

Dead Battery? If You Have One You Didn't Call Us ... Yet

How to Eliminate Your Battery Problems AND Stay out of The Hospital

When most people think about dead batteries and a car that won't start, they think of severe cold and winter weather. In reality, summer heat is the *real* enemy of automotive batteries. And, most battery problems start long before temperatures drop down or go up. A few simple steps can help you avoid the cost and inconvenience of a breakdown later.



Heat causes battery fluid to evaporate, which then damages the internal structure of a battery. In addition, a malfunctioning component in the charging system (usually a voltage regulator) allows too high a charging rate, which will eventually destroy a battery.

A Little About Batteries...

Automotive batteries come in all kinds of shapes and sizes, but their operating principles are similar. They are electrochemical devices that convert chemical energy into electrical energy.

When a battery is placed under a load (like when you honk the horn) chemicals are converted into electricity and current flows through wires to its destination.

Conventional Automotive Batteries...

A conventional 12-volt, lead-acid battery is made up of six cells connected in series. Each cell produces approximately two volts of electricity, creating a 12 Volt battery.

The cells are filled with an electrolyte which is an ionized bath of sulfuric acid, diluted with water to produce an electrical current when called upon.

Each cell contains plates which are grids of active materials, both positive and negative. The positive plates contain lead dioxide and negative plates are straight lead.

The plates are then formed into a plate *group*, which holds a number of plates of the same polarity (either all positive or all negative). The plate groups are alternated within the battery - positive, negative, positive, negative etc. There is usually one extra set of negative plates to "balance" the charge. To make sure the different plate groups don't touch each other, non-conductive sheets called separators are inserted between them.

The battery case is made from molded polypropylene and encloses all these components in one compact package.

Maintenance Free Batteries...

Maintenance free batteries are similar in design to conventional automotive batteries. They are really just a heavier-duty version. Components have thicker construction and more durable materials. For example, the plate grids often contain calcium, cadmium or strontium to reduce water loss and self-discharge. The heavier duty parts keep fluid loss to a minimum and components have a much longer life. The result is a closed system.

Safety Precautions...

Sulfuric acid is highly caustic so use extreme caution when working with automotive batteries. Sulfuric acid can burn clothing and the skin and even cause blindness. There is even a slight danger of explosion. Most battery professionals wear gloves and goggles or a face shield when working on batteries. If for some reason electrolyte gets on clothes or the body, it should immediately be neutralized with a solution of baking soda and water.

When Working On A Battery, Here Are Some Safety Tips:

- Always wear goggles or a face shield.
- Use a lead-lined or nonmetallic container to hold electrolyte.
- Always pour acid *slowly* into water, not water into acid.
- Stir as you add small amounts of acid.
- Never lean over a battery when charging, testing, or jump-starting an engine.
- Always disconnect the negative cable first and reconnect it last.
- Charge batteries only in well-ventilated areas.
- Never charge or jump-start a frozen battery; they must be warmed to at least 40 degrees Fahrenheit.

Speaking of charging, there are several different methods used to recharge a depleted battery. The most gentle of these is called trickle-charging. Other methods include quick-charging, slow-charging and boosting. But before you charge a battery, talk to a **Majestic Lube Technician**.

- Check the water level every couple of months. It should be just touching the bottom of the refill hole. Don't overfill the cells. Just to the bottom of the refill hole is perfect.
- Refill the battery when needed with distilled water. Don't use tap water, because it causes corrosion on the terminals.
- To ensure good connectivity, clean the terminals with a wire brush.
- When removing a connector from a terminal, twist it from side to side and pull gently upward. Don't excessively tug or pry on the connector.

- Before securing the connector, coat the post with high-temperature grease. This will reduce corrosion and rust.
- When connecting a connector to a terminal, seat it down firmly on the post. A few gentle whacks from a rubber mallet will do it. Don't over tighten and strip the nut.
- If you keep having electrical problems (battery dies, car won't start, power is intermittent or weak etc.) it may not be the battery. It could be the charging system, maybe a bad alternator or voltage regulator. A **Majestic Lube Technician** can test and isolate the problem.

Now, are the things mentioned above REALLY something you can remember or even WANT to do? At **Majestic Lube**, we take care of most of this for FREE as part of our 21 point inspection while we are changing your oil!