CASE STUDY

Reducing weight in a Racing Catamaran

This project involved the following LBS components:

- 1 x 12V 200Ah lithium battery for house power
- 1 x 12V lithium battery for engine starting
- 1 x remote monitoring screen
- 1 circuit breaker for winch connection
- 1 circuit breaker for parallel connection to start battery

In the world of yacht racing, weight is everything. By stripping the weight of a man (~75kg) permanently from the vessels makes the boat faster, simple as that.

The challenge was to integrate the two batteries into the vessel as a working system and ensure everything worked as before and also incorporate a new electric sheet winch into the design.

The catamaran has two motors. A Diesel inboard motor and a petrol outboard motor. Used for different purposes but both being started from the single start battery. The current 25kg lead based start battery was replaced with a lightweight LBS 12V Start Battery which weighed under 8kg but still packed ample punch to start both engines. A special feature was incorporated into the design so that even if the start battery was too flat to turn on, a special Anderson key can unlock the last blast of power. This is the equivalent of a reserve fuel tank in the battery for emergencies. The current system of being able to put the house and start circuits in parallel also meant you could start the motors from power in the house battery. This gave a Plan B and Plan C. Every yachtsman will tell you, the more contingency plans in place the better for when the situation turns foul.

The catamaran had 4 permanently fixed solar panels and the current Victron Solar controllers were left in place. It was broken into 2 strings with a controller per string.

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The house circuit supplied power to all the standard loads on a yacht of this type including lighting, communications and navigation equipment. The previous batteries were 3 x 120Ah AGM batteries (100kg). These were replaced with similar usable capacity in the form of a 200Ah lithium house battery (25kg). This is where the majority of the weight reduction was able to come from.

A new electric sheet winch that draws up to 100A under load was part of the upgrade. The power to this new winch and was supplied by the new Lithium house battery. The house circuits had the ability to be put into parallel with the start circuits and accept charge from the alternators of the two motors when underway or from the solar panels. This vessel had a good ratio of collection to storage and a good ratio of storage to load usage. It could maintain full functionality for many days without requiring incoming charge.

The remote monitoring screen was mounted in the main cabin to provide a simple fuel gauge of the battery storage and other information including time to empty or time to full.

LBS-12200-ME-AIP
12V 200Ah Lithium Battery

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