

VSC - 1 / VSC - 2 USER MANUAL AND INSTALLATION GUIDE



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Product Description:

The VSC-1 / VSC-2 (Variable Sound Controller) is a direct plug-in remote controller designed to allow tuning of your vehicle's exhaust sound at any time with the push of a button. With the VSC-1 / VSC-2, the factory valve motor can be controlled via the 2 provided high quality key fobs, or through integration with the BMW HomeLink system. The VSC-1 controller mounts on either the left or right side of the car, matching the same side as the exhaust valve actuator. The VSC-2 controller mounts on the driver (left) side of the vehicle. Installation steps are shown on the OEM BMW F80 M3 exhaust system. The VSC-1 / VSC-2 package includes:

QTY 1: VSC-1 / VSC-2 controller unit

QTY 1: Powder coated mounting bracket

QTY 2: Remote control key fob

QTY 1: Pouch of dielectric grease

Product Applications:

The VSC-1 / VSC-2 was designed to vary the sound on any F-series or G-series vehicle equipped with the factory BMW electronic exhaust valve actuator. The VSC-1 is for use on vehicles with only 1 exhaust valve actuator. The VSC-2 is for use on vehicles with 2 exhaust valve actuators. The VSC-1 / VSC-2 is a must when paired with high flow downpipes or other exhaust modifications but even with the factory exhaust system, VSC-1 / VSC-2 users enjoy better sound quality on startup, a more continuous, pleasurable soundtrack during acceleration, better driver feedback, more exhaust burble on deceleration, and the ability to keep the exhaust valve open or closed at any time in any driving mode. The VSC-1 / VSC-2 can be used on the following exhaust systems:

- **Factory exhaust systems**
- **CG Precision VS-1 exhaust system**
- **M-Performance exhaust systems**
- **Other aftermarket exhaust systems ***

** Call for other fitment applications.*

Proper Use:

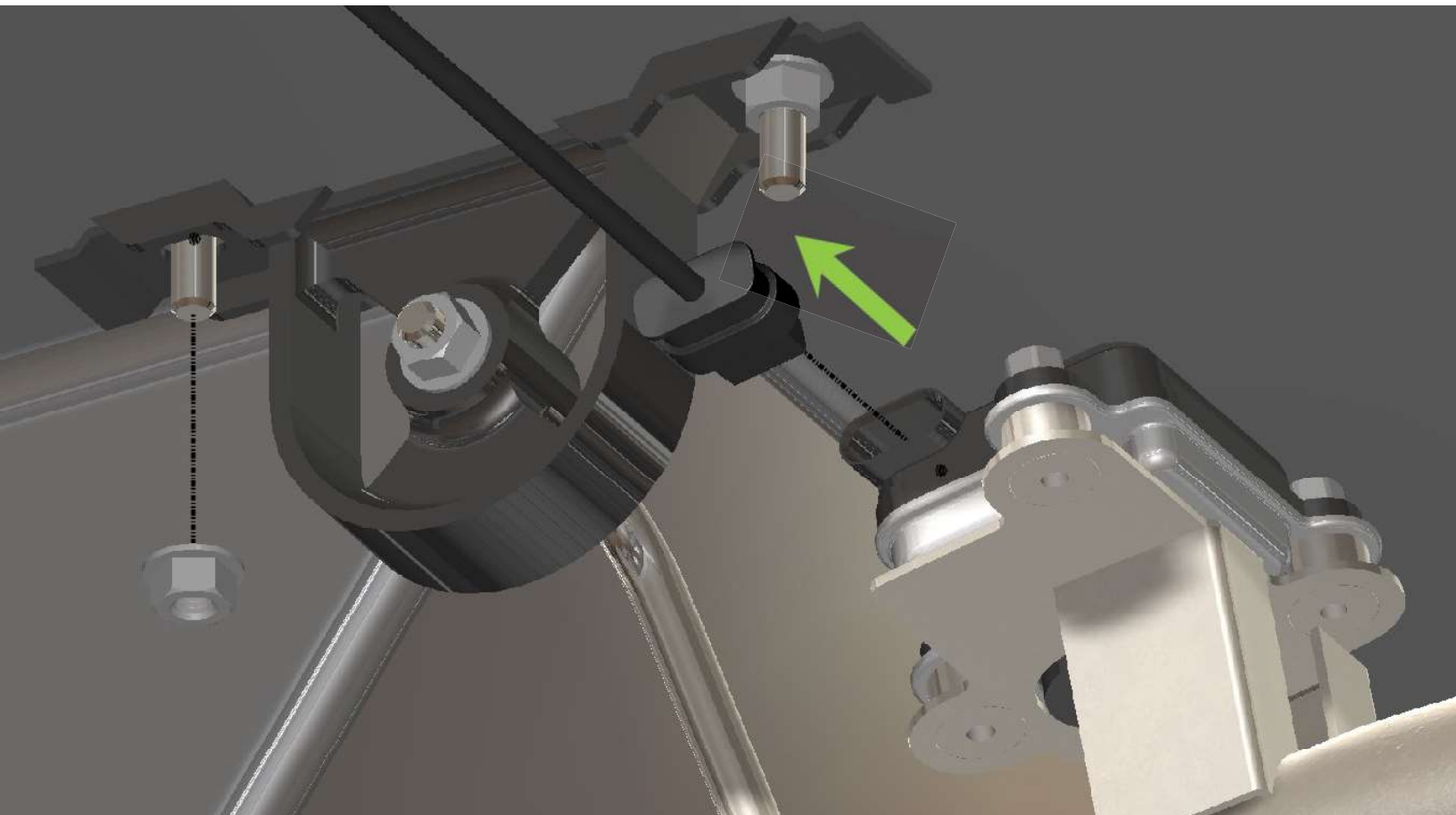
- The VSC-1 / VSC-2 standard configuration will default the exhaust valve to the open position on every startup and close the valve by briefly pressing the “**On**” button. Press “**Off**” to open the valve again.
- The unit may be operated anytime the car has power with or without the engine started. To start the car with the exhaust valve closed, turn the vehicle power on without starting the engine. Press the “**On**” button to close the valve. You will immediately hear the exhaust valve actuate. Start the engine.
- Different control configurations are also available. Choose between Open, Closed, and Auto modes for the default and activated setting.
- Typical VSC-2 installation is shown on a BMW M3 / M4. See end of installation section for images of typical VSC-1 installation and special fitment notes for the M2 Competition, aftermarket dual-valved exhaust systems, and the A90 Toyota Supra and G29 BMW Z4.

Installation:

Tools Required:

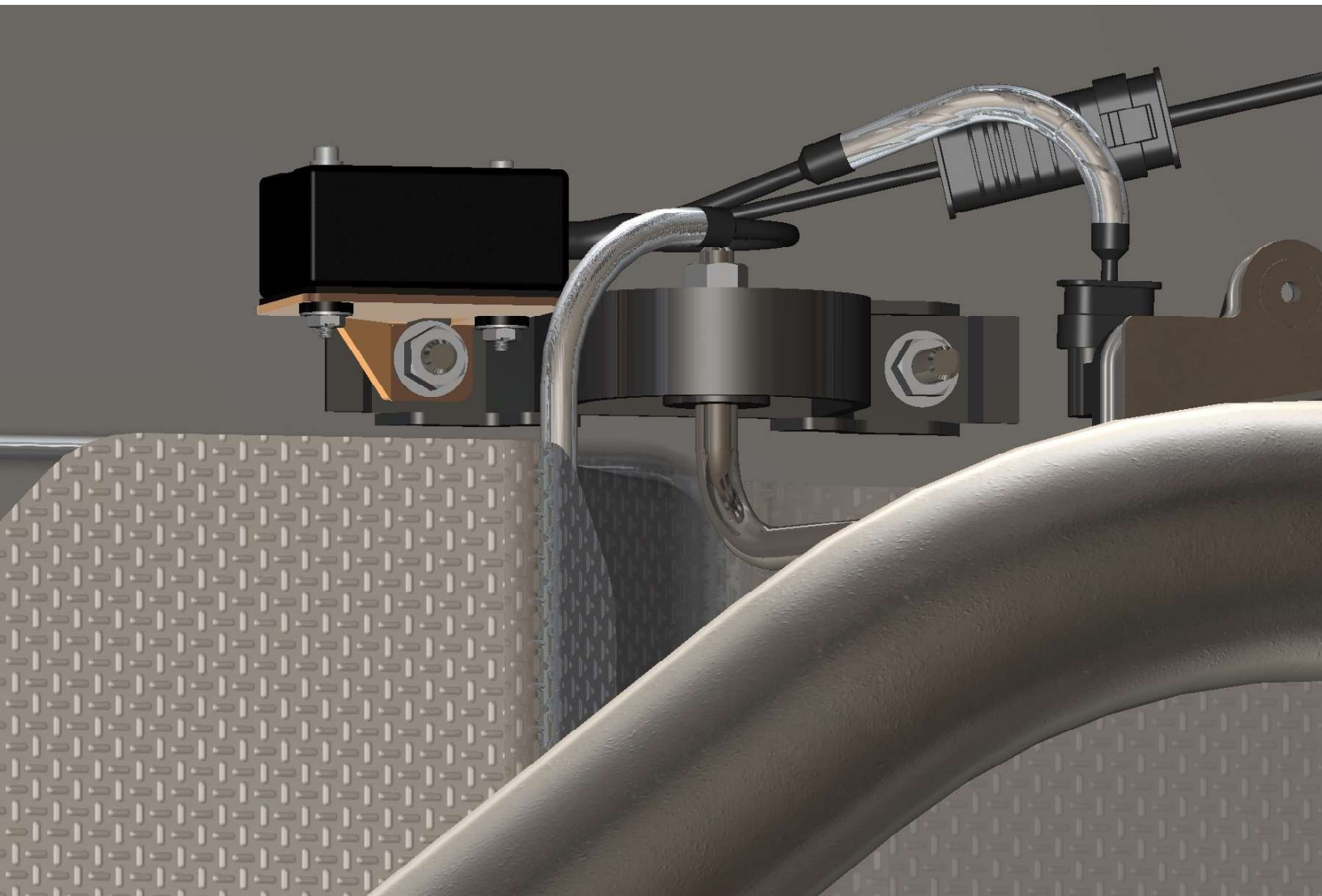
- 13mm socket and 3/8" drive socket wrench with extension
- 10mm socket and 1/4" drive socket wrench (Optional)
- Pouch of Dielectric Grease (provided), for applying to electrical connectors

Step 1: With the car off, locate the valve actuator motor(s) near the muffler. Remove the factory plug from the valve motor(s) by depressing the tab on top of the connector and pulling. Using the 13mm socket wrench, remove the front m8 nut on the driver side exhaust hanger, as shown. Note, exhaust hanger appearance varies by vehicle type.



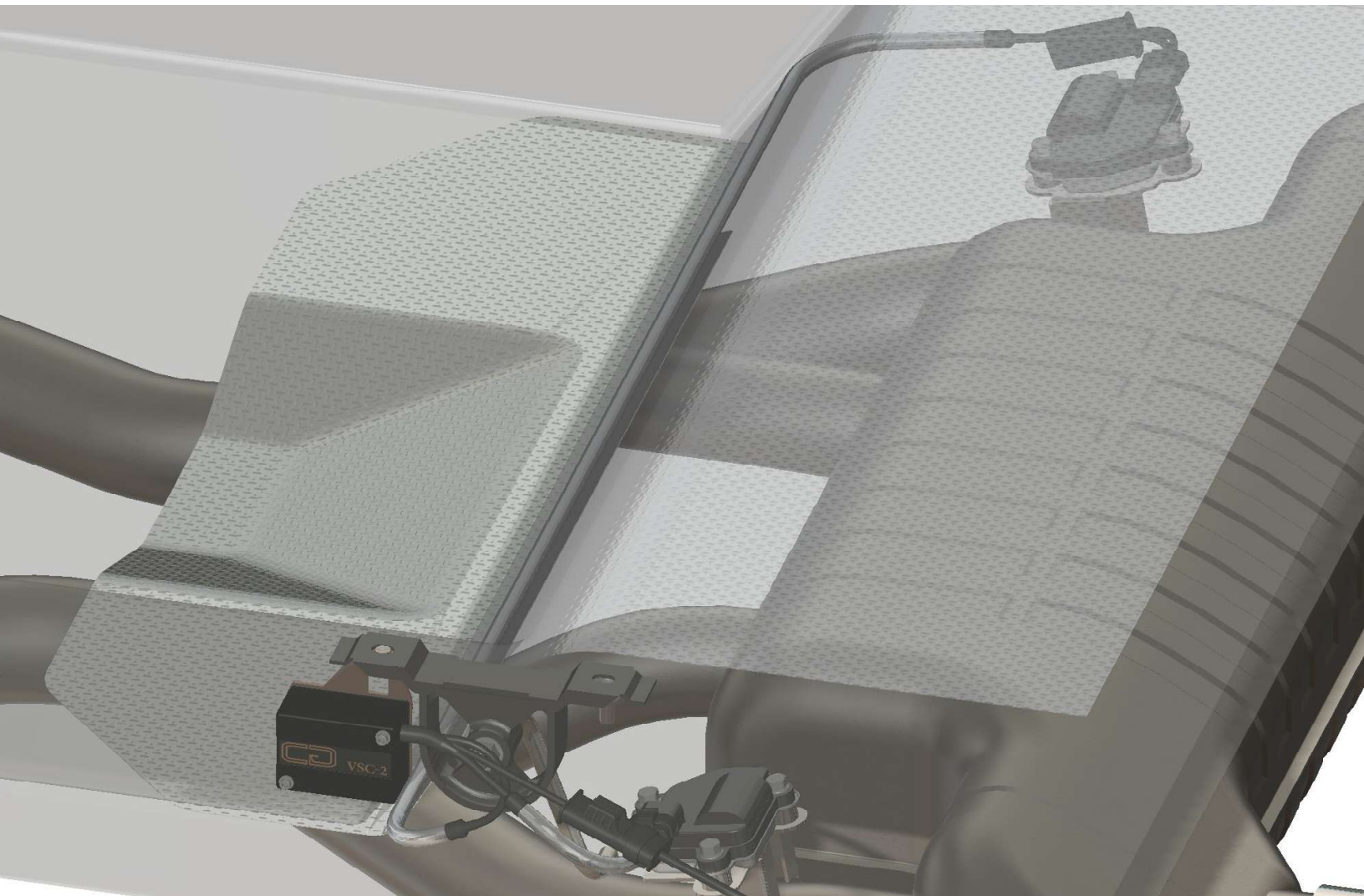
Step 2:

Place the controller over the exhaust mount stud. Replace and tighten the m8 nut using the 13mm socket wrench. Make sure the controller has adequate clearance to the underbody covers. Plug the small connector on the VSC-1 / VSC-2 into the motor and the large connector on the VSC-1 / VSC-2 into the factory plug, until a clicking sound is heard. Ensure wires are tucked up away from the ground and the exhaust system.



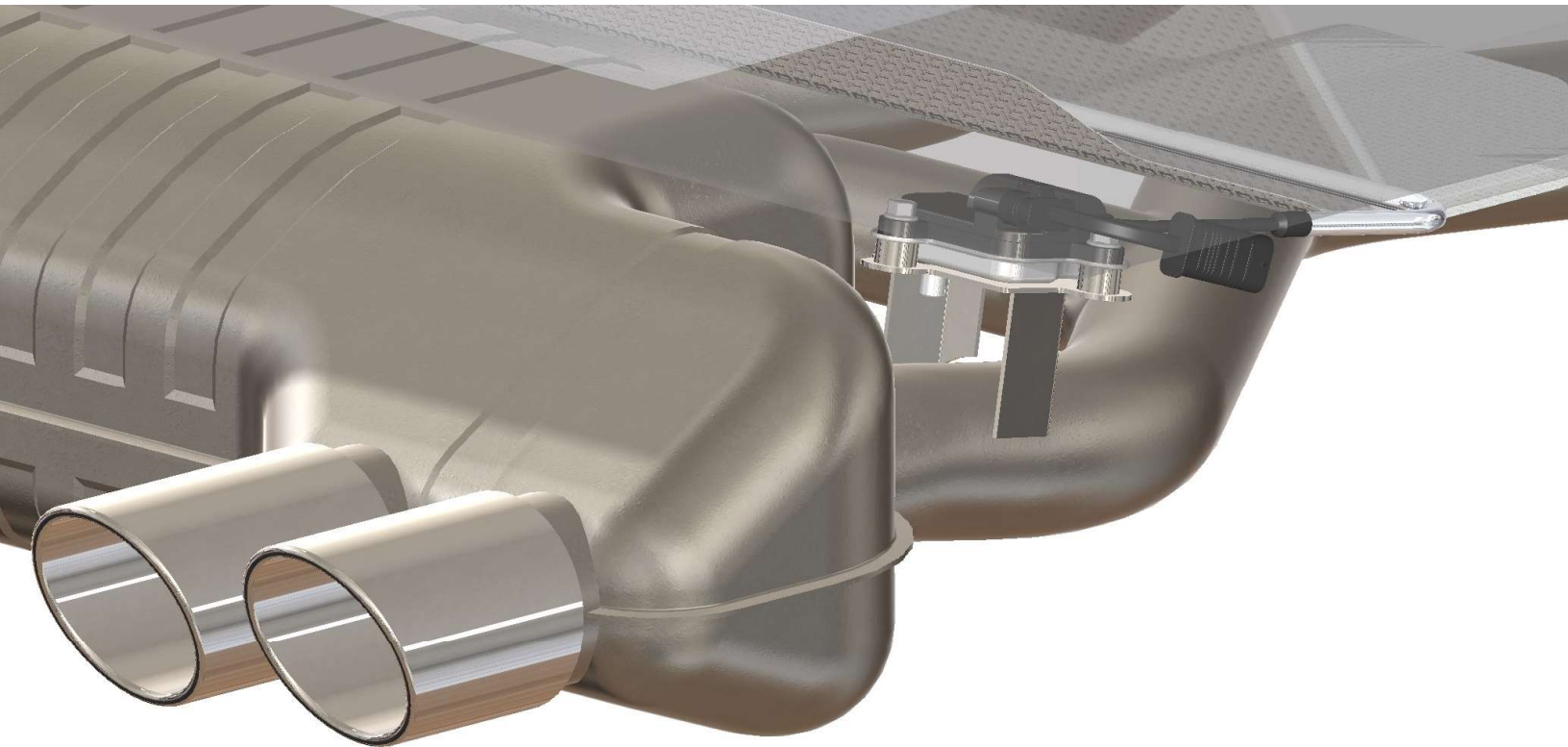
Step 3 (VSC-2 only):

Route the remaining wiring to the passenger side by tucking the heat-shield wrapped wiring behind the lip in the factory heat shield along the whole length of the shield. The wiring should be squeezed by the shield to prevent movement. It is ok to deform the wiring heat-shield while installing it. If it is difficult to install the wire behind the shield, loosen 4X of the heat shield nuts closest to the lip with the 10mm socket wrench. Retighten after the wiring is routed.



Step 4 (VSC-2 only):

On the passenger side, plug the small connector on the VSC-2 extension wire to the valve motor and the larger connector into the small factory connector until a clicking sound is heard. Ensure wires are tucked away from the ground and exhaust system.



Mounting Example (VSC-1 on F30 / F32):

VSC-1 installation is as described in the installation steps, except there is only 1 mounting stud per exhaust hanger, which the controller mounts to. F-series vehicles have the exhaust valve on the left side of the car. G-series vehicles have the exhaust valve on the right side of the car. Shown below is the VSC-1 installed on an F30 335i.

Rear of Car 



Mounting Example (VSC-2 on G80 / G82):

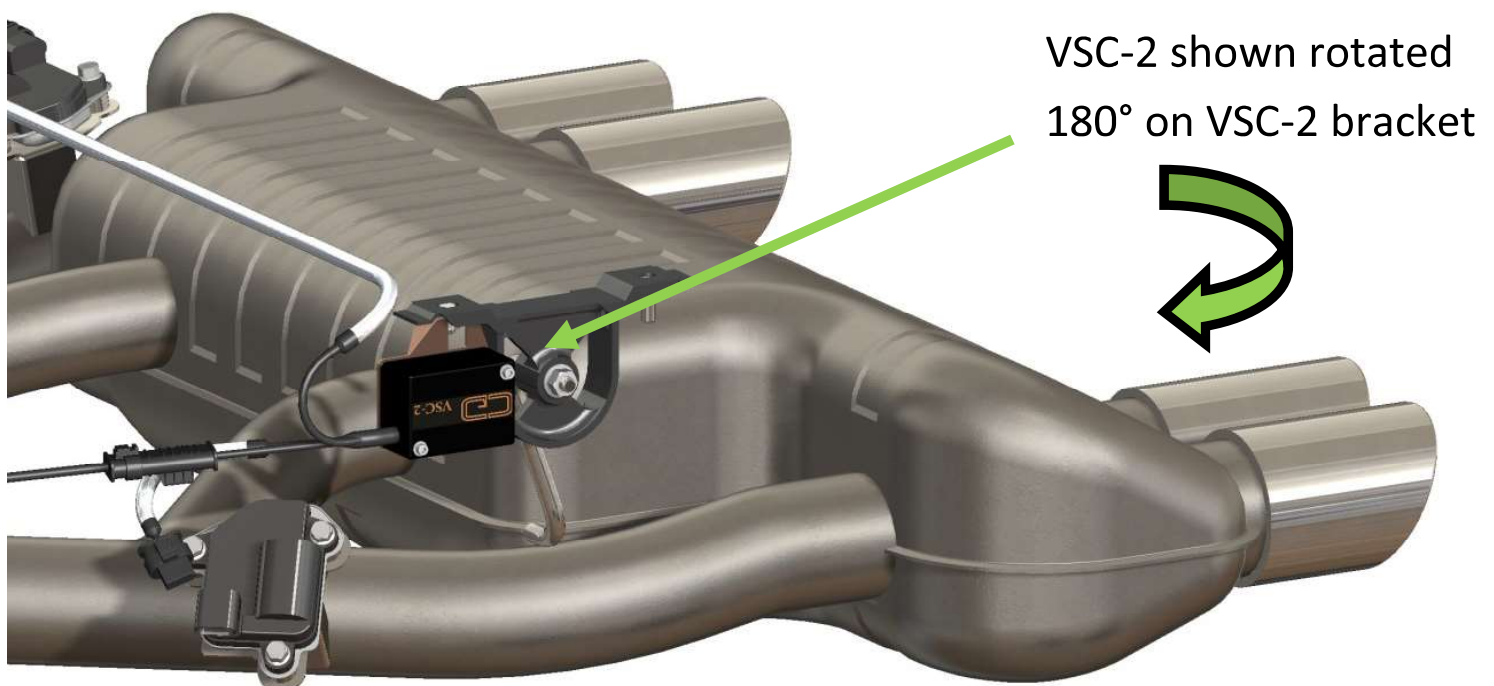
The preferred mounting position on the G80 / G82 is on the M10 stud close to the rear suspension on the left side of the car. Alternatively, the controller may be mounted to the body underneath the heat shielding. The controller must be mounted securely to the body of the car. **THE CONTROLLER MUST NOT BE MOUNTED TO THE EXHAUST OR EXHAUST VALVE ACTUATOR. THIS WILL VOID THE WARRANTY AS THE CONTROLLER MAY BE DAMAGED BY HIGH FREQUENCY VIBRATIONS FROM THE EXHAUST.**

Left Side of Car (When Viewed From Rear)



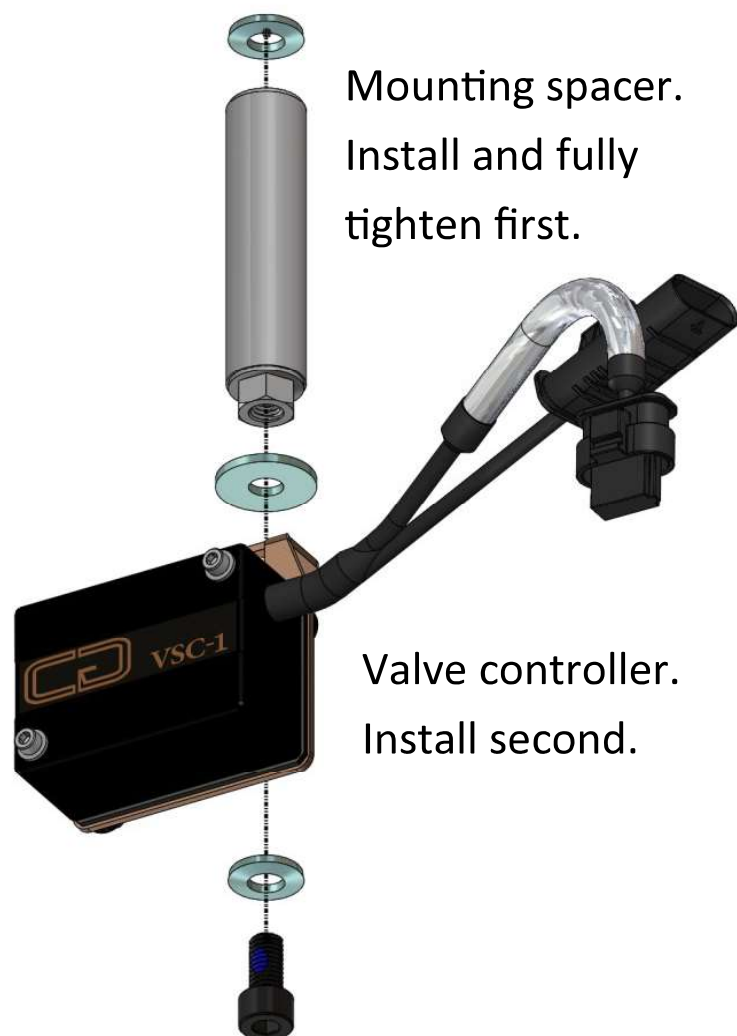
Special Fitment Applications (M2 and Aftermarket Dual-Valve):

- Some aftermarket exhaust systems for the M2 and 240, 340 and 440 series vehicles use two exhaust valves where the factory electrical system only supports one valve. These exhaust systems will require a splitter cable to supply power to the second valve and / or a VSC-2 controller instead of a VSC-1. Consult CG Precision for additional information.
- BMW M2 Competition vehicles have a slightly different exhaust valve setup. It is necessary to remove the #6 socket head screws and flip the orientation of the valve controller on the bracket 180° so the connections point towards the front of the car as shown below. Then follow the normal installation steps in this guide.



Special Fitment Applications (A90 Supra and G29 Z4):

- The A90 Toyota Supra and G29 BMW Z4 require a mounting spacer which is sold separately from the VSC-1 valve controller. Remove the outermost factory m8 nut from the exhaust hanger mount on the right side of the car (near the valve actuator). Securely tighten the spacer and curved lock washer in place of the factory m8 nut. Next, install the VSC-1 with the provided hardware, positioning the control box and wiring away from the exhaust system as shown below. Then follow the normal installation steps in this guide.



HomeLink Integration:

The HomeLink system has 3 buttons on the rearview mirror. Any button may be programmed to either of the VSC-1 / VSC-2 remote buttons:

- 1.** Start engine.
- 2.** Press and hold down 1 button on the rear view mirror and 1 button on the remote while holding the remote right up next to the HomeLink buttons.
- 3.** Hold for about 10 seconds, until the LED on the mirror starts flashing slowly and then rapidly. Rapid flashing indicates programming success. Release both buttons as soon as the rapid flashing begins.
- 4.** If desired, repeat procedure for the other remote button and a different HomeLink button.
- 5.** Now the valve can be actuated by the remotes or the HomeLink buttons. If other memory functions were previously stored in the HomeLink system, they should be cleared first by holding down the left and right HomeLink buttons at the same time for up to 20 seconds, until the mirror LED flashes.

Notes:

Failure to follow the procedures in this document may cause product damage. CG Precision has no control over other aftermarket manufacturers' design and production and therefore, product fitment may vary slightly when used on these exhaust systems.

Professional Installation Recommended.

Please contact CG Precision for additional guidance:

Email: sales@cgprecision.com

Phone: 520-789-6305

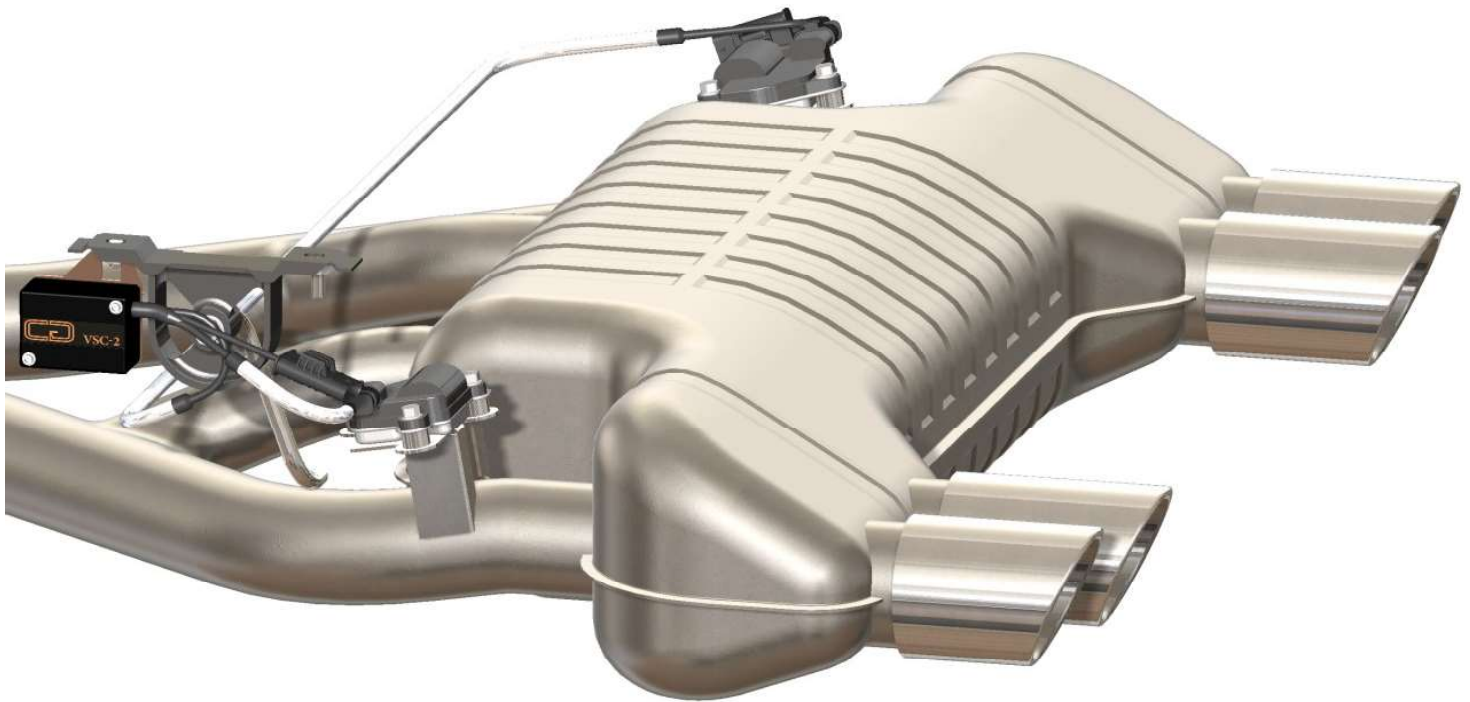
** CG Precision provides a 12 month warranty against defects in material and workmanship.*

** Items found missing / defective out of box must be noted upon delivery of product.*

** Products are not EPA or CARB approved and are intended for off-road/track use only.*

** All liabilities resulting from the use of these products lies solely with the purchaser/user. Please use at your own risk.*

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