

## BMW Battery Registration

On late model BMW vehicles it is important to “register” a new battery when it is being replaced.

This process will increase the longevity of the new battery and will keep any battery and charging system warning lights off. The process can only be done with factory BMW scan tools or high end aftermarket tools like the Autologic. The battery control module charges a battery differently depending upon its age and the type of battery installed -- AGM (glass mat battery) or conventional (lead acid).

No longer are radio codes needed, as most modern European vehicles have V.I.N. Recognition through the onboard diagnosis system of the radio and the vehicle. If all computers have matching V.I.N. numbers, the radio will work automatically.

Codes in all systems should be scanned, documented and cleared, because a failing battery will usually set under- or over- voltage codes and possibly many other codes. Also, scanning is important to verify other settings that need to be updated or fixed due to the battery replacement. Steering angle sensors can require calibration; windows, sunroofs and convertible tops need to be synchronized for proper express functions. Gone are the days when major retail chains and gas stations can replace the battery in your vehicle. At Autobahn Performance Inc. in Fort Lauderdale, Florida we have the equipment and the training to properly service your vehicle.

*"Gone are the days when major retail chains and gas stations can replace the battery in your vehicle."*

**Models that require battery registration:**

- 2002 and newer 7-series E65/66 chassis
- 2003 and newer 6-series E63/54 chassis
- 2004 and newer 5-series E60/61 chassis
- 2006 and newer 3-series E90 E91 E92 AND E93 CHASSIS
- 2007 and newer X5 series E70 chassis
- 2008 and newer X6 series E71 chassis

This Service Function informs the vehicle that the battery has been replaced. It completes the following operations:

- Battery capacity is set to 80%
- Current Odometer reading are stored. The odometer readings at which the **last seven battery replacements** took place can be read off from the Diagnosis Requests of Control Unit Functions
- Stored battery statistics (current, voltage , battery charge level) are deleted
- Stored temperature statistics are deleted

### Absorbent Glass Matt Battery or AGM

At the time this was written (6/2010) most European manufacturers use black case batteries to denote an AGM battery and white clear plastic battery cases denote Lead-Acid. U.S. made replacement batteries do not follow this protocol and case color is not an indicator of battery type.

In contrast to conventional lead-calcium batteries, the sulfuric acid in an AGM battery is not held freely in the battery housing. The sulfuric acid is instead entirely bound into the mats of the glass-fiber fleece. For this reason, no acid can escape if the battery housing is damaged. In addition, the AGM battery is a sealed, airtight unit. This is possible because the gasses are converted back into water by the permeability of the separators.

#### Construction

AGM batteries differ from conventional lead-calcium batteries in the following points:

- Larger plates which allow a power density some 25% greater
- Glass-fiber-fleece separators which enable a cycle consistency up to 3x greater improving cold-starting ability, current consumption and service life
- Airtight housing with pressure relief valve
- Inspection plugs sealed and cannot be opened
- Acid bound in glass-fiber fleece

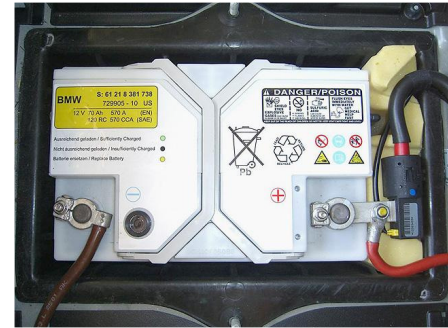


BMW AGM battery

### How AGM Batteries Work

AGM batteries differ from conventional lead-calcium batteries in their environmental compatibility and their retention of gases during charging. When a vehicle battery is charged, the electrolysis process emits the gases oxygen and hydrogen. In a conventional lead-calcium battery, these two gases are released into the atmosphere. In an AGM battery, the two gases are converted back into water: The oxygen created at the positive electrode during charging moves through the permeable glass-fiber fleece to the negative electrode, where it reacts with the hydrogen ions that are brought in with the electrolyte, to create water (oxygen cycle). In this manner, the gases, and thus the electrolyte, is not lost.

Only when the gas production is excessive, that is when too much pressure is generated (20 to 200 mbar), does the pressure-relief valve open, thereby allowing gas to escape while also preventing entry of atmospheric oxygen. Because the pressure in the battery is regulated by a valve, the AGM battery is also known as the VRLA battery (valve regulated lead acid).



BMW lead acid battery

### Service Instructions for AGM Batteries

When handling AGM batteries, certain special factors must be taken into consideration with regard to battery renewal and installation location:

#### Do not charge AGM batteries with more than 14.8 volts or use use rapid charging programs

When charging batteries the maximum charge voltage of 14.8 volts must not be exceeded. Even briefly charging an AGM battery with a charge voltage of more than 14.8 volts (voltages usually used in rapid charge programs) will damage the battery

#### Do not install AGM batteries in the engine compartment

Because of large temperature variations, AGM batteries must not be installed in the engine compartment. This would result in a significant reduction in the service life of the battery

#### Do not open AGM batteries

By no account should AGM batteries ever be opened, as oxygen from the atmosphere would cause the battery to lose its chemical balance and cause it to fail.

### Battery Replacement

An AGM battery, when installed as original equipment, must always be replaced with an AGM battery. In special cases, where a customer's driving profile (e.g. short distance driving), results in a discharged battery, the AGM battery is a recommended replacement.