

Hello,

Over the next several months we will focus on batteries, specifically the AGM battery. We will begin this month by discussing some battery basics.



Types of Lead Acid Batteries

There are two types of lead acid batteries, starting and deep-cycle. The starting battery is designed to do exactly that, start an engine by supplying large amounts of power for a short period of time. To accomplish this the plates inside the battery are constructed thinner than in a deep-cycle battery. This also means there are more plates in a start battery than in a deep-cycle battery.

Deep-cycle batteries are designed to deliver small amounts of power for long periods. Instead of thin plates like a start battery, deep-cycle batteries have thick plates. This plate composition is suitable for deep discharging a battery. Deep-cycling a start battery will result in warping and pitting of the plates, and premature failure.

A dual-purpose battery is made of plates with a thickness somewhere in between a start battery and deep-cycle battery.

Subcategories of Lead Acid Batteries

We often hear terms such as wet cell, absorbed glass mat (AGM), and gel cell. These are the different versions of the lead acid battery. Wet cell batteries are either serviceable or maintenance free. These batteries are basically the same except you can open up a serviceable battery and check the electrolyte. This also allows you to test the battery by checking the electrolyte with a hydrometer.

Gel Cell and AGM batteries are typically twice the cost of a wet cell and are among the safest lead-acid batteries you can use. They do not degrade or sulfate as easily as the wet cell. AGM batteries are often referred to as dry cell, non-spillable, and valve regulated lead acid. Don't get confused by all the names thrown around.

Construction and Features

The electrolyte in an absorbed glass matt battery is suspended near the plates active material. AGM batteries are typically used as storage batteries for applications such as solar, and in our case the electric APU. Although AGM batteries can be discharged to a depth of 80%, performance increases when discharge depth is minimized. AGM batteries hold their charge better than other battery types.

Understanding Battery Ratings

Do you know what CCA, CA, AH and RC mean when discussing batteries? To take some of the mystery out, they all relate to the output or capacity of a battery. How much power can the battery deliver, and how quickly can it deliver that power?

(CCA) Cold Cranking Amps – this is the amps (current) a battery can deliver at 0 ° F for 30 seconds without dropping below 7.2 volts. This is a critical factor when trying to determine how much power is required to start an engine in cold weather.

(AH) Amp Hour – This is a very important rating found on deep-cycle batteries. The amp-hour rating is determined based on a specific load applied to a battery over time. For instance, a fully charged 100 amp-hour battery can deliver 5 amps for 20 hours. What this means, say for a 100 AH rated battery is this: Draw from the battery for 20 hours and it will provide a total of 100 amp-hours. That translates to about 5 amps an hour. $5 \times 20 = 100$. This is not a linear relationship. If the load increases, the realized capacity decreases. In other words, at heavier loads, a 100 amp-hour battery is no longer a 100 amp-hour battery. For more information about this relationship, use Google to look up Peukert's Law.

(RC) Reserve Capacity – This is an important rating in deep-cycle batteries. It is the number of minutes a fully charged battery can discharge 25 amps until the voltage drops below 10.5 volts. This test is done at 80 degrees Fahrenheit.

Call technical support with questions. (920) 206-9333