

HAVE YOU LOST YOUR SPARK?

What you need to know about spark plugs

Hello, Fellow Miata Folks. When was the last time you either looked at or changed your spark plugs? They play a big role in starting and keeping your Miatas running smoothly. ☺

A Little History

An electric spark plug was first used in a gas engine in 1860!

Early patents included some from Nikola Tesla (you know him) in 1898 and Robert Bosch in 1902, the first commercially available high-voltage spark plug. These developments made the spark-ignition engine possible that we drive today. Other improvements were made by Albert Champion (you know Champion spark plugs) and a Guinness brewing heir, Keneim Guinness (I assume you know Guinness ☺). And yes, a woman, Helen Blair Bartlett, played a vital role in making the spark plug insulator in 1930. ☺

So What is a Spark Plug?

Our Miatas have four of them and can't run without them. The spark plug (plugs) function is to make a spark to ignite a compressed air/fuel mixture in the cylinder that starts the engine and allows it to continue to run. The spark plug is composed of a shell, insulator and central conductor/electrode. They are specified by size (thread or nut), sealing type, and spark gap.

What Does a Spark Plug Do?

The plug's metal shell is screwed into the engine's cylinder head and electrically grounded. The plug is connected to high voltage generated by an ignition coil and spark plug wires or individual coil packs in newer vehicles. As the voltage rises, the resulting gases become ionized. The ionized gasses become a conductor which allows current to flow across the plug gap. The spark's intense heat causes the ionized gas to expand quickly creating combustion that fires up your engine and pushes the piston down within the cylinder. As you drive, the plugs keep firing and igniting to keep the engine running. That they are so essential to vehicle operation, the condition of your plugs directly relates to the performance of your engine.

Replacing Spark Plugs

At one time it was common to remove plugs, clean deposits off the ends and file the end of the electrode to restore sharp edges but this practice is no longer recommended as modern high-temperature electrodes made of platinum or iridium have longer lifespans. Manual cleaning can cause a weak conduction path and weaken the spark. And plugs are cheap relative to labor cost. (Remember your dad removing, cleaning and re-gapping the family car's spark plugs? ☺)

The good news is that spark plugs are pretty durable and don't need to be replaced very often. BUT forget the 75,000 – 100,000 mile replacement in your owner's manual. Prudent Miatas owners change their plugs (and/or spark plug wires depending on year of Miata) every 30,000 miles or even sooner if ignition problems arise.

Thankfully, changing plugs (and spark plug wires if applicable on older Miatas) is pretty simple and can be done right in your driveway with a couple of socket wrenches and taking your time. If I can do it, you can do it. Otherwise, it's a fairly quick job for your mechanic.

Just make sure to use the recommended spark plug in your owner's manual. Spark plug coil packs in newer Miatas never need maintenance replacement unless they are determined to be bad for some reason which is unusual. Be forewarned: the OEM iridium spark plugs for newer Miatas are about \$14.00 - \$15.00 each. It's recommended you replace spark plus wires when you change to new plugs if you have an older Miata equipped with them rather than coil packs. They're usually under \$50.00 for four.

Signs of a Bad Spark Plug

You may notice that your Miata is idling rough (sounds rough and jittery when running at idle), misfiring (momentarily cuts out and feels jerky), surging (uncomfortable and potential dangerous) or engine “knocking” (this is very serious and can cause engine component failure). Or you may have trouble starting or notice it’s using a lot more gasoline than usual. Another common problem is lack of acceleration (a bad fuel filter will also do this). You or your mechanic can pull plugs and look for signs of fouling or carbon deposits, etc. to determine any additional problems. (p.s. In addition, reading spark plugs is a diagnostic tool for finding other problems in the engine, such as rich fuel mixture, carbon build up, shot rings, etc.)

This is another friendly summer maintenance reminder for your consideration.

Please be sure to check out my past tech and info columns on our Club website www.midstatewmiata.net under the TECH heading.)

Remember: Take care of your Miata and it will take care of you!

Gail

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