

# TECHNICAL TIPS – “Wench With a Wrench”

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Hello Miata Folks,

I hope you are all enjoying summer at last and have participated in some of the Club’s 2018 events. Here’s hoping the NY weather will be more cooperative than last year and we can have a wonderful driving season.

Please remember that all of my past columns are archived on our Club website ([www.midstatemiata.net](http://www.midstatemiata.net)) under the TECH heading. If you have any ideas for future columns that may be of interest to all, please let me know ([gwtr3red@gmail.com](mailto:gwtr3red@gmail.com)).

## PASSING GAS – THE EGR (EMISSIONS CONTROL VALVE)

### Introduction

Now that the world is finally aware of how toxic gases can be for people and how they drastically affect global warming and dissolution of the earth’s protective ozone layer, it’s important to understand the importance of how emission control devices work to detoxify vehicle exhaust pollutants and disburse them as safely as possible.

Temperatures in your engine’s combustion chamber can get as hot as 2,500+ degrees F. When that happens, a chemical reaction takes place creating NOx, or Nitrous Oxide, an indirect “greenhouse gas”. This new gas, along with other burned and unburned fuel, passes from the combustion chamber during the exhaust part of combustion, travels through the exhaust system, out the tailpipe and into the atmosphere.

### What Is The EGR Valve?

The **EGR valve** (*exhaust gas recirculation*) is a nifty little valve that works along with other emissions controls devices in your engine such as the PVC valve (see previous column) and the catalytic converter. By 1973, the EGR was standard in most vehicles.

### What Does It Do?

Basically, the EGR valve recirculates a certain percentage of the exhaust gases back into the intake manifold of the engine which lowers the gases peak temperature in the combustion chambers which results in lower NOx emissions and a cleaner exhaust making your Miata more environmentally-friendly. The valve is either vacuum or electronically controlled on all cars. The EGR has two settings: open or closed. Normally, it should remain closed when the engine is starting up, at low speed or idling. Once the engine reaches operating temperature it should open and allow gasses to pass BUT, unfortunately, it can become stuck over time clogged with carbon deposits that prevent it from operating properly.

### If It’s Stuck, It Does Not Suck

Stuck-closed valves don’t prevent creation of NOx, so the engine will heat to dangerous levels leaving a lot of unburned fuel into the exhaust system (you may notice a strong gas smell because of the increase in hydrocarbons leaving the tailpipe) and will certainly reduce your fuel efficiency. You may also experience engine pinging, tapping or knocking and that hated “Check Engine” will illuminate on your dash.

Conversely, a stuck-open EGR valve will allow exhaust air to flow back into the intake manifold before the engine needs it causing a rough idle, poor acceleration, hesitation when accelerating stalling or poor performance overall, as well as increased fuel consumption.

Clogged EGR valves can sometimes be cleaned but replacement is necessary if the valve is truly faulty. When it is ruined or not working, it must be replaced immediately since it directly impacts engine performance and emissions control.

If you experience any of the above symptoms, your mechanic can scan for trouble “codes” and find out whether this is the problem and if EGR replacement is necessary.

p.s. A faulty open or closed EGR can cause a failed smog test during your annual vehicle inspection.

### By The Way – Is It Something Else?

Just to make things more complicated, the above engine performance problems cited with open or closed EGR can also indicate problems in other parts of the engine:

- Bad spark plugs
- Bad spark plug wires or coil packs (whichever your engine model has)
- Plugged fuel filter
- Bad Fuel Pump regulator
- Various other engine sensors

Take care of your Miata and it will take care of you.

Zoom Zoom Safely!

*Gail*

### **DISCLAIMER**

*Please note these tips are not reviewed or approved by the Mazda Motor Corporation or any other corporation or entity other than the originator. The Midstate Miata Club of NY does not accept any liability for damage or injury as a result of utilizing these tips and pointers. Please use common sense and always remember safety first!*