

# CorkSport DISI MZR Fuel Injector Seals

2007 – 2013 Mazdaspeed 3 & 2006 – 2007 Mazdaspeed 6



Thank you for purchasing the CorkSport DISI MZR Fuel Injector Seals for the 2007-2013 Mazdaspeed 3 & 2006-2007 Mazdaspeed 6. Constructed from beryllium copper; the CorkSport fuel injector seals will lock in every PSI of boost so that every bit of your hard earned horsepower keeps you moving forward. Please let us know what you think by submitting a review at: <https://corksport.com/mazdaspeed-3-fuel-injector-seals.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. Please read these instructions thoroughly prior to starting installation.



**These instructions were made using a 2013 Mazdaspeed 3.** Installation for earlier Mazdaspeed 3 and Mazdaspeed 6 will be similar.

## Materials and Time:



### General Info.

Part #: GEN-6-991  
Time Est: 4 - 6 hours  
Wrench Rating: 5/5



### Tooling List

Flat Head Screwdriver  
Phillips Head Screwdriver  
Large Jaw Pliers  
Need Nose Pliers  
8mm Wrench  
22mm Wrench  
Small Vise-Grips or C-Clamps  
Scotch-Brite

### Tooling List

8mm Shallow Socket  
8mm Deep Socket  
10mm Deep Socket  
12mm Deep Socket  
T-40 Torx Socket  
4" Extension  
3/8" Drive Ratchet  
Small Fuel Catch Container



### Parts List

One (1) Set of Four (4) CorkSport DISI MZR Fuel Injector Seals  
One (1) Booklet of CorkSport Installation Instructions

### Additional Parts List (not included)

Four (4) Fuel Injector O-Ring (L3K9-13-253) Recommended  
Four (4) Fuel injector O-Ring Grommet (L3M8-13-252) Recommended  
One (1) Intake Manifold Gasket (L3K9-13-111) Dependent on Condition  
One (1) Throttle Body Gasket (L3K9-13-655) Dependent on Condition

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

## Order of Operations & Table of Contents



### Engine Disassembly

- Section 1: Intercooler and Intake Removal
- Section 2: Intake Manifold Accessories Removal
- Section 3: Throttle Body Removal
- Section 4: EGR Tube Removal
- Section 5: Intake Manifold Removal
- Section 6: Fuel Rail Removal
- Section 7: Fuel Injector Removal

- Pg. 2-3
- Pg. 4-6
- Pg. 7
- Pg. 8
- Pg. 9
- Pg. 10-11
- Pg. 12



### Injector Seal Installation

- Section 8: Fuel Injector Assembly
- Section 9: Fuel Injector Installation

- Pg. 13
- Pg. 14



### Engine Assembly

- Section 10: Engine Reassembly

- Pg. 15



### Fuel System Priming

- Section 11: Priming the Fuel System & Initial Start Up

- Pg. 16

## Detailed Instructions



These instructions were made using a 2013 Mazdaspeed 3. Installation for earlier Mazdaspeed 3 and Mazdaspeed 6 will be similar.

### 1. Intercooler and Intake Removal

- a) Remove the negative battery terminal and place the plastic cover back over the battery (green arrow in Figure 1a).



Figure 1a

- b) Remove the two 10mm bolts fastening intercooler shroud to the intercooler. Push the shroud towards the firewall to unhook it and remove it from the vehicle (red circles in Figure 1b).

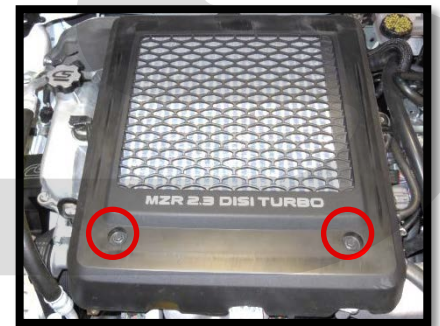


Figure 1b



We recommend using plastic Ziploc bags and a sharpie to label all bolts and parts throughout the install.

- c) Remove the clamps for the throttle body and turbo boost tubes from the intercooler. Use a 10mm socket to loosen the clamps (green circles in Figure 1c).

- d) Detach the bypass valve (BPV) from the intake. Remove the vacuum signal hose (red arrow), and the large BPV to intake hose by compressing the clamp with pliers (green arrow in Figure 1c). Leave the bypass valve attached to the intercooler pipe.

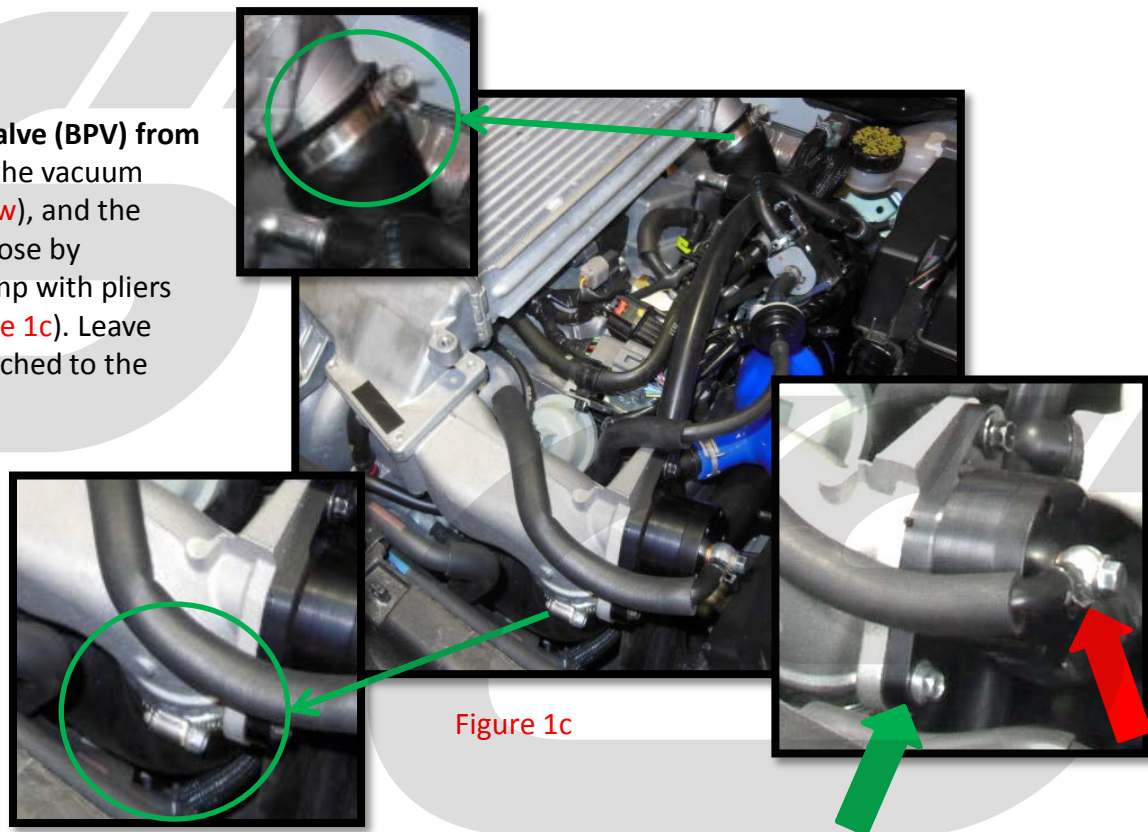


Figure 1c

**1. Intercooler and Intake Removal (continued)**

- e) Remove the three (3) 12mm nuts fastening the intercooler to the top of the engine and remove the intercooler from the vehicle by pulling upward (Figure 1d).



Figure 1d

- f) Remove the intake. Loosen the hose clamp connecting the intake elbow to the turbo inlet pipe with a 10mm socket wrench (red circle in Figure 1e).

- g) Remove the breather pipe from the valve cover (red arrow in Figure 1e) and unplug the MAF sensor (green arrow in Figure 1e).

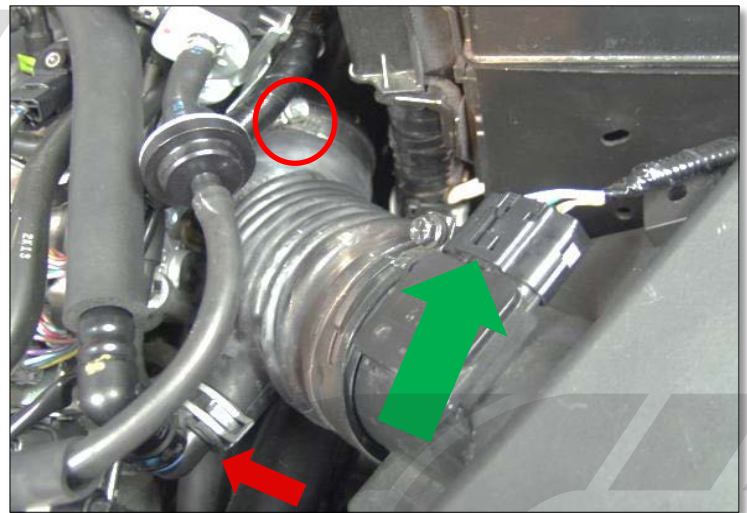


Figure 1e

- h) Remove intake from engine bay.

## 2. Intake Manifold Accessories Removal

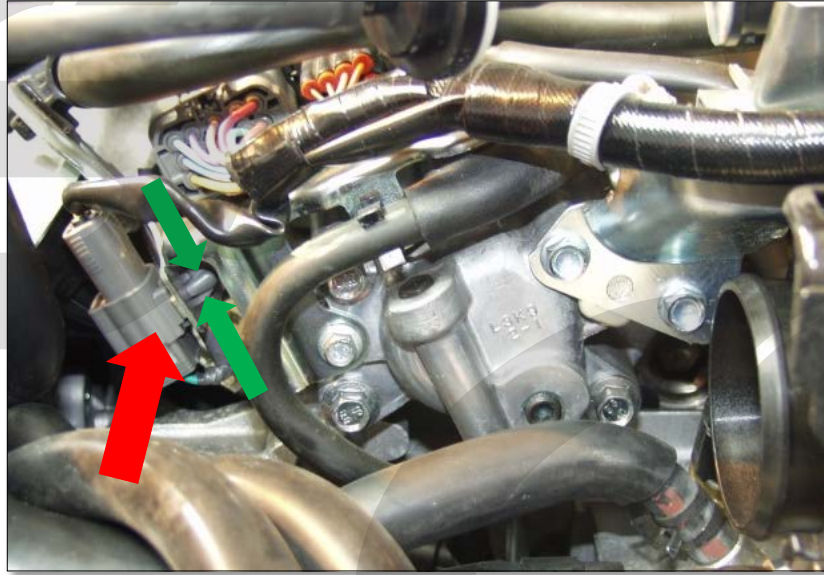


Figure 2a

- a) **Disconnect the swirl vane wires** (red arrow in Figure 2a) Using needle nose pliers, remove the connector from the bracket by squeezing in the direction of the green arrows in Figure 2a
  
- b) **Remove the swirl vane controller box** (red circles in Figure 1b) with an 8mm socket, then disconnect the electrical circuit (green arrow) and lay the box on top of the engine.

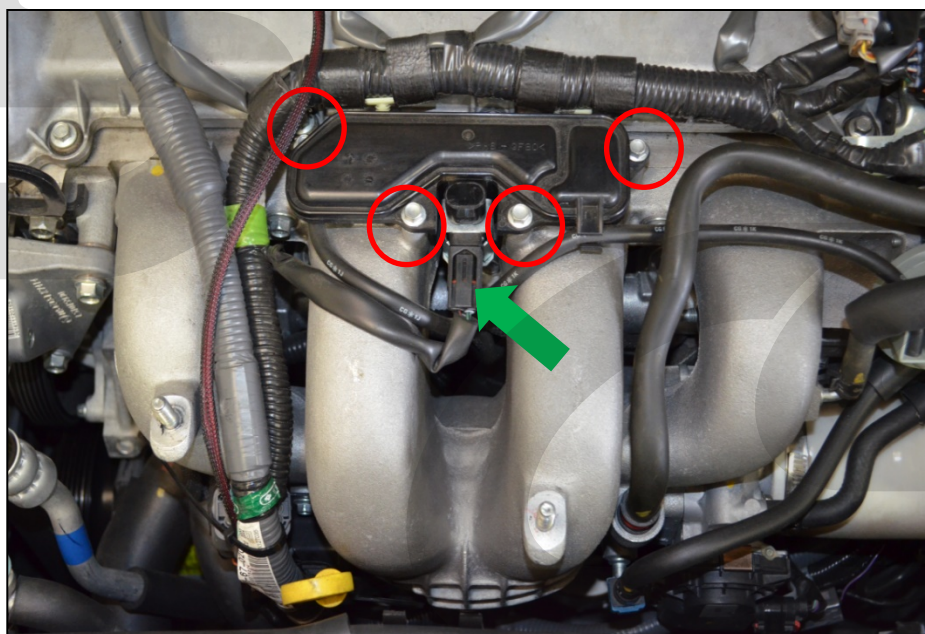


Figure 2b

**2. Intake Manifold Accessories Removal (continued)**

c) **Locate the connector that runs to the spark pugs.** This is located at the front passenger location of the intake manifold. Move the gray wrapped wires out of the way. **Shown in Figure 2c.**

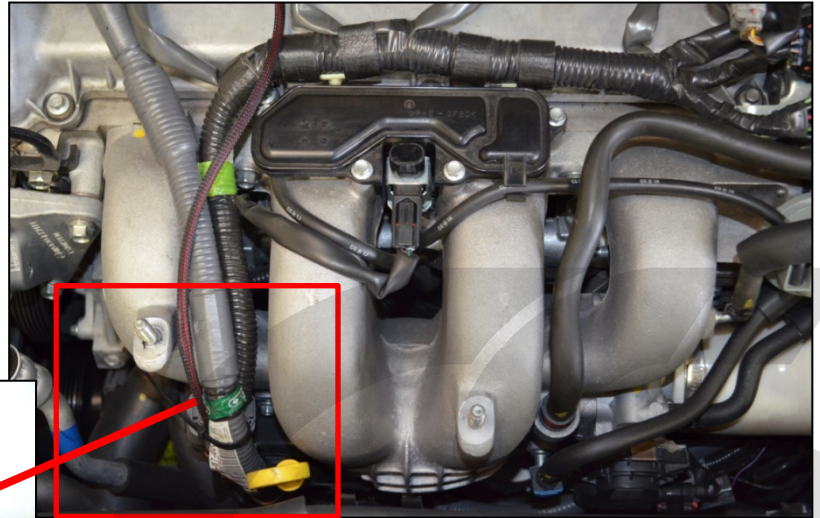
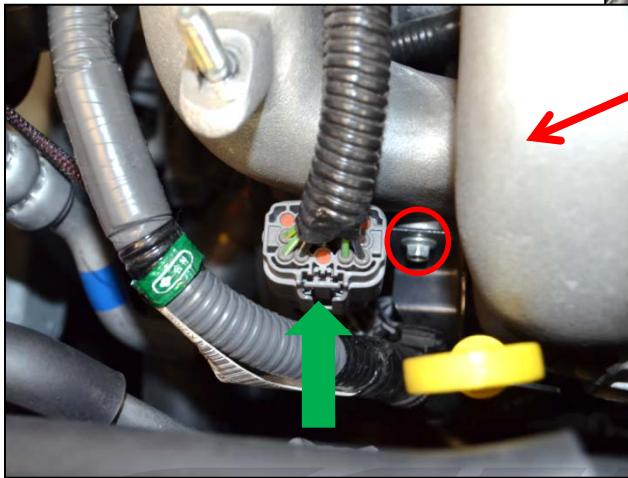


Figure 2c



d) **Disconnect the wire plug and lay it on top of the engine** and remove brackets. **(Red circles in Figure 2c & 2d)** Use an 8mm socket and wrench to remove the connectors bracket and the dipstick bracket.

e) **Disconnect the MAP sensor connector,** with a flathead screwdriver if needed. **Green circle and arrow in Figure 2d.**

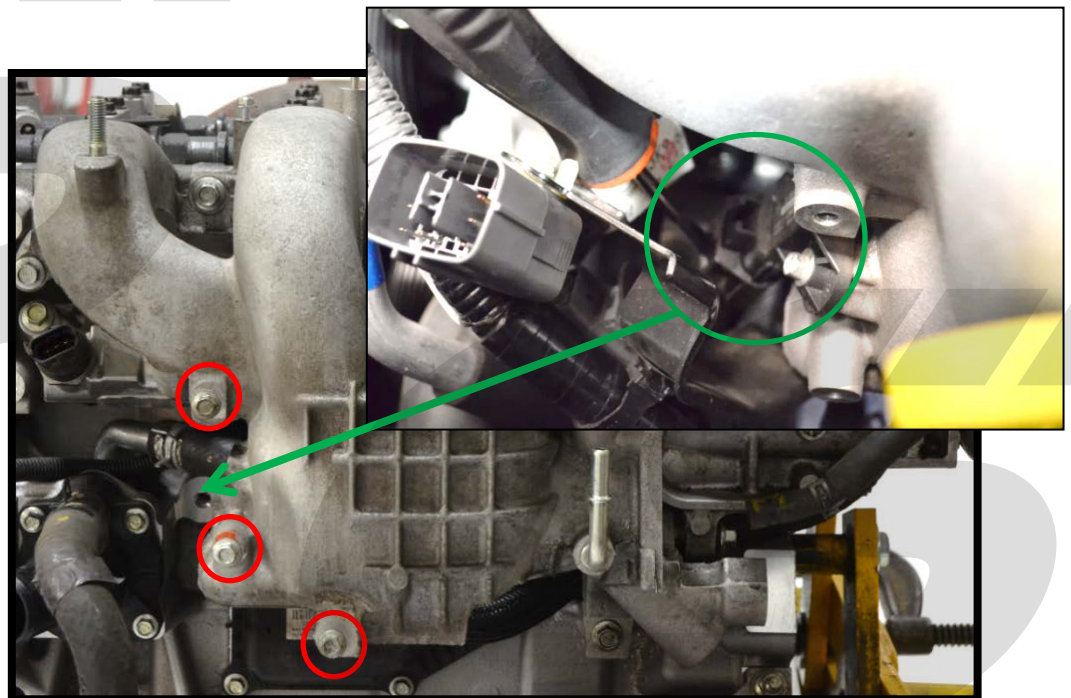
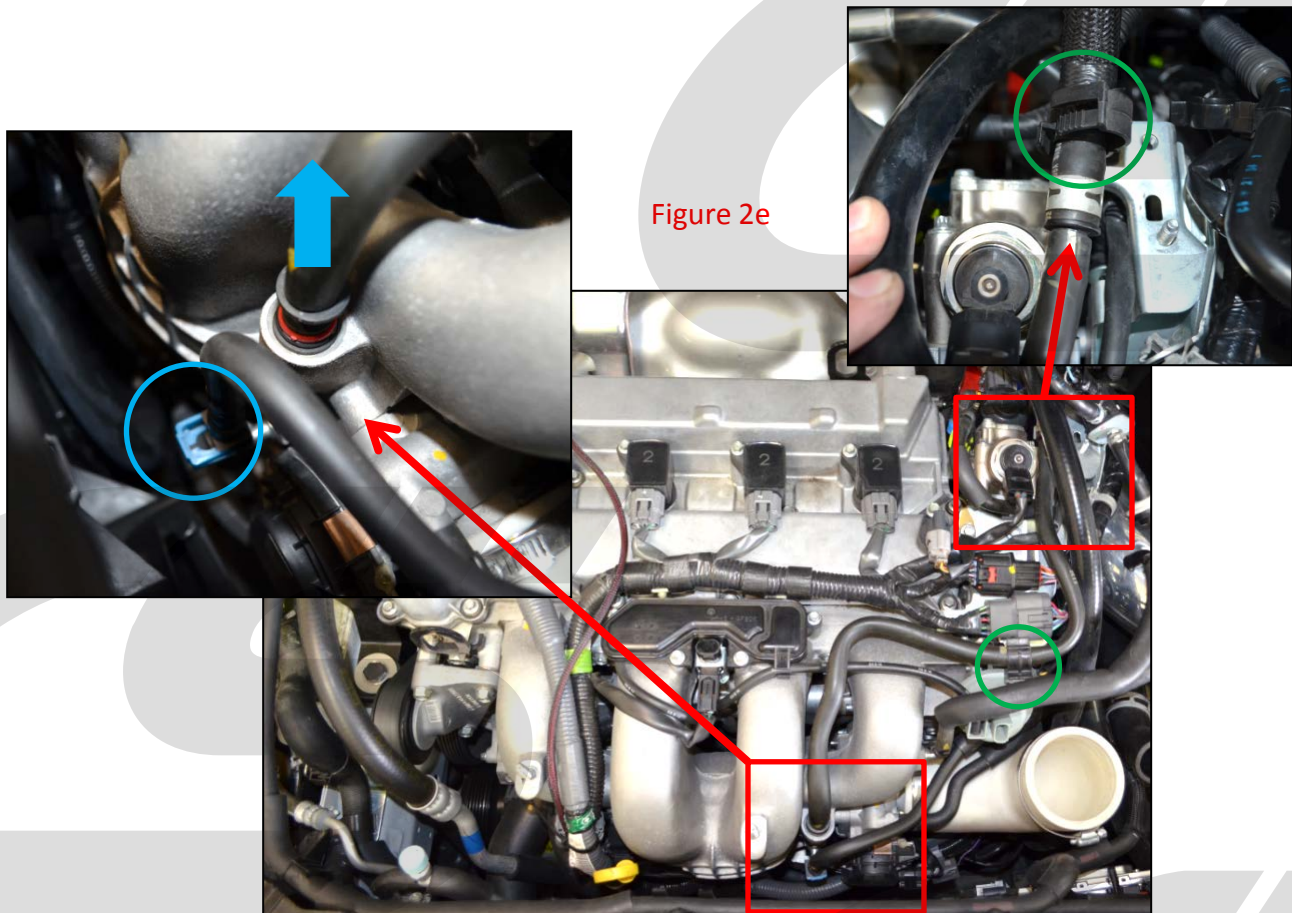


Figure 2d

**2. Intake Manifold Accessories Removal (continued)**

- f) Remove the vacuum hose with the blue tab. Use a flathead screwdriver to pop the clip out as shown in the blue circle in Figure 2e.
- g) Remove the vacuum line with the red collar. Use a flathead screwdriver to hold the red collar down while gently pulling the vacuum hose upward. Shown with the blue arrow in Figure 2e.



- h) Open the two black plastic hose clamps. Use a flathead screwdriver to pop the clamp open as shown in the green circle in Figure 2e. Move the hose to the top of the engine, out of the way.

### 3. Throttle Body Removal

- a) **Unclamp the throttle body coolant line and slide the clamps back.** Use the needle nose pliers to grab and loosen the clamps. **Green circles** in **Figure 3a**



Do not remove the hoses off the ports until the vise grips or c-clamps have been installed in the next step. Failure to do so will led to messy coolant everywhere!

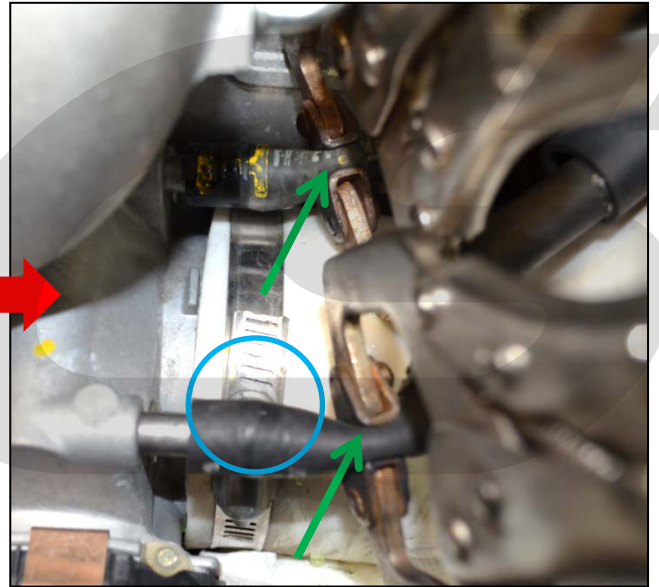
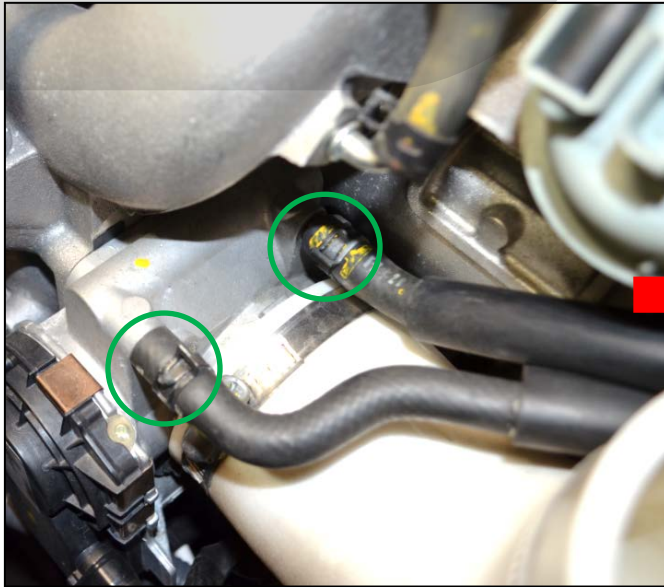


Figure 3a

- b) **Clamp the coolant hoses** with the vise-grips or c-clamps to stop the coolant flow. Excessive clamping force is not required. Clamping location shown with the **green arrows** in **Figure 3a**.
- c) **Remove the throttle body inlet hose** using a 10mm socket wrench. Shown with the **blue circle** in **Figure 3a**.
- d) **Remove the throttle body** using an 8mm socket wrench and extension. The four bolts are shown with **red circles** in **Figure 3b**. Peel the gasket off the intake manifold for further inspection (be careful to not bend the gasket) Gasket tab shown with **blue arrow** in **Figure 3b**.

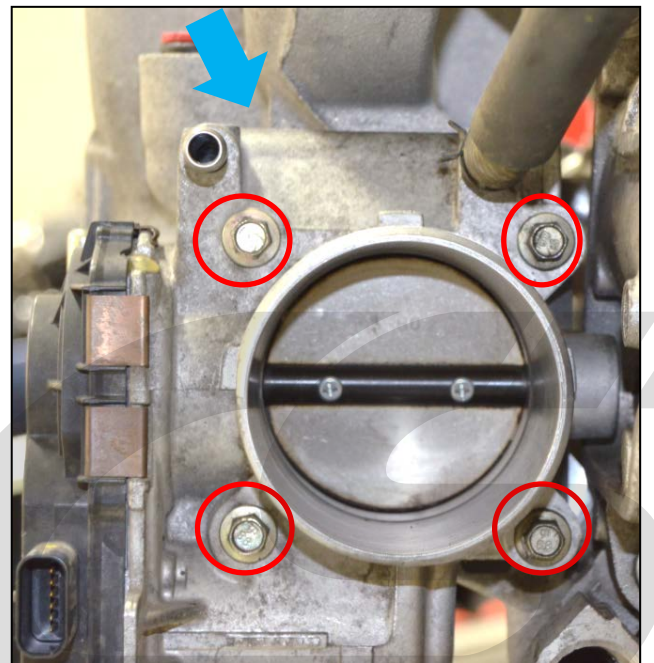


Figure 3b



#### 4. EGR Tube Removal

- a) Loosen the EGR tube at the intake manifold with a 22mm wrench, shown with the red circle in Figure 4a.
  
- b) Remove the EGR tube at the engine with an 8mm socket wrench, shown with green circles in Figure 4a. Be sure to not lose the small gasket between the engine and EGR tube.

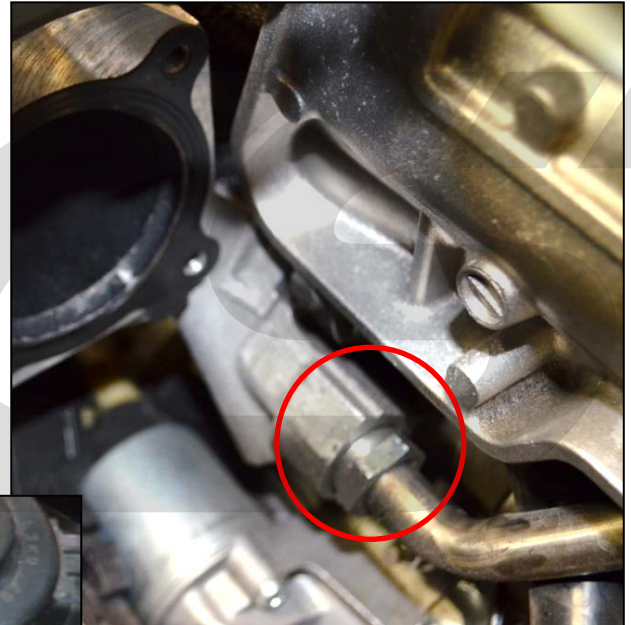
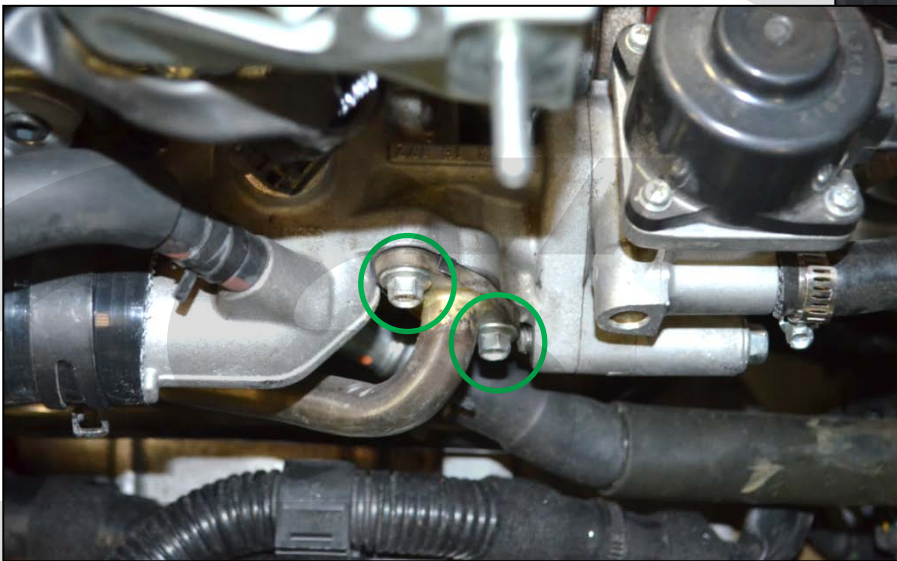


Figure 4a



The EGR tube at the engine can be removed without the removal of the turbo inlet pipe, but is significantly easier with the TIP removed. Instructions to remove the TIP are available at <http://www.corksport.com/support/instructions/Axl-6-118-WEB.pdf>

**5. Intake Manifold Removal**

- a) Remove the fuel rail shield with a 10mm socket wrench, shown with red circles in Figure 1a.
- b) Remove the intake manifold with a 10mm socket wrench and 4" extension, shown with red circles in Figure 5b. Alignment pins are located at the blue dots.

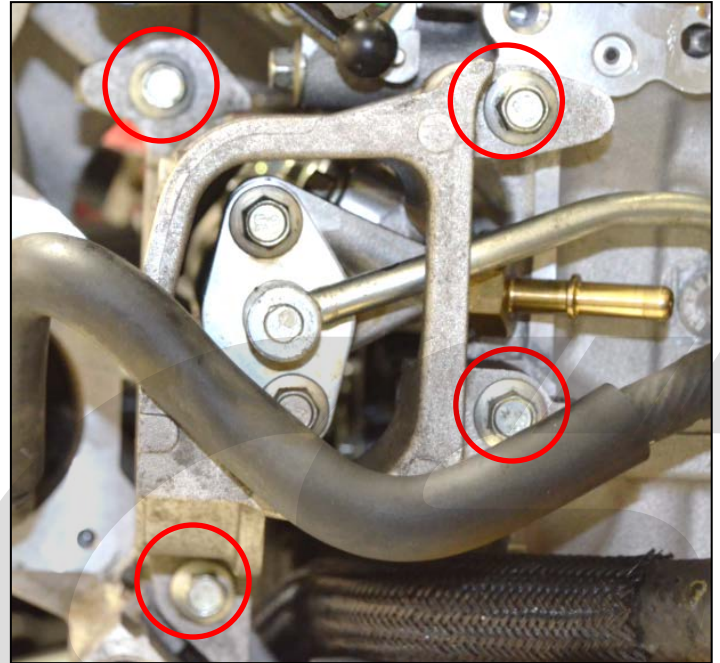


Figure 5a

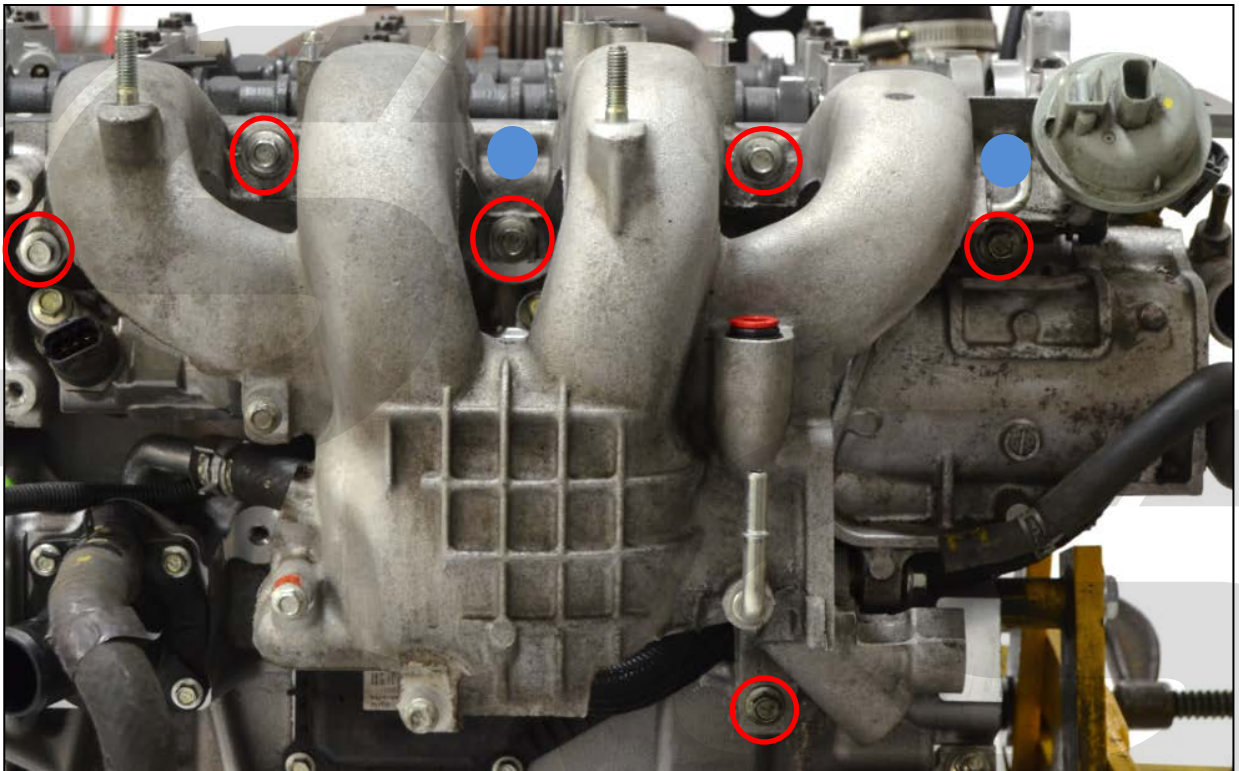


Figure 5b

**6. Fuel Rail Removal**

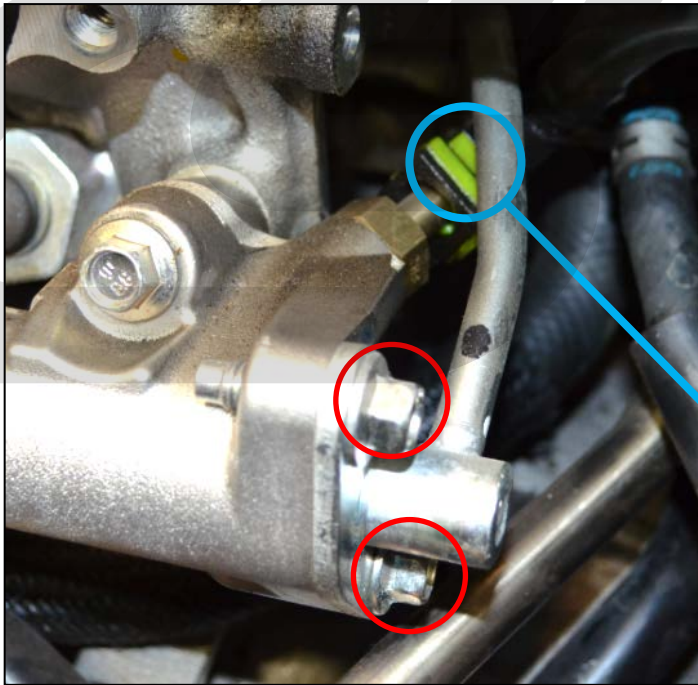


Figure 6a

a) Remove the high pressure fuel line bolts with a 10mm socket wrench, shown with red circles in Figure 6a.

b) Remove the fuel return line. Twist the flathead screwdriver to pop the clip loose. Shown in Figure 6b.

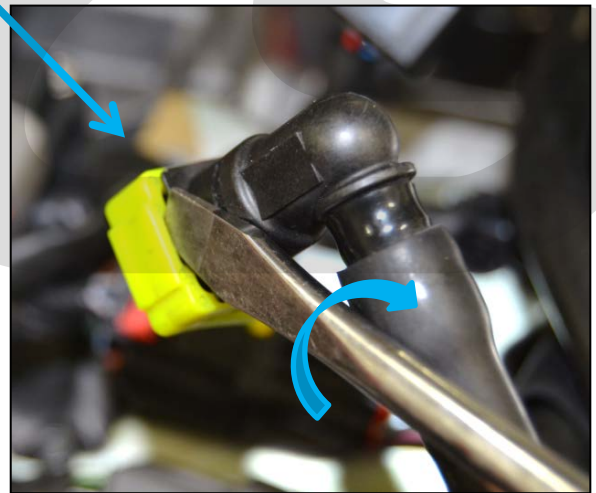


Figure 6b

c) Loosen the high pressure fuel line brackets with a 8mm socket wrench, shown with red circles in Figure 6c.



Use a rag and small container to catch the fuel in the fuel rail.

d) Remove the high pressure fuel line from the fuel rail. Pull the end out far enough to empty the fuel rail. Shown in Figure 6d.

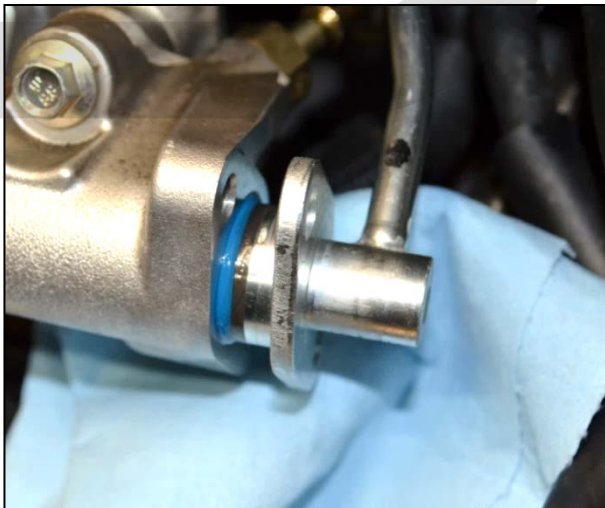


Figure 6d

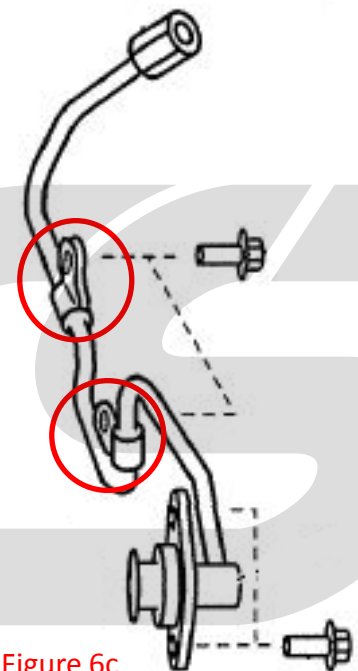


Figure 6c

**6. Fuel Rail Removal (continued)**

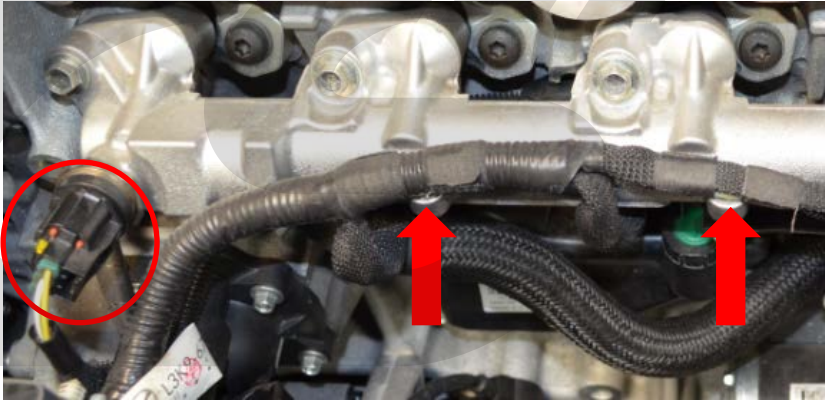


Figure 6e

- e) **Disconnect the fuel pressure wire** shown the red circle in Figure 6e.
  
- f) **Remove the fuel injector wiring harness** from the fuel rail. Use a Philips screwdriver to push the plastic clip in the directions of the red arrows. (Push from underneath) Shown in Figure 6e.

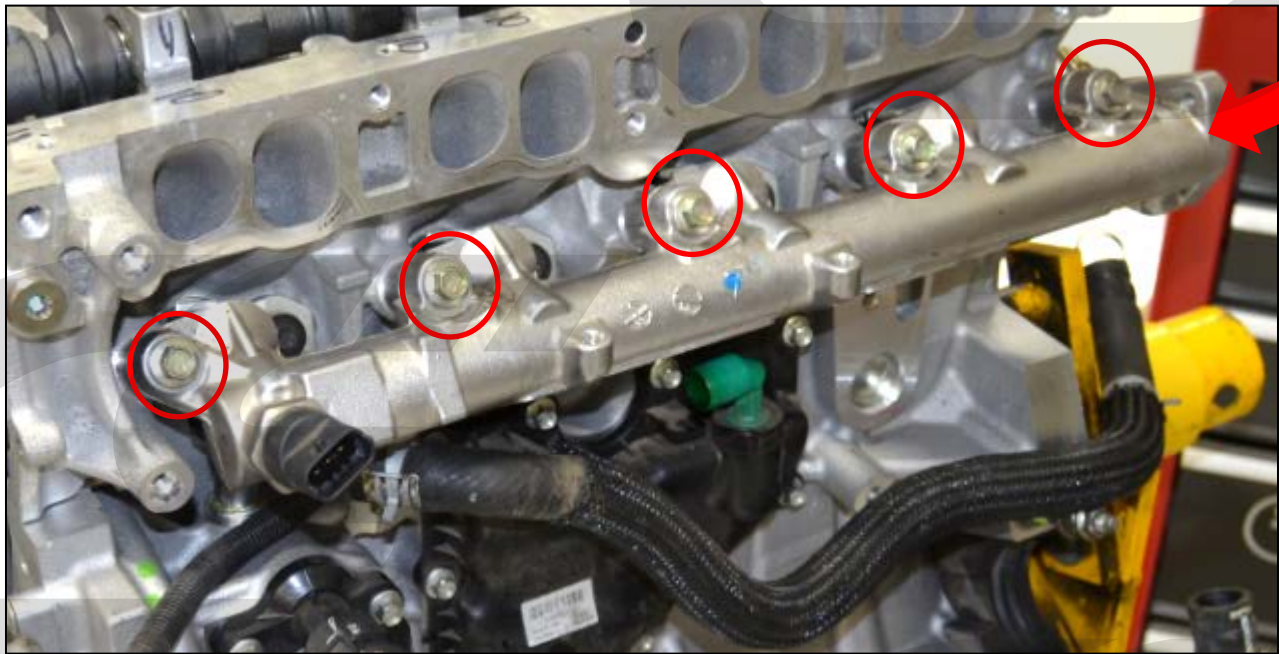


Figure 6f

- g) **Remove the fuel rail bolts** with a 10mm socket wrench, shown with red circles in Figure 6f.
  
- h) **Remove the fuel rail** by pulling it off the injectors starting at the driver's side and working your way across. Red arrow in Figure 6f.

## 7. Fuel Injector Removal

- a) Remove the fuel injector wiring harness from the injectors
- b) Remove the fuel injector clamps. Use a T-40 torx socket and wrench with a 4" extension. Red circles in Figure 7a.

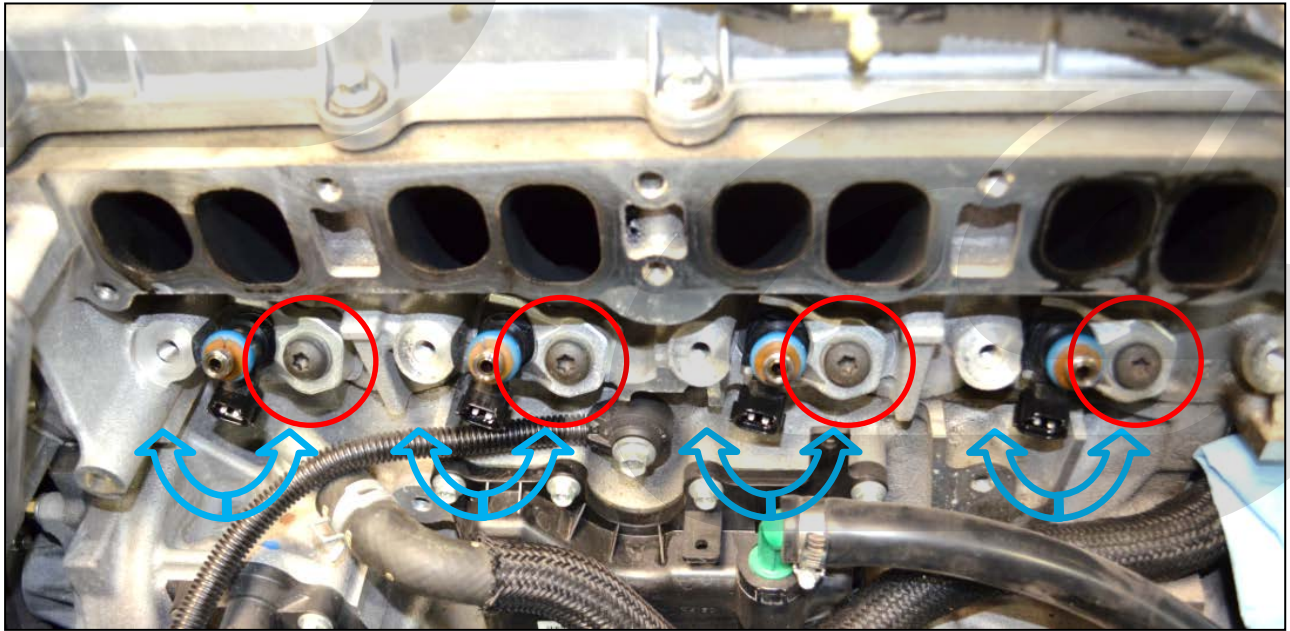


Figure 7a

- c) Remove the fuel injectors. Rotate the injectors back and forth while pulling them out of the cylinder head. Rotation direction shown with blue arrows in Figure 7a.
- d) Remove the OEM seal. Shown in Figure 7b. The OEM seal may have fallen off during injector removal and therefore is still in the injector port.

CS Seal



OEM Seal



Figure 7b

## 8. Fuel Injector Assembly

- a) **Clean the injector and cylinder head ports.** Use a scotch bright pad to scrub the injector body clean of any debris. Clean the injector port in the cylinder head and use a vacuum to suck any debris from the cylinder. Shown in **Figure 8a**.



A clean and smooth injector and cylinder port is critical to the sealing performance of the Corksport Seals.



Figure 8a



Figure 8b

- b) **Inspect the fuel injector O-rings.** Verify that the O-ring still has a round profile, not "square". Inspect for tears, nicks, cracks, or anything that might compromise the seal ability. If replacement is necessary, the part numbers are located on the cover page of these install instructions.



CorkSport recommends the replacement of the fuel injectors O-rings.



The CorkSport Seals are manufactured from a softer malleable material, special care must be taken when handling them.

- c) **Install the CorkSport injector seals onto the injectors.** DO NOT push the seals onto the injectors from the outer lip. DO push the seal on by applying pressure close to the injector nozzle shown with the **red arrows** in **Figure 8c**. The seal will be snug going on and should leave a very small gap shown with the **blue arrow** in **Figure 8b**.



Figure 8c

## 9. Fuel Injector Installation

- a) Install the injectors and place the clamps around the injectors.
- b) **Torque the injector clamps to OEM specs.** Use a T-40 torx socket and torque wrench with a 4" extension to torque the bolts to 17-18 ft-lb. **Red circles in Figure 9a.**

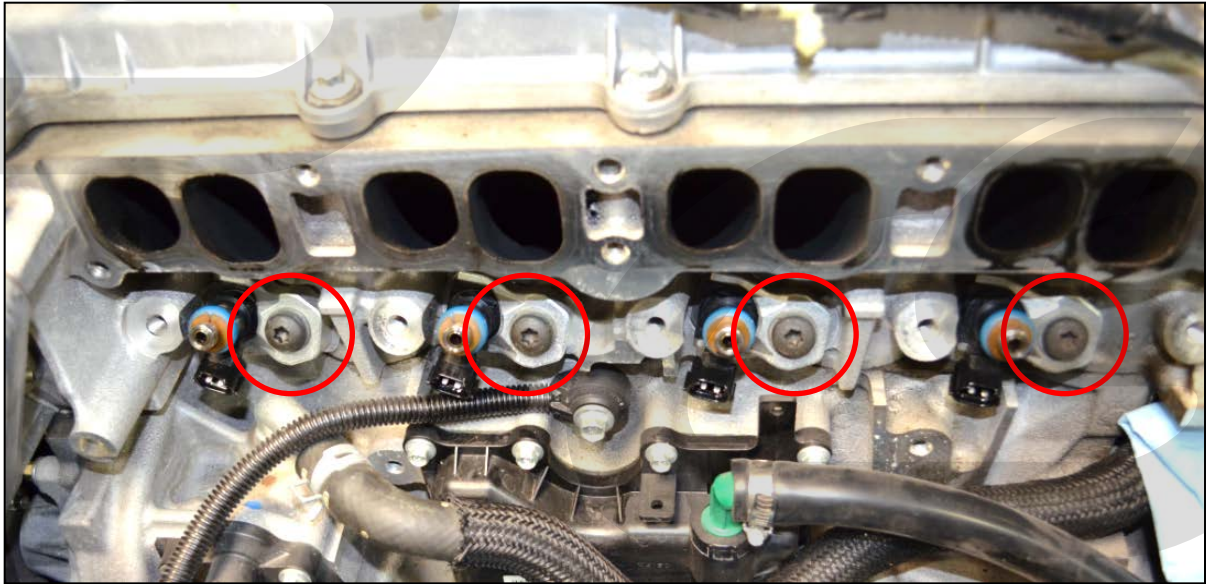


Figure 9a

- c) Connect the fuel injector wiring harness.
- d) **Install the fuel rail.** The fuel rail must be pushed onto the injectors straight and parallel. To help the installation dab a small amount of engine oil onto the injector O-rings. Use a 10mm socket and torque wrench with a 4" extension to torque the bolts to 13-16 ft-lb. **Red circles in Figure 9b.**



The intake manifold and fuel rail bolts are slightly different in length. Verify that you are using the correct longer bolts for the fuel rail. Failure to do so will result in stripped threads.

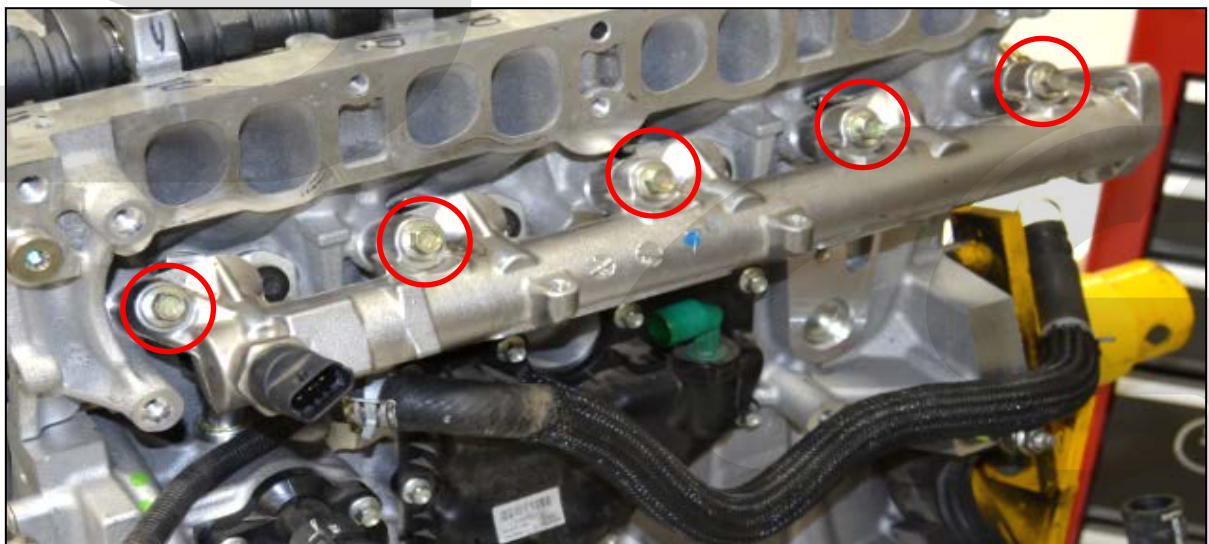


Figure 9b

## 10. Engine Reassembly

- a) Follow the instructions in reverse order for reassembly.
- b) Torque all fasteners to OEM specifications.

Toque Specs:

- 8mm Bolts -> 71-97 in-lb (6-8 ft-lb)
- 10mm Bolts -> 13-16 ft-lb
- 12mm Bolts -> 21-25 ft-lb

## 11. Priming the Fuel System and Initial Start Up

- a) Verify that everything is assembled correctly before start up
- b) Prime the Fuel System:
  - a) **Keyed Ignitions:** With your foot off the clutch, cycle the key on/off until the electric fuel pump stays on for only 1-2 seconds. (typically 6-8 cycles).
  - b) **Push Button Ignitions:** With your foot off the clutch, cycle the push button start on/off until the electric fuel pump stays on for only 1-2 seconds. (typically 6-8 cycles).
- c) **Initial Start Up:** The engine may start and die quickly, this is due to some air being in the fuel system. Wait 30 seconds and start the engine again. The engine should stay running at this point. It may take a few seconds before the engine revs up to its normal start up RPM. This is due to the air in the fuel system being pushed out.

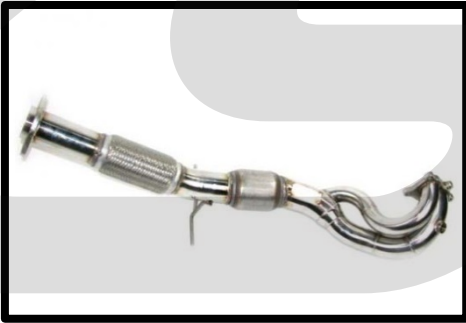


**This completes the installation of your CorkSport Fuel Injector Seals. Inspect for fuel leaks and any loose fasteners after a few miles of driving then enjoy!**



## What's Next:

### [CORKSPORT 2010-2013 Mazdaspeed 3 Downpipe](#)



Get maximum turbo performance and dramatically increase torque with the Mazdaspeed 3 Power Series Downpipe. The CorkSport downpipe has been expertly designed to replace the restrictive element in the Mazdaspeed 3 stock downpipe. Mandrel bent piping is used to create smooth exhaust flow for dramatic increases in power. For lasting corrosion resistance and reduced heat transfer to the engine bay, the CorkSport MS3 downpipe uses polished 3" 304 stainless steel and features TIG welds that offer superior arc and weld puddle control for a cleaner appearance and precise weld bead control.

### [CORKSPORT Mazdaspeed MZR Bypass Valve](#)

Add performance and style while protecting your turbo with the Patent Pending CorkSport Mazdaspeed MZR Bypass Valve. Using an innovative patent pending design utilizing a wave spring, we were able to reduce the spring height of the OEM Bypass Valve by 50%. This size reduction provides the same amount of force, while accelerating the speed of the valve. By increasing speed the Bypass Valve effectively increases the life of your turbo by preventing premature wear since the BPV can safely move at speeds 33% faster than stock or other valves. With the extra space allowed by the spring we were able to increase piston size by over 30%.



### [CORKSPORT Max Flow Fuel Pump Internals](#)



Maximize your stock fuel system while protecting your engine with the CorkSport MZR DISI Max Flow Fuel Pump Internals. With well over 2 years of research and development, you can count on CorkSport to bring innovation to the high pressure fuel pump on your Mazdaspeed. With hardening surface treatments, high strength coatings and a machined tolerance that is the best on the market, our pump internals are ready to give you the most performance available for your dollar. These pumps are precision machined, then treated, then coated and then machined again for a perfect fit and an ultra-high efficiency. That difference in the real world is going to be higher horsepower capability, safer air/fuel ratios and the ability to go that much further in the quest for power without worrying about fuel supply.