

# Winter Battery Maintenance

By Peter Nielsen • Posted: Jan 27, 2010



A few years ago, I left my boat's two lead-acid batteries on board over winter. It wasn't intentional—an early snowfall led me to cover the boat up sooner than anticipated, and I just never got around to taking the batteries off.

After three months of freezing New England winter, I suddenly remembered they were still on board. I snuck down to the yard one mild Saturday and hooked the batteries up to my trusty 6-amp charger. Next day, I returned to find that both had refused to accept a charge.

Now, the batteries were on the boat when

we acquired it a few years earlier, and it may be that their allotted time on Earth was up. On the other hand, I may have killed them with neglect.

Anyway, that spurred the decision to upsize the house battery bank, which now has a pair of 90Ah deep cycle batteries, while I bought a new 60Ah cranking battery for engine starting. This wasn't an inexpensive exercise, and I determined to look after my investment.

So, for the last three winters, I've taken the batteries off the boat and transported them home to the depths of my basement. There, I place them on a piece of plywood to insulate them from the concrete floor, and I hook them up to a charger. The three-stage electronic chargers that are widely available from automotive and marine stores do a much better job of keeping your batteries charged than the older ferroresonant chargers; these had a habit of boiling a battery dry if left on after the battery had reached full charge. Electronic chargers switch off automatically when they sense the battery is fully charged.

I used one of these chargers—made by Black & Decker—over the first winter. It charged at 10/6/2 amps and switched itself automatically to float mode. It seemed to work OK, but even though it had overcharge protection I was nervous about leaving it connected for long periods of time.

Then I was sent a new kind of charger to try out. Battery chargers all use a variant of "pulsing" technology—alternating high and low voltage—to charge the battery.

These sine, square and negative pulse waves all have limitations, among them the fact that they do not address the problem of battery sulfation—the electrolyte crystallizes and adheres to the lead plates. This is a natural byproduct of battery use, and it impairs battery efficiency and in time leads to its demise. Marine batteries are prone to sulfation because they are often left only partly charged.

The Xtreme Charge Marine uses what it calls "pulse waveform" technology that actually cleans up the battery plates by breaking down the crystals and returning them to the electrolyte. The result is a battery that lasts longer and operates at a higher efficiency. The makers, PulseTech, claim that battery life is much extended.

For the past two winters I've use the Xtreme Charge on my domestic and cranking batteries, and they've remained in tip-top order. They've been quick to come up to capacity during the summer, and with a small solar panel to keep them topped up between weekend sails, they have seldom registered below 12.6 volts and often up around 12.8.

The Xtreme Charge bulk-charges at only 2.5 amps. Microprocessors detect the charge level and when the battery is fully charged it administers only the amount of current necessary to keep it that way, from 200 milliamps to the full 2.5 amp bulk charge. It works on gel and AGM batteries as well as flooded batteries.

Various units are available for different purposes, with the circuitry in each tweaked to suit the

