

Batteries and related matters

PART 3

The first two parts of this article were published in the October and November issues of *ARVM ONLINE*. We will now discuss battery positioning and maintenance and other related matters.

BATTERY POSITIONING

If possible, RV batteries need to be in an inner compartment. (A battery loses 30% or more of its capacity in cold weather.) Most batteries need to be vented as well. This can cause problems when using the next best thing to the giant batteries mentioned in part 2 - pairs, in series parallel, of 6 volt fork lift or golf cart batteries. These weigh more and are taller than standard batteries. So, when they're crammed into an existing compartment, very often it is very cramped and servicing them can be difficult. Most RV battery compartments don't allow for servicing 'normal' batteries either.

If you only need two batteries, it's not too much of a problem. You can build a slide-out tray (that probably won't work well), ignore your batteries (the usual solution) or build a better compartment. You can build an insulated battery box on the tongue or bumper for two (maximum 4), but pay attention to what you're doing - no heavy plywood, certainly no particle board.

An aluminum frame, with aluminum flashing can make a watertight box that weighs little. Lining it with urethane, aluminum-coated foam is effective and also light weight. You'll need a plywood bottom, covered with aluminum, vinyl or fiberglass since batteries weigh about 60 lbs each. A spray of vinyl undercoating (fibreglass gel coat if you know what you're doing) will acid proof the interior.

Best is to put the batteries inside the coach in a vented (if necessary) compartment.

WHICH TYPE OF BATTERY DO YOU FIT

An example: I use six, true gel-cell batteries. The same size as Group 27 (105AH) RV batteries but much heavier. Venting isn't necessary (if they ever gas, it means you've got other problems). The batteries are easy to get to, stay clean and are temperature consistent. Wiring is simpler. 'Basement' style trailers and motor homes can easily do the same thing, with batteries well protected but outside the living area. A further example: In my travel trailer I had six golf cart batteries under the kitchen sink (in a vented compartment). Easy to get to and maintain and, again, temperature consistent as well as clean and easy to phiddle with. Get creative.

Here are two alternatives when using regular or golf cart batteries in a tight place (neither totally successful): Some people attempt to solve the non-access problem to batteries in a small compartment with the use of 'battery bobbers' (clear plastic caps with floats inside) that let you peer inside and estimate water level. A help, but some bobbers stick and some leak and sink (that's the way things work now days). There's still the matter of not being able to use a hydrometer, though one can keep a



pretty good eye on battery performance with a digital voltmeter (if you take the time to learn what you're doing). If the compartment is too tight, you can peer in and get an idea of corrosion, but only with great difficulty and with crud being spread around (and with spectacular pyrotechnics when you short your wrist watch or ring to ground).

At this point some people buy 'Hydrocaps' (not to be confused with bobbers) which cost about \$7 each, but really do reconstitute vapour and prevent loss of fluid and gassing. Hydrocaps aren't foolproof. If the battery is seriously overcharged and overheats, the caps can melt down and the battery burst open. Catastrophe time!

MAINTENANCE-FREE BATTERIES SUIT TIGHT SPACES

Back then to two choices: Put the batteries where they can be serviced or use maintenance-free batteries. You say, 'I've heard all about those lousy things that die in 18 months.' Fact is, they weren't really lousy, just very shallow cycle batteries. Had the manufacturer told us this (that they shouldn't be deep cycled), that problem wouldn't have resulted. Also, these batteries (sealed wet-cell batteries) shouldn't be overcharged much above 14V because they will gas and fluid can't be added. No real problem there either - if people know it. These 'wet' (fluid filled) sealed batteries have for the most part been written off by serious RVers. Not so much because of the shallow cycle (because in a properly sized system you'll almost never deep-cycle your batteries anyway) and not because of the critical voltage limit (because in a good system you'll have an adjustable regulator that prevents overcharge), but because they aren't really maintenance free, they are maintenance prohibitive. They are vented, they can gas and when they do, there's



nothing you can do about it except watch them deteriorate. True gel batteries have this same fault, but perform so well many think they're worth the extra care needed.

There are some so-called maintenance-free batteries that aren't really sealed. You can remove the caps and add fluid. The caps do reconstitute some of the vapours and return fluid to the cells. (Call them maintenance friendly?) On these, the caps can be removed and fluid added and specific gravity checked. In most cases though, the holes through the case (when caps are removed) do not have any ridge around the edge to prevent crud from going into the cells. Cleaning these is difficult as any acid remover (baking soda) that gets into the cell will neutralise it. Most of these batteries are intended as engine starting batteries. They're not generally recommended as 'house' batteries unless the RV is driven frequently or on hook ups most of the time because they have a very few deep cycles in them. (I had one, in the small, Group 24 size, bought in 1980 for just a few dollars. In almost constant use as a tool battery and charged with excess energy from the solar system, it remained clean and held a full charge after over 7 years. The secret? Maintenance and careful charging.)

Some of the batteries I've tested: For over a year, I tested three 'sets' of batteries at the same time, using each on alternate days. 2 Sears Die Hards, 2 Goulds ActionPac, 2 Trojan T-105 golf carts. I won't go into detail here. Conclusion was

that the Golf Carts were superior in every category (including cost). I wouldn't hesitate to use golf carts (or better yet the L-16 Fork Lift batteries) again if I had enough room for the bank of six that I need. For over two years I tested a bank of six 'StowAway/Watchman' sealed, wet cell batteries. Maintenance prohibitive, but with careful charge regulation there was little or no gassing and when I disposed of them, all were as good as new. I then used a bank of 6 golf cart batteries for over 5 years. They were as good as new when I changed RVs. I then used 2 'Delco/Voyager' maintenance-friendly batteries. They worked and didn't cost much. They began to gradually degrade after two years.

I have now used, for over ten years, six Sonnenschien / Dry Fit Prevailer / Deka true gel-cell, sealed batteries (not sealed wet cell batteries). They perform better than any batteries I've used. However, you must never overcharge these batteries. They cost about \$175 each at discount and up to \$300 retail. They must, therefore, be protected by an excellent regulator and charging system (more cost). I have no doubt they'll last another 10 years if I take care of them.

SUMMARY

If you have a large bus (not just a motor home that looks like a bus), you should investigate the massive, industrial batteries. If you have a reasonably-sized motor home or trailer, consider the fork lift (Trojan L-16 or equal) or golf cart

("Trojan" 105, 125, 145 or equal) - assuming you have a place to put them.

'Exide' and 'Interstate' also manufacture good golf cart batteries. If space is minimal, cost is no object and reliability is important, consider the true gel cell batteries. 'Sonnenschien/DryFit Prevailer/Deka' are excellent. Exide, Dynasty (from Johnson Controls Corp.) and Interstate do make true gels at a lesser cost, but they are not as good in my opinion. (They're trying to compete and doing so with lighter - thus cheaper - material.) Eventually, they will produce batteries as good as Sonnenschien (Sunshine in German). Finally, there's the RV/Marine, so-called, deep cycle batter) They're cheap and should last 3 to 5 year if you take care of them. (Keep in mine that RV/Marine usually means an] battery with a rope tied to it.) I do not recommend sealed, wet-cell batteries (the disadvantages of true gels with none of the advantages). Many of the batteries mentioned above will not be available in the UK. Always source the best quality deep-cycle batteries and never use any type of automotive batteries, except for engine starting.

ARE HIGHER PRICE BATTERIES BETTER VALUE?

The answer is, not necessarily! You can purchase low cost lead batteries which will serve you well for at least 12 months and even if you have to replace them more often than the more expensive ones the overall cost may not be any more.