

Getting the Most Out of Wet-cell Batteries

Charging and discharging improperly are the most common causes of short life and premature battery failure, but starting with the right batteries is everything.

For house bank applications, batteries with thick plates designed for deep discharge cycles are needed. Unfortunately, batteries of all kinds now sport the deep-cycle label. Some thin-plate versions are billed as combination deep-cycle and starting batteries. Others are just automotive batteries with a marine label. True deep-cycle batteries are available, but you must ask. Several big names in the battery industry offer excellent marine deep-cycle batteries, but frequently, battery dealers offer lesser versions sold under the same label. A little research will go a long way here. Don't hesitate to contact the manufacturer directly for information on selecting batteries for deep-cycle service.

Sizing the battery bank correctly is important. Deep-cycle batteries only can be discharged to 50 percent of total capacity without the risk of permanent damage and shorter battery life. On a daily basis, it's common to only charge to 85-90 percent, particularly when the engine is used for charging. Charging to 100 percent requires an intolerably long engine run, and it's just not practical unless you're motoring anyway. This means that only 35-40 percent of the house bank's capacity is available to support loads between charges. If the battery bank is too small, it's easy to frequently drop below the 50-percent mark. A good temperature compensated battery hydrometer/density meter can help keep track of specific gravity. This, along with a high quality battery monitor should help you track battery state and charging regimens.

Poor charging habits contribute to poor battery performance. Temperature-compensated three-stage chargers and regulators do the best job of regulating the charge voltage, but you have to do your part. For maximum life, flooded-cell batteries need to be regularly brought to a full charge (at least each month), and should be equalized as needed. This isn't always easy to do when cruising, but alternate energy sources



The Trojan T105s wired in series have proven a durable combination aboard Balæna.

like wind and solar power can ease the task by bringing the charge up the rest of the way after the engine is shut down, if onboard loads are light enough. Many cruisers with high power loads find the ideal re-charging impractical, and cycle the batteries between 50 and 80 percent with only infrequent full charges. Shorter battery life is an accepted consequence.

Flooded cells give off a small amount of vapor at the end of the charge cycle when some gassing is common. Overcharging prolongs this process and reduces the electrolyte or water level of the battery fairly quickly. Regular checking and servicing of the battery electrolyte is essential with flooded cell batteries. A charging system that reverts to a lower voltage or float mode when the batteries are fully charged will help to minimize loss of electrolyte due to gassing. Vapors created by charging are both explosive and very corrosive. Battery connections must be kept clean and coated with a good anti-corrosion lubricant to prevent corrosion. Among a whole host of other evils, corroded connections can adversely affect the operation of the battery monitoring and charging system.