

110 VAC / 60HZ (USA)

Transformer 110V Tap is OFF
 Bypass Switch is INV110
 Ship Power Available 240/120S
 ProTech Charger OFF
Outback FX2012 USA (110/60hz)
 Inverter ON (Auto)
 Charger ON
 Enable Rly CLOSED
Outback FX2012E Export (230/50hz)
 Inverter ON
 Charger OFF
 Enable Rly OPEN

230-240 VAC / 50HZ
Europe, most South Pacific, Aus, NZ

Transformer 110V Tap is OFF
 Bypass Switch is SHORE*
 Ship Power Available 240S
 ProTech Charger ON
Outback FX2012 USA (110/60hz)
 Inverter OFF
 Charger** OFF
 Enable Rly n/a
Outback FX2012E Export (230/50hz)
 Inverter OFF
 Charger† OFF
 Enable Rly n/a

230 VAC / 60HZ (Tahitii)

Transformer 110V Tap is ON
 Bypass Switch is INV110
 Ship Power Available 240/120
 ProTech Charger OFF
Outback FX2012 USA (110/60hz)
 Inverter ON (Auto)
 Charger** ON
 Enable Rly CLOSED
Outback FX2012E Export (230/50hz)
 Inverter ON
 Charger† OFF
 Enable Rly OPEN

Transformer 110V Tap is ON
 Bypass Switch is SHORE*
 Ship Power Available 240/120X
 ProTech Charger ON
Outback FX2012 USA (110/60hz)
 Inverter OFF
 Charger** OFF
 Enable Rly n/a
Outback FX2012E Export (230/50hz)
 Inverter OFF
 Charger† OFF
 Enable Rly n/a

Transformer 110V Tap is
 Bypass Switch is
 Ship Power Available
 ProTech Charger
Outback FX2012 USA (110/60hz)
 Inverter
 Charger**
 Enable Rly
Outback FX2012E Export (230/50hz)
 Inverter
 Charger†
 Enable Rly

Transformer 110V Tap is OFF
 Bypass Switch is INV240
 Ship Power Available 240/120
 ProTech Charger OFF
Outback FX2012 USA (110/60hz)
 Inverter ON
 Charger** OFF
 Enable Rly OPEN
Outback FX2012E Export (230/50hz)
 Inverter ON
 Charger† ON
 Enable Rly CLOSED

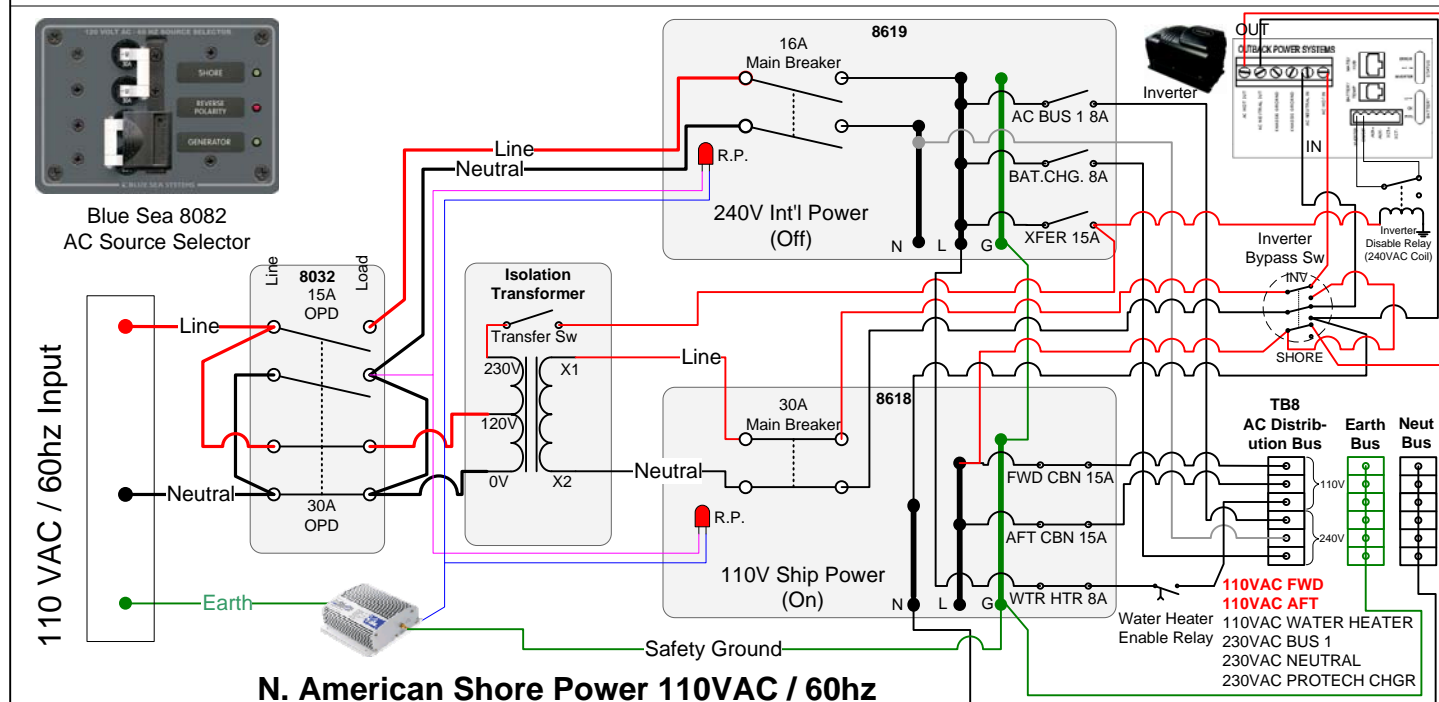
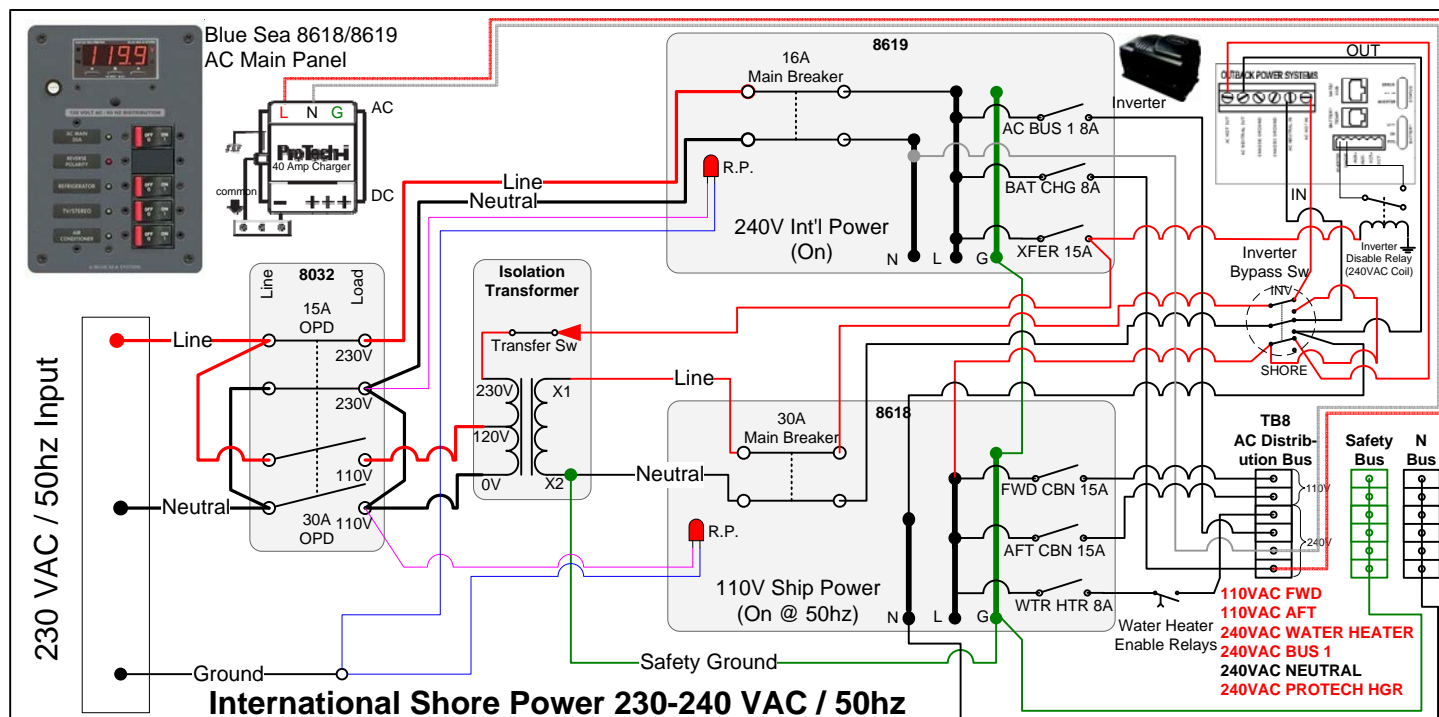
* SHORE means the inverter/charger units are bypassed.

** Will not run on 50hz

† Will not run on 60hz

S/V BEATRIX - KELLY-PETERSON 44 #286 (1980)

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Shore Power and Inverter Schematics - AC Shore Power Configurations				1 OF 12
REV.	DESCRIPTION	DATE	BY	Shore Power Schematic I.vsd
I	Revision to Install Second Outback Inverter Charger (Export Model for 230VAC/50HZ)	7/9/2009	JMS	

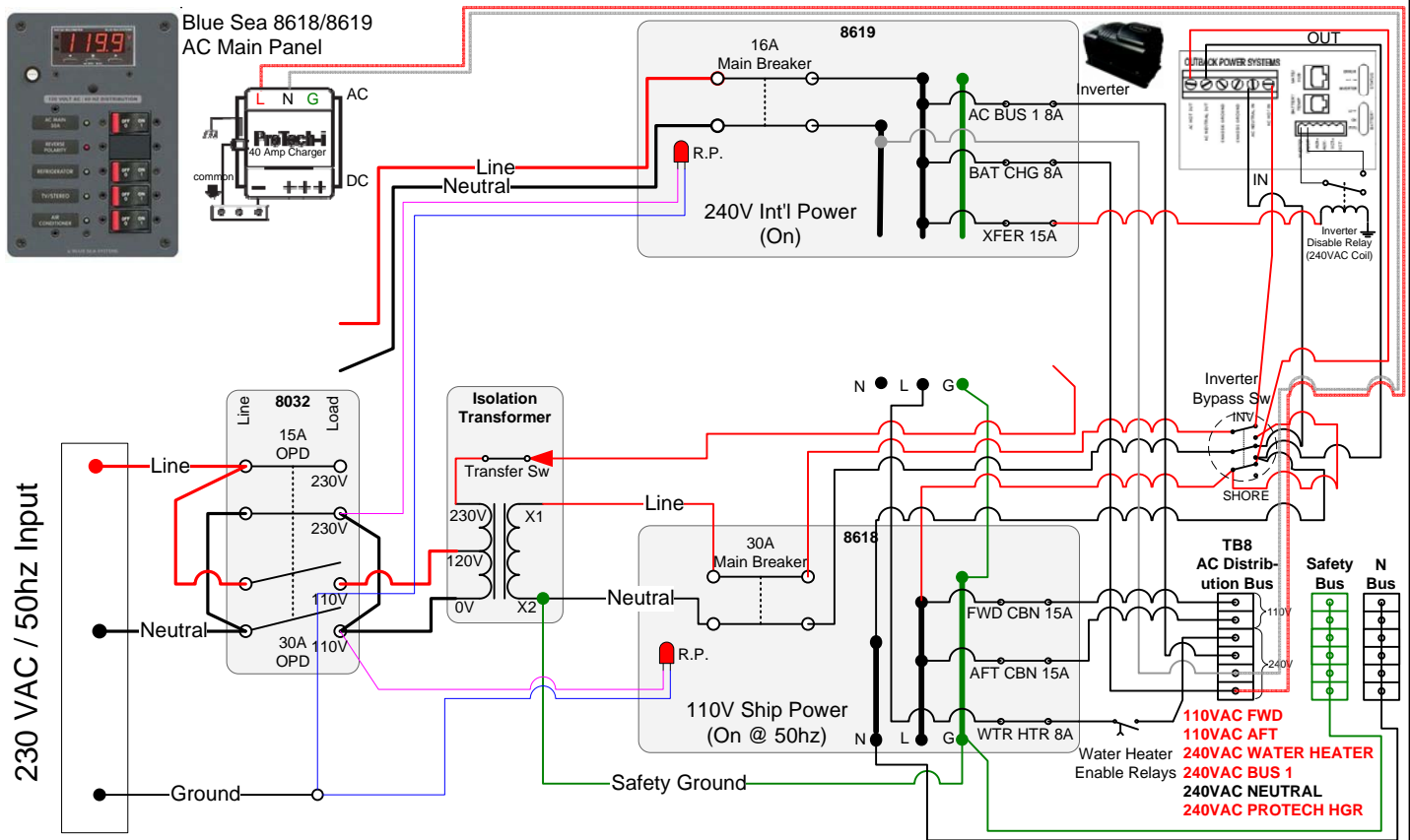


8604 110 VAC
8606 230 VAC

S/V BEATRIX - KELLY-PETERSON 44 #286 (1980)

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Shore Power and Inverter Schematics - Shore Power - Main				2 OF 12	
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Shore Power Schematic I.vsd



110VAC FWD
 110VAC AFT
 110VAC WATER HEATER
 230VAC BUS 1
 230VAC NEUTRAL
 230VAC PROTECH CHGR



Protech-1240i 40A
 Universal Battery Charger



ProSafe FS30 Galvanic
 Isolater



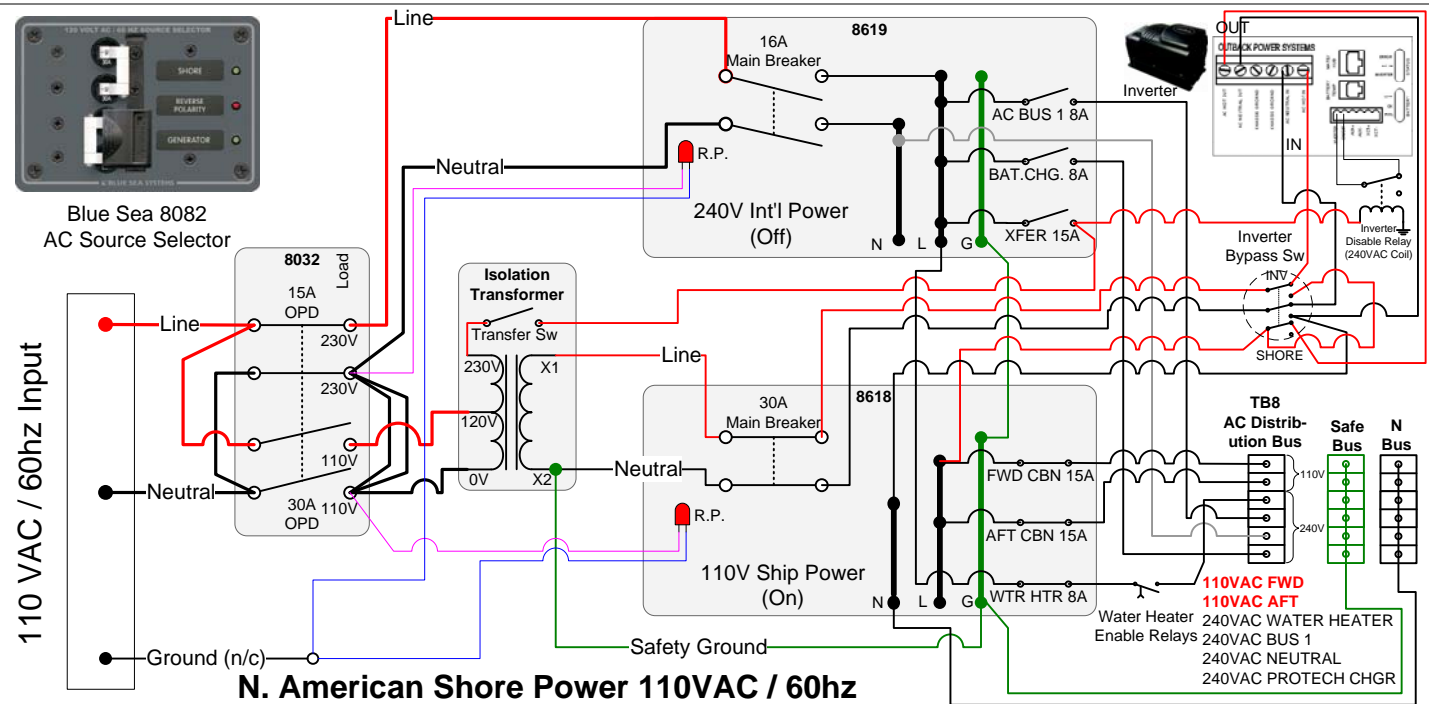
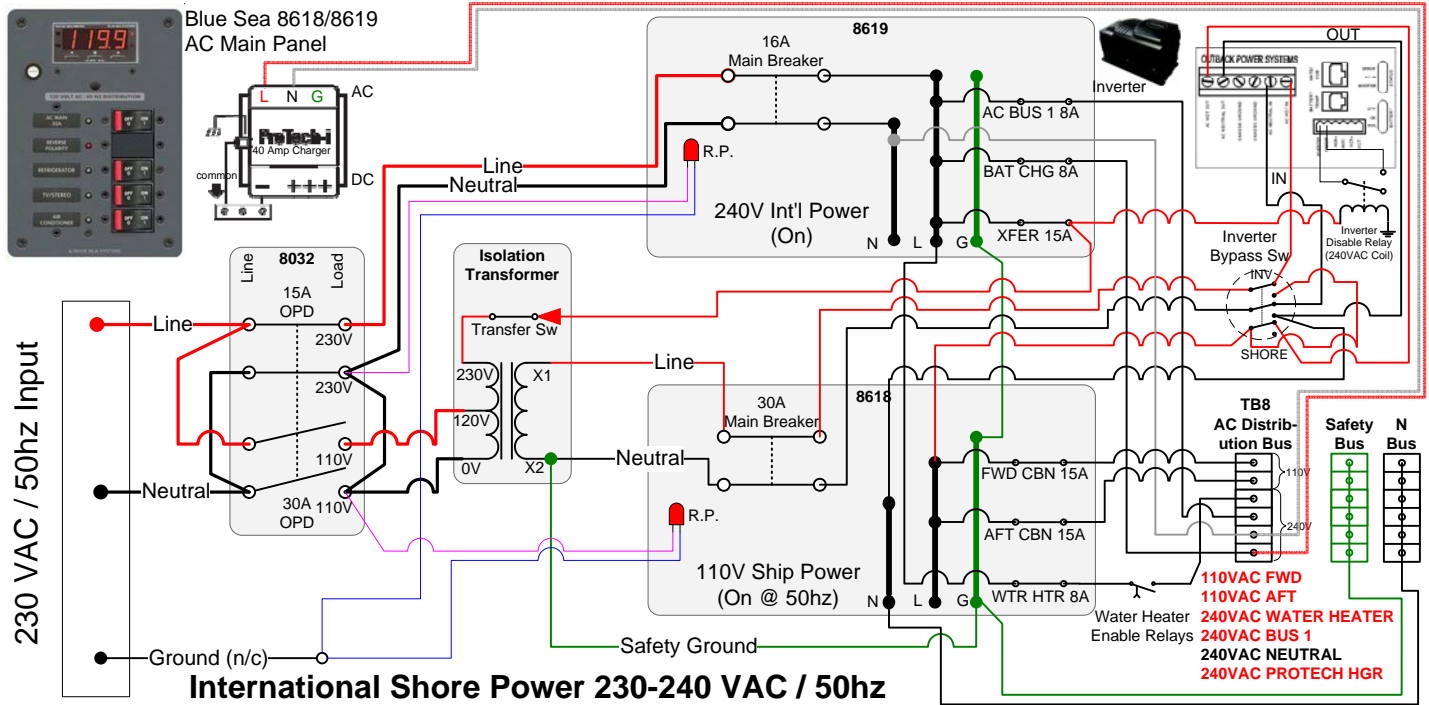
Blue Sea 8082
 AC Source Selector



Blue Sea 8058 AC
 Power Distribution
 8604 110 VAC
 8606 230 VAC

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Protech-1240i 40A
Universal Battery Charger

USA 120 Volt or European 230/240 Volt AC Connections:
A terminal strip is provided on the charger for AC power input.

Connect Black (Europe-Brown) to the terminal marked Line.

Connect White (Europe-Blue) to the terminal marked Neutral.

Connect Green (Europe-Green/Yellow) to the terminal marked (Ground/ Earth).

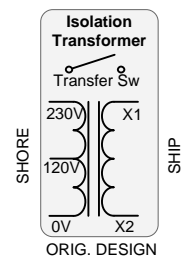
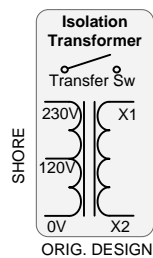
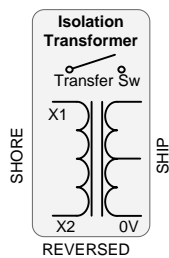
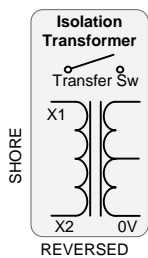
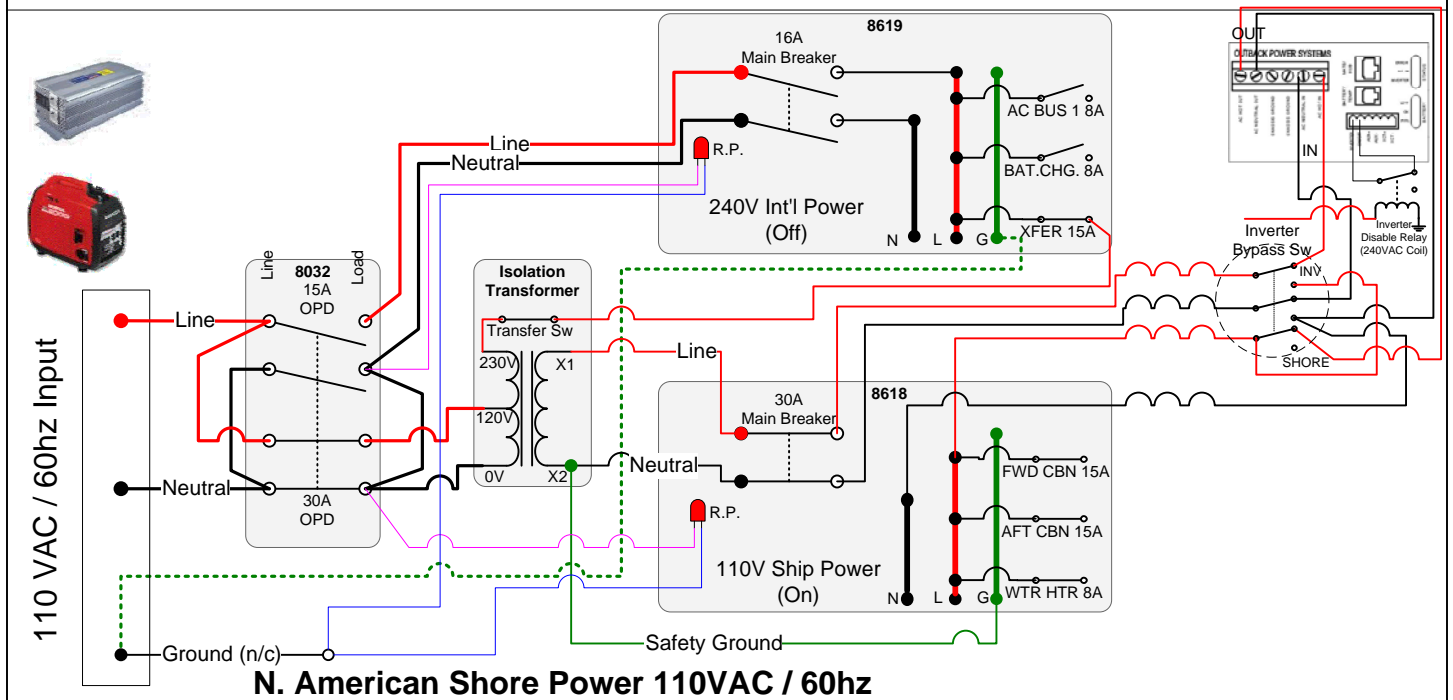
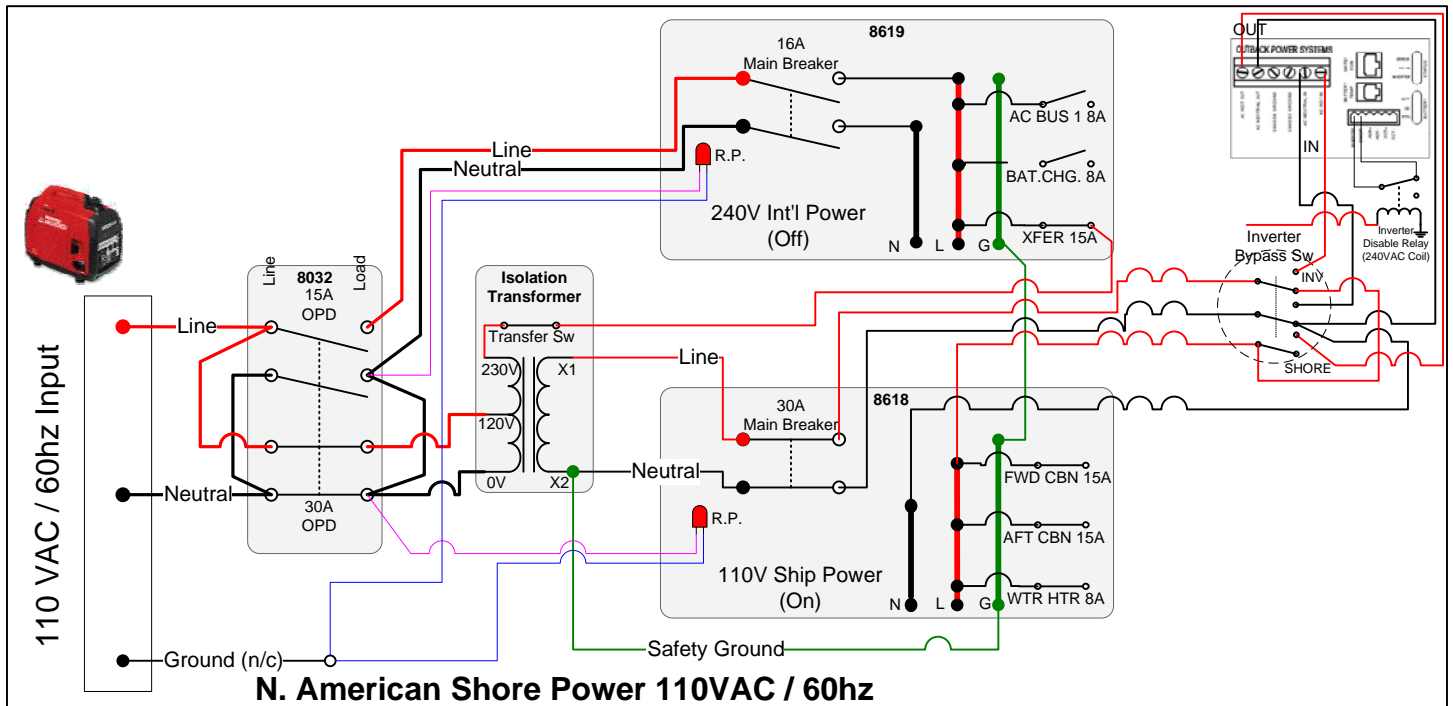
Install an appropriate circuit breaker dedicated to the charger at the boat's electrical panel. Please refer to the table at the bottom of the page for minimum protective AC fuse or circuit breaker sizes.



Blue Sea 8058 AC
Power Distribution
8604 110 VAC
8606 230 VAC

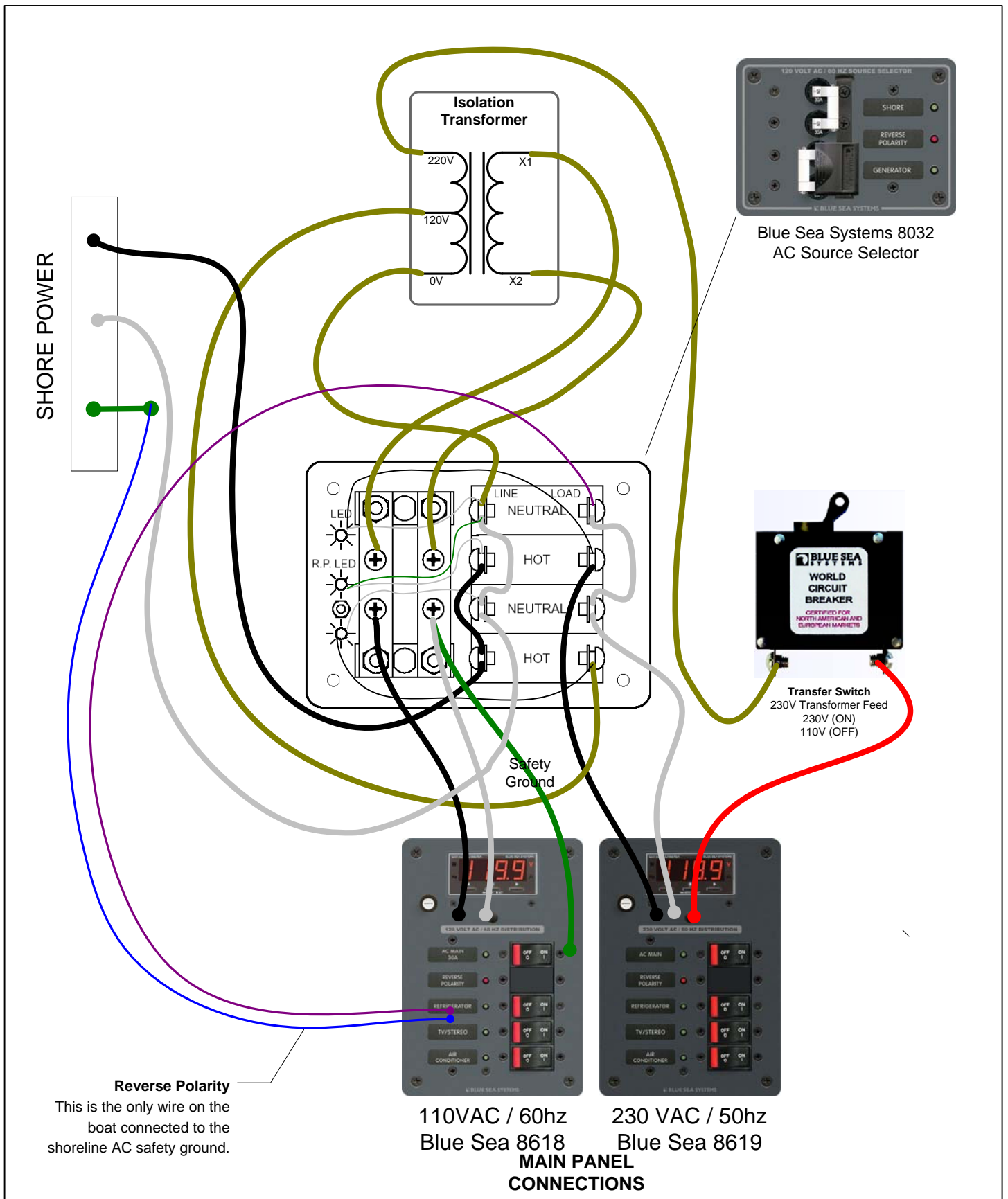
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Shore Power and Inverter Schematics - Modifications				4 OF 12	
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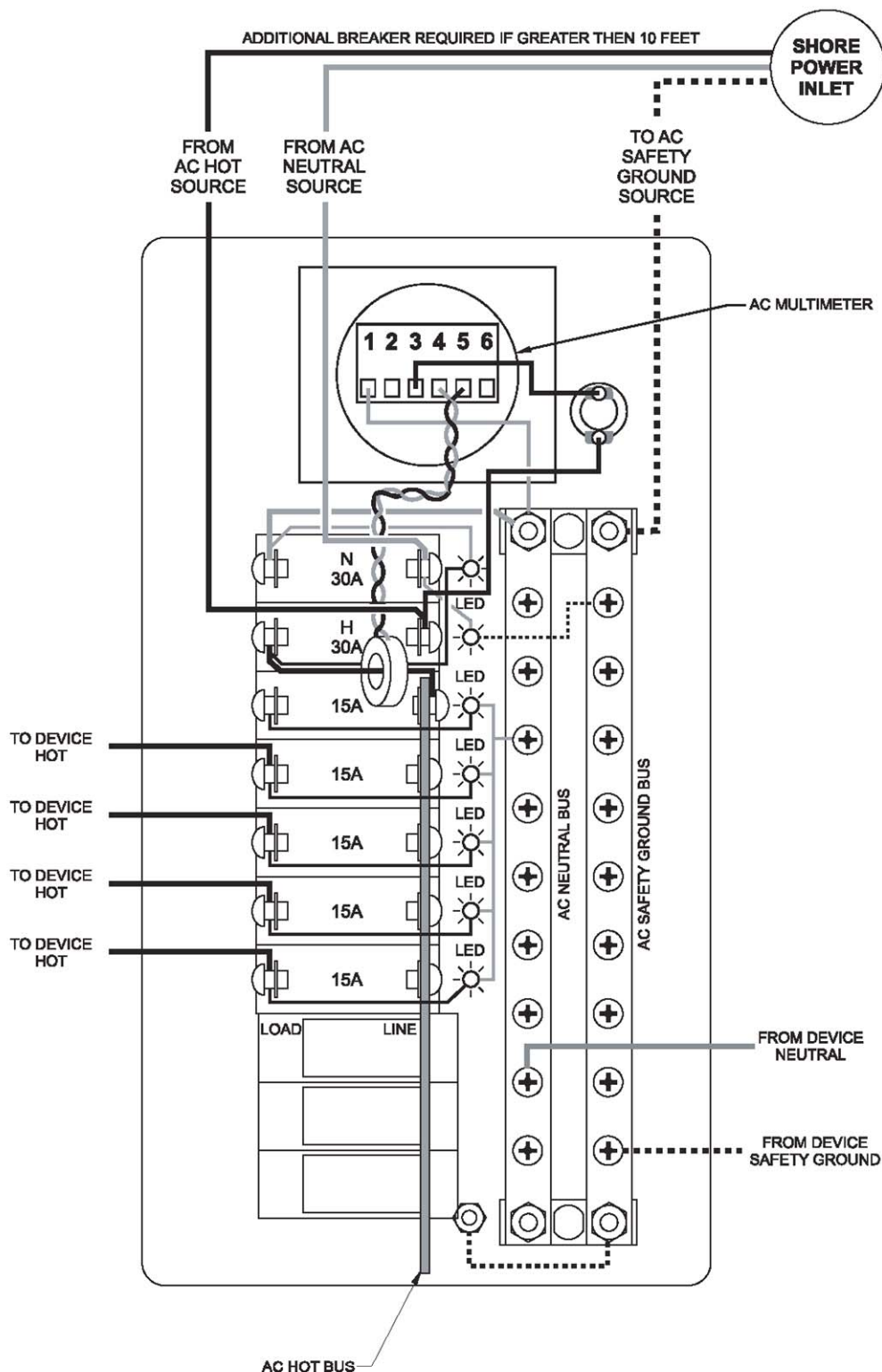
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Shore Power and Inverter Schematics - Design Worksheet					5 OF 12
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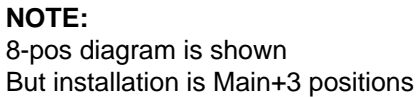


Blue Sea 8618
Main + 3

NOTE:
8-pos diagram is shown
But installation is Main+3 positions

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Shore Power and Inverter Schematics - AC Panel - Original					7 OF 12
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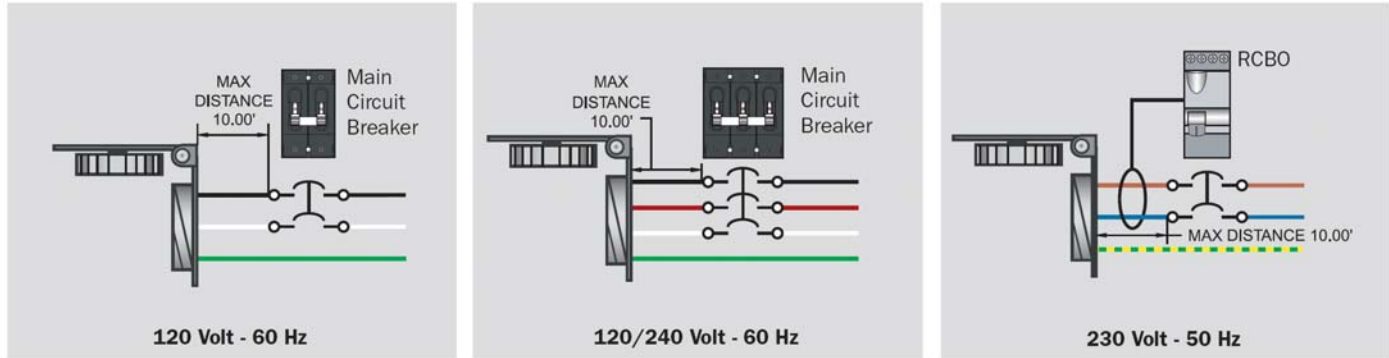
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Shore Power and Inverter Schematics - AC Panel - Modified				8 OF 12
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AC Wire Systems



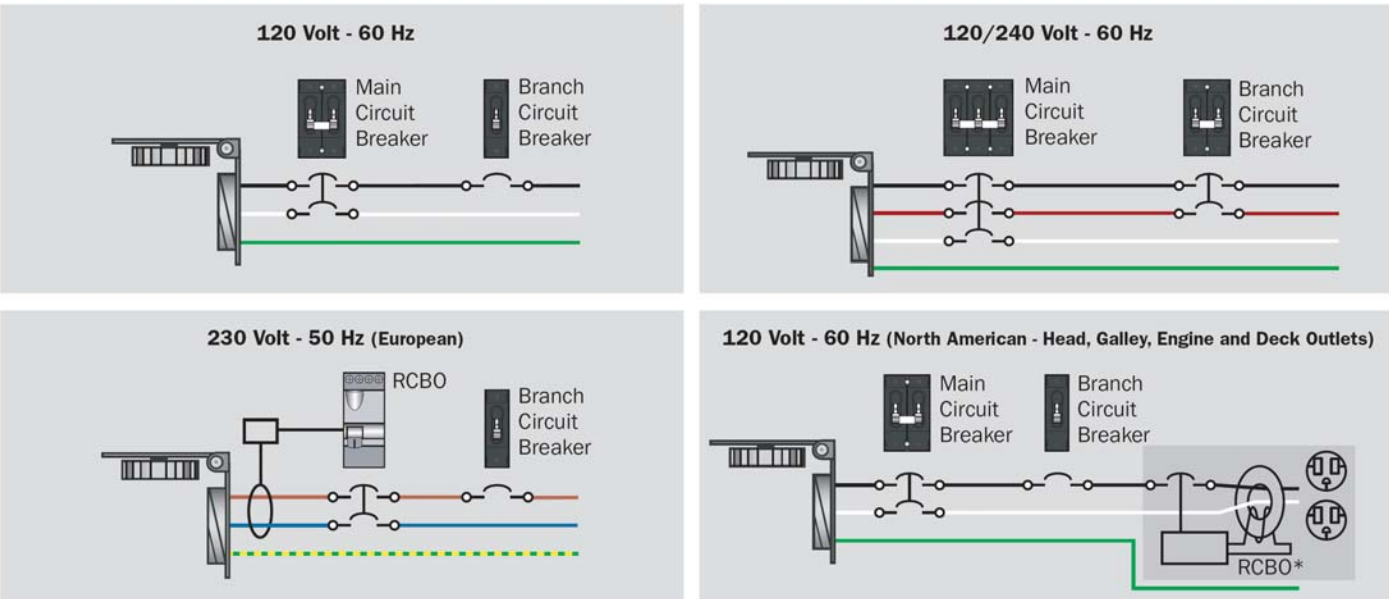
Physical Configurations of AC Main Circuit Breakers. Sources of AC power, whether shore power or on-board generators and inverters, should always have a circuit breaker near the power source. This circuit breaker is designated the AC main circuit breaker. The AC main circuit breaker should always have a pole for each of the hot and neutral wires in the circuit assuring that circuit protection functions are not compromised in reverse polarity (page 140) situations. Therefore 120 Volt systems use a double pole main circuit breaker. Although not required by the ABYC Standards, three pole circuit breakers with the Neutral connected through the third pole are sometimes used on 120/240 Volt systems. In cases where the main circuit breaker is also used for source selection the Neutral must be switched to maintain the correct Neutral connection.

Physical Configurations of AC Main Circuit Breakers



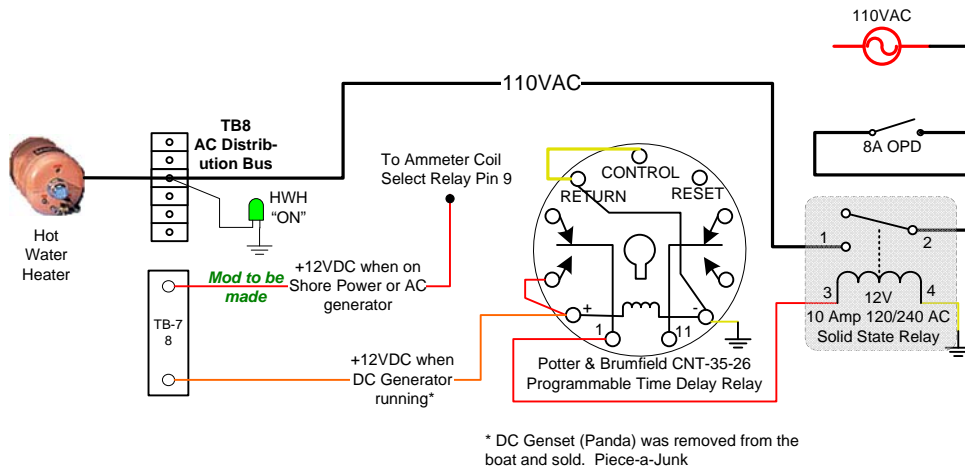
Considerations

Circuit breakers used for AC branch switching and circuit protection always have one pole less than the AC main installed between the branch circuit breaker and the AC power source. This circuit breaker is installed in the AC hot conductor.



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Shore Power and Inverter Schematics - AC Branch Power Distribution and Circuit Protection				9 OF 12
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WATER HEATER ENABLE RELAYS

Note 1: The logic behind this circuit is to enable the 750W AC hot water heater load when:

- a) connected to shore power OR
- b) when powered by the inverter AND only when the DC generator is running.

Note 2: Either P&B Time Delay CNT-325-26 or Finder Type 60.13 may be used as Water Heater Enable Relay. They are plug compatible but the Finder will not have the time delay function. With the P&B TD relay the water heater enable is delayed for a programmed time.

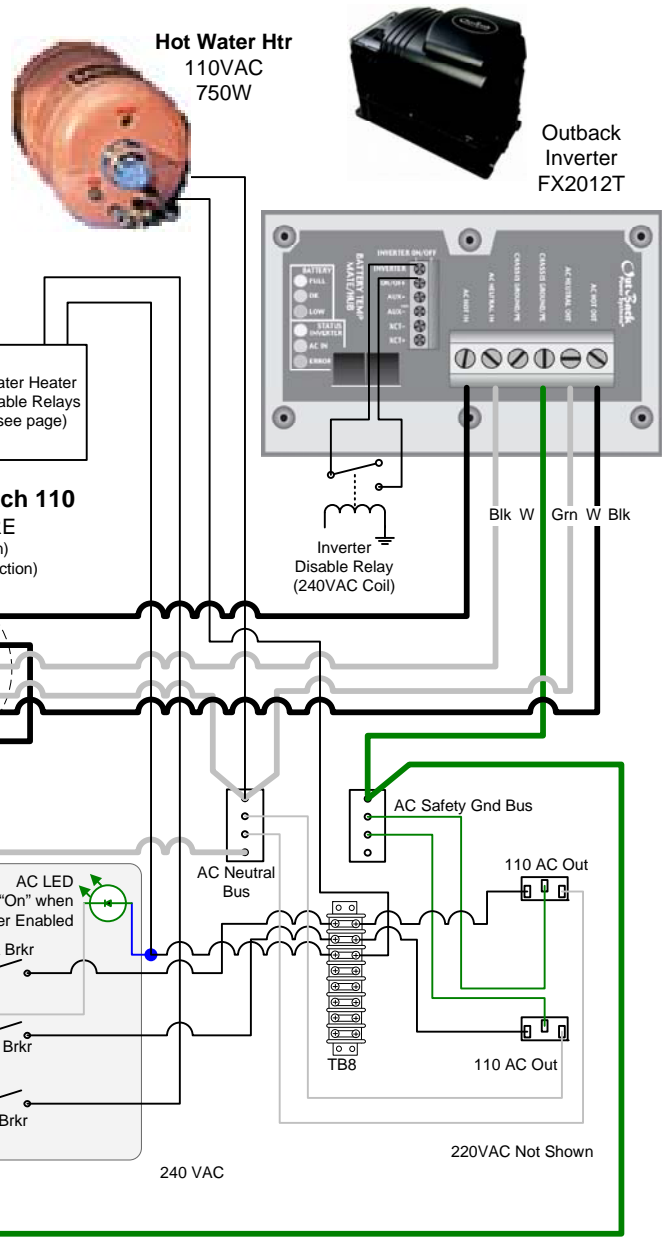
S/V BEATRIX - KELLY-PETERSON 44 #286 (1980)

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Shore Power and Inverter Schematics - Water Heater Enable Relay				10 OF 12
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Note: The function of the "Inverter Bypass Switch" is to disconnect the inverter from shore power in order to stop the charging function or to service or isolate a malfunctioning inverter.

The way the inverter is constructed it is not possible to turn off the charger while leaving the vessel connected to shore power.

Note: When AC is from shore power gets its input from the Shore Power Sense Toroid (encircles BLK wire). When on inverter power input is from Inverter Sense Toroid (encircles RED wire). Toroid leads are twisted pairs.



Note: An alarm to warn when shore power goes off could be added by modifying the Ammeter Coil Select Relay. Move pin 9 to pin 2 and using the relay contacts 11-8-9 plus a switch and piezo buzzer.

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Shore Power and Inverter Schematics - Inverter and AC Panel 110VAC				11 OF 12
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				Scale: 1 : 1

The way the inverter is constructed it is not possible to turn off the charger while leaving the vessel connected to shore power.

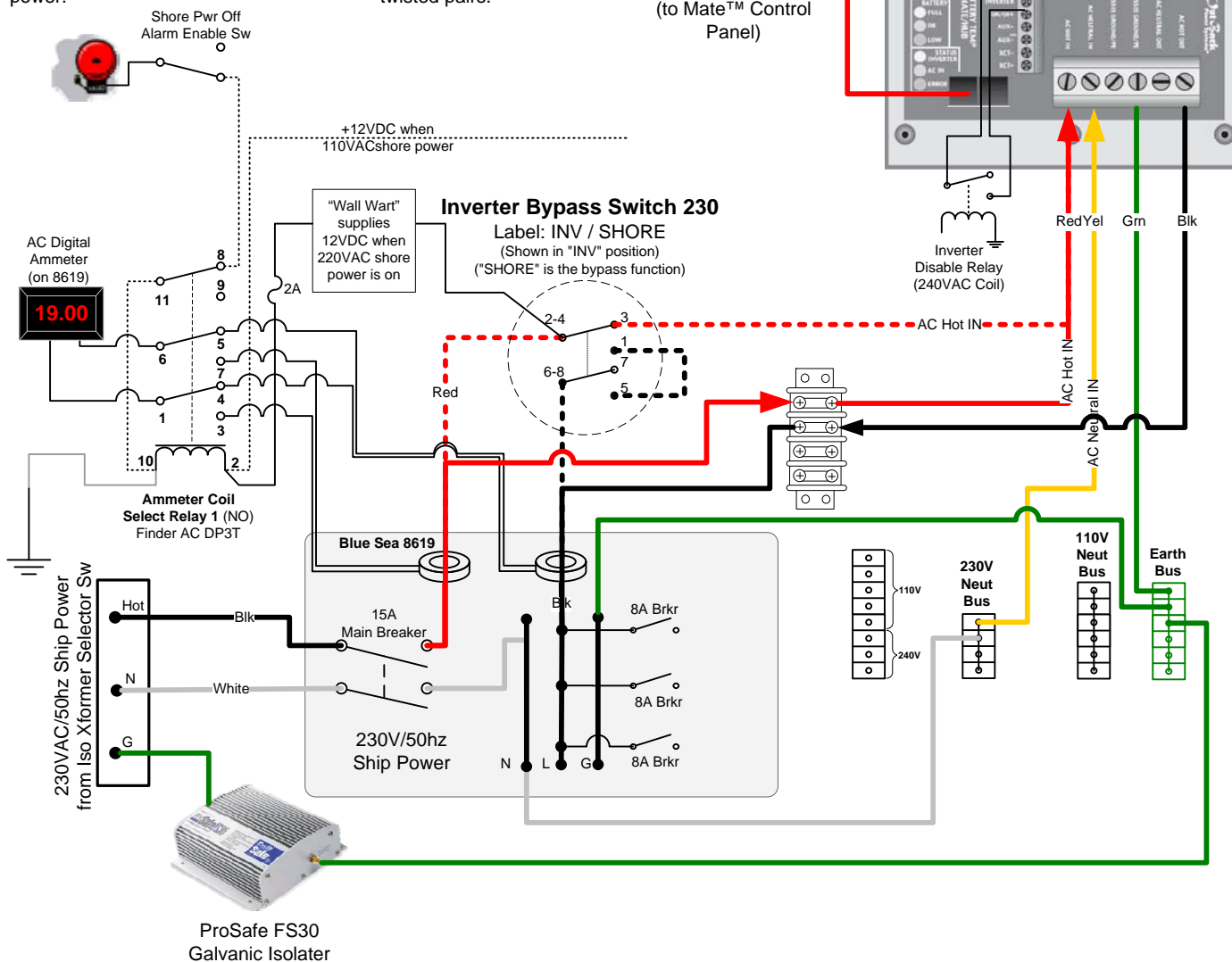
Note: When AC is from shore power the digital ammeter gets its input from the Shore Power Sense Toroid (encircles BLK wire). When on inverter power input is from Inverter Sense Toroid (encircles RED wire). Toroid leads are twisted pairs.



Inverter Select Switch
(to Mate™ Control
Panel)



Outback
Inverter
FX2012ET



Note: An alarm to warn when shore power goes off could be added by modifying the Ammeter Coil Select Relay. Move pin 9 to pin 2 and using the relay contacts 11-8-9 plus a switch and piezo buzzer.

S/V BEATRIX - KELLY-PETERSON 44 #286 (1980)

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