The Miata Car Battery

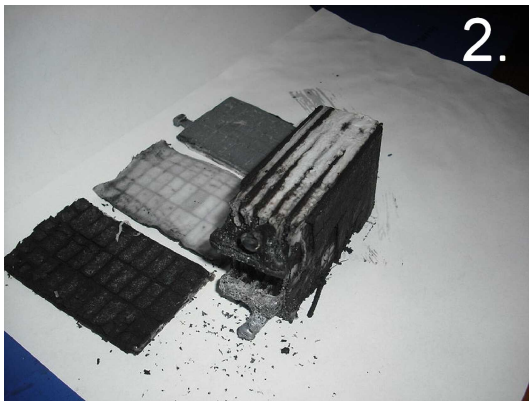
Be sure to replace with the correct type!

I recently had to replace the battery in my 2006 Miata. It lasted almost 8 years, so I guess I can't complain. The purpose of this article is to help Miata owners understand a little about the battery in your Miata, and to help you be sure to replace yours, when you have to, with the correct type. I will start with the 2006 and newer Miata, This will then make it easier for me to explain the difference in the batteries for the NA, and NB Miatas up to 2005.

The Lead–Acid battery was invented in 1859 by French guy named Gaston Planté and is the oldest type of rechargeable battery. In spite of it having a very low "energy to weight" ratio and a low "energy to volume" ratio, it has an ability to supply a high Surge Current. This feature makes it good for use in motor vehicles to provide the high starting current required by the automobile starter motor. This is especially important on a COLD winter morning, which I recently had confirmed to me.

A 12 volt battery has 6 cells. Each cell of a Lead-Acid battery has lead plates in it, and the cell is filled with Sulfuric Acid. See picture #1. The Sulfuric Acid reacts with the lead, and creates the electrical current to start the car. When charging this battery, the electrical charge current reverses this previous chemical reaction and puts the battery in a ready-to-use charged state. One good thing about this liquid cell battery is that you can confirm its state of charge by using a hydrometer. Just be careful of the acid while doing this.

The danger related to this battery is that it gives off Hydrogen gas during use, which is normally vented into the atmosphere. Hydrogen is VERY flammable and can explode in a confined space. This is why you will always see this type battery in the engine compartment where the vented hydrogen can escape into the atmosphere. As the battery is charged and discharged, and the hydrogen is vented, the water level lowers in the battery. This means it is important to remove the vented cell covers on occasion and top-off each cell with Distilled Water. Fill only to the bottom of each vent tube you will see when you look into each cell. NEVER put this type battery in the trunk of the earlier NA and NB series Miatas.



The earlier NA and NB series Miatas up to 2005 use a somewhat sealed battery called a AGM or "Absorbed Glass Mat" battery. The battery works like the lead acid battery explained above, but the acid is absorbed between the lead plates by a very fine fiberglass mat. See picture #2. This glass mat absorbs and immobilizes the acid while still keeping the acid available to the plates. This allows a fast reaction between acid and plate material.

The reason I said "somewhat sealed", is because the battery has a sealed pressure relief valve. If the battery is overcharged or stressed, the internal pressure can build up and open this pressure relief valve venting the hydrogen into the atmosphere. This is why the AGM battery in the trunk has a tube venting to the outside of the car. This safety vent tube is very important to keep clear.

The AGM battery has a very low internal electrical resistance. This, combined with faster acid migration to the lead plates, allows the AGM batteries to deliver and absorb higher rates of charge and discharge than other batteries during use. In other words it can deliver a higher power output per size compared to a liquid acid cell battery. This is why it was used in the earlier Miatas.

So if you need a new battery for your Miata, there are two things to consider. One is to make sure you get the proper “Type” for your year car. You need the AGM for the NA and NB up to 2005. Please make sure the vent tube is clear and hooked up when installing. You need the Lead Acid for the NC series, which is 2006 and newer. You can use a powerful enough AGM battery in the NC, if desired.

The other thing to consider is the power the Battery has for starting the car. Look for the Cold Cranking Amps, or CCA rating of the battery. This is the rating the battery is given to list the power it can deliver to start your car at a set outside temperature. CCA is an industry standard rating criteria for all car batteries. The higher the CCA rating the more “power” your battery can deliver on a cold morning. I found the NA and NB Miatas require a minimum 370 Cold Cranking Amp battery. There is a company in PA, just north-east of Reading, PA, named East-Penn Deka. They make a battery just for the Miata under the “Westco” name. You can order direct from them and they will deliver it to your door, or many of the local battery shops sell it. This is an excellent choice for the Miatas up to 2005. I know some of our club members have this in their Miata right now. Here is a link to their web page:
http://www.dekabatteries.com/

My 2006 requires a 410 CCA Battery. The Size of the NC battery is listed as “51R”. I found a 500 CCA “Duralast Gold” battery at “AutoZone” with a 5 year warranty and used a coupon I had to buy it. The extra power came in handy on these colder mornings commuting to work. Here is a link to the battery I bought, just for your information. Note the CCA rating and how it is listed:
http://www.autozone.com/autozone/parts/Duralast-Gold-Battery?itemIdentifier=330111

We all know before we can do any ”Zooming”, we need to get the Miata motor started. So I hope this article will help you when the time comes to buy a new battery for your beloved Miata.

Zoom-Zoom! Bill Latsha