

Part # GEN-6-456-10

CorkSport
MAZDA PERFORMANCE

CorkSport VTA BPV

MZR DISI Engine found in Mazdaspeed 3 & 6, and CX-7

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This Package should contain:

- ❑ 1. One CorkSport VTA BPV
- ❑ 2. One 18" Length of Black 4mm Silicone Hose

CorkSport VTA BPV

MZR DISI Engine found in Mazdaspeed 3 & 6, and CX-7



Thank you for purchasing! The CorkSport Binary VTA BPV provides features and performance to suit stock cars and on up to big turbo high power setups. The CorkSport Binary VTA BPV holds 50psi, responds in 50 milli-sec, and won't stall your car every shift. All this comes in a compact design with nozzle adjustability to allow for easy installation in even the most cramped engine bay or with custom piping.

Let us know your thoughts about the CorkSport VTA BPV by submitting a review at:

<http://corksport.com/mazdaspeed-dual-vta-bypass-valve.html>

Pre-Installation Notes:



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



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



How our instructions work: To best cover all of our customers experience levels, we have included a table of contents/order of operations along with step-by-step instructions.



These in car installation photos were produced using a 2013 Mazdaspeed 3. 2007-2013 Mazdaspeed 3, 2006-2007 Mazdaspeed 6, and CX-7 will be similar.

Materials and Time:



General Info.

Part #: GEN-6-456-10
Time Est: 30 Minutes
Wrench Rating: 2/5



Tooling List

10mm Socket
3" Extension
Ratchet
Large Jaw Pliers
Needle Nose Pliers



Parts List

One (1) VTA BPV
One (1) 18" Length 4mm Silicone Hose

Suggested Items (not included) :

OEM BPV O-Ring/Gasket P#: L3K920255

Order of Operations & Table of Contents



Disassembly

Section 1: OEM Intake and Filter Housing Removal

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Section 2: OEM BPV Removal & Disassembly

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Installation

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CorkSport BPV Adjustment & Maintenance

Section 4: CorkSport VTA BPV Base Flange Adjustment

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Section 5: CorkSport VTA BPV Maintenance

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By-Pass Valves that have been sitting (in the CorkSport Warehouse) may have slight piston stiction. Push the piston loose inside the BPV before installing. A couple drive cycles will complete the “break-in” period for the BPV.

Detailed Instructions

1. OEM Intake and Filter Housing Removal

- a) Remove the top mount intercooler cover (TMIC) by removing the two 10mm bolts (red circles in Figure 1a).



Now is a good time to look at your intercooler and see if you have any bent fins or debris lodged in the intercooler fins. Removing debris and straightening the fins will improve the performance of the intercooler.



If you have an aftermarket intake system it is recommended to remove the filter and MAF housing to provide clearance for the BPV installation.

- b) Loosen the two (2) 10mm hose clamps on the factory rubber intake elbow (red circle and green circle in Figure 1b).

- c) Unplug the MAF housing sensor located on the air filter housing (green circle in Figure 1c).

- d) Remove the two 10mm bolts on the air filter housing bracket and remove the bracket (shown in red circle in Figure 1c).



Figure 1a

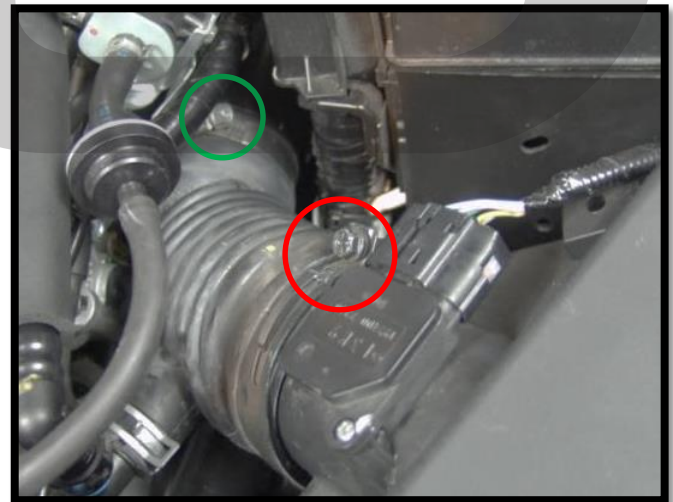
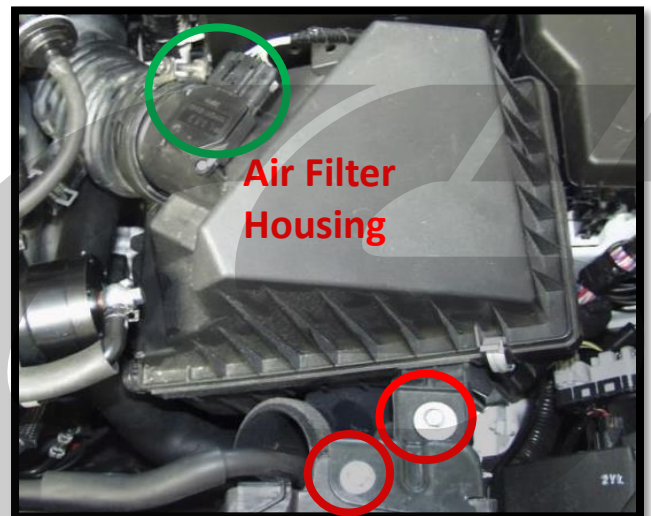


Figure 1b



Air Filter Housing

Figure 1c

2. OEM BPV Removal & Disassembly

- a) **Remove the boost signal hose.** Use pliers to loosen the spring clamp and remove from the BPV. **Green circle** in **Figure 2a**.
- b) **Remove the BPV recirculation hose.** Use large jaw pliers to loosen the spring clamp and remove the hose from the BPV nozzle. **Blue arrow** in **Figure 2a**.
- c) **Remove the OEM BPV from the vehicle.** Use a 10mm socket and ratchet to remove the two bolts **circled in red** in **Figure 2a**.
- d) **Transfer the OEM O-ring or use a new O-ring.** Remove the OEM O-ring from the BPV and set into the CorkSport groove. Shown **in Figure 2b**.

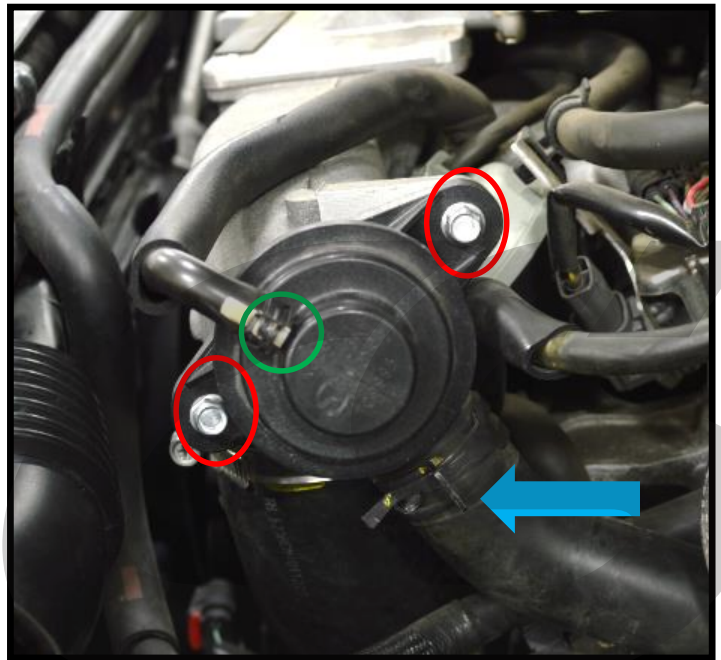


Figure 2a



Figure 2b

3. CorkSport VTA BPV Installation



By-Pass Valves that have been sitting (in the CorkSport Warehouse) may have slight piston stiction. Push the piston loose inside the BPV before installing. A couple drive cycles will complete the "break-in" period for the BPV.

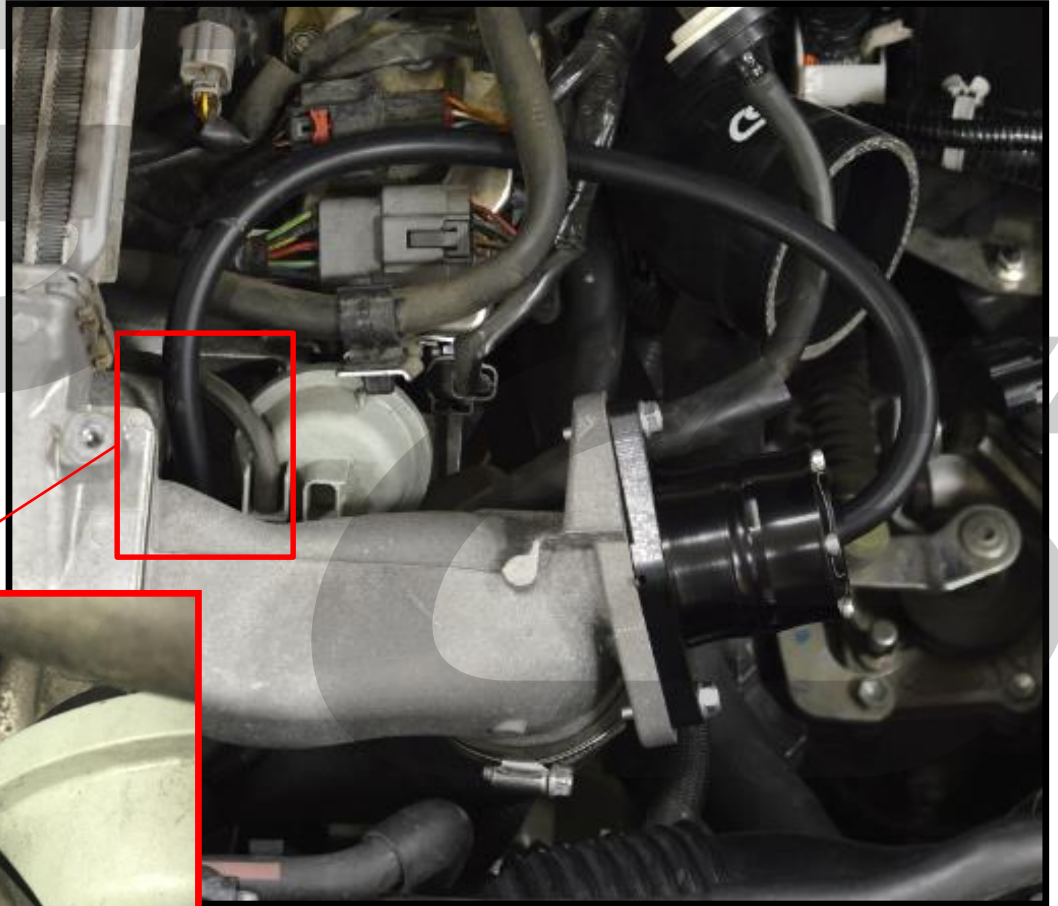


Figure 3a



Figure 3b

- a) **Install the CorkSport VTA BPV.** Use the OEM hardware as shown in Figure 3a. **Torque the bolts to 10-12 ft-lbs.**
- b) **Install the BPV recirculation hose.** Install the spring clamp with the large jaw pliers.
- d) **Remove the OEM boost signal hose.** Use needle nose pliers to loosen the spring clamp **circled in Figure 3b**. If you are having issues with the spring clamp, usually you can just pull the hose off without loosening the spring clamp.
- e) **Install the provided 4mm silicone boost signal hose.** Press the hose onto the barb fitting exposed in **Figure 3b**. Route the hose to the CorkSport BPV as desired or follow the routing shown in **Figure 3a**.
- f) **Re-install the air intake system and the TMIC shroud.** **Torque the hardware to 10-12 ft-lbs.**

4. CorkSport VTA BPV Base Flange Adjustment

Base Flange Angle Adjustment:

- a) Using a 3mm Allen wrench; remove the two countersunk screws on the underside of the base flange. **Shown in Figure 4a & 4b.**
 - a) The base flange will pop up slightly due to the spring force applied to it from the piston.
- b) Without lifting the base flange off or side-to-side; rotate the base to the desired position. **Shown in Figure 4c.**
 - a) The adjustment positions are **shown in Figure 4d.**
- c) Install the two countersunk screws. Tighten the screws in steps from side to side so the O-ring does not get pinched (like the star pattern when torquing wheel lugs).
- d) **Torque the screws to 27.5 in-lbs (2 ft-lbs).**
- e) Verify proper sealing between the O-ring and piston. Blow into the BPV nozzle:
 - a) If no leak or a very slight leak is found then the ring is set properly. The slight leak will be fixed after the piston is cycled a few times on the car.
 - b) If excessive leakage is noted then the O-ring is not set correctly.
- f) Remove the countersink screws and remove the base flange from the BPV body.
- g) Reset the O-ring in the base flange groove as **shown in Figure 4e.**
- h) Place the BPV body onto the flange centered and hold together. Flip the unit over and repeat steps 4a through 4e.



Figure 4a



Figure 4b



Figure 4e



Figure 4d



Figure 4c

5. CorkSport VTA BPV Maintenance

Approximately ever 6 months the BPV should be disassembled, cleaned, and re-greased for proper operation and performance.

Maintenance Disassembly:

- Using a 3mm Allen wrench; remove the three Allen screws as shown in Figure 5b.
- Break loose the two remaining Allen screws, but do not remove.
- While holding the BPV cap down, remove the remaining two socket cap screws as shown in Figure 5c.
- Allow the BPV cap to spring up slightly.
- Remove the BPV cap from the BPV lower body.
- Remove the piston from the BPV cap and set on a clean rag with the spring as shown in Figure 5d.



Figure 5a



Figure 5b



Figure 5d

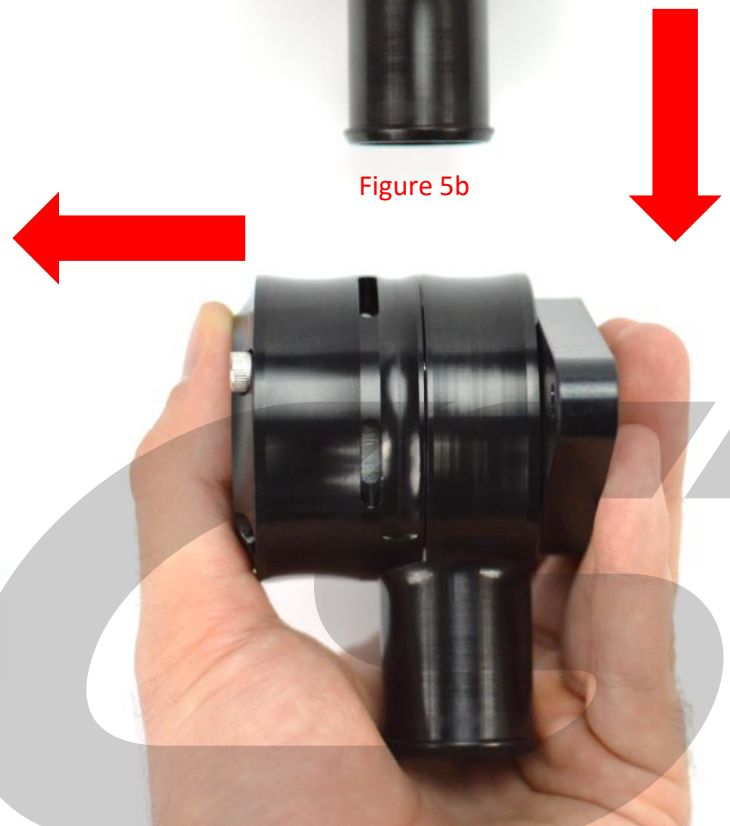


Figure 5c

5. CorkSport VTA BPV Maintenance (continued)

- g) Use a clean rag to clean the internal surface of the BPV cap and the piston.
- h) Re-grease the BPV piston outer surface where the O-rings are located as shown in Figure 5e with a white lithium grease such as Lubriplate 105.
 - a) A thin film of grease is all that is needed.
- i) Re-grease the BPV internal surface.
 - a) A thin film of grease on the bore surface is all that is needed. Try to not fill the VTA ports with grease. Shown in figure 5f.
- j) Re-install the spring and piston into the BPV cap as shown in Figure 5g.
- k) Align the smooth face of the BPV cap with the nozzle as shown in Figure 5h.
- l) Install the 5 socket cap screws in the reverse order of removal.
- m) Push and hold the BPV cap down while threading the socket cap screws into place.
 - a) Torque the socket cap screws to 13.6 in-lbs (1 ft-lbs).
- n) Verify proper piston movement by pushing up on the piston from the underside of the BPV.



Figure 5e



Figure 5f

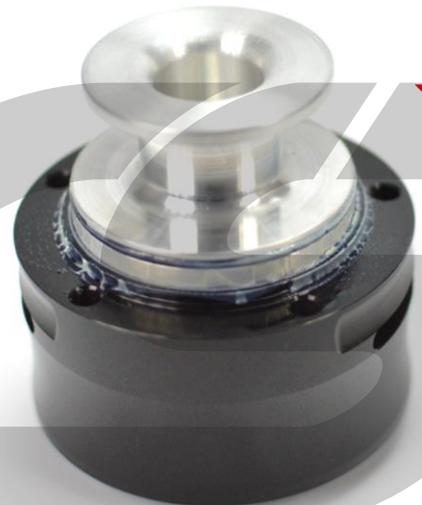


Figure 5g



Figure 5h

Smooth Face

Need Help With Your Installation?
Call (360) 260-CORK

What's Next:

CORKSPORT Mazdaspeed Boost Control Solenoid

Take control of your boost and performance with the **CorkSport Mazdaspeed Electronic Boost Control Solenoid (EBCS)**. Utilizing the latest technology in solenoid controlled air valves, the CorkSport EBCS outflows and out responds the competition. It builds boost faster and minimizes boost spikes and creep.

The CorkSport replacement EBCS features a 3-port design that has the flexibility to control all boost control setups, such as bleed and interrupt for internal wastegates and interrupt or push-pull for external wastegates.



CORKSPORT 3" Power Series intake System

Dramatically reduce intake restrictions and get an impressive improvement in power throughout the entire RPM range with the **CorkSport Mazdaspeed 3 Power Series 3" Intake System**.

The Power Series 3" Intake System is fabricated with a high polished 3 inch turbo inlet pipe and a true 3" inside diameter MAF housing. The velocity stack design smooth's air flow for maximum performance. If you plan on upgrading or have already upgraded your turbo this upgrade is a must to keep your MAF sensor functioning within its calibrated range.



CORKSPORT Engine Cover

Tired of looking at the coil packs and wiring after upgrading your Mazdaspeed to a FMIC kit? The CorkSport Mazdaspeed engine cover is just the item you need to clean up the look in your engine bay. Manufactured from 5052 aluminum and black or red texture power coated for long lasting durability, this is bound to catch a few eyes at your next car meet.

