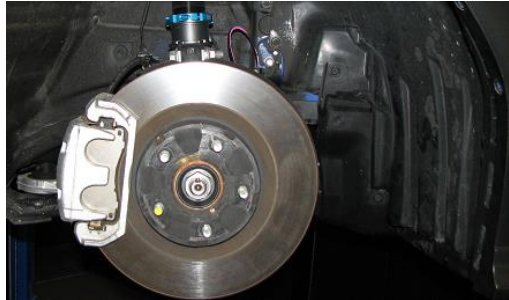


10. The engine splash shield also needs to be removed so we can route the brake duct hoses. This shield is held in with (2) 12mm head screws (circled in red below) and (7) center-pull type clips (circled in orange below).



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- 11.** We now have all the splash shields removed and will use our deep well 19 mm socket to remove both front wheels. This will allow access to the brakes and remaining bumper clips.



- 12.** Next, we can remove the final center-push type clips holding on the front bumper. There will be (2) clips per side on the front edge of the fender well (circled in red below).



- 13.** The remaining clips holding the bumper on are hidden. You will find the first ones where the bumper and fender meet at the wheel well. Grab both layers of the bumper (bumper and fender garnish) and pull outwards (towards you). This will release (5 per side) clips holding the bumper to the fenders.



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14. Once the bumper is released from the fender clips, there are more clips to release under the headlights (3 per side). To do this, move the section you just released from the fender out to the side and pull the bumper forward (away from the car).

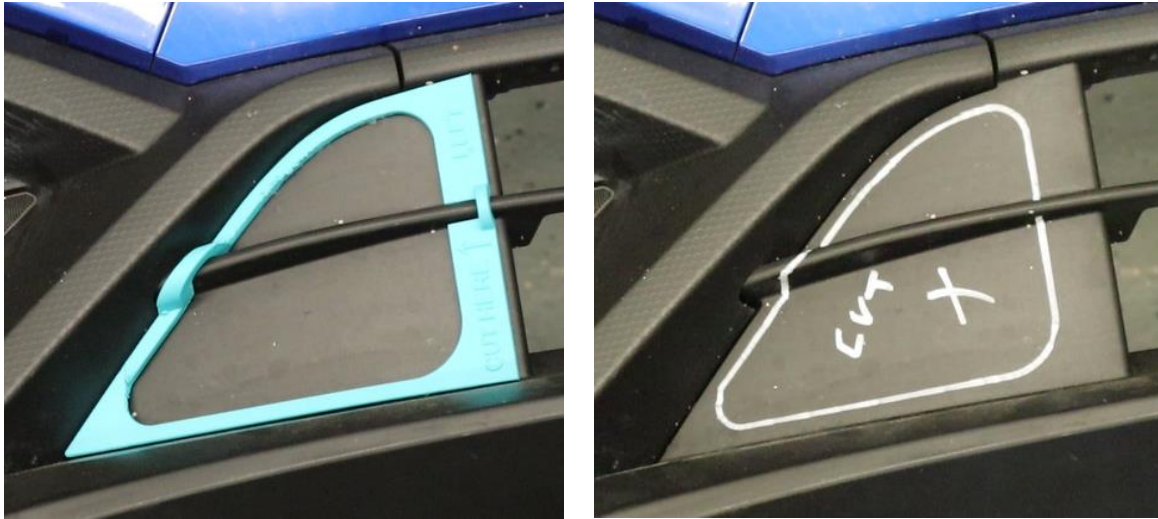


15. The front bumper can now be removed.

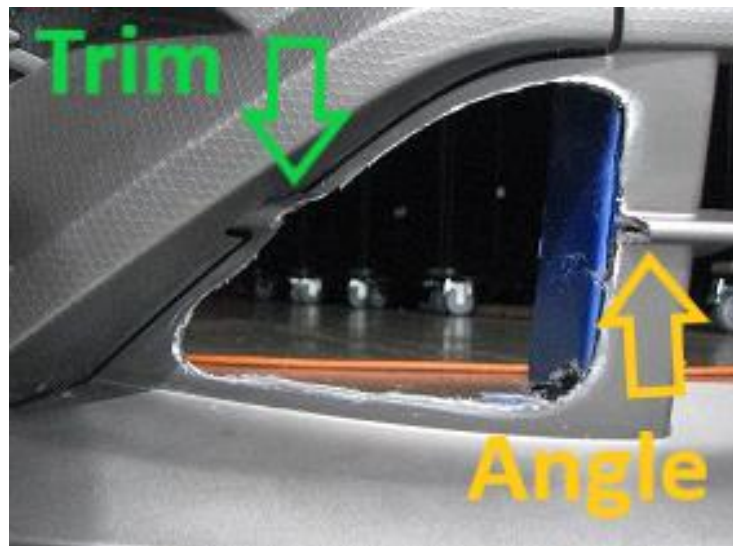


16. Set the bumper in a safe place, we will need to access the front grille to cut the holes for our ducts. **Note: We recommend setting the bumper grille side up, this can either be done on the ground or on saw horses if you prefer to not work on the ground.**
17. Once your bumper is securely placed, locate the area on either side of the lower grille and use the 3D printed templates to trace where we need to cut.

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18. Once the line is traced, remove the template and use a cutoff wheel or reciprocating saw to cut along the line. **Note: After cutting along the line provided by the template, small amounts of trimming will still be needed. We trimmed the outer grille line further back (shown with green arrow below) as well as angling the cut for the inner grille line (shown with yellow arrow below).**



19. Repeat the template and cutting process on the remaining side.
20. The brake ducts should now be test fitted. It is extremely important that the ducts sit even and flush with the face of the bumper. Make necessary trimming before continuing. **Note: This will directly affect the quality of adhesion between the bumper and ducts. You will know the ducts sit correctly once all edges sit flat and they no longer rock up and down on the grille lines marked with red stars below.**

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21. It is now necessary to clean the ducts and corresponding mounting surfaces on the bumper with our microfiber cloth and 50/50 isopropyl mix. **Note: It is critical that you remove all dust and debris from cutting. This step will directly affect the quality of adhesion of the 3M VHB. Pay extra attention to the troublesome/important mounting areas highlighted in red below.**



22. Remove the white/translucent side of the tape, carefully install and massage it onto the backside of the duct. **Note: The short section will go to the top side of the ducts and the longer section will be the bottom sections. If you have some, you may use adhesion promoter to help the 3M VHB stick to the duct. Below is an image of both ducts with 3M VHB installed for reference.**

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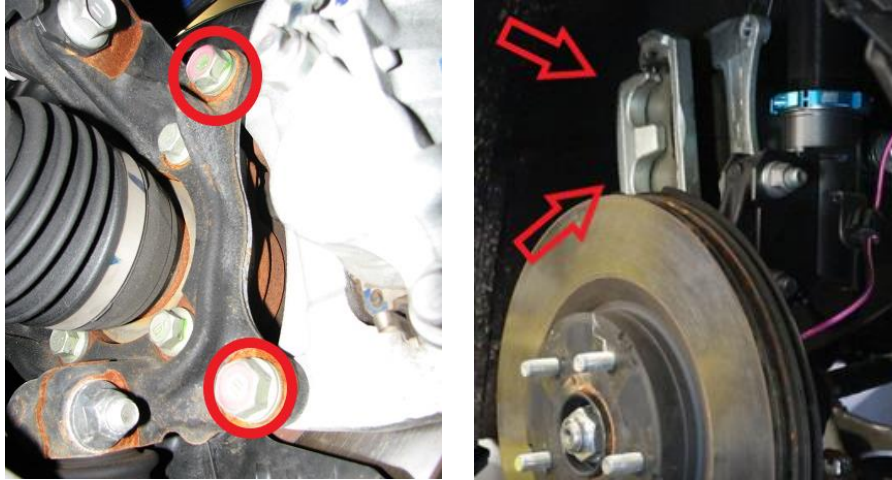
23. Now that the ducts are prepared, remove the red backing and install the ducts onto the bumper. Once the tube section is through, angle the corners into place and press firmly to ensure all sides make full contact (refer to image below). **Note: You may use adhesion promoter for the bumper side as well.**



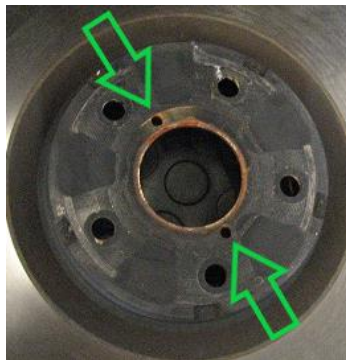
24. Repeat this process on the remaining side and press ducts firmly onto the bumper. Pay extra attention to the corners (pointed out in image above). **Note: It can assist proper adhesion if you have something to set on the ducts to apply pressure while you install the rest of the kit.**
25. While we allow time for the ducts to adhere, use a ratchet and 19mm socket to remove the mounting bolts (2 per side) for the brake caliper assembly and use mechanic's wire or a caliper hanger to hang them up out of the way. **Note: We hang our calipers from the strut/coilover. We do this by looping mechanic's wire around the coil spring and through one of the mounting bolt holes on the caliper.**

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Caution: Hanging the brake calipers by only the hose can cause permanent damage and may cause calipers to lock up or fail to release correctly.



- 26.** With the calipers out of the way, remove the rotors. **Note:** If you are reusing your rotors, either use a plastic dead blow hammer or the M8x1.25 threads on the face of the rotor hub provided by Subaru.



- 27.** You can now take both factory dust shields off by removing the (3 per shield) 12mm head bolts.



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28. With the OEM hardware, tighten down the Verus backing plates to 8-10 ft lbs. The duct should sit just above the wheel speed sensor.



29. Attach the 1" section of adhesive foam tape between the ABS sensor wire and the duct. You can place this on the duct or wrap it around the ABS wire. **Note: This is to protect the harness from rubbing on the duct.**



30. We should now be ready to attach our 2.5" high temp hose to our bumper with the provided 2.5" hose clamps. **Note: Connect both hoses to the ducts and give them a pull, if**

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they do not slide off then they are tight enough. Over-tightening can damage the clamp or duct.



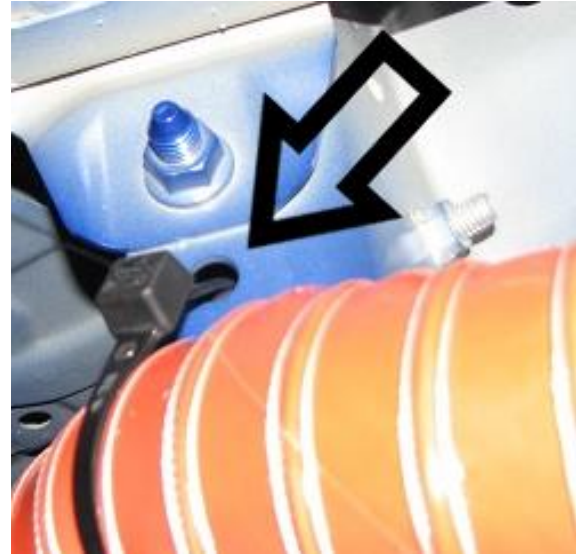
31. With the help of a friend, reinstall the front bumper. The cooling duct hoses will need guided in as the bumper goes on. The driver side will go between the exhaust and the washer fluid reservoir. The passenger side routes under the intake tube. Both sides will enter the wheel well next to the subframe mounting brackets. **Note: Below are images of hose routing.**



32. At this point, the duct hoses should be loosely routed to the wheel well area and the bumper should be attached. Reinstall all upper (engine bay) and wheel well bumper clips and fasteners at this time. **Note: Do not reinstall the lower bumper clips yet.**
33. The bumper is now secured and we need to manage how the duct hoses route. There will be an open hole off of the frame rail (shown below) that we will use to zip tie our hose. **Note: Before tightening the zip ties, gently pull the hose towards the rear of the car. If you look at the brake duct while you pull, you should notice that it is trying to pull the**

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duct into the bumper. This is exactly what we want. If we do not tie the hose back, it can overcome the adhesion of the 3M VHB and force the duct out of the bumper.



34. Next, reinstall the engine splash shield and the remaining clips for the lower bumper. This may take some force because of the hose locations, this is normal and will support the hoses, holding them in place.
35. Once the splash shield is in place, use the remaining hose clamps to attach the hose end to the backing plate duct. **Note: Be sure the clamp is making even contact before tightening. Give the hose a pull to make sure the clamp is tight enough.**
36. In order to install our final (2) zip ties, we need to know how long our hose needs to extend when the steering reaches full lock. Turn the steering wheel full left, then zip tie down the left hose. **Note: We used the large hole in the subframe (above the sway bar mount) to zip tie our hoses.**
37. Repeat process for right side.



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38. Check to make sure all of your clamps and zip ties are tight. **Note: Make sure the clamps on your tie rod ends are facing down and not contacting the hoses as circled in the image above.**
39. Reinstall your brake rotors and caliper assemblies. Torque caliper bolts to factory specification.
40. Install both front wheels and (with the car still in the air) turn the steering wheel full left and full right to be sure your wheels do not rub the hoses. If wheels rub, we have provided extra zip ties to adjust this accordingly. **Note: The car we installed this on does not touch the hoses and is lowered with 18x9.5 +40 wheels and 275/35R18 tires.**
41. If no rubbing occurs at full steering lock, brake calipers are tight, hose clamps are tight, and brake ducts are sitting flush you may now lower the car down and torque the lug nuts to factory specification.
42. Congratulations on installing your new brake cooling kit! Please email us at support@verus-engineering.com with any concerns, comments, or feedback.

