

VS-1 USER MANUAL AND INSTALLATION GUIDE



Product Description:

The VS-1 (Variable Sound Exhaust) is a precision engineered 3.5" mandrel bent stainless steel exhaust system for the BMW F30/F32 335i/435i. It utilizes a high flow sports muffler with a wide open race mode that is controlled by either the factory BMW computer or CG Precision's VSC-1 remote controller. The system was designed for the maximum flow and fastest turbo spool and response. The VS-1 package includes:

QTY 1: VS-1 rear muffler section

QTY 1: VS-1 front pipe

QTY 1: VS-1 to OEM downpipe flange adapter

QTY 2: 3.5" V-band gaskets

QTY 2: 3.5" V-band clamps

QTY 2: Chassis brace spacers

QTY 6: Chassis brace m8 X 25mm screws

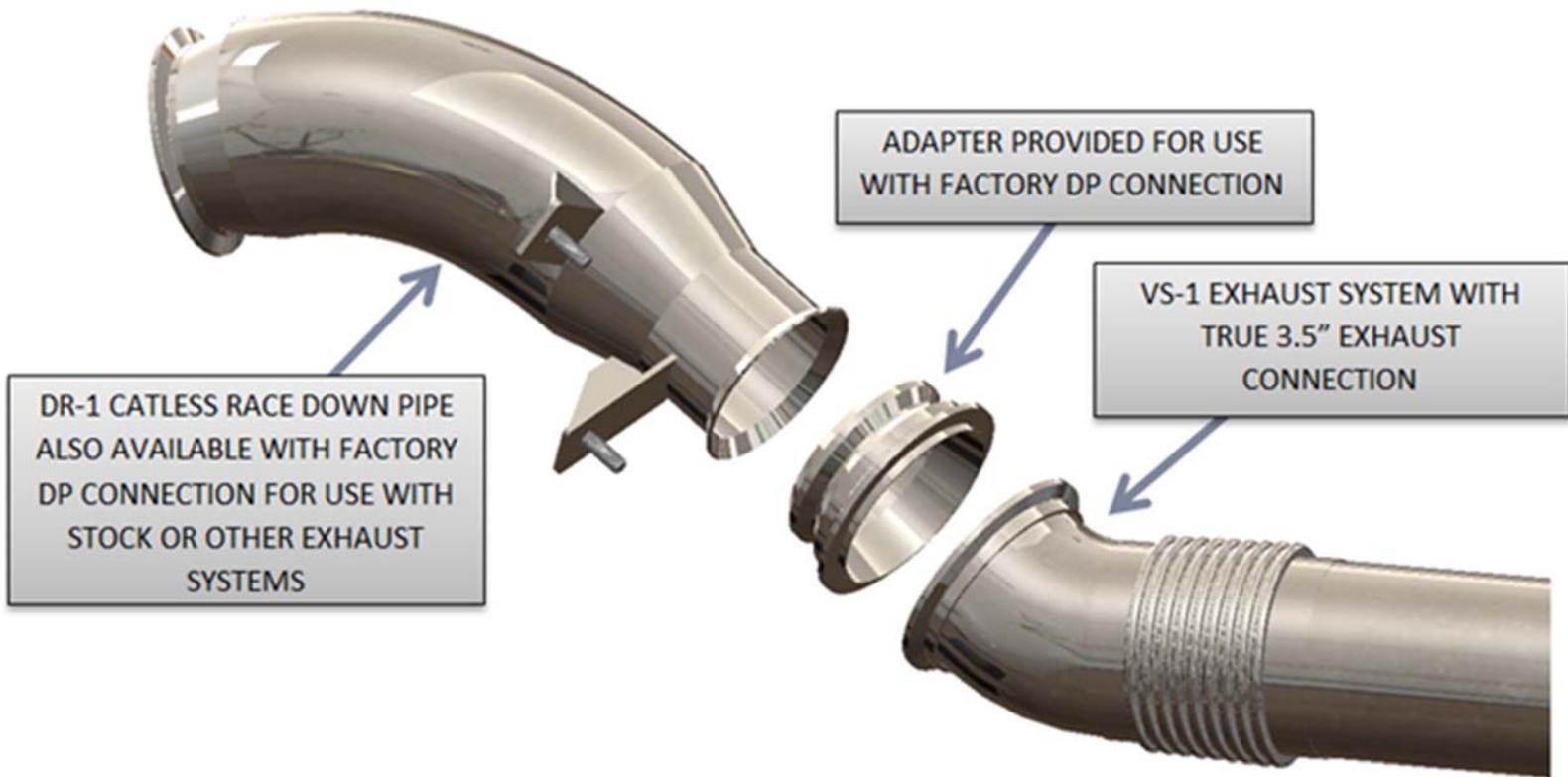
QTY 1: VSC-1 remote controller (optional)

Product Applications:

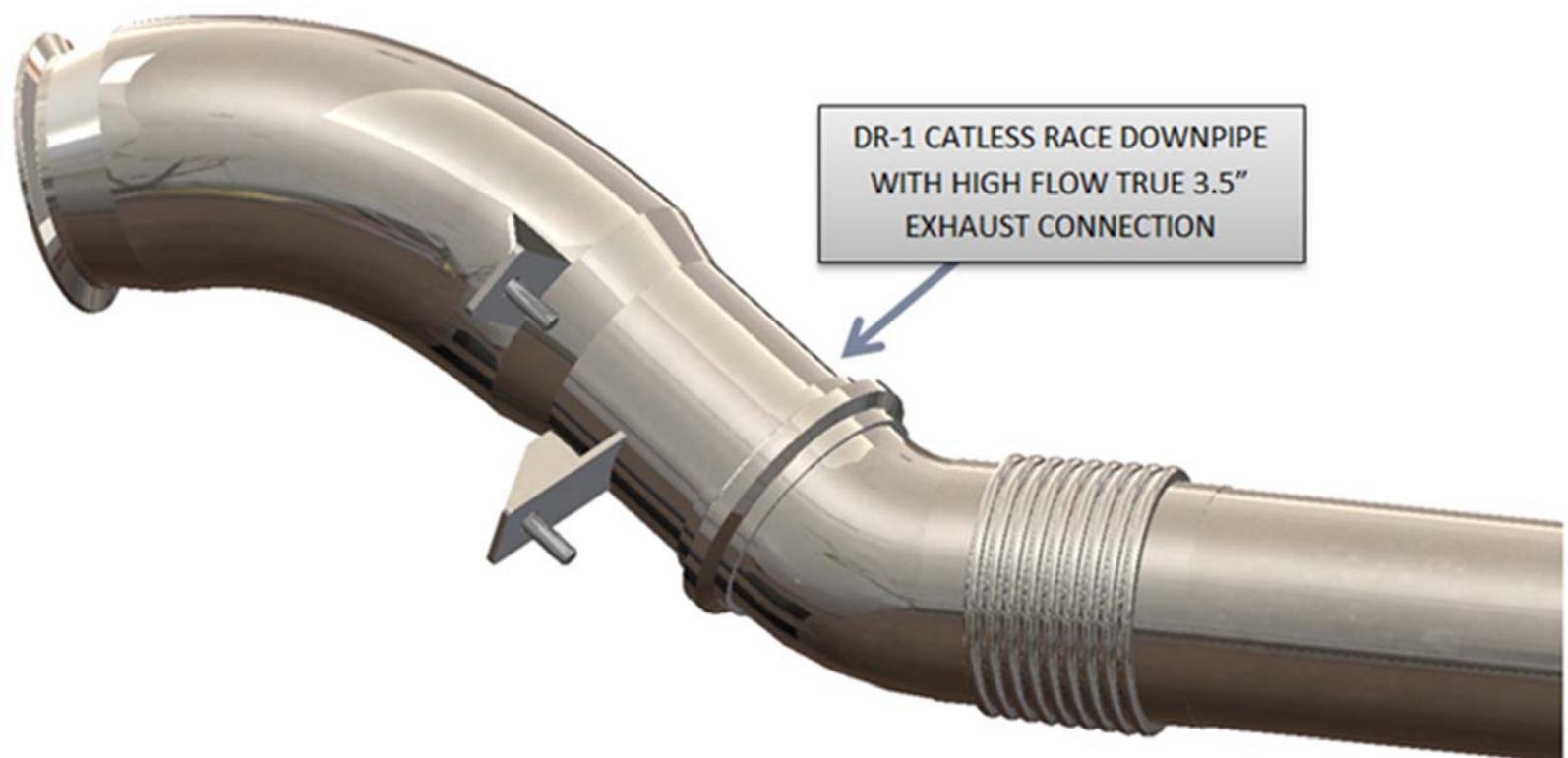
CG Precision has meticulously designed the VS-1 exhaust system to be a true 3.5” system from the turbocharger outlet flange all the way back to the exhaust tips. By removing the factory exhaust connection when used with the DR-1 catless downpipe, the maximum power, response, and sound is achieved. The VS-1 will also fit the OEM downpipe or other performance downpipes that utilize the factory connection type. The VS-1 fits the following vehicles:

<u>BMW 2012+ F30 335i Sedan</u>	<u>BMW 2013+ F32 435i Coupe</u>

Installation with Factory Downpipe Connection



Installation with High Flow Downpipe Connection



Installation:

Tools Required:

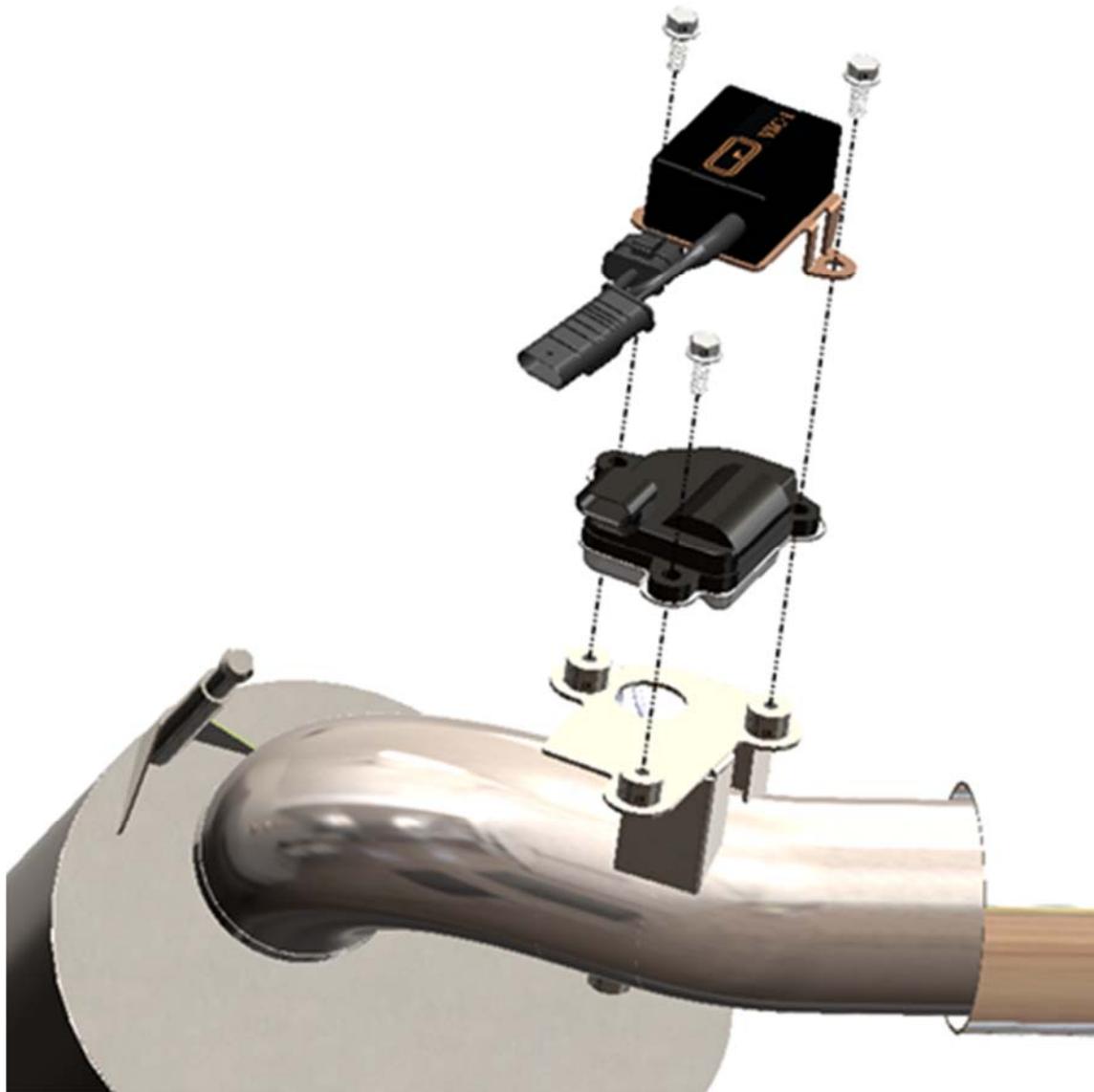
- 10mm box end wrench or small socket wrench
- ½" deep socket wrench
- 16mm deep socket wrench
- 13mm standard socket wrench with extension
- T50 torx bit socket wrench
- T60 torx bit socket wrench (for 435i installation only)
- E10 external torx socket wrench
- Flathead screwdriver or small pry bar

Step 1—Remove the Factory Exhaust System:

- Make sure the car is off.
- Using the 16mm deep socket wrench, remove the nut on the band clamp from the downpipe to the exhaust system. There is a small wedge shaped spacer that will still lock the screw and the band together. By inserting the tip of the flathead screwdriver or small pry bar between the spacer and the clamp, pry the spacer off the band and screw assembly. Remove the band clamp assembly.
- Remove the screws from the front hanger with the E10 external torx socket wrench.
- Remove 4 of the chassis cross brace screws using the T50 torx bit socket wrench. Leave one screw on each side installed loosely to help support the exhaust system.
- Unplug the valve motor on the driver side muffler outlet.
- While supporting the exhaust system, remove the 2 nuts from the rear hangers using the 13mm socket wrench with extension.
- Fully remove the chassis cross brace and exhaust system. On the 435i there are two additional screws towards the rear wheels. Use the T60 torx bit socket wrench to remove the screws.

Step 2—Prepare the VS-1 for Installation:

- Remove all hangers from the factory exhaust system and install onto the VS-1 in the exact same position.
- Remove factory valve motor and spring clip. Install onto the VS-1 in the exact same position. If using a VSC-1, install it on top of the valve motor using the factory hardware at this time. Fully tighten the 3X screws with the 10mm box end wrench or socket wrench.



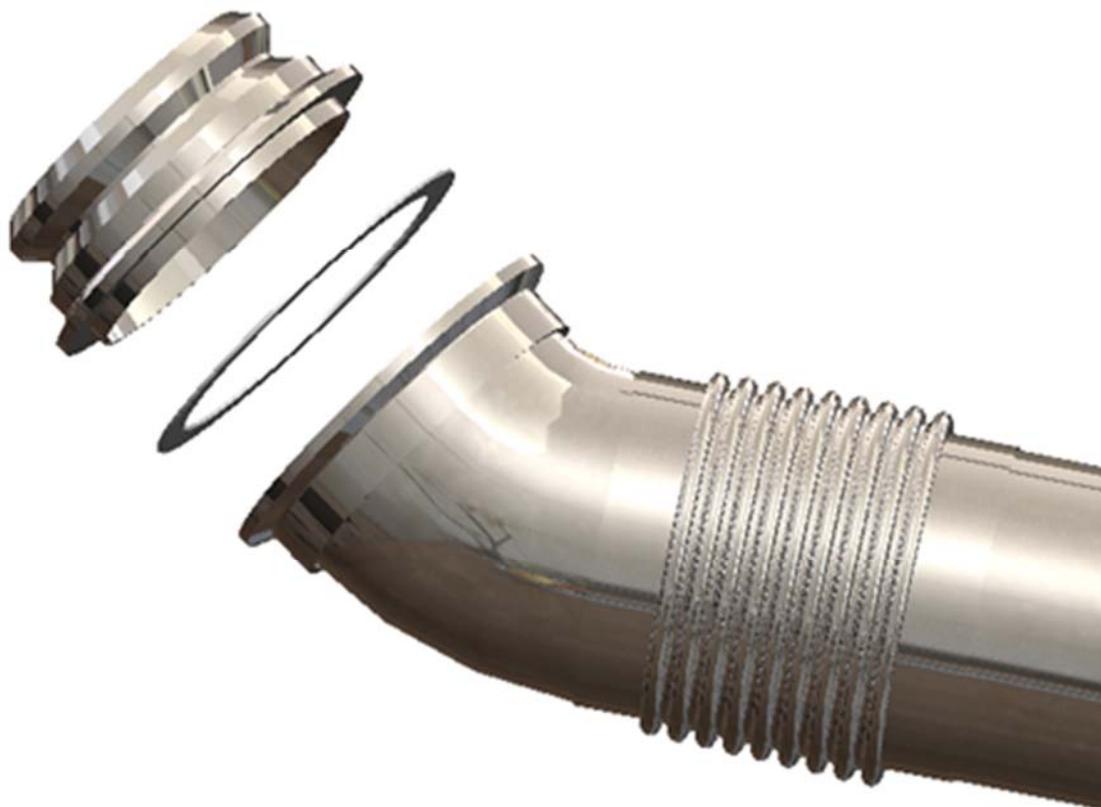
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Step 2 (cont.)—Prepare the VS-1 for Installation:



Step 3—Loosely Install the VS-1 Exhaust System:

- Using the 16mm deep socket wrench, install the adapter onto the factory downpipe using the factory band clamp. Center the adapter on the flange and tighten the nut fully.
- Install the VS-1 front pipe onto the adapter using the provided gasket, band clamp, and ½” deep socket wrench. Make sure the centering lip on the adapter goes into the V-band flange on the exhaust and does not hit against the face of the flange. Leave the clamp loose enough so that the pipe can be rotated.
- The flex pipe section will accommodate some variation in the adapter placement. If the flange mating does not seem correct, re-check the centering of the adapter to downpipe connection.



Step 3 (cont.)—Loosely Install the VS-1 Exhaust System:

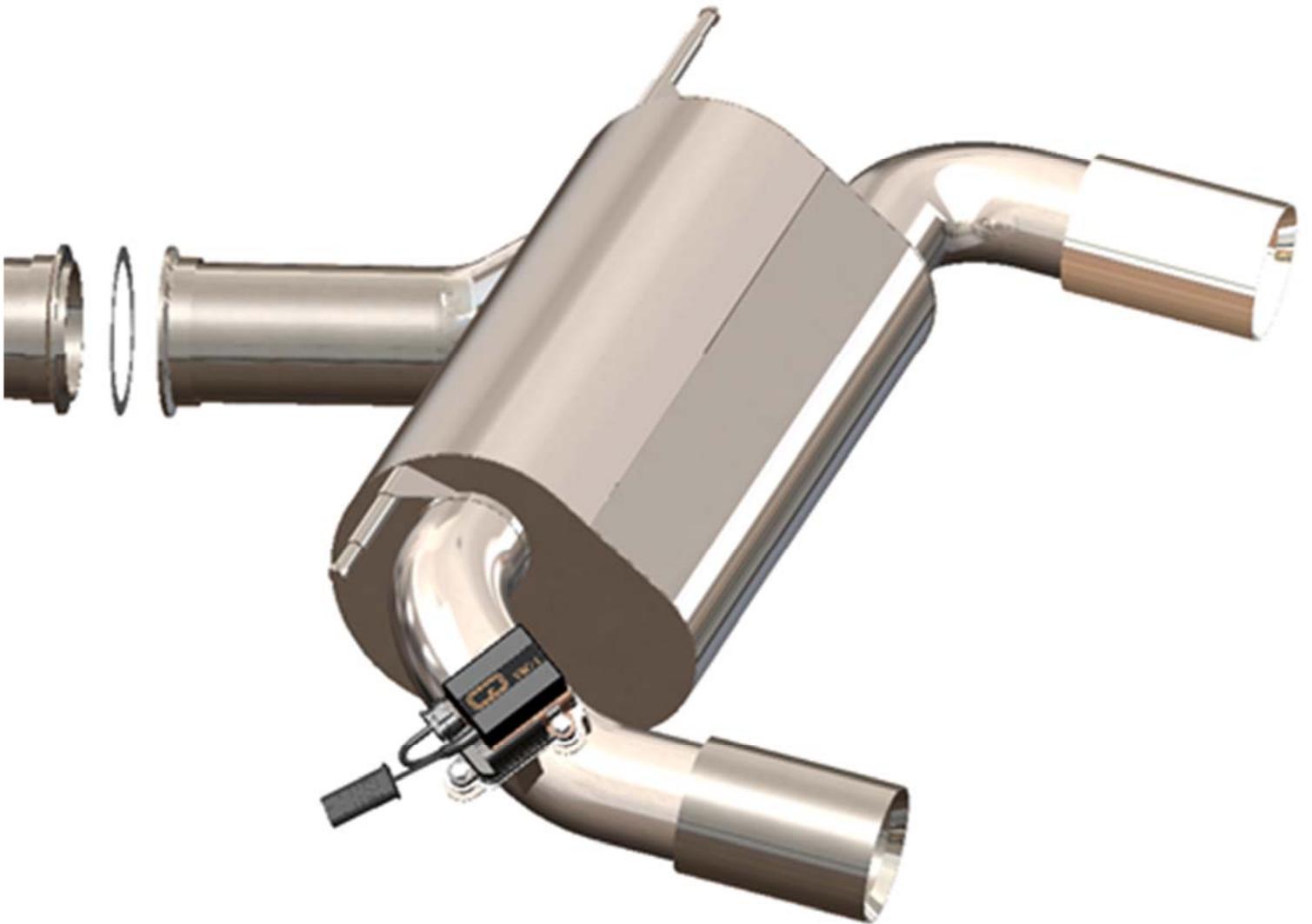
- Install the cross brace using the aluminum cross brace spacers and 6X supplied screws. Do not use the factory screws. Fully tighten the screws using the 13mm socket wrench. On the 435i, also reinstall the 2X rear screws with the T60 torx bit socket wrench.

ALUMINUM SPACERS ARE INSTALLED IN BETWEEN THE CHASSIS CROSS BRACE AND THE CHASSIS. NEW LONGER SCREWS ARE INCLUDED.



Step 3 (cont.)—Loosely Install the VS-1 Exhaust System:

- Install the 2X factory screws on the front hanger and fully tighten using the E10 external torx socket wrench.
- Install the VS-1 rear muffler section by installing the 2X factory nuts and fully tighten using the 13mm socket wrench and extension.
- Install the provided rear V-band clamp and gasket using the ½” deep socket. Leave the clamp loose enough that the pipe can be rotated.



Step 4—Adjust Front Pipe and Exhaust Tip Positions:

- Adjust the clearance between the front pipe and the underbody by rotating the pipe up towards or down away from the body to balance the space between the underbody and the chassis cross brace. Make sure there is enough clearance, about $\frac{1}{4}$ " minimum, that the front pipe will not hit on the cross brace even when the car goes over a bump.
- Note the front pipe's rotation also slightly changes the tip location. For a larger gap between the tips and the bumper cutout, rotate the front pipe up towards the body. For a smaller gap between the tips and the bumper cutout, rotate the front pipe down towards the cross brace.
- Fully tighten the front V-band clamp using the $\frac{1}{2}$ " deep socket wrench.
- Adjust the tips side to side within the bumper cutouts by rotating the hanger mounts about the mounting to the body. This is easiest when the 13mm nuts are already somewhat tight. Rotate either by hand or by using a screw driver or pry bar between the hanger mount and the body. Make sure the hanger nuts are still tight.
- Last, make sure the gap between the driver side tip and the bumper cutout is the same as the passenger side tip and the bumper cutout. Rotate the muffler about the rear V-band as required to achieve an even gap. Fully tighten the V-band clamp with the $\frac{1}{2}$ " deep socket wrench.

Step 5—Plug in the Valve Motor or VSC-1:

- If using the VSC-1 controller, plug the factory plug into the VSC-1 and the VSC-1 into the valve motor. Refer to the VSC-1 installation manual if needed.
- If not using the VSC-1 controller, plug the factory plug back into the valve motor.
- You are ready to start your vehicle and enjoy the complete control over your car's sound and performance exclusively offered by the CG Precision VS-1 exhaust. Failure to follow the procedures in this document may cause product damage. Please consult CG Precision with any installation questions or concerns.

Please contact CG Precision for additional support:

Email: support@cgprecision.com

Phone: 520-789-6305

** CG Precision provides a 12 month warranty against defects in material and workmanship for as long as the original purchaser owns the vehicle.*

** 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.*

