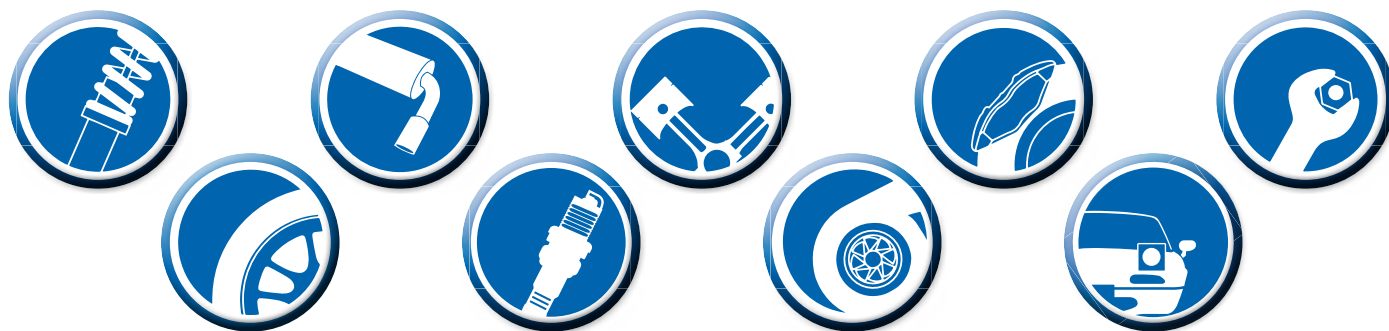


# Flyin' Miata

## INSTALLATION INSTRUCTIONS



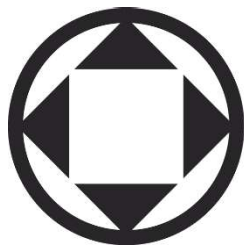
### VERUS REAR DIFFUSER FOR ND M29-78040



Thanks for purchasing our Verus rear diffuser for ND, we're confident you'll be happy with it. If you have any questions during installation or suggestions for improvement to the product or the instructions - please don't hesitate to call or email.

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# VERUS ENGINEERING

## ND Chassis Miata Rear Diffuser

### Install Manual



Author: Eric Hazen

Release Date: 2016/09/23

Approvals: E. Hazen, P. Lucas

#### Document Revisions

Rev	Date	Author	Description
01	2016/09/23	E. Hazen	Initial release of install manual
02	2017/08/08	P. Lucas	Company name change from Velox to Verus
03	2018/05/03	E. Hazen	Updated photos

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ND Miata Rear Diffuser – Install Manual

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## ND Miata Rear Diffuser – Install Manual

### 1. Introduction

**1.1. Overview:** Detailed instructions on installing the ND Miata rear diffuser.

**1.2. Difficulty:** Beginner

**1.3. Time Required:** 1.5-2 hours

#### 1.4. Tools Needed:

- 1.4.1. Jack
- 1.4.2. Jack Stands
- 1.4.3. Ratchet
- 1.4.4. 10mm socket
- 1.4.5. 12mm socket
- 1.4.6. Phillips screwdriver
- 1.4.7. 4mm allen wrench
- 1.4.8. 10mm wrench
- 1.4.9. Level

#### 1.5. Rear Diffuser Components

- 1.5.1. (1) Rear Diffuser
- 1.5.2. (2) Front Brackets
- 1.5.3. (2) Rear Brackets
- 1.5.4. (1) Hardware Bag
  - 1.5.4.1. (13) M6 x 1.0 SS BHCS, 20mm Length
  - 1.5.4.2. (18) M6 SS Washers
  - 1.5.4.3. (13) M6 x 1.0 Flanged SS Serrated Nut
  - 1.5.4.4. (6) M6 x 1.0 SS BHCS, 35mm Length
  - 1.5.4.5. (6) 5mm Long Nylon Spacer
  - 1.5.4.6. (6) 10mm Long Nylon Spacer
  - 1.5.4.7. (6) 15mm Long Nylon Spacer



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## ND Miata Rear Diffuser – Install Manual

**2. Rear Diffuser Installation**

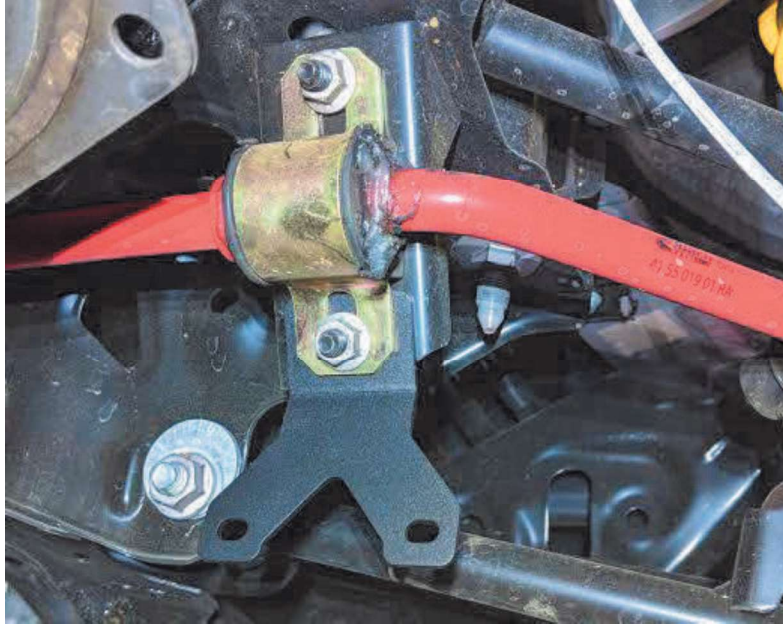
- 2.1. Verus is not responsible for damage to you or your vehicle by following this manual and/or installing Verus Engineering products
- 2.2. We begin by jacking the car up. You'll want to choke the front wheels and do this on a flat surface to ensure the car does not want to roll away.
- 2.3. **If you are installing the rear suspension covers, switch to that manual first as the diffuser needs drilled off car.**
- 2.4. Place a jack stand on either side of the car, you can use the frame rails or the pinch welds.
- 2.5. With the rear of the car off the ground, we can get a better idea of what we're working with.
- 2.6. Starting with the rear sway bar mounting locations, fully remove the bottom nuts (circled in blue), and loosen the top nuts (circled in red) with the 12mm socket. There is a sway bar mount location on the left and the right, do this to both side. Shown below is the passenger side.



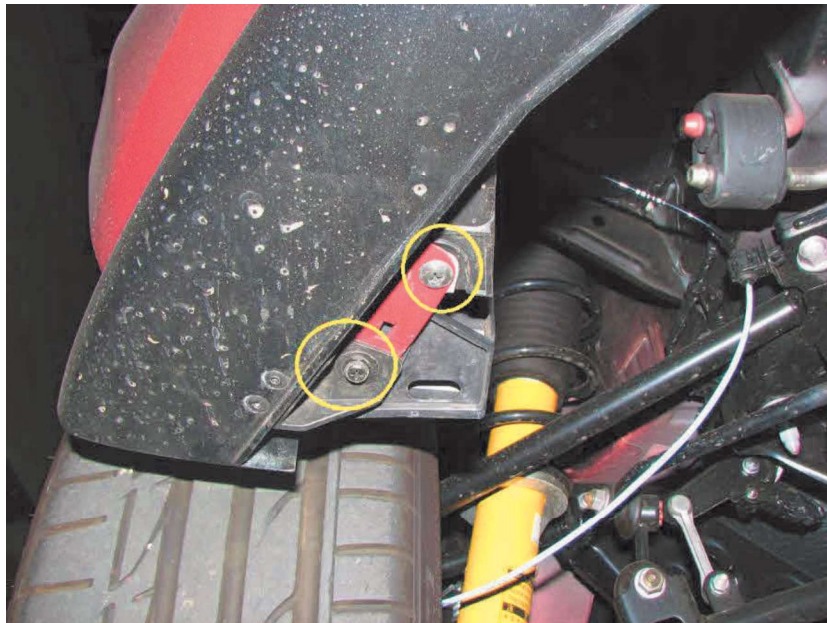
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## ND Miata Rear Diffuser – Install Manual

- 2.7. Grab the small front brackets, and install these on each of the rear sway bar mounting locations as shown below. Note the orientation of the bracket.



- 2.8. Moving outward, remove the (2) Philips head screws which hold on the rear bumper. Both left and right side of the rear bumper needs these removed. The screw locations are circled in yellow below.



- 2.9. With these bolts removed, you're left with the below image.

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## ND Miata Rear Diffuser – Install Manual



- 2.10.** Reach up into the fender liner and remove the (2) plastic clips on each side of the rear bumper. These clips are shown below, removed.



- 2.11.** Without these clips, the bumper has an open hole as shown below.

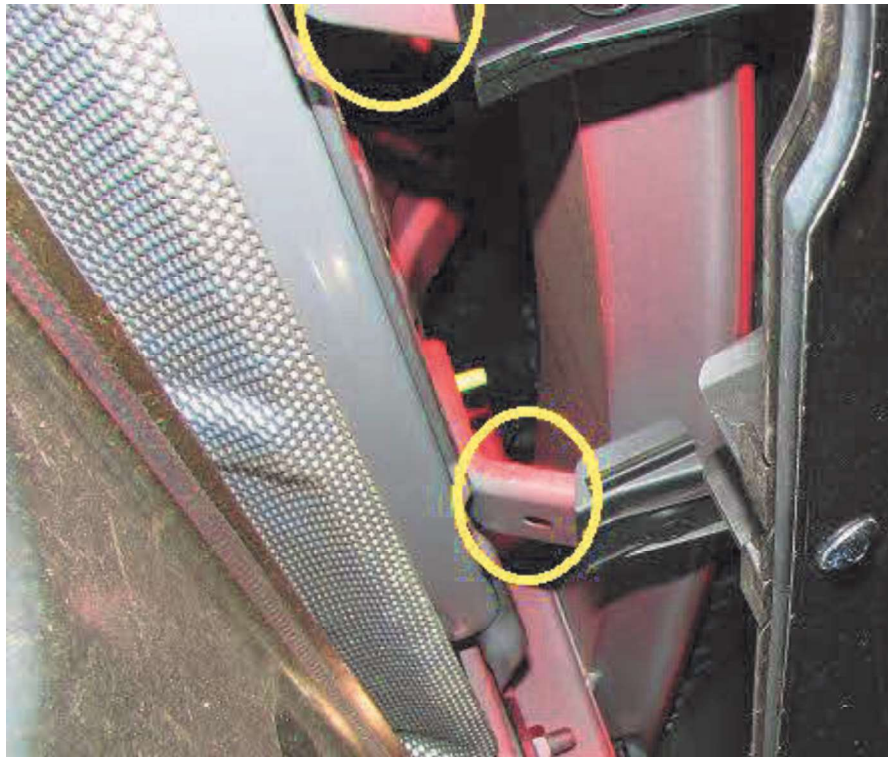
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## ND Miata Rear Diffuser – Install Manual



- 2.12.** Moving rearward, we find the two rear most mounting points for the diffuser. These locations are circled in yellow below.

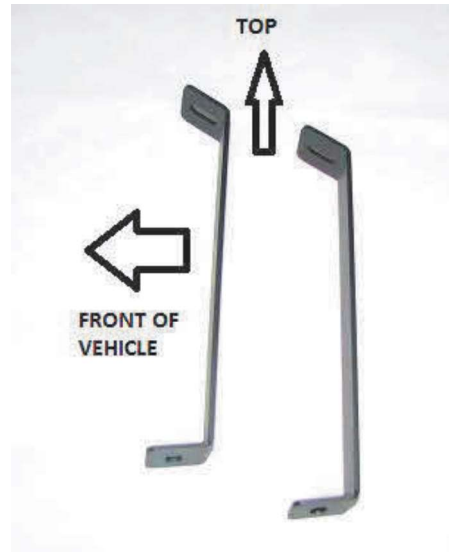


- 2.13.** Grab the long, rear mounting brackets. These install with larger angle attaching to the chassis and the sharper angle will bolt to the diffuser. Use an M6x1.0 x 20mm long bolt and

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## ND Miata Rear Diffuser – Install Manual

stainless washer on the bracket, and a nut on top of the chassis location. Tighten this bracket fully.



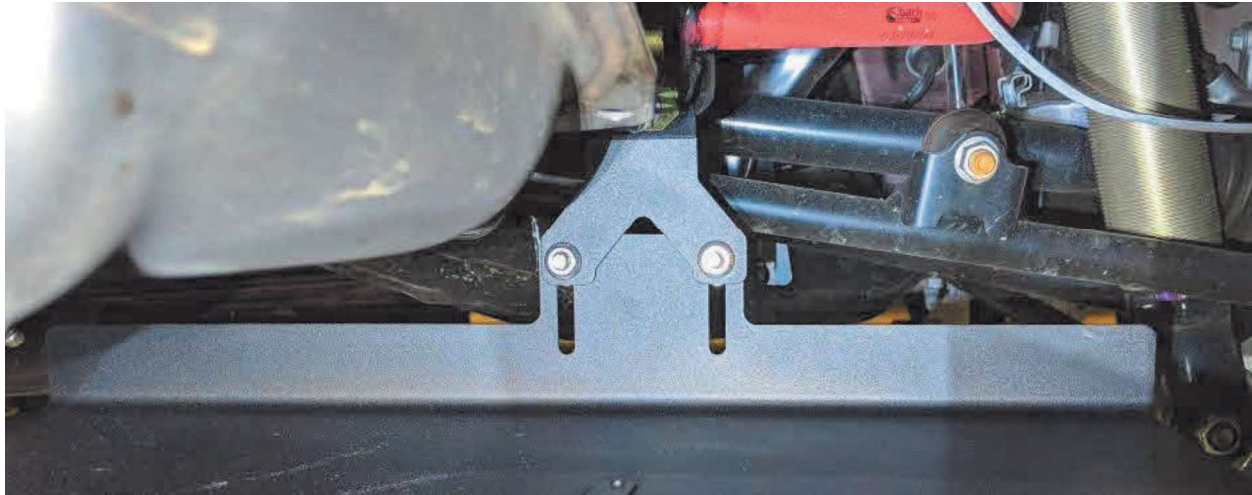
- 2.14.** At this point, everything is ready for the diffuser to be installed. An extra set of hands is definitely helpful at this point in time.
- 2.15.** Mounting height of the diffuser is dependent on the exhaust. The spacers will come into play on the rear (6) mounting points, with no spacers being used for the furthest upward installed height.
- 2.16.** If you have the club sport aero rear lip, and the diffuser can be installed fully upward, you'll have to slide the side mounting points under the lips mounting as shown below. This must happen before any other mounting points are installed.



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- 2.17.** Starting with the front brackets, install (4) M6x1.0 x 20mm bolts with a washer on the front side of the diffuser. Place the nut on the bracket side (rear of diffuser) as shown below. Do not fully tighten these yet.



- 2.18.** Moving rearward, install the rear two locations. Install height will determine if you use the 20mm long M6x1.0 bolt or the 35mm long bolt. If the diffuser is installed low, longer bolts will be required with more spacers. If the diffuser is installed relatively high up, the shorter bolts can be used. Shown below we used the 5mm spacers.



- 2.19.** Once again the button heads are on the bottom with a washer, and the nut goes on top.

## ND Miata Rear Diffuser – Install Manual

- 2.20.** Finally, moving to the sides of the diffusers, install the button heads and washers on the bottom, and reaching up, into the fender, thread the nut on the top surface.



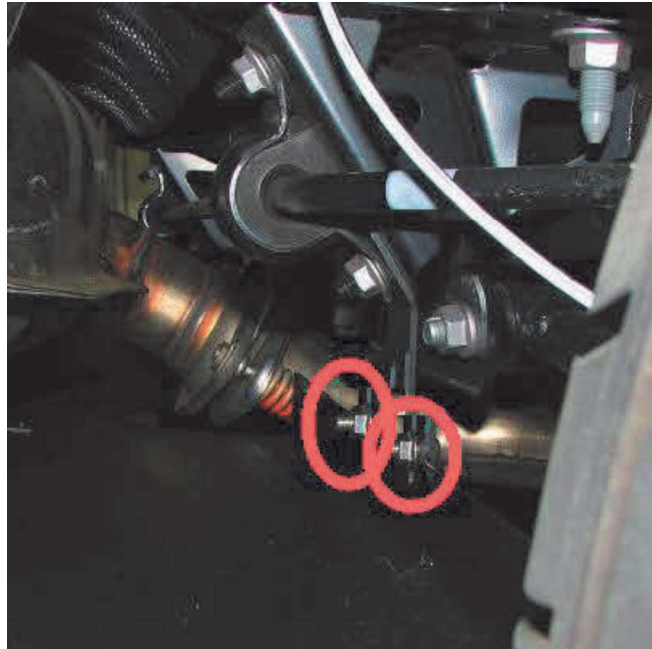
- 2.21.** At this point, the diffuser is completely mounted and all the bolts are snug but not fully tightened.
- 2.22.** With the car on level ground, take the level and take a look at lateral level (left to right) and ensure it is level. It should be as long as the spacers installed are the same throughout.
- 2.23.** Moving onto the crucial part of performance, ensure the forward most part of the diffuser (circled in yellow) is also level, longitudinally (forward to rear). This ensures the correct diffuser angles are achieved for maximum benefits.



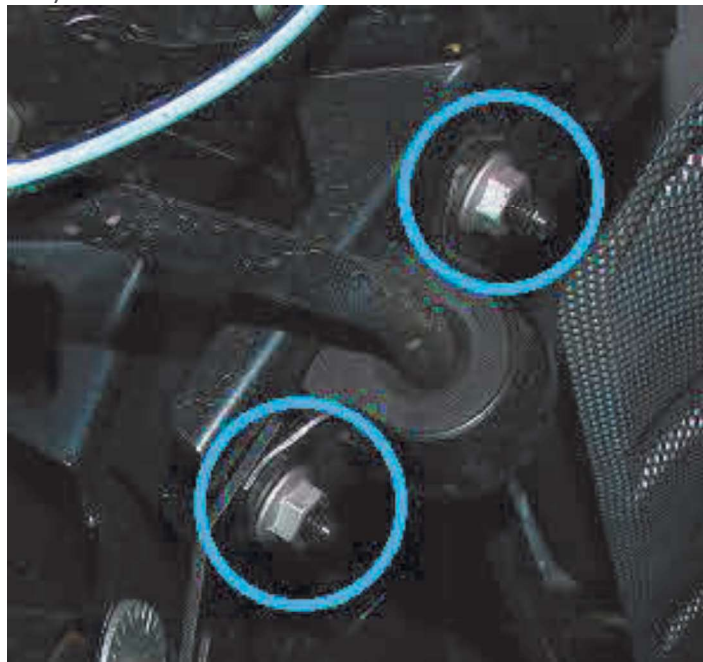
- 2.24.** If everything is level as it should be, fully tighten all the bolts.
- 2.25.** Tighten the front (4) M6 bolts (circled in red).

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## ND Miata Rear Diffuser – Install Manual



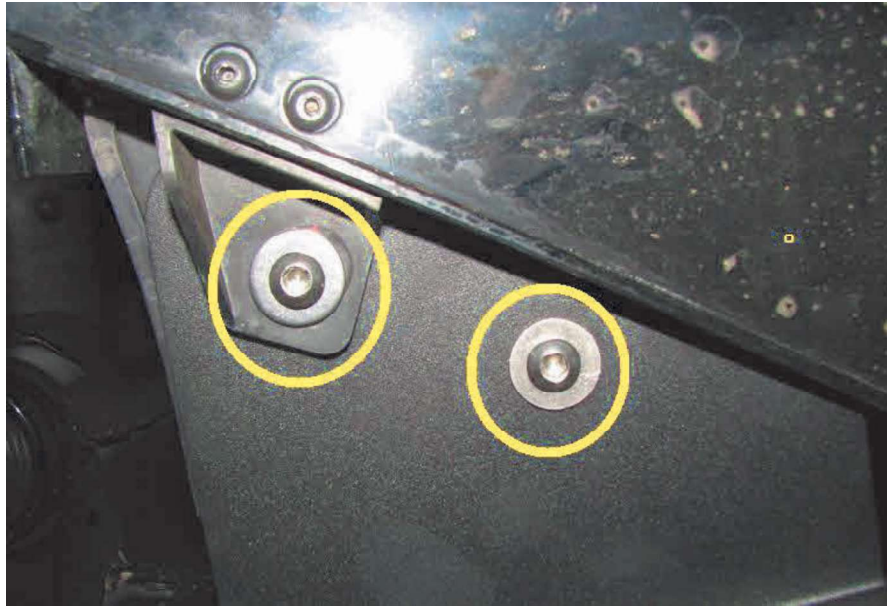
- 2.26.** Tighten the front bracket to sway bar points which are 12mm hex head bolts to 16 ft-lbs (circled in blue).



- 2.27.** Tighten the outside (4) mounting points with the 4mm allen wrench. The serrated nut should not need held as it will resist turning while you tighten the bolts.

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## ND Miata Rear Diffuser – Install Manual



2.28. Finally, tighten the rear two M6 x 1.0 button heads with the proper spacer used.



2.29. This concludes the ND Miata diffuser install. Please send any comments, concerns, questions, and general feedback to Verus Engineering via [sales@verus-engineering.com](mailto:sales@verus-engineering.com).

# Flyin' Miata

## Verus ND rear diffuser addendum 29-78040



Thanks for purchasing the Verus ND rear diffuser. These instructions address a slight modification that's necessary in order to use the diffuser with the FM Hush-O-Matic muffler. If you have this muffler, please read these instructions first and follow them in conjunction with the Verus instructions. If you have the stock muffler, you can ignore these instructions. If you have a different muffler, experiment to see whether this modification is necessary for you.

**WARNING: Not everyone can perform every installation. It is critical that you be honest with yourself in regards to your ability. We're more than happy to help, but there are only so many things we can do from the other end of a phone / computer. If in doubt, discuss the install with us before you dive in. Improper installation could cause injury and / or death!**

### Required tools

- Hacksaw or die grinder (with aluminum-specific bit, don't use a steel bit)
  - File
1. The cutout for the exhaust tips is slightly too small for our Hush-O-Matic muffler - and potentially other aftermarket mufflers. To cure this, temporarily install the diffuser and mark where the tips need more clearance (as shown below in silver). Cut material off to allow proper clearance. Bear in mind that the muffler will move independently of the diffuser, so you'll want allow about a 1/2" of clearance. Once you're happy with the clearance and shape, use your file to smooth the edges and any corners.
  2. The diffuser is made out of aluminum, so you don't need to worry about the raw edge rusting. You can leave it as-is, do the quick-and-dirty trick of using a Sharpie, or properly paint it.
  3. If you hear new metallic rattling on hard cornering, check the diffuser and tips for wear. If you see any witness marks, the clearance wasn't sufficient. You'll need to give the tips some more room.

