

Electric Conversion for a Marshall Sanderling

Written by Ed Sherman

Tuesday, 22 November 2011 17:44 -

I received a great query several days ago from one of our readers who has a very cool project in mind. He's asking some questions that should be shared.



Marshall Sanderling

Eddy writes:

Hello Ed,

I am about to pull the trigger with a mastervolt 2.5 kw on my 18' Sanderling catboat. I am also worried about runtime ie range. any updates? Looking to put 4 valence lithium Iron Magnesium phosphate 12v 138ah batteries. Any thoughts would be greatly appreciated. Thanks Eddy

The updates Eddy are referring to have to do with an article posted here last year talking about the Alerion Electric project that I got to follow through the build precess and report on. The basic story on that particular boat is that Vincent the owner ended up doubling his battery capacity over the original design (two Mastervolt Lithium ION units) to gain more motoring range for his

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boat.

So, let's take a quick look at a how we can figure this out. First of all, Eddy is on the right track with the selection of the Mastervolt 2.5 kW drive motor for his boat. Mastervolt recommends 2.0kW for sailing craft less than 6 meters in length. So, Eddy is more than OK on that front.

Now, to the question about the Valence batteries..... Nothing against Valence, but if it were me I'd be inclined to take a systems approach here because Mastervolt offers both LION and really good AGM batteries that can be matched nicely to both the motor drive and a suitable Mastervolt charger. We'd have to work the numbers here on component costs.

Anyhow, to Eddy's question about the capacity of the batteriees, using Mastervolt's factor of 4.6 X kW motor capacity in kilowatt hours to achieve six to eight hours of run time it works out like this: $4.6 \times 2.5 = 11.5$ kWh. So, with the Valence batteries he's contemplating each battery equals $12 \times 80\%$ of 138 amp hours (80% is the approximate maximum discharge point for the LION batteries)...so $12 \times 110 = 1320$ per battery times 4 batteries = 5.28 kWh. It looks to me like the run time Eddy can expect is going to be around 3 hours with the set-up he's contemplating now.

Keep in mind this is APPROXIMATE based on variables like the actual weight of the boat and the propeller he chooses.

So it all depend upon what Eddy's motoring needs are. Many sailors just want enough power to motor onto their mooring or in and out of their harbor.

Eddy, I hope I answered your questions here, and hey, take some pictures of your project and send them in if you do go this route. Good one to share! Ed