I thought I would share my experience converting my 1936 Richardson Little Giant cabin cruiser from a gas engine to an electric motor. To set the stage a little bit, I bought the Little Giant (LG) in Ithaca, NY and brought it down to Atlanta, GA about 4 years ago. I keep the boat in a slip on a medium sized lake that is about 40 miles long. The lake has no waves, wind or current to speak of so it makes a good environment for an electric boat.

The boat was fully restored about 15 years ago and is in great condition. It had a ~1939 4 cylinder Gray Marine Phantom 4-75hp engine. The engine ran pretty well and never let me down. My only complaint about the Gray Marine was that it was LOUD. Even with a new muffler and lot of Acoustiblok, at my preferred 4 knot cruise speed you couldn't hold a conversation with a fellow passenger without shouting. So given the favourable conditions on my lake, I decided to go 100% electric. I have to give credit to my brother for the idea. He has a 1939 Matthews Stock cruiser (with 2 six cylinder gas engines) so he is a fellow antique boater.

I spent about 2 years planning this project and in the end it took about 3 months working weekends and nights after work. I am lucky in that I work for a machinery engineering company and I had access to a machine shop and mechanical & electrical experts to help me through the process. The Production Manager, who is a good friend, donated both his time and a parking spot in front of his house for me to work on the project.

Electric Motor Setup:
Electric Yacht (EY) QuietTorque 10.0 Kit
8 - 400 amp/hr LifeLine 6 volt batteries (supplied by EY)
QuickCharge battery charger (supplied by EY)
Sevcon 48 volt to 12 volt converter (supplied by EY)

Here is the project in pictures:



The LG arriving at my production shop for the engine removal:

The LG:
The forklift boom extended in to pick the engine:
The engine:

The engine on its way out with the help of one of my co-workers:

It was a very tight fit to remove the engine:

The engine out:

A few shots of 15 years of bilge crud:

Once the engine was out we started dry fitting the motor. The EY standard mounts weren't quite wide enough. EY offered to supply wider ones free of charge, but because I had a machine shop at my disposal, we just fabricated custom ones.

While we the mounts were being fabricatedated and we were waiting for the PSS seal, etc. to arrive, we started what turned out to be the hardest part of the project began - scrubbing the bilge!:

Once we had all the parts we started the motor mounting process and shaft alignment. This went pretty smoothly:

Two of my friends (machinery technician and machinist respectively) discussing the mounting bracket design:

Old stuffing box and new PSS shaft seal:

The final alignment process. Yet another friend doing upside down head-rush work:

Motor mounted and connected to shaft:

EY says the longest/hardest part of the actual propulsion system install is typically the batteries and they were right. We spent a lot of time figuring out how to get the 8 batteries in the boat and keep the CG and weight distribution as close to the original gas setup as possible. We built exact wooden mockups of the batteries to helps us with the process. My wife is very good with spacial relations and figuring things like this out so she was quickly brought into the process:

Next up was designing and fabricating the battery mounting trays/plates. It was a little bit of trial and error given nothing is exactly square on the boat. iPhone shown for size reference:

While we were waiting for the final version of the battery trays to be made, another friend who is an avid woodworker helped me install the throttle handle:
The batteries arriving on a pallet
We enlisted the help of my friend's two sons to help lift the batteries into the boat. With four of us the process was pretty simple:

The batteries initially placed:
Then the wiring began. I went with 2/0 cable. The process was pretty simple with EY's kit:

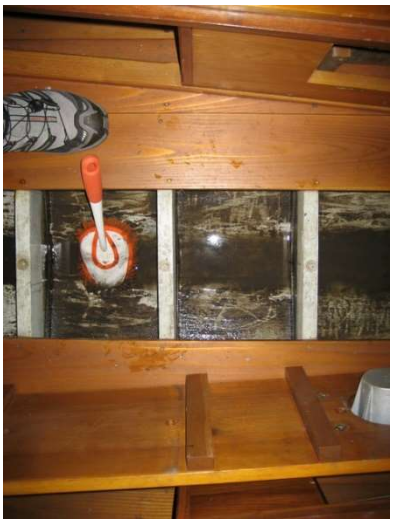
QuickCharge mounted:

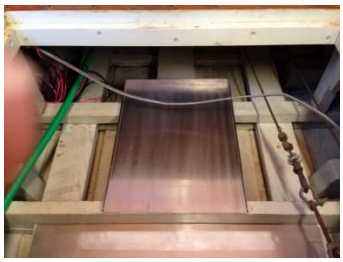
The first test run of the motor. It was pretty wild to be able to run the "motor" without being in the water:
Everything is fully functional for testing in this picture, but I still had more work to do on cleaning up the wiring runs.

With the boat out of the water I took the opportunity to replace the finicky depth sounder setup:

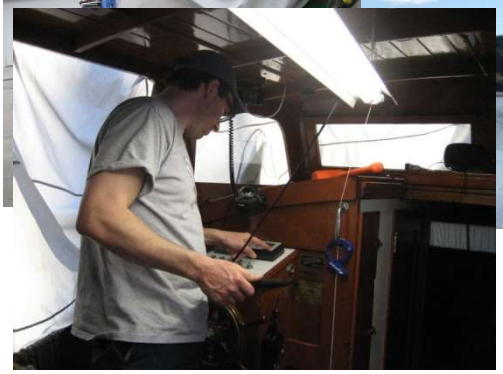
With the boat out of the water for 3 months, the hull really shrunk. Here is a photo from inside the hull. I could clearly see the driveway below:
Since there is no lift or sling slip on my lake, my only option is to float the boat over the trailer. This requires a day or two hanging out on the boat ramp so we decided to pre-soak the hull to shorten that process. We used 5 sprinklers running off a irrigation timer. It worked great. The boat didn't appear to take on any water when we launched it.

Launch day. I was assisted by my wife and some friends. It was late December and you can see the lake was very low:





:



In Conclusion:

The end result is pretty awesome. The boat is now a dream to dock (well as much of a dream as a single shaft boat can be). The instant torque makes the boat much more maneuverable and it is no longer a test of coordination to manage the separate rudder, throttle level and transmission handle. As of now I've lost about 1 knot off my top end, but we are still playing with the belt drive ratios and the prop (currently the one from the gas engine setup). But even if that knot is forever lost, the 20 decibel reduction in engine noise is worth it 10 times over. I can now hold a normal level conversion at any any speed. I haven't put the cruise range to the test yet as I've been on the road for work ever since I've got the boat back in the water. But the estimates and control panel readouts are pointing to about 35 nautical miles on a charge at my preferred 4 knot cruise speed. Of course that could be supplemented with a generator, but I doubt I will ever have to go that route given how we use the boat.