KEVO'S BOATING TIPS & MORE

BY KEVIN O'LEARY

Marine Batteries

Like most experienced boaters, I get extremely "cranky" when my boat's engines won't crank over because the batteries are dead. (Excuse the pun.) The fact of the matter is batteries and boats don't get along. Or, to put it more specifically, electricity and boats don't get along.

The most frustrating thing about it is marine batteries are so fickle. One day the boat starts perfectly, the next day (or even the same day) the batteries are dead. One of the first recommendations I give my clients at Pacific Powerboating who have purchased a used vessel is to change out the batteries if they are not sure how old they are. In addition, check all electrical connections from the ignition key to the starter battery for integrity. If you don't, you may be in for a cranky surprise.

Our yacht, *Her Way*, has a total of nine batteries onboard. Yes, that's right… nine! So what the heck am I doing with nine batteries you ask? Well, the biggest one, an 8-D starting battery, is a 135 lb. 225 Amp-hour monster that turns over my Hino diesels like nobody's business. Next are the "house" batteries, which consist of two 6-volt deep-cycle golf cart batteries in series. Then there's the killer inverter system. (An inverter converts DC power to AC power.) We have four 6-volt deep-cycle golf cart batteries in two separate packs linked in series dedicated to the inverter system. Our 8-kilowatt, Westerbeke diesel generator has its own dedicated starter battery just in case everything else fails. Finally, I carry a portable "starter kit" and jumper cables long enough to reach all batteries on the vessel just in case. A bit "anal" you say? Oh, a tad! But enough about my batteries…

Deep-Cycle Batteries

Deep-cycle marine batteries are used to power 12-volt electrical devises on a vessel when no other power source is available (e.g. shore-power, engine alternators or solar panels.) Commonly called the "house" batteries or "auxiliary" batteries, deep-cycle batteries feature thicker plates with a high content of antimony. These batteries are designed to be completely discharged and be capable of charging back up to full power (many times).

Recently, many recreational boaters such as myself have turned to golf cart batteries to fulfill marine deep-cycle battery needs. Golf cart batteries take a brutal beating in the course of their lives. They are used day in and day out all day long, up and down hills, and are often completely discharged from use and then charged back up to full capacity. Their durability and reliability make them a good choice for the harsh marine environment. It takes two 6-volt golf cart batteries arranged in series to provide 12-volt power for marine use.

When choosing a deep-cycle battery, one should focus on capacity and longevity (not brand name). Battery capacity is measured in "Amp-hours" (Ah) and "reserve minutes." Amp-hours measure the total amount of energy that a battery can deliver for 20 hours at a constant rate of discharge before the battery drops to 10.5 volts. This means that a 200 Ah battery can run 10A load for 20 hours (200 divided by 10 = 20). The reserve minute rating is the number of minutes that a battery can run a 25A load before dropping to 10.5V. (Amp-hours are generally the key rating for deep-cycle batteries.) While capacity measurements are helpful when sizing batteries to their task, marine batteries should also last a long time. "Life cycle" shows how many times the battery can be 100 percent discharged and then charged back to full capacity over its lifespan. This measurement is the key difference between starter batteries and deep-cycle batteries. Starter batteries can withstand only a few deep discharges before they will likely fail.

Battery Safety

Many owners of diesel-powered vessels are rather blasé about running the "blower" before starting diesel motors. (The blower ventilates the engine compartment before starting the motors.) The logic here is that diesel fuel ignites at a much higher temperature than gasoline. Therefore, the chances of diesel fuel vapors in an enclosed engine compartment exploding are deemed to be remote.

While this may be true, one should still use the blower before starting diesel motors. Why? Because wet-cell batteries (batteries with caps that need distilled water to generate a chemical reaction in order to produce energy) "vent" a very volatile mixture of oxygen and hydrogen gasses. Overcharging exacerbates the venting of these gasses. Overcharging is often the culprit in marine application battery failure due to the water level going too far down. If this mixture of gasses is exposed to a spark, it could lead to a nasty explosion. The release of gasses from wet-cell or flooded batteries means you need to "top off" the distilled water level in every wet-cell battery on your vessel every month or two. Failure to check battery water level at least bi-monthly can decrease the lifespan of wet-cell batteries dramatically.

Deep-Cycle Battery Capacities

Battery Size	U1	24	27	31	4D	8D
Ah	30	70	90	100	180	225

Wet-Cell (Flooded) Battery Care Tips

- Add distilled water when needed. Check with a flashlight to see if water is covering plates. If not, add distilled water.
- Place batteries in the coolest location possible. If you are uncomfortable (too hot), your batteries won't like it either and battery life will be diminished.
- Secure batteries to the vessel and keep them upright in containers specifically designed for marine use.
- Never mix new batteries with old ones in the same bank. Old batteries tend to pull down the new ones (in series) to their deteriorated level. (I hate that!)
- Check all terminals for corrosion. Wire brush and clean corroded terminals with a paste of baking soda and water.
- Apply dielectric silicone compound to all battery connections.
- Stay with one battery chemistry (flooded, gel or AGM). Each battery type requires specific charging voltages. Mixing batteries can result in undercharging or overcharging, and may require you to change all batteries.

As always, feedback is appreciated. You can reach me at 925/890-8428 or kevo@yachtsmanmagazine.com. Be safe and happy boating.