

Ample Power Company

Which Battery?

Many Types of Batteries Exist

We're fortunate to live in an economy that offers abundant choices, however confusing some of those choices may be. Few are more confusing than the choice of batteries. No doubt you know someone who lights up every battery conversation with the subject of golf cart batteries, and another who thinks heavy duty 8Ds are electrifying. Others get charged up talking about gel batteries, while some offer weighty opinions about traction batteries. Just what are the positives and negatives of the different types?

Batteries are Purpose Built

The concept of 'purpose built' is useful to describe the differences in battery designs. Just like a hydroplane isn't the best of cruising boats, not all batteries are built for repetitive deep discharges and fast recharges. Battery technology appropriate for service in backup systems does not perform well under the above circumstances.

Starting Battery is Simplest Type

The simplest, and least expensive battery is the starting battery. It is constructed with many very thin plates. The combined surface area of the many plates allows high currents to flow through the battery . . . great for the purpose of starting engines. The starting battery can't be deeply discharged without a significant risk of destruction. A recent study showed that no starter battery survived more than 18 deep discharge cycles . . . most survived no more than 3 deep discharges.

Deep Cycling Requires Thicker Plates

To enable deep discharges, the plates must be made thicker and the insulating separators made from more expensive materials than the paper used in starting batteries. Thicker, but fewer plates means that the battery won't sustain as high a rate of current, but will permit deeper discharges without imminent failure. Golf cart batteries and heavy duty 8D units are thus designed with the purpose of supplying moderate currents for sustained periods. They aren't a true deep cycle battery, however, and should be charged soon after any extensive discharge.

By making the plates thicker yet, and using expensive fiberglass matte separators, a battery can be made which provides a great many deep cycles . . . 400 or more 100% discharges. This kind of unit is called a traction battery and will cost several times as much as golf cart batteries in the same capacity range. Batteries made by Surrrette and Rolls use very thick plates and offer great longevity when low rate discharges are followed by long slow charges.

Gel Units are Lead-Acid

Gel batteries use the same lead-acid chemistry of conventional liquid units. The acid is captured in a silica gel. Other sealed batteries capture a small amount of acid in a fiberglass matte separator. When deeply discharged, the active material in liquid units tends to wash out of the plates and fall onto the floor of the battery. Because there is no liquid to slosh around the plates of a sealed battery, plates can be made thinner and still withstand deep discharges. A gel battery is thus capable of high rate charge and discharges, and offers a great many deep discharge cycles.

Choose Battery Type of Use

The battery you choose should match the way you use it. The very thick plate liquid batteries can provide years of trouble free service if they are used mostly for weekend trips where most of the recharge is done at dockside using a small charger. That is, low rate discharges and long slow charges. If you stay out for longer periods and use a high output alternator or battery charger on a daily basis to recharge, then golf cart or heavy duty 8D batteries are appropriate. They'll take a daily discharge and accept a fairly high rate of charge so that you won't need to run a genset forever. Expect to replace the units frequently if used extensively.

Gel Batteries can Charge Fast

The ultimate battery is the gel unit. It will accept a very high rate of discharge and charge. Its charge absorption rate is twice that of a liquid battery . . . with an alternator or battery charger of sufficient size and smart regulation, daily charge can be a one hour affair.