

December 2009 Newsletter

C90 Cruiser Update

Our C90 is coming along and looking very good!

The last few weeks, in Snohomish, we have test fit the deck, patterned all the salon interior components, bonded the salon liner to the deck, installed the side and aft windows, engine and rudder. We are, also, completing the final stages of the hardtop mold and aft deck hatch molds.

Up at Nordic, they have completed lamination on the second C90 which is headed to San Diego. Lamination will begin soon on the 3rd. This boat is headed to Miami-Stuart, Florida.

The C90 equipment list has had some adjustments. Here's an overview of the improvements:

- **Bow and Stern Thrusters** have been upgraded in size from **Side Powers** 70 pound units to **Side Powers** SE 40 83 pound thrust units. We found the extra cost was minimal for a significant increase in power. The dual thruster joy stick is standard.
- In working with **Blue Seas electrical systems**, we decided to upgrade both the AC master panel and the DC master panels to include volt and amp meters for each. The DC panel will have an amp meter that centers at zero and can read plus or minus 50 amps so you can watch charging or discharging depending on what's happening. This will be especially useful to see how the solar panels are charging in comparison to active loads.
- **Battery Chargers**, our original spec called for a 40 amp charger. But in discussions with our electrical engineer, he felt 40 amps was too aggressive for the battery bank and recommended we use two chargers; one 8 amp **Pro Mariner**, dedicated to the start battery and a second dual 10 amp chargers (20 total) for the dual house batteries. This allows the owner to simply turn off the battery switch when he's away and turn on the chargers and know all batteries will be topped off when he returns. The **Pro Mariners** are very smart 3 stage charger that have a bulk charge mode, a topping mode and a maintenance mode to keep the batteries at full voltage without damage over extended periods. Three stage charging is the best for long healthy battery life, while not continuously over charging and boiling away the water.
- **Refrigerator** spec has been changed from Norcold to **Nova Kool**. We found a litter bigger 4 cubic foot Nova Kool that would fit. More importantly, it uses a new very efficient pump that draws only 2.2 amps. Additionally, we plan to add extra insulation in critical areas to reduce cooling loss and increase efficiency.
- Our **Sharp 80 watt 6.6 amp solar panels** arrived recently. They are impressive premium units that are 12.5% efficient at converting the sun's energy into electricity. The power available is dramatically larger than what was possible just a few years ago in consumer panels. It was not unusual for efficiency to run from 4-5%. Today, the technology has evolved dramatically making our solar powered DC systems very practical. Our original goal was to supply solar power for 70-80% of the refrigerator's needs. We should be able to run all house systems indefinitely in the summer

months without any other source for DC power based on the designs use of the twin Sharp panels.

- **Solar Panel charge controller.** This is a device that manages the solar panel output for charging the batteries. In researching this, we found many controllers that were relatively inexpensive (\$50-\$75) that would handle our panels, but we also learned that not all charge controllers are equal. Most have a weak design that spills off the panel's peak voltage when the sun is directly overhead. Wasting the peak voltage is cheaper than designing a system to modulate the extra voltage into additional charging amps. The unit we found, while costing 5 times as much, converts all of this waste to usable power. It's a **Solar Boost 2000E** with MPPT technology (Maximum Power Point Technology). This controller also includes a built in LCD digital display showing solar charge performance including battery voltage, solar panel current, and output charge current.



C90 - 28'er Test Fitting of Deck - Missing hardtop & trim components.



Stern Shot - Note, the swim step is missing; but you can see the transom door cut out.



Dinette with Storage Under - Cushions are proto type only, converts to almost a full queen.
Note: Slight recess in salon floor, the teak and holly insert flooring fits flush in recess to dress up the look.



Port Side Galley Unit - The galley unit is almost 8 feet long when the helm seat is tipped up, galley includes propane oven/stove. Lower doors access the 1/4 berth when it's used for storage. Lots of BIG storage areas.

For those of you getting closer to committing on a purchase. Now is a good time. We have one more boat available in February 2010, that we can build before we have to share the price increases we have seen recently (about 5%)

More questions, please call 360.668.4347

All The Best Larry G.