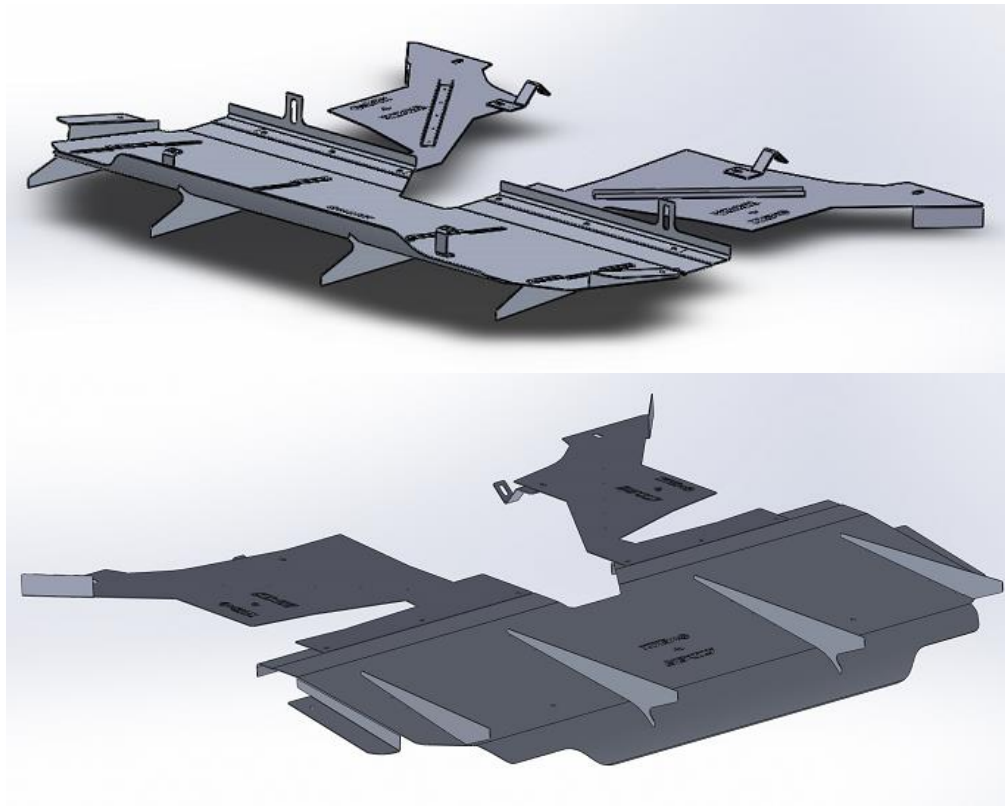


VERUS ENGINEERING

FRS/BRZ/GT86 Rear Diffuser Modular Kit

Installation Manual



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Approvals: P. Lucas

Document Revisions

Rev	Date	Author	Description
01	07/19/2015	E. Hazen	Issued for Release
02	08/08/2017	P. Lucas	New template, Company name changed from Velox to Verus
03	05/21/18	E. Hazen	Updated sway bar mounting

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1. Overview:

Detailed instructions on installing the Verus Engineering modular rear diffuser, including the rear suspension covers.

2. Difficulty:

Novice

3. Time Required:

45-90 minutes

4. Tools Needed:**4.1. Rear Diffuser Only**

- Ratchet
- Flat Head Screw Driver
- 4mm allen wrench/hex head socket
- 5mm allen wrench/hex head socket
- 12mm deep or shallow socket
- Drill
- 3/8" drill bit
- 9/16" wrench
- Level
- Sheet metal shears (optional)

**4.2. Diff Cover Option**

- Ratchet
- 4mm allen wrench/hex head socket
- 5mm allen wrench/hex head socket
- 12mm deep or shallow socket
- 13mm wrench



5. Assembly Parts:

5.1. Rear Diffuser

- (1) Rear Diffuser
- (2) Rear U-Shaped Bracket
- (2) Front Flat Bracket
- (1) Hardware Bag
 - (6) M6x1.0 BHCS, 16mm length, stainless steel
 - (4) M6x1.0 BHCS, 35mm length, stainless steel
 - (4) M6x1.0 serrated flanged nut, stainless steel
 - (2) M6x1.0 plastic rivet-nuts
 - (1) Rivet nut installer
 - (4) 5mm long nylon spacer, M6 ID
 - (4) 10mm long nylon spacer, M6 ID
 - (4) 15mm long nylon spacer, M6 ID
 - (10) M6 stainless steel washer
 - (1) OEM rear wheel plastic cut template





5.2. Rear Suspension Cover/Diff Cover Kit

- (2) Diff Covers
- (1) Hardware Bag
 - (8) M6x1.0 BHCS, 16mm length, stainless steel
 - (8) M6x1.0 serrated flanged nut, stainless steel
 - (8) M6 stainless steel washer
 - (2) M8x1.25, serrated flanged nut, stainless steel
 - (2) M8x1.25 BHCS, 45mm length, stainless steel
 - (2) M8 stainless steel washer
 - (2) 30mm long nylon spacer, M8 ID
 - (2) Brackets



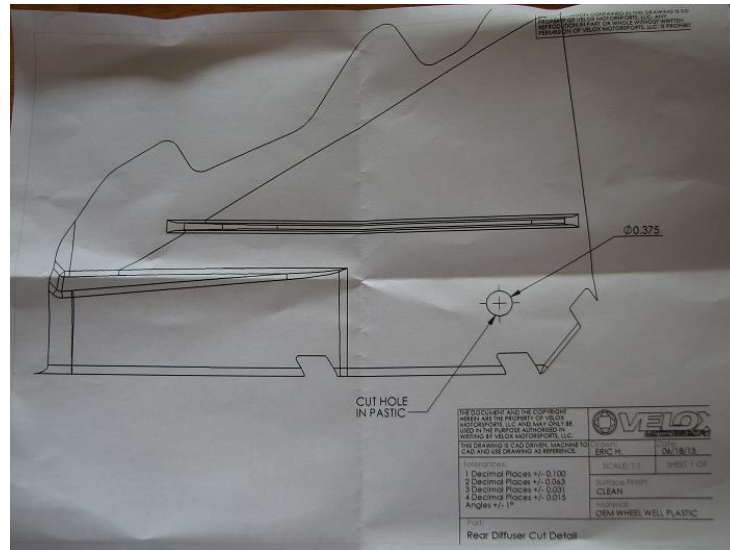


6. Rear Diffuser Install:

- 6.1. Verus Engineering is not responsible for any damage to your vehicle by following this install manual or installing our components,
- 6.2. 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 vehicle. We were nowhere near the battery so we left it connected for this install, but it is never a bad idea.
- 6.3. We begin by jacking the car up via the rear differential housing and then placing two jack stands on either side of the car. The pinch weld works, as does the frame of the car (our preferred choice over the pinch weld).



- 6.4. Using the rear wheel plastic drill template, mark the holes on the rear plastic. On the passenger side, the drawing will be facing towards you; while on the driver's side you will flip this template over and mark the hole. A good way to go about this is to actually cut out the outline of the template to match up perfectly with the OEM plastic piece.

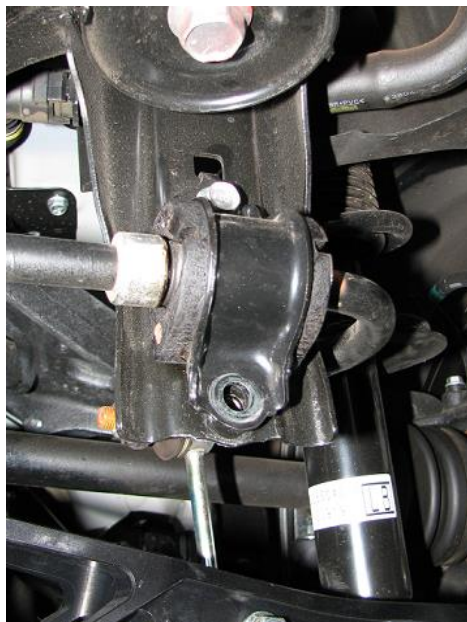


- 6.5. Using the 3/8" drill bit, drill straight and as clean as possible through the marked hole. Going slightly oversized is not the end of the world and it will be okay.
- 6.6. Using the supplied rivet-nut installer and rivet-nuts, install the rivet-nuts by following the directions on the manufacturer's information card. The install of them is fairly straight forward, using the 9/16" wrench on the nut, tighten the 5mm allen bolt. The rivet-nut will deform fairly

easily and once fully installed, resistance will begin to be felt. *If the rivet nut spins when installing, use a washer between the install tool and the rivet nut. Sometimes starting the rivet nut off the car is easier as well, just start it with a ¼ turn max to ensure it still fits inside the hole.*



- 6.7.** Using the ratchet and 12mm socket, remove the bottom bolt on the rear sway bar completely and loosen the top bolt a few full turns.



- 6.8.** Using the flat head screwdriver, remove the two plastic rivets (circled in red) on the rear bumper.



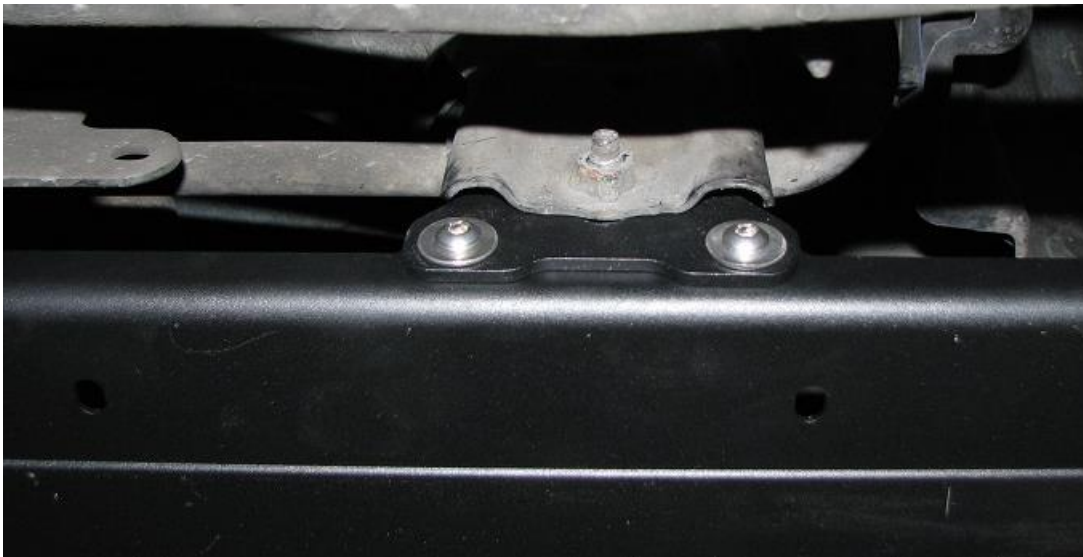
- 6.9.** Install the two supplied brackets in the holes that you just removed the plastic rivet from. Install them loosely placing the washer and 16mm M6 bolts on top of the OEM bracket, and the serrated nut on the bottom side. Please see below for an illustration.



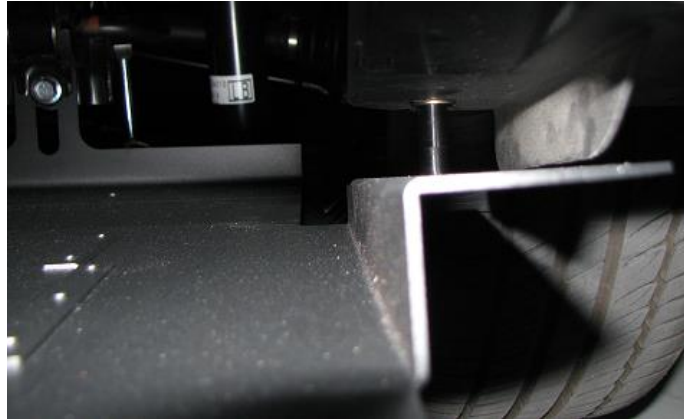
- 6.10.** Install the front bracket into the lower sway bar mount location as shown below.



- 6.11.** At this point, test fit the diffuser to ensure it clears the exhaust. Due to the large number of various exhausts, mid-pipes, axle backs, over pipes, everything fits slightly different. If your diffuser needs some modification, please let us know so we can decide if we need to make a revision down the road. Sheet metal shears, available at harbor freight, Lowes, etc are also a great way to make small modifications to the diffuser quickly and easily.
- 6.12.** With the potential help from a friend (or a floor jack), install the front four bolt holes of the diffuser into the brackets installed in 6.10. Do not fully install the bolts, but tighten them some to help hold the diffuser up. Try not to let the diffuser hang without supporting the trailing edge. **Note that the bracket sits in front of the diffuser's main plane.**



- 6.13.** *The diffuser should be installed as high as possible without interfering with the exhaust. This will vary depending on each vehicle, with each different install, with each different exhaust. The stock exhaust requires the diffuser to be installed as low as it can possibly be installed. Once you figure out roughly the height the diffuser can be installed at, tighten the 12mm bolts down more to the point the diffuser no longer moves. The tabs will deform some due to the rubber mounts of the sway bar, this is completely normal and adds strength once fully tightened. Due to different wheel thicknesses, removing the rear wheels may make it significantly easier to access the 12mm bolts.*
- 6.14.** Using the nylon spacers provided, as well as the M6 bolts and washers, begin bolting the diffuser to the other 4 mounting points on the rear of the car. For reference, when the diffuser is at the lowest installed position (stock exhaust install), there should be approximately 25mm (10mm and 15mm spacer) between the body and the diffuser. With the diffuser at the highest position, very few or no spacers should be used. Use the 35mm, longer bolts if spacers are used, use the shorter, 16mm bolts if no spacers are used.



- 6.15.** Once all the bolts are tightened on the bottom, you can tighten the M6 bolt and nut holding the bracket on the inner rear most piece (shown in red) and ensure all other bolts/nuts are tightened as well.



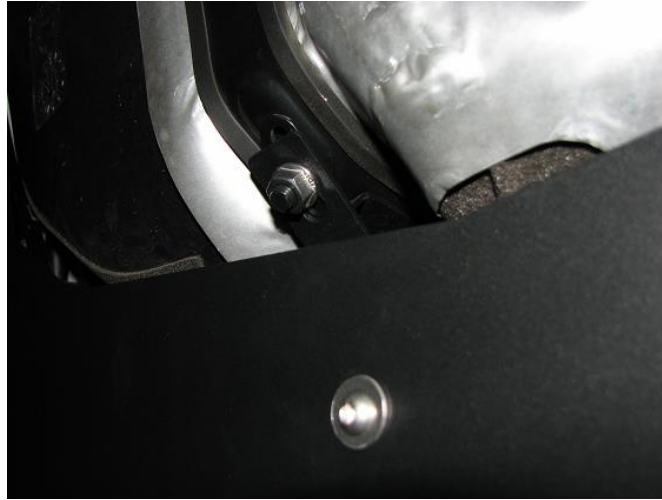
- 6.16.** At this point, if you are only installing the rear diffuser, the car needs to be lowered and placed on as near a level plane as possible. Please proceed to step 20. *Regardless of diffuser height install, you will have extra hardware left over. This is normal.*
- 6.17.** Moving forward with the rear diff covers, we will install the two front brackets on the fuel tank as shown below with the M8x1.25 serrated nut. These nuts should be installed loose for the time being. Both driver's and passenger's side are installed the same way and look the exact same.



- 6.18.** Using the ratchet and 12mm socket again, remove the e-brake cable 12mm bolt from both sides of the car.



- 6.19.** Using the supplied M6x1.0 BHCS, washers, and serrated nuts, install the diff cover. We found installing a bolt in the rearward middle point (on the diffuser), then the front middle mount (shown below), and finally the e-brake cable bolt the easiest sequence of events to bolt the diff covers up. Start with the M6 bolts, and then follow the next step for the M8x1.25 E-brake cable bolt. Do not tighten any bolts fully until all bolts are installed.



- 6.20.** To install the e-brake bolt, utilize the large M8 washer, M8 bolt, and large nylon spacer. The spacer goes on top of the diff cover, with the bolt and washer below. Reaching in between the fender and the wheel, maneuver the e-brake cable so the nut-plate lines up with the hole and you can start the bolt into that nut. This is not an easy task at first.



- 6.21.** Bolt the remaining M6 bolts from below to the M6 serrated nuts on the top. The washers are placed on the bottom side between the bolt and the cover. Due to the serrated nature of the nut, no wrench is needed to tighten the bolt from below. The unit has quite a bit of float to it, only fully tighten the bolts once satisfied with the install.



- 6.22.** Tighten the M8x1.25 serrated nut on the front brackets once the diff cover is flat. Do not be scared to move the bracket around to get the flattest diff cover mounting possible. This nut is 13mm.



- 6.23.** At this point, both diff covers should be installed, and the diffuser should be snugly installed. We will now lower the car onto a flat plane and tweak the rear diffuser slightly for maximum aerodynamic performance.

- 6.24.** To do this, we will need to use a level. Levels are fairly easy to use; the bubble should be in the middle of the bar when the level is placed on a flat surface, this is the goal with the

diffuser. The front section of the diffuser should be level with the ground plane in both lateral direction, and longitudinal direction.



- 6.25.** To check lateral level, hold the level laterally along the diffuser and loosening the 12mm bolt on the rear sway bar coax the diffuser to be level. Each side will need checked and leveled. At this time, fully tighten the sway bar mount lower and upper bolts. This will lock in the rear diffuser's lateral play.
- 6.26.** To fix the level of the diffuser fore and aft, place the level along the front section of the diffuser again, and find out if the rear four mounting points need to be raised or lowered. Using the various spacers and washers, work your way to a flat front section of the diffuser and fully tighten the four M6 bolts.
- 6.27.** The diffuser is now installed in the most beneficial fashion. Enjoy the new rear aerodynamic device and please report back with any comments, both positive and negative via e-mail, sales@verus-engineering.com

