

# Battery Basics for Your RV



*By Ken Freund*

Batteries are essential for unplugged camping, yet they often get no attention until there's a problem, which is often too late to save them. Here's a quick primer:

Popular RV batteries come in three basic types: Conventional flooded electrolyte, gelled electrolyte and absorbed glass mat (AGM).

Flooded batteries have been around the longest, are most often supplied as original equipment and offer good capacity at moderate cost.

Gel batteries use a jellied electrolyte between the plates instead of a liquid, which costs more but won't spill if tipped over, and they don't require periodic refilling with water.

AGM batteries are more expensive but are maintenance-free, as the electrolyte is absorbed in matting wrapped around the internal lead plates.

RV batteries come in either six- or 12-volt ratings. Each cell has a nominal two volts, grouped together to form 6 or 12 volts. Six-volt batteries must be installed in pairs and wired in series so their combined voltage will be 12. Six-volt golf-cart batteries generally provide the most energy storage per dollar.

If used in pairs, 12-volt batteries must be wired in parallel (+ to + and - to -) so that their voltage remains at 12. When 12-volt batteries are used in pairs and wired in parallel, the stronger one will discharge into the weaker one.

RV deep-cycle batteries can be discharged and recharged more often and to a "deeper" level than lighter duty engine-starting batteries, which won't hold up well if used as deep-cycles.

## **Battery life depends greatly on proper care and charging:**

- Discharges of more than 50% of capacity shorten battery life.
- Don't leave a battery at a low state of charge; recharge as soon as possible.
- Make sure charging voltage is within specifications.
- Many power converters will damage batteries if they're left on for long periods, such as during storage. Use a "smart" automatic voltage-regulated converter.
- Batteries discharge over time, and RVs have parasitic current draws. Disconnect the batteries and use a special maintenance-type charger during storage (not a converter or trickle charger).
- Batteries with removable caps need periodic checking and refilling with distilled water.
- In hot weather and when frequently cycled or overcharged, batteries will use more water.
- If the electrolyte level drops below the top of the internal plates, the battery may be damaged.
- Clean corrosion from terminals.



## **Ratings**

Ampere-hour (A-H) capacity is calculated by multiplying the current in amperes that the battery can deliver by the time in hours of discharge until voltage drops to 1.75 volts per cell (10.5 volts for a 12-volt battery).

Reserve Capacity (RC) is the time in minutes that a fully charged battery can be discharged at 25 amps until reaching 1.75 volts per cell.

Cold cranking amperes (CCA) equal the number of amperes a fully charged battery will deliver at 0°F for 30 seconds and maintain at least 7.2 volts (for a 12-volt battery). Cranking ratings are mainly important for engine-starting batteries.

**Precautions**

- Wear rubber gloves and eye protection when working with batteries.
- Batteries produce hydrogen gas that can explode from sparks from loose terminals and improper jump starting.
- Connect the last jumper cable negative clamp to a clean metal ground on the chassis, rather than to the battery.