Lithium ion battery for rv

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If you’ve ever considered switching your RV to lithium batteries, you may have thought (as many people do) that it’s as simple as removing your old lead-acid dinosaurs and dropping in some great new lithium batteries. We wish it was (always) that easy, but there’s more to consider.

While switching your RV to lithium batteries (Lithium Iron Phosphate or LiFePO4 to be specific) is a fantastic upgrade, it can also require changing the settings on other components… or even replacing those components with new ones designed to work with lithium batteries.

In this post, we’re laying out all you need to know to make the switch from lead-acid batteries to lithium batteries to power your RV with the latest in battery technology.

If you’ve been using lead acid, AGM, or gel batteries in your RV and are considering switching to lithium batteries, you’re probably aware that there are many advantages to LiFePO4 batteries that make the switch worthwhile.

Lithium-ion (LiFePO4) batteries generally offer numerous advantages over typical lead-acid/AGM/gel cell RV house batteries. Following is a quick summary of how switching to RV lithium batteries can be beneficial:

Lithium-ion batteries have greater energy density (the amount of energy a battery stores, given the space and weight), so you get more energy for the same amount of space.

Fewer batteries are required to store the same amount of energy (or more). Since lead-acid batteries can only be drained to (at most) 50% of their capacity without harm, you may only need half as many lithium batteries for the same usable power. The same is true if your RV has a bank of 6V batteries. In this case, each pair of 6V batteries could be replaced with a single 12V lithium battery (more on this later).

Lead-acid batteries require maintenance (please see our post on how to maintain flooded lead-acid batteries) while LiFePO4 batteries are maintenance-free.

Lithium batteries have an extremely steady voltage curve across their charging/discharging profile. This means that as they’re drained, their voltage output stays steady… unlike lead-acid batteries where the output voltage drops fairly steadily as they’re drained.

Lithium batteries charge much faster because they accept a very high charge current, while also having less internal resistance to charging. In contrast, lead-acid batteries require a longer, slower charging cycle (with Bulk, Acceptance, and then Float phases) to reach 100% state of charge (fully recharged).

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Lithium-ion batteries are far better able to sustain deep discharges without damage, compared with lead-acid batteries which can be damaged when discharged below 50% of their useable capacity (i.e. a 200 Ah lead-acid battery should only be drained down to 100 Ah, to avoid damaging it).

While a typical lead-acid battery generally lasts 2-6 years (depending on how it’s used and maintained, the brand, etc.), lithium-ion batteries are often guaranteed to last 10 years or longer (while retaining at least 80% of their original capacity).

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