

# VERUS

## ENGINEERING

### S550 Mustang Rear Diffuser

#### Install Manual



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Approvals: E. Hazen

#### Document Revisions

Rev	Date	Author	Description
01	2022/07/27	T. Lang	Initial release of install manual.

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Shelby GT350R Rear Diffuser

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## Shelby GT350R Rear Diffuser

### 1. Introduction

**1.1. Overview:** Detailed instructions on installing the Verus Engineering functional rear diffuser on the Shelby GT350R.

**1.2. Difficulty:** Moderate

**1.3. Time Required:** 2.5 -3 hours

**1.4. Tools Needed:**

**1.4.1.** Jack and Jack Stands (or a lift)

**1.4.2.** 13mm Socket

**1.4.3.** 8mm Socket

**1.4.4.** Ratchet

**1.4.5.** Extension(s)

**1.4.6.** 4mm Allen wrench or socket

**1.4.7.** Phillips screwdriver

**1.4.8.** Flat head screwdriver

**1.4.9.** 10mm wrench

**1.4.10.** Level

**1.4.10.1. Optional Tools for GT350R Installation Kit**

**1.4.10.1.1.** Drill

**1.4.10.1.2.** 1" Hole saw or step bit

**1.4.10.1.3.** Air saw or cut off tool

**1.4.10.1.4.** Touch up paint

**1.4.10.1.5.** Center punch

**1.4.10.1.6.** 1/8" drill bit

**1.4.10.1.7.** 1/4" drill bit

**1.4.10.1.8.** Tape

**1.4.10.1.9.** Scissors

**1.4.10.1.10.** Marker

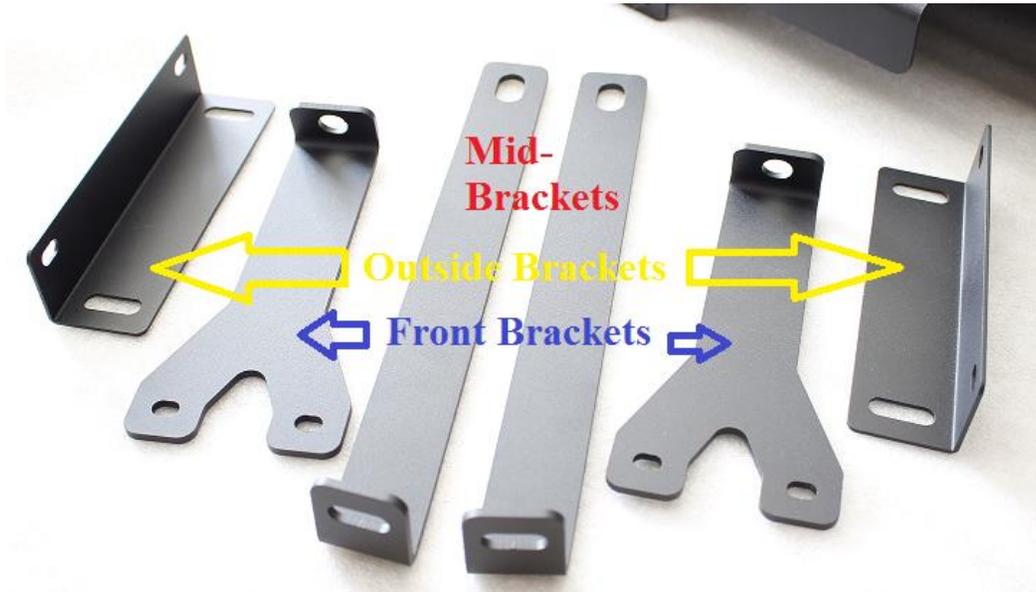
**1.4.10.1.11.** 5mm Allen socket

**1.4.10.1.12.** 9/16" Wrench

**1.4.10.1.13.** 3/8" Drill bit



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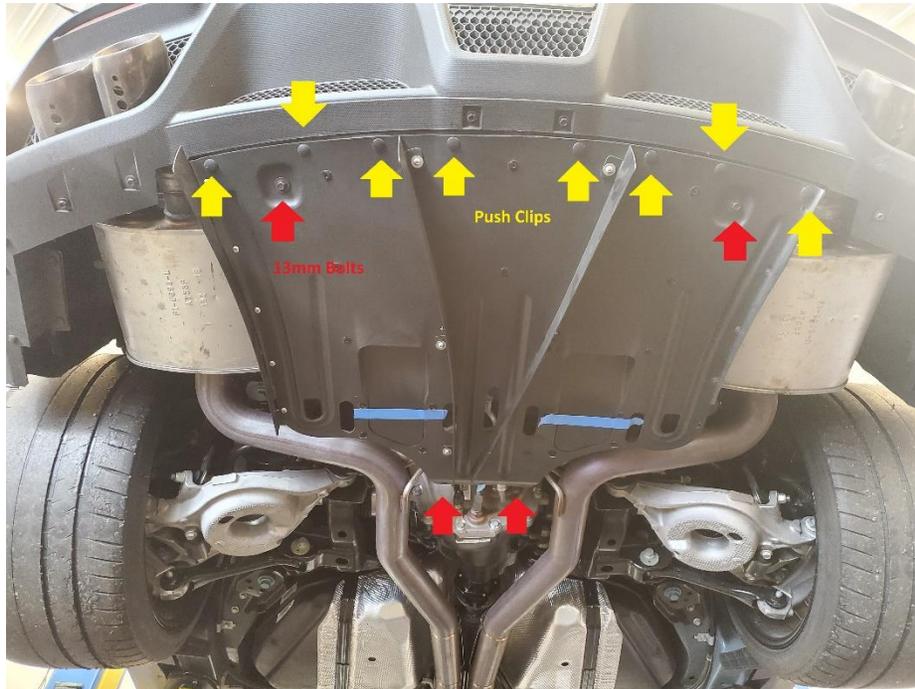
## 2. Rear Diffuser Install

- 2.1. Verus Engineering is not responsible for damage to you or your vehicle by following this manual and/or installing Verus Engineering products on your vehicle.
- 2.2. We begin by jacking the car up on a level surface. Use of wheel chocks is suggested to keep the front wheels from rolling. Using a lift is also a possibility.

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- 2.3. Secure the car with two jack stands with enough room to access all the area under the rear bumper. The pinch welds are good choices, as are frame rails.
- 2.4. First, we need to remove the OEM diffuser plate. Follow the picture below, and remove the four **13mm head bolts**, and **push clips** to drop the diffuser plate.

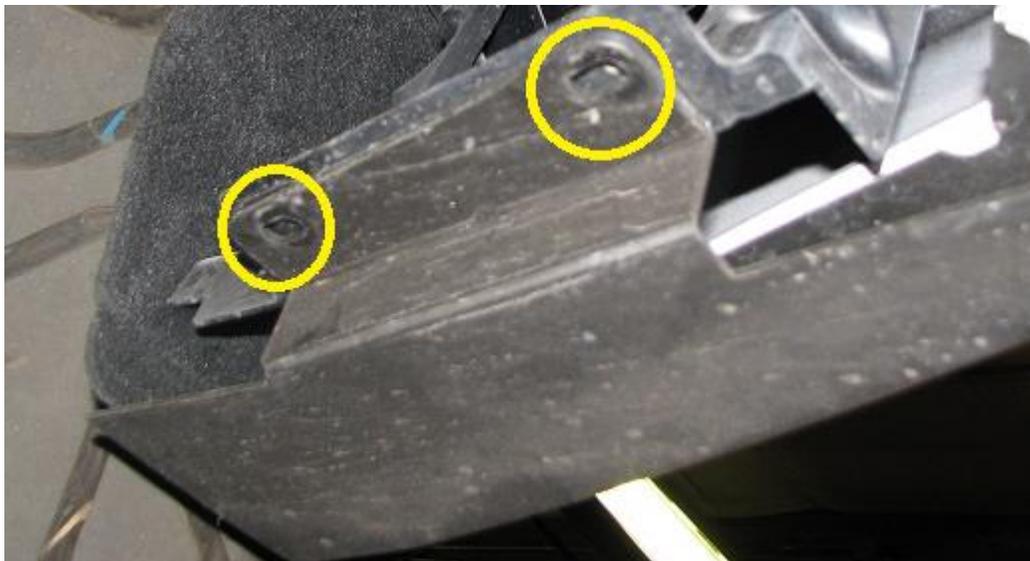


- 2.5. Below is a closer picture of where the three mounting brackets will go. The bolt circled in **red** will be the mid-bracket, the bolt circled in **blue** will receive the front bracket, and the holes circled in **yellow** will receive the outer bracket.

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2.6. Starting with the outside mounting points, remove the two plastic clips. These are circled in yellow below. Use a screwdriver to remove these.



2.7. Remove the 13mm bolts on the sway bar mounting locations and the exhaust hanger locations, circled in **red** and **blue** below.

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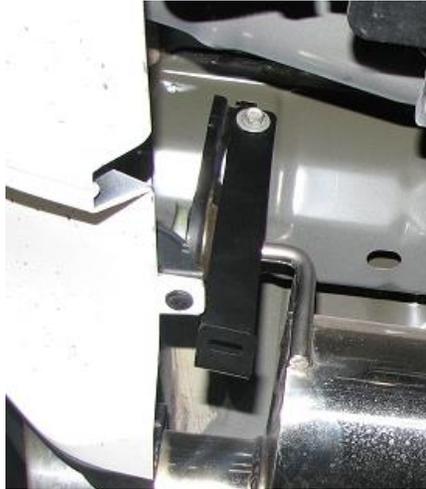


- 2.8.** Install the front brackets as shown below. You can fully tighten the bolt back into the sway bar mounting location at this time. You may need to clearance the mounting ears to fit the sway bar bushing mount shown below.



- 2.9.** Install the mid-brackets as shown below. Note that there are a left-hand and a right-hand mid-bracket. The bottom of the bracket should angle upward in the rear. It is normal for the bracket will need to be slightly bent around the exhaust hanger.

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- 2.10. Slide an M6 fold nut onto the slotted hole on both mid-brackets.

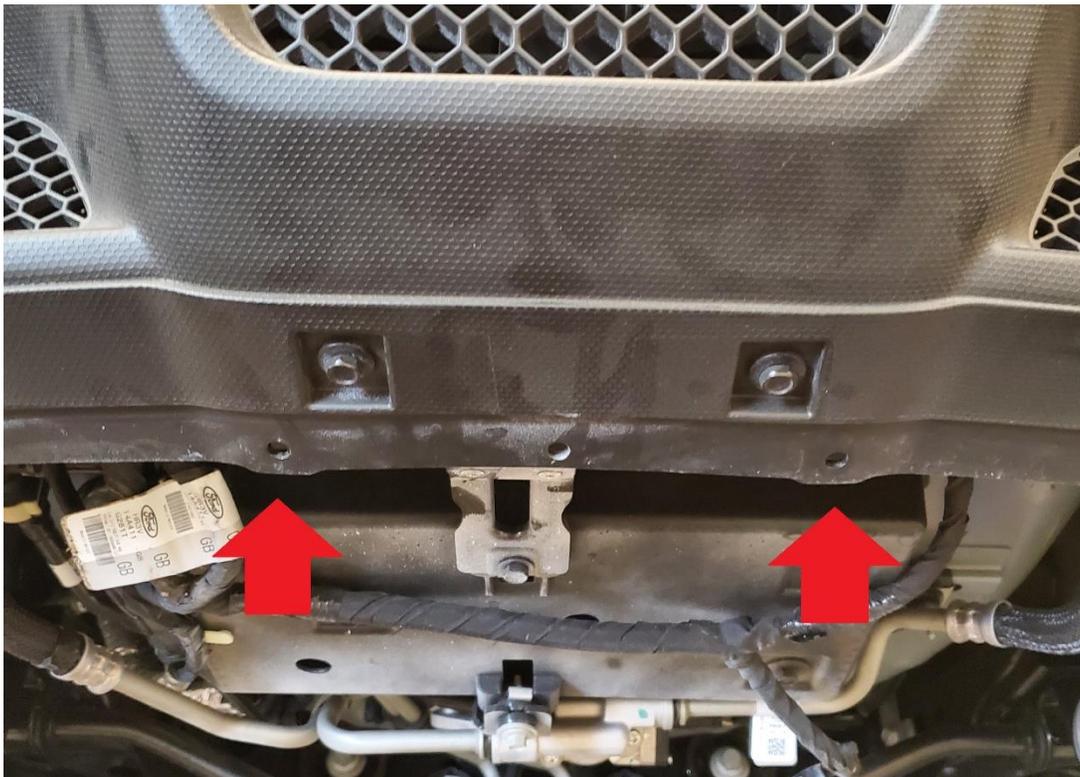


- 2.11. Install the outside brackets by using (2) of the M6 x 1.0 x 16mm long BHCS, (2) fender washers, and (2) nuts on the top side. The long slotted holes should be the holes being bolted here. This should look like below after **loosely** installing the brackets. They do not need to be tightened yet. Install the other side in the same manner.

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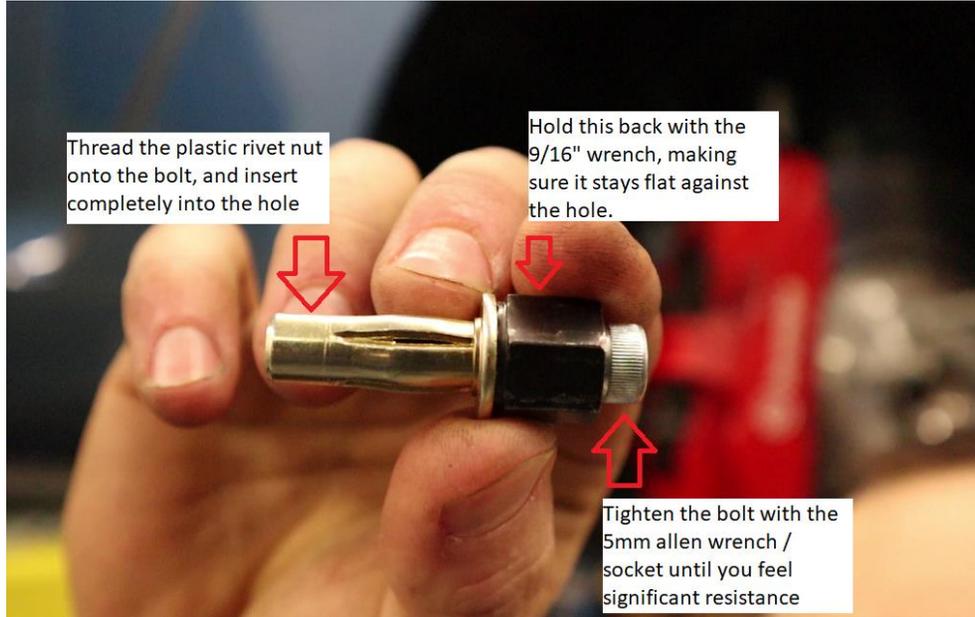


**2.12.** We will be installing two M6 rivet nuts into the holes shown below.



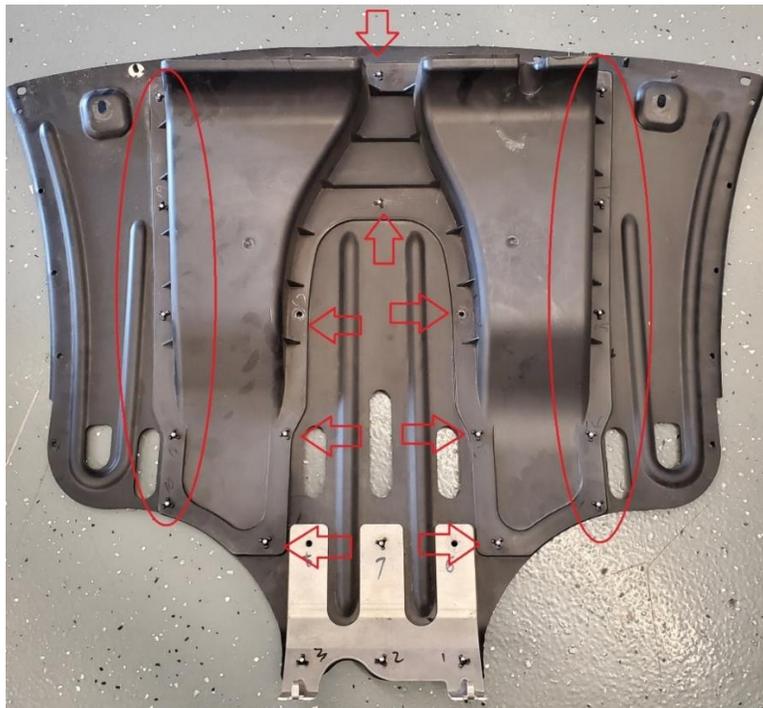
**2.13.** Drill these out to 3/8" if needed. Follow the instructions in the picture below to install the two M6 rivet nuts.

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2.14. Next, we will begin installing the rear differential cooler duct to your new Verus Engineering diffuser.

2.15. Start by removing all of the rivets holding the duct to the OEM diffuser plate. Use either a drill or side cutters. See picture on following page.



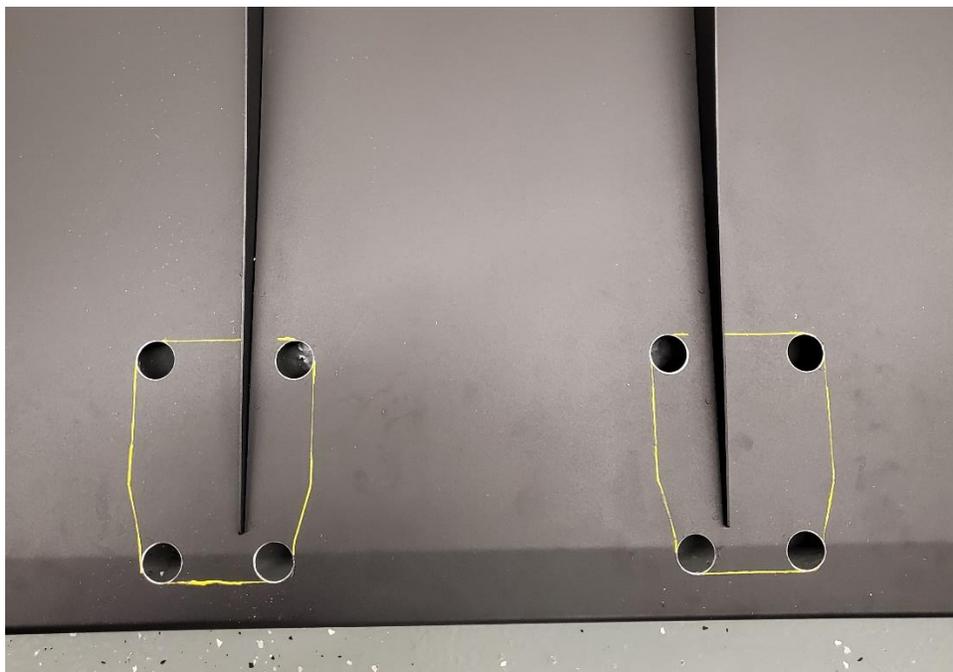
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- 2.16. Remove the duct.
- 2.17. Cut out the templates and tape them to the diffuser. Be sure to pay special attention to the fitment notes on the template.



- 2.18. Center punch all of the holes to be drilled out.
- 2.19. Start drilling the corner holes using the hole saw or step bit



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- 2.20.** Using an 1/8" drill bit, drill out the rivets (the two small circles on the template) holding the strakes to the diffuser.
- 2.21.** Cut the holes out using the template as a guide. When you are done cutting the slug should look something like the picture below.

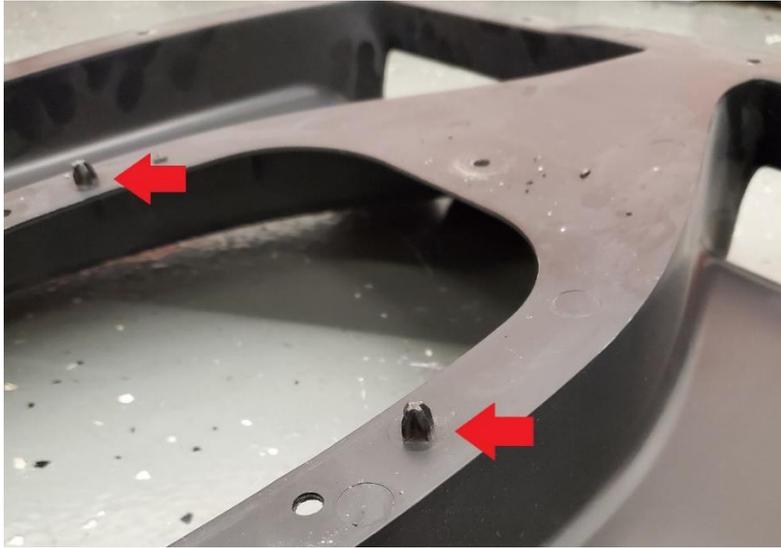


- 2.22.** Cut the flange portion off of the strake.



- 2.23.** At this point it is recommended that you use touch up paint to coat all of the exposed edges that are now present on the diffuser. This is not necessary, aluminum will not rust, however aesthetically it looks better.
- 2.24.** Sand down the locating nubs on the differential cooler duct.

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- 2.25. Measure approximately 19" from the rear corner of the duct, and make a straight line across both "legs" of the duct. This will be where you will cut the duct. **\*\*NOTE\*\***In order to get the duct as close to the differential cooler as possible, you may want to double check the fit before final install.



- 2.26. Measure the center of the Verus Engineering diffuser by using the two center strakes. Place a piece of tape, and make a line going towards the front of the diffuser. This line will help you center the differential duct on the diffuser.

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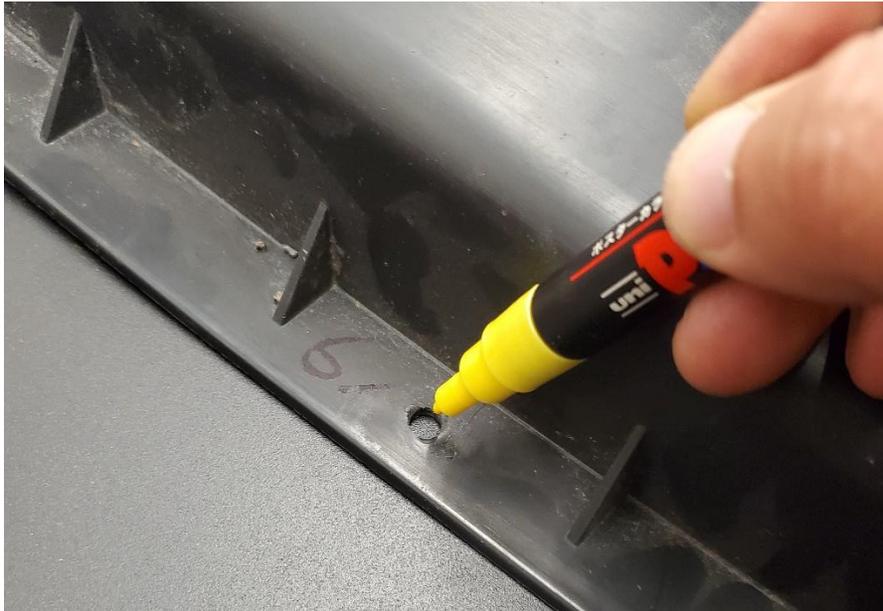


- 2.27.** Place the differential cooler duct onto the Verus Engineering diffuser using the mark you just made as a reference for the center hole on the differential duct. The leading edge of the duct should be up against the leading edge of the diffuser (towards the front of the car).



- 2.28.** Mark, and center punch all of the holes for the differential duct, and drill them using the 1/4" drill bit. Again, it is recommended that you use touch up paint on all the raw edges.

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- 2.29.** Install the duct onto the diffuser using the 25mm BHCS, 18mm washers, and serrated flange nuts. The washer should be on the diffuser side. Bottom the nuts out, and tighten approximately an additional 1 -2 turns. Be careful not to over tighten as the nuts will “cut” through the plastic duct if you tighten them too much.



- 2.30.** Use two 70mm BHCS, and 18mm washers and slide them into the holes used for the mid brackets.
- 2.31.** Slide three 15mm nylon spacers and an M6 push nut onto both bolts. You should have something resembling the picture below.

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- 2.32.** The diffuser is now ready to be installed onto the car.
- 2.33.** Loosely installing the diffuser on the outside brackets first is a good way to do it yourself. Use the M6x1.0 BHCS in 16mm length and fender washers on one side with the serrated nut on the back side.

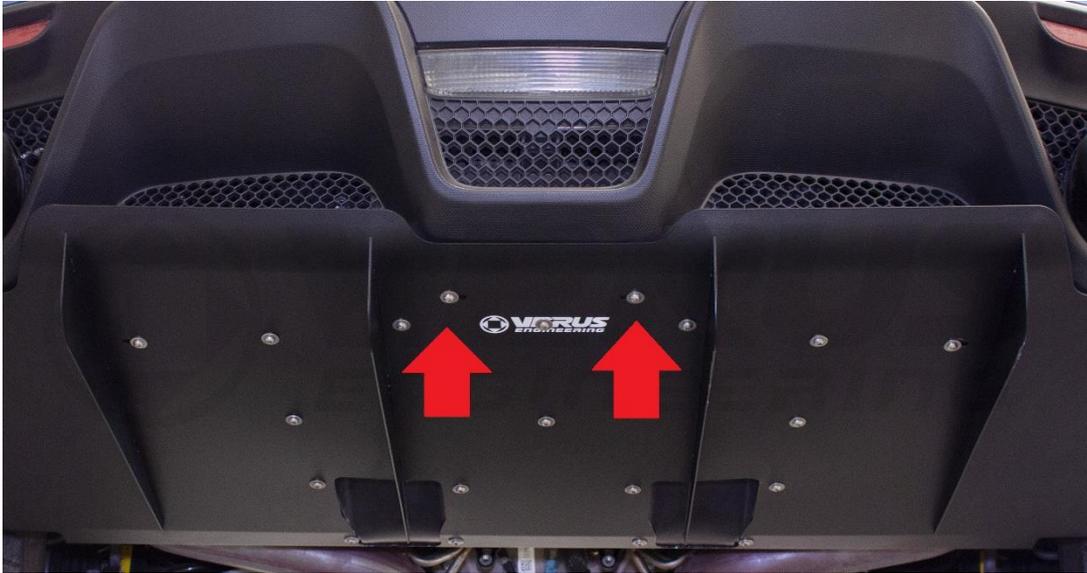


- 2.34.** On the front two brackets, the bolt heads and washers go on the front side of the diffuser with the nuts on the back side. Do this for all (4) locations.
- 2.35.** Install the mid-bracket bolts. Make sure the 60mm BHCS line up with the fold-nuts on the mid brackets and begin loosely threading them in.

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- 2.36.** The mid-bracket may need to be slightly persuaded to line up with the diffuser hole due to the exhaust hanger mount. This is okay and will still result in a strong diffuser mounting.
- 2.37.** The middle two rear points will use 25mm BHCS that will thread into the rivet nuts installed previously in **2.13**.



- 2.38.** All the bolts should be installed at this point, but loose. It is now time to tighten all the loose bolts up.
- 2.39.** After ensuring that all bolts are tightened, you are finished!
- 2.40.** Congratulations, you have successfully installed the Verus Engineering Shelby GT350 rear diffuser! You can now benefit from an increase in rear end downforce and a reduction in vehicle drag among other benefits.
- 2.41.** Please contact Verus with any feedback, concerns, and questions via e-mails, [sales@verus-engineering.com](mailto:sales@verus-engineering.com).

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