Batteries That Die Young

Steve,
I have just replaced my house battery bank, and the (flooded) batteries were only three months old! The AGM batteries before those lasted for four years of cruising. I'm pretty careful with my batteries, I watch my battery monitor closely and I've read the books and specs on how to take care of them. What could the problem be?
Jim

Jim,
Go through the checklist below, as honestly as you can. If you are innocent of any of these battery killers, then you probably have some batteries that were poor quality to begin with. It's easy to end up with poor batteries due to the "label game" that goes on, which keeps you from knowing exactly who is making the batteries.

Battery Killers:

- Overcharging: If you've been cruising, then it's unlikely that you have overcharged your batteries. If you spent a lot of time on the dock, then you have to make sure that the battery charger doesn't keep the voltage over 14 volts more than a couple of house at a time.
- Undercharging: A cruiser is often tempted to stop charging before the job is done, because of the noise and fuel consumption of the engine. If you get the voltage over 14 volts and wait for the current to drop significantly, at the end of most of your charges, then you are OK.
- Excessively deep cycles: With high quality batteries, this killer might not show itself in three months. You should rarely, if ever, see voltages below 12 volts.
- High temperature: If your batteries are in a hot engine room, or are well insulated from outside air, you are drastically reducing the life of the batteries. This is especially true if you don't have a temperature compensated charger.
- Poor Maintenance: If you use flooded batteries, you have to make sure that the water level is maintained. Only top-off the batteries just after they are charged. The water level rises in the batteries during charging and can overflow if you fill them before charging. Make sure you use distilled water.
- Lack of vigilance: If you live on the boat and pay attention to the battery monitor, then you are probably OK. If you leave the boat for long periods on a dock with a charger running, you don't really know what has happened.

If you can honestly excuse yourself from any of these "Killers" then you probably have wound up with poor quality batteries. In my opinion, when it's time to buy batteries for a cruising boat, you have to go to a good battery shop and talk over the current "label game". Find out who is making the batteries behind the labels "dejour". Use the fact that you are buying a lot of batteries and that you are willing to shop around to get a good deal. Don't look for a deal in the Sunday paper on big trolling motor batteries that seem to have a reputable name on them.

A cruiser puts demands on batteries that are so far beyond the demands of most other applications that you really can't rely on "reserve minutes", "cold cranking amps", "marine cranking amps", long warranties, or most anything else they have to say. What good does a five-year warrantee do you when you are way-way out "there"? You will find the shortfall in batteries that are almost never detected in a weekender bass boat that uses trolling motor batteries. Those guys charge the batteries, whenever they can and never have a battery monitor that can tell them what kind of performance they are really getting. Once they have a lapse of attention or maintenance they will destroy either a good quality battery or a poor one, and will replace it regardless. A cruiser will carefully demand all the performance that the batteries can provide allowing for just enough excess capacity to achieve an acceptable lifetime. Battery companies should pay you technical cruisers for the data you collect!

The only common application I can think of that really puts batteries through their paces on a regular basis, is in golf carts. Golf course managers maintain a lot of golf carts and they will not continue to buy batteries that

don’t make it through two rounds of golf per day, for as many years as possible. That’s a workout! This high volume industry has created a real commodity market for deep cycle batteries. If you can provide the ventilation and maintenance needed for flooded batteries, go with golf cart batteries. You can’t beat the bang for the buck.

I’m curious why you’ve had both flooded and AGM batteries. There isn’t really a good case for the use of sealed batteries unless you have a lack of ventilation, a lack of maintenance access or strange mounting positions. AGM’s are best when you need a sealed battery bank that is small, yet must provide high current for short periods. These are great as motor start batteries or as bow thruster batteries. AGM’s have the shortest lifetime, measured in charge-cycles of any of these batteries. If you got four years from a set of AGM’s then I know you know how to take care of batteries.

Stephen Sommer is a degreed electrical engineer with extensive experience in electrical, mechanical, refrigeration and air conditioning systems and holds a USCG Masters license. He consults in all areas of yacht systems, which include all the equipment on board yachts beyond a basic hull and motor or sails.

Have a systems problem or question? Ask Stephen Sommer. Email: steve@boatek.com