

INSTALLATION INSTRUCTIONS



CORKSPORT CST4/CST5 EWG Housing

2007-2013 Mazdaspeed 3, 2006-2007 Mazdaspeed 6, 2007-2012 Mazda CX-7 Turbo

PART #: GEN-6-575

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deliver - every time.*

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CORKSPORT CST4/CST5 EWG Housing

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PRODUCT DESCRIPTION:

Thank you for purchasing a CorkSport External Wastegate Turbine Housing for your Mazdaspeed. Gain better boost control, easier accessibility for servicing, and screamer pipe noises by adding a Tial 44mm (or equivalent) EWG. The CS kit was designed with flexibility and function in mind, as the location for the EWG port offers superior boost control while the supplied elbow gives you freedom when locating your EWG.

Install yours today and tell us what you think at:

<https://corksport.com/2006-2013-disi-mzr-corksport-turbo-ewg-upgrade-kit.html>

PRE-INSTALLATION NOTES:



Verify that the car is on a level surface before proceeding. Use appropriate load rated jack stands to support the vehicle.



These instructions were written for reference only and the use of a factory service manual is recommended.



A re-tune will be required to safely operate the CorkSport External Wastegate Housings. The wastegate duty cycles and ignition timing maps will need to be modified. We recommend contacting a professional tuner.



Make sure your vehicle is cooled down prior to starting installation. If you are going to work on your car within an hour of having driven it, use a fan to cool off the car.



You will need to remove your turbocharger to install the CorkSport EWG housing. Please see our turbocharger installation instructions for full details on turbocharger removal.

MATERIALS & TIME:

GENERAL INFO:



Time Est:
5hr



Difficulty:
4/5



CEL:
No



Warranty:
1-Year

PARTS LIST:

- One (1) CorkSport CST4 or CST5 EWG Turbine Housing
- One (1) CorkSport EWG Elbow
- One (1) CorkSport 2.5" V-Band Clamp

-Optional-

- One (1) CorkSport EWG Dump Tube


TOOLING LIST:


- Flat Head Screwdriver
- Phillips Screwdriver
- Channel Lock Pliers
- Needle Nose Pliers
- Small Vice Grips (x2)
- 8mm Socket & Wrench
- 10mm Socket & Wrench
- 12mm Socket & Wrench
- 14mm Socket & Wrench
- 17mm Socket (1/2" Drive)
- 19mm Socket (1/2" Drive)
- 21mm Socket (1/2" Drive)
- Ratchet Wrench (3/8" & 1/2")
- 4" Extension (3/8" & 1/2")
- 12" Extension (3/8" & 1/2")
- Oxygen Sensor Socket
- 1/2" Semi-Wobbler Joint
- WD 40 or similar
- Torque Wrench
- Coolant Drain pan
- Engine Coolant
- High Temperature Anti-Seize


Recommended:

- Oil Drain Pipe Gasket, Upper Mazda P#: L3K914293
- Oil Drain Pipe Gasket, Lower Mazda P#: L3K914264

ORDER OF OPERATIONS & TABLE OF CONTENTS:

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 - Section 3: Installing the CorkSport EWG Housing Pg. 7-8

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DETAILED INSTRUCTIONS:

1. Removing the Internal Wastegate Actuator

NOTE The turbocharger will need to be removed from the vehicle in order to change from an internal wastegate to external wastegate turbine housing. These instructions do not cover removal of the turbocharger. Please see CST4 or CST5 installation instructions for full details on turbocharger removal at the following link:
<https://corksport.com/support/instructions/GEN-6-576-WEB.pdf>

- a) Use pliers to release the spring clamp located on the boost pressure reference hose. Move the clamp up the hose and free from the fitting. Shown circled in red in **Figure 1a**.
- b) Pull the boost pressure reference hose off the compressor cover port. Shown with the blue arrow in **Figure 1a**. Shown removed in **Figure 1b**.

NOTE These hoses are often difficult to remove. If you need to cut the hose to remove, that is okay as it will not be reused. Ensure you do not damage the fitting coming off the compressor cover.

- c) Remove the cotter pin from the end of the wastegate actuator arm. Circled in red in **Figure 2b**.

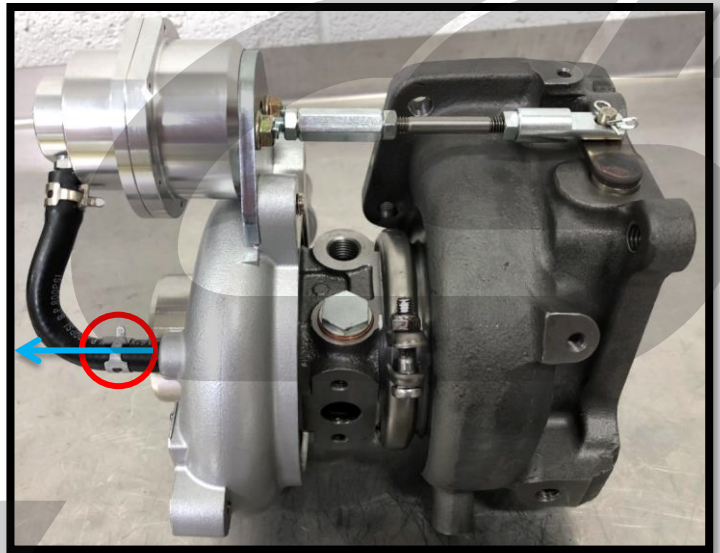


Figure 1a

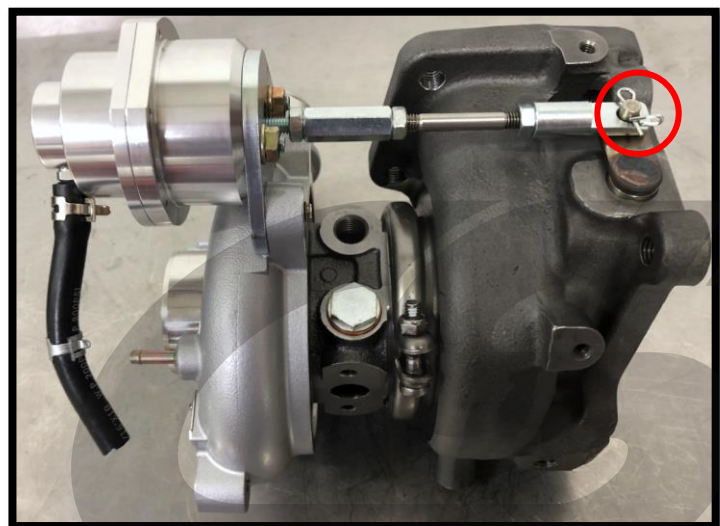


Figure 1b

DETAILED INSTRUCTIONS:

1. Removing the Internal Wastegate Actuator (continued)

- d) Remove the end of the wastegate actuator arm from the wastegate flapper arm. Shown removed and circled in red in **Figure 1c**.
- e) Using a 10mm socket and ratchet, remove the two nuts that mount the wastegate actuator to the compressor cover bracket. Then remove the IWG actuator. Shown circled in red in **Figure 1d**.



Note, the next two steps are optional but make turbo reinstalation easier.

- f) Using a 12mm socket and ratchet, remove the hex bolt that attaches the IWG bracket to the compressor cover. Shown circled in red in **Figure 1e**.
- g) Using a 5mm Allen wrench or hex socket, remove the counter sunk bolt that attaches the IWG bracket to the compressor cover. Then, remove this bracket. Shown circled in blue in **Figure 1e**.

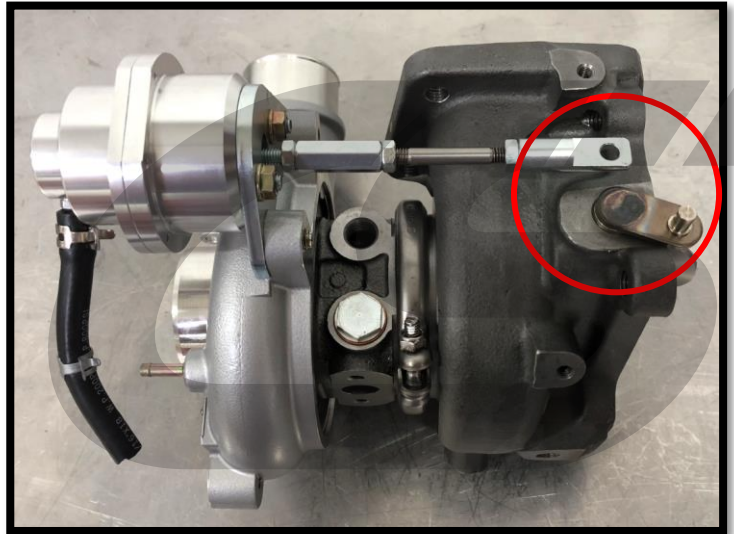


Figure 1c

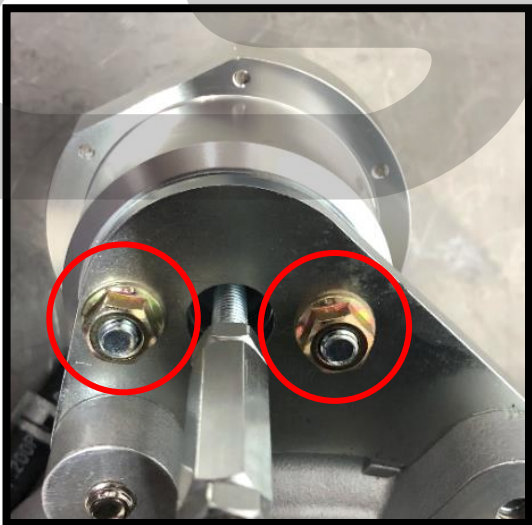


Figure 1d

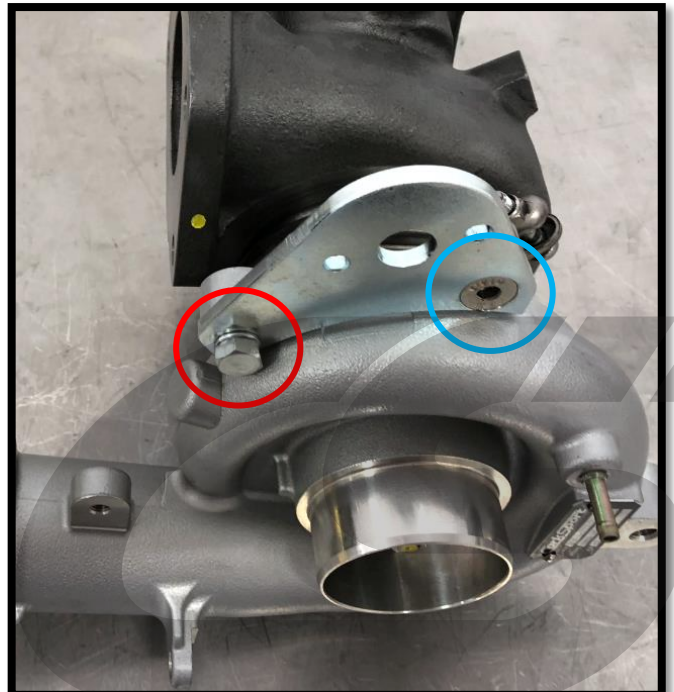


Figure 1e

DETAILED INSTRUCTIONS:

2. Removing the IWG Turbine Housing

- a) Set the turbocharger on the downpipe flange of the turbine housing as shown in **Figure 2a**.
- b) Using a 10mm socket and ratchet, loosen and remove the v-band clamp that holds the turbine housing to the CHRA. Shown **circled in red** in **Figure 2a**. Shown removed in **Figure 2b**.



Take care in the next step to pull directly vertical and not damage the turbine blades with the turbine housing. It should be very easy to remove.

- c) Gently pull upwards on the compressor housing to free the turbocharger from the turbine housing. See **Figure 2b** for direction to pull and **Figure 2c** to see the turbocharger freed from the turbine housing.

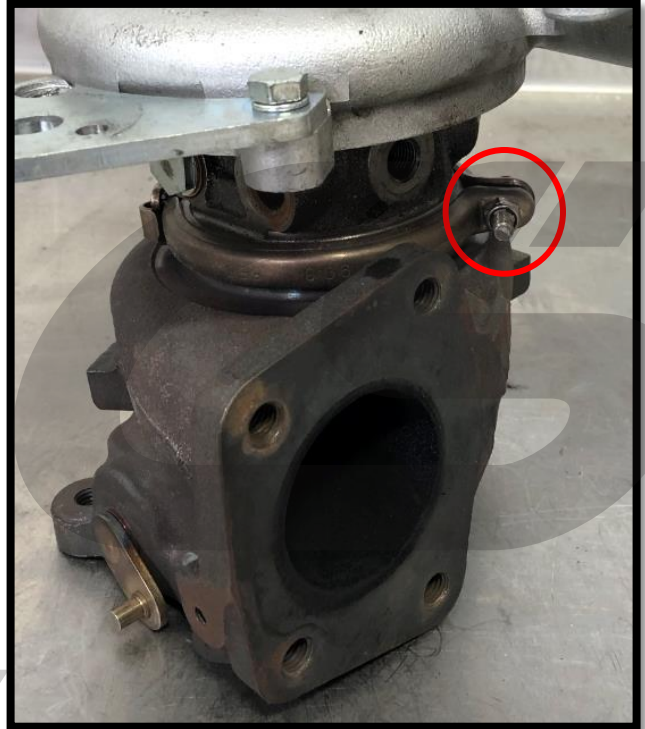


Figure 2a

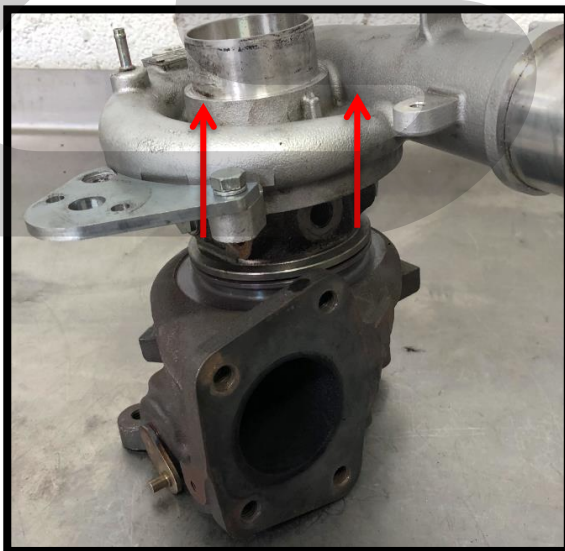


Figure 2b



Figure 2c

DETAILED INSTRUCTIONS:

3. Installing the CorkSport EWG Turbine Housing

- a) Set your CorkSport EWG housing on the downpipe flange as shown in **Figure 3a**.
- b) Note the small "peg" on the turbine housing. This will align with a small hole in the CHRA to ensure correct clocking of your turbocharger. Peg and hole shown **circled in red** in **Figure 3a**.

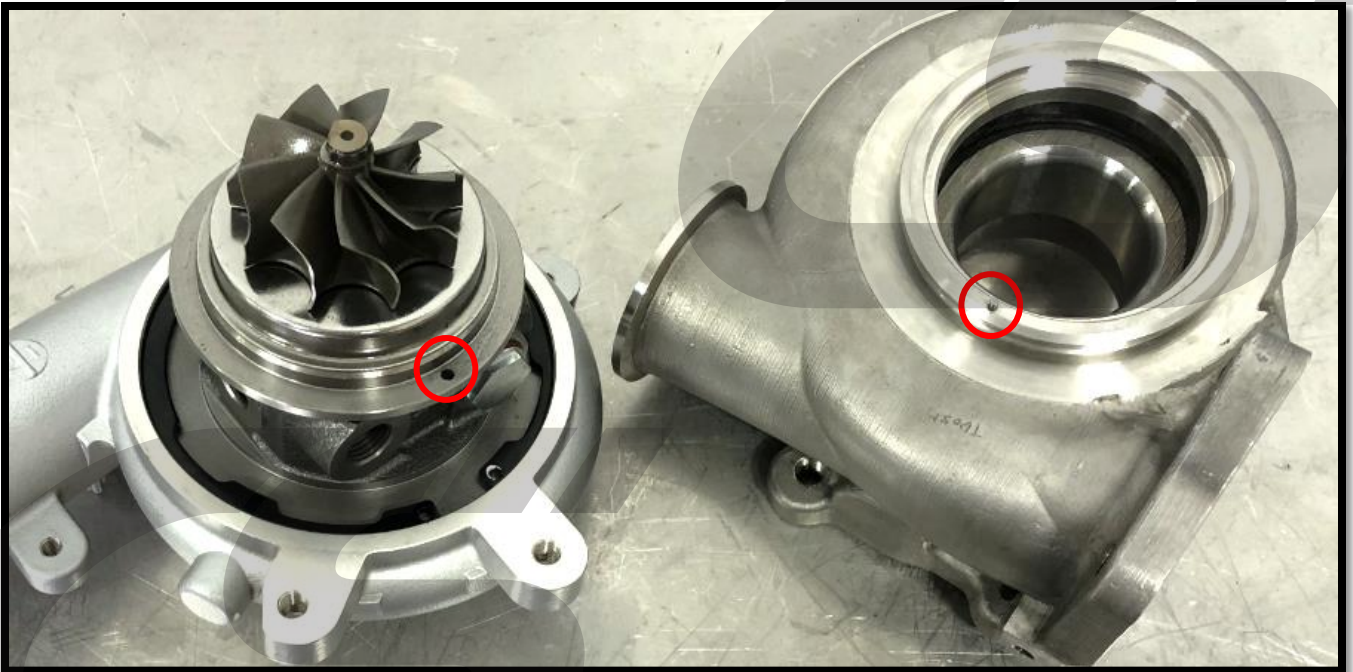


Figure 3a



Again, take care in the next step to prevent damage to the turbine blades. It should be very easy to install.

- c) **Carefully lower the turbine wheel into the turbine housing.** Try to keep the turbine blades off the sides of the turbine housing to prevent damage to the blades or housing.
- d) **Rotate the CHRA until the "peg" on the turbine housing is secured within the hole of the CHRA.** There will be a small gap between the face of the turbine housing and the CHRA. **Figure 3b** on the next page shows the peg fully seated and the small gap.

DETAILED INSTRUCTIONS:

3. Installing the CorkSport EWG Turbine Housing (continued)

- e) **Reinstall the v-band clamp removed in step 2b.** Ensure the clamp fits over the turbine and CHRA flanges all around the flange.
- f) **Using a 10mm socket and ratchet, tighten the v-band clamp to 8-12ft-lbs.**
- g) **Once fully tightened, double check that your turbine wheel is centered within the housing, then attempt to spin the turbine wheel by hand.** It should turn easily and should not catch or make any scraping noises. If you have any of these issues, loosen the v-band clamp and double check the flanges are fully seated. **Figure 3c** shows the turbine wheel with no issues.

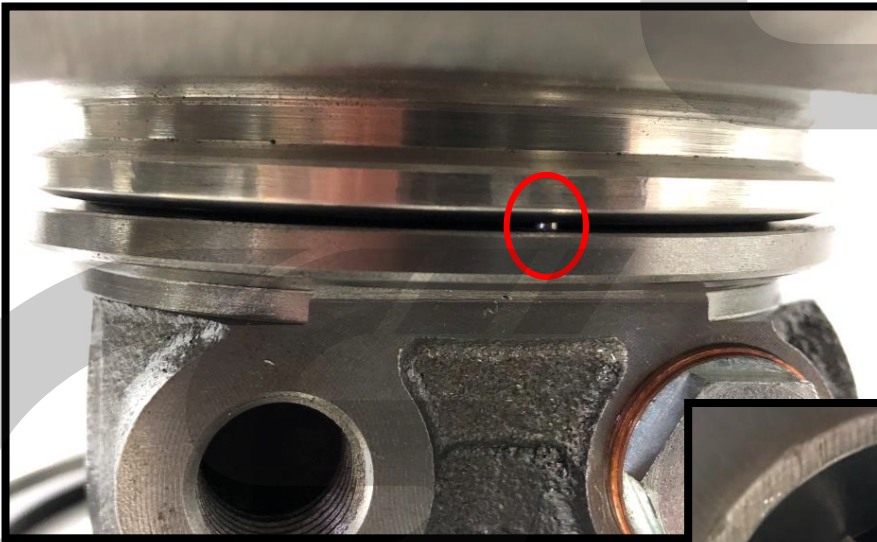


Figure 3b



Figure 3c

DETAILED INSTRUCTIONS:



Before continuing on with the next steps, be sure to follow your external wastegate manufacturer's recommendations for coolant and air ports on your EWG. You will also want to discuss with your tuner what spring pressure to use in your EWG and change springs as needed.

Boost pressure will exactly match spring pressure used in EWG. Maximum boost pressure will be approximately 1.8 times the spring pressure chosen.



At this point the turbocharger will need to be reinstalled into the vehicle. These instructions do not cover installation of the turbocharger. Please see CST4 or CST5 installation instructions for full details on turbocharger install at the following link: <https://corksport.com/support/instructions/GEN-6-576-WEB.pdf>

4. Installing the CS EWG Elbow, EWG, and Optional CS Dumptube



Ensure you have the valve seat of the EWG installed in the EWG before installing onto the CS elbow. Failure to use this will result in poor boost characteristics. Shown with **red arrows** in **Figure 4a**.

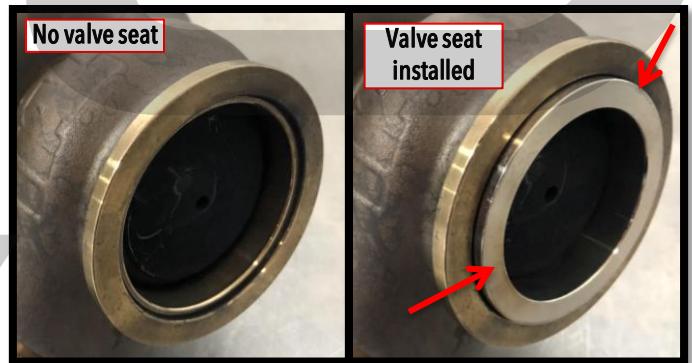


Figure 4a

- a) Attach your EWG loosely onto the straight end of the CS EWG elbow using the larger of the two clamps that came with your EWG. Tighten the clamp using an 8mm socket and 5mm Allen wrench just enough to keep the two components connected, but still able to rotate easily. Shown in **Figure 4b**.



Figure 4b

DETAILED INSTRUCTIONS:

4. Installing the CS EWG Elbow, EWG, and Optional CS Dumptube (continued)



The next few images show the EWG setup on a workbench for clarity.

- b) Attach the CS Elbow loosely on the EWG port of the turbine housing using the supplied CS V-band clamp. Again, tighten the clamp with an 11mm socket just enough so that the components stay connected together, but loose enough that they can still rotate. Shown in **Figure 4c**.



If you purchased the optional CS dumptube, the next step will apply to you. If you did not, you will need to source or fabricate a dumptube.

- c) Attach your CS dumptube loosely onto the outlet of your EWG using the smaller of the two clamps that came with your EWG. Tighten the clamp using an 8mm socket and 5mm Allen wrench just enough to keep the two components connected, but still able to rotate easily. Shown in **Figure 4d**.
- d) Align the parts so that you have good clearances around all components and your dumptube has a clear path out the bottom of the vehicle. You may need to cut a hole in your undertray/skidplate.
- e) Starting at the turbine housing and working your way down the system, tighten the three clamps holding the EWG setup together. Tighten each clamp to **8-12ft-lbs**.

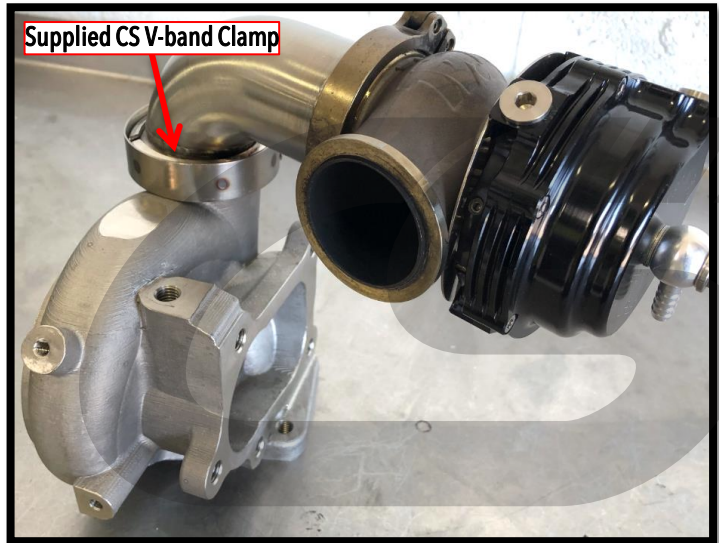


Figure 4c




Figure 4d

DETAILED INSTRUCTIONS:

4. Installing the CS EWG Elbow, EWG, and Optional CS Dumptube (continued)

- f) **Connect your EWG to your EBCS following your EBCS manufacturer's recommended setup.** If you have a CS EBCS, your EWG can be setup in "interrupt" setup or a 3-port push-pull setup. The following link has the CorkSport EBCS instructions: <https://corksport.com/support/instructions/GEN-6-710-WEB.pdf>
- g) **Flash your tune for your new EWG setup.**

 **Failure to connect EBCS lines correctly or failure to tune for the EWG can result in overboosting and catastrophic failure of your engine. Ensure your boost control lines are routed correctly and you have an appropriate tune for the EWG setup.**



This completes the installation of your CorkSport EWG Turbine Housing. Enjoy the optimum boost control and new sounds!

WHAT'S NEXT?

CorkSport Camshafts

The CorkSport Mazdaspeed Performance Camshafts are developed with the latest design, manufacturing, and casting technologies and ground to CNC precision for the best performance for your Mazdaspeed. Near factory idling cams for the daily driver and even the aggressive track driver bringing improvement in throttle response, horsepower, and torque to your Mazdaspeed.



CorkSport 13" Big Brake Kit

The Stage 2 CorkSport 13" Big Brake Kit for Mazdaspeed 3 provides a drastic improvement to braking by offering improvements to each component in the system. Larger rotors, 4-piston calipers, stainless steel brake lines, upgraded pads, and everything you need to install on your Speed 3 is included in this kit. If the CorkSport Big Brake Caliper Kit was not enough for you and your MS3, look no further than the CorkSport 13" BBK.

Also available for Mazdaspeed 6!



CorkSport Front Mount Intercooler Kit

Cool down your boost air temperatures without compromise with the CorkSport Front Mount Intercooler Kit with a small or large intercooler. Featuring all new piping for better fitment and performance, the CorkSport Front Mount Intercooler Kit comes standard with the high flow small core or the optional big core with crash bar. Whether you are sporting a few bolt-ons or a ground breaking big turbo build, this FMIC Kit has the performance to support your goals.

Coming soon for Mazdaspeed 6!

