

## Got Gas?

By Craig Hodne

It started out as a day trip to the north woods on a very pleasant Sunday. I fueled up the Miata while Mary packed a cooler with sandwiches and drinks. Our destination was the Peshtigo River Flowage in the Southwest corner of Marinette County – Veterans Memorial Park, to be specific. The drive through Menominee County, aka the Menominee Indian Reservation on Hwy 55 was a delight. The highway, for the most part, hugs the curves of the Wolf River and is very scenic. Entering Langlade County, we veered off onto CR-WW, which became CR-W in Oconto County. Once we connected with Parkway Road in Marinette County, that would take us to our destination and beyond (very scenic).

On the beautiful drive up Hwy 55, Mary complained about the odor of gas, and I initially was quite defensive about it. Then I realized she was talking about a *gasoline* smell, and I could detect it also. Just a whiff whenever we stopped or slowed way down. It hadn't been noticed before filling up, so did I over-fill the tank? Was the EVAP system flooded with raw fuel? A peek under the hood did not show anything, so we continued with our journey. After a while, we no longer smelled the gasoline.

In mid-week, I fueled up the Miata and went for an afternoon ride exploring Shawano, Waupaca, and Portage counties looking at real estate for sale. The odor of gasoline was present, stronger than before. By the time I arrived home, I reeked of gasoline and was almost not allowed into the house. Something must be leaking – duh!

The scan tool did not show any error codes, so this was to be a visual search. The Miata went up on jack stands, and the splash shield came off to allow inspection from below. With the engine running, I could smell it, but could not see anything. The view from the top side didn't reveal anything, either. Finally, shining a bright light into a little 'tunnel' between the cam cover, the intake plenum, the throttle body, and under a massive bundle of wire – I saw a drip, drip, drip. A drop every 5 seconds, or so. It was coming from a device attached to the front of the fuel rail. With 65psi of fuel pressure, it wasn't much of a leak – but it wasn't getting better!



The part is called a *Fuel Pulsation Damper*, and is the second of two. The other is located in an easily accessible place on the passenger side of the chassis under the hood. This is the story of how to replace **Fuel Pulsation Damper #2**.

Some disassembly is required:

1. Begin by removing the air crossover tube. Simply loosen the hose clamp on each end and slide it off.



2. Disconnect the numerous electrical connections at the front of the engine, and also the EGR connector at the rear of the intake manifold.



3. Remove the bolts holding the plenum to the intake manifold. There are six bolts on top, and two at the front under the throttle body. Also remove the several hoses from the connections on the plenum and throttle body. Have a plug to insert into the coolant hose under the throttle body so as not to make a mess.



4. Lift the plenum up to clear the alignment pins and tilt the plenum clear of the intake manifold. Note the metal gasket – handle very carefully or plan to replace it.



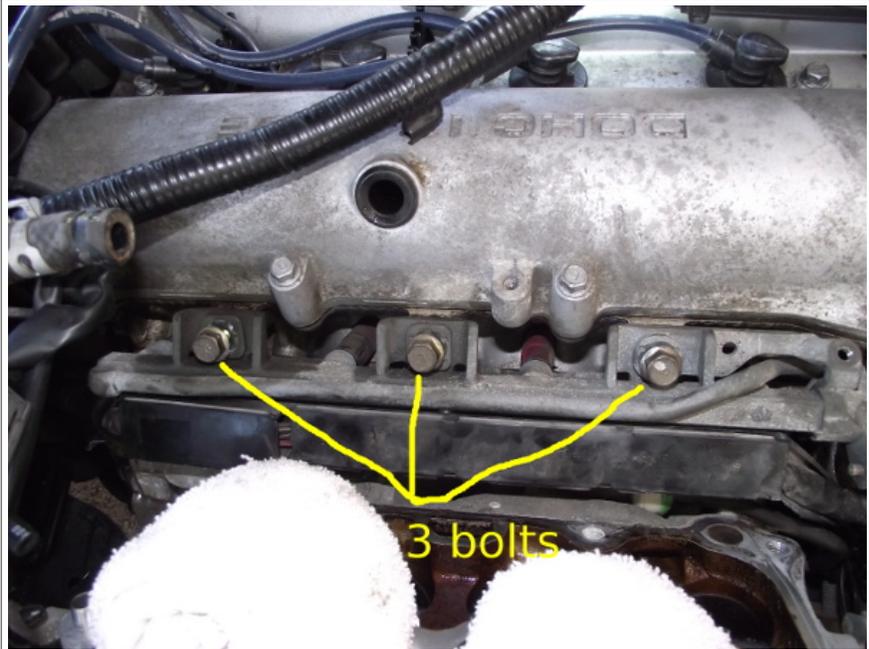
5. Stuff clean rags into the intake ports to ensure you don't drop any small parts into the intake!



6. There is the *Fuel Pulsation Damper* at the end of the fuel rail.

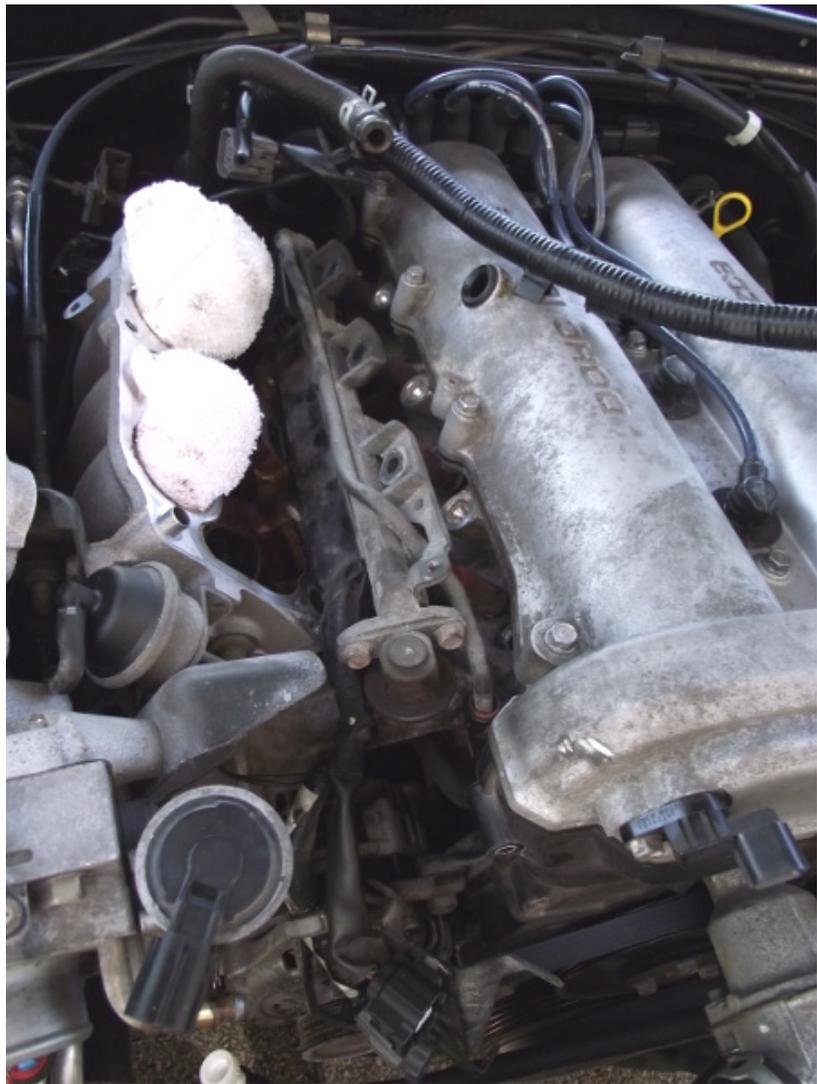


7. Remove the three bolts holding the fuel rail to the cylinder head.



8. Carefully pull the fuel rail away from the cylinder head to gain access to the two bolts holding the *Fuel Pulsation Damper* to the fuel rail.

**Note:** There are three non-magnetic spacers where the three bolts attached the fuel rail to the cylinder head (ask me how I know they are not magnetic). Move these to a safe place until needed for assembly.



9. Remove the two small bolts holding the *Fuel Pulsation Damper* to the fuel rail and pull it out. It is sealed inside the fuel rail, by an O-ring.



10. Insert the new part into the fuel rail and fasten with the two bolts.



11. Reassemble in reverse order. Be careful putting the fuel rail back into position so as not to damage the seals on the injectors.

All the fasteners are cadmium plated to avoid iron-aluminum corrosion. Apply an anti-seize compound to the threads before inserting. Use a torque wrench for proper tightening.

- FPD – 69.5-95.4 inch-lbs
- Fuel Rail – 14-18 ft-lbs
- Plenum Chamber – 14-18 ft-lbs
- Fuel Distributor Bracket (inside/under plenum) – 69.5-95.4 inch-lbs

Reattach all hoses and the air crossover tube.

