

## **Chapter 10 : AC Circuit Breaker Panel Modifications :**

**DO NOT run the engine when the battery charger is on. Prevent having the charger on when using the inverter. Prevent the shore power AND inverter from powering the AC panel at the same time.**

### **The factory breaker panel has:**

SHORE POWER POS, SHORE POWER NEUTRAL, BATTERY CHARGER, WATER HEATER, AC OUTLETS, Blank

### **The new, 8-breaker panel has:**

SHORE POS, SHORE NEU  
BATTERY CHARGER  
INVerter POS, INVerter NEU  
WATER HEATER  
AC OUTLETS  
GALLEY OUTLETS

**Prelude :** The factory put two AC outlet cables onto ONE circuit breaker. That pretty much limits your AC outlets to 15 amps when you really have 30 amps of shore power. Place another 15 amp breaker in the blank, and then move the cable that feeds the galley and quarter berth outlets to it. I labeled it “galley outlets”. The factory should have done this. When I did this, I also ran a cable into the salon folding table and placed a GFI outlet there and put it on the “galley outlets” breaker. It is easier/better to use the coffee pot there than on the galley countertop.

**TO ADD AN INVERTER TO THE PANEL :** There are rotary-type switches available in a “1-2-off” configuration ( double pole/double throw/(maybe)center off, 30-amps+ capacity). They are expensive, and I thought just changing the AC panel would serve better and be cheaper considering all I was doing. You would wire the shore power to the switch, the inverter power to it, then run a line from the switch to the AC panel. Since you would have to fuse the AC breaker at 15 amps (because of the inverter limit), you lose 15 amps of shore power input. SO...

... For the Xantrex 1000, I did not use the feature of the inverter coming on automatically when there is no shore power. In addition to meaning the inverter would

be on all the time, the AC power would be limited to the inverter's 15-amp capacity, not the shore power's 30 amps. The monitor panel on the inverter can be moved to the Nav station by using a regular phone cord. (There is also a remote panel available for the battery charger- about 40 dollars. It uses a phone cord also.) I ran a PVC conduit up by the toe rail from the laz to the nav station to accommodate these 2 signal carriers.

The inverter has a household-type AC outlet built into the unit. You can leave this in place for access from the lazarette, but I'm sure you'd want to run it to the AC circuit breaker panel. To accommodate the inverter, I redid the AC panel by buying an eight-breaker panel. Most important is to get a sliding "breaker block-out" gadget that prevents you from powering the breaker panel from the inverter and shore power at the same time. Also prevents the battery charger from being on at the same time as the inverter- something you DO NOT want to do. You cannot run the water heater from the 1000 inverter, but that's not the same crisis as the charger. Get the slider that is for 4 breakers. Perhaps the Beneteau Sysilios site might have a 7 or 8 position AC panel from some other model boat, but the Blue Sea 8-breaker panel I got does not cover that wide Beneteau panel opening. Put a wood strip over the opening. When using shore power "ON", the slide prevents the INV breaker from being operated. Slide it up, it prevents the SHORE and BATTERY CHARGER breakers from being operated.

With the inverter wired to the panel, I rewired the PANEL INDICATOR LAMPS. Move the first (top) light lead from the pos breakers output to the screw for the INPUT of that breaker (that has the shore pos lead on it), so when all breakers are off, the top one lights up when there is shore AC to the panel. No power into the boat, the light is off. For the shore neu, wire the light from the pos BUSS to the output of the shore neu breaker. Operate the two shore breakers, and the second light now comes on as usual. I added a new LED light to indicate reverse polarity by wiring the bulb across the shore neutral breaker's INPUT side and ground buss. This way you can check reversal before turning on any breakers. In a similar manner, on the INV pos breaker, move the lamp from the OUTPUT side to the INPUT screw of that breaker. This will light when the inverter is powered up and putting out AC- even when no breakers are turned on. For the inv neu, wire the light from the pos BUSS to the output of the shore neu breaker. When the INV pos and neu breakers are on, the light by the neu breaker lights up also. You will note that when the inverter is on, the voltage back-feeds to turn on the shore breaker NEU light. So far, I have lived with it, but I have a diode to put in line with the SHORE NEU light to prevent this from lighting up. 2-10-2009 REP