

ELECTRICAL REQUIREMENTS AND INSTALLATION

The following information is provided for hooking up electrical supply to your new spa. A qualified, licensed, electrician must perform this work. Failure to follow these instructions will terminate all warranty coverage and can cause serious injury or death.

Your spa is preset at the factory to run on 240 V 60Hz with a 40 A input. This feature gives you the most performance out of your spa. This will require a 240 V, 50-amp Class A GFCI protected service. The single pump spa may also be setup to run off of 120 VAC, 60 Hz, 16/40A.

Codes and Compliance

North American 60 Hz	<u>240 V/40 A*</u>	<u>240 V/50 A**</u>	<u>240 V60 A***</u>
Voltage	240 VAC	240 VAC	240 VAC
Max Current Draw	26 A	40 A	48 A
Number of Wires	4	4	4
Circuit Breaker	40 A*	50 A**	60 A***

* In this configuration, the heater will not operate while any jet pump is running.
** In this configuration, the heater will not operate while more than 1 jet pumps are running.
*** In this configuration the heater will operate while all jets pumps are running.

All of the electrical wiring methods and materials used to complete the electrical installation of the control system must be in accordance with the National Electrical Code or the Canadian Electric Code, as well as any local electrical codes in effect at the time of installation.

The selection of electrical materials required to accomplish this installation and the installation of the control system must be accomplished by, or be under the direct supervision of, a qualified electrician.

The control is classified as a “continuous duty appliance” and is intended primarily for installation at a single family dwelling. The installation recommendations and instructions contained in this manual are directed solely toward these issues.

GFCI Requirements

A Ground-Fault Circuit Interrupter (GFCI) is required to be installed in the electrical supply circuit connected to these products. GFCI's are ultra-sensitive switching devices, providing the ultimate in safety.

The most common style of GFCI also provides high-current protection as a circuit breaker.

One of the two configurations of GFCI's, as shown, will be required for your installation, depending upon the options selected.

Note: A 20 A GFCI power cord is included with a 120 VAC spa. This can be used for a cord-connected 120 V setup only, and only in place of a stand-alone GFCI. 120 V Set up must be on a dedicated 20 A service.

Electrical Disconnect

An electrical disconnect (sometimes referred to as a “local disconnect”) is installed apart from the main service panel. The electrical disconnect must be installed where readily accessible and within sight of the spa, but at least 5' (1.5 meters) from the inside wall of the spa.

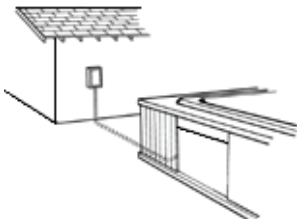
The disconnect must open all ungrounded conductors of the electrical supply connected to the spa.

If the main panel meets the sight-line and distance criteria, a GFCI circuit breaker installed in that panel may be used as the disconnect, as shown in Option A.

A new sub-panel must be installed to meet the sight-line requirements. Two possible arrangements exist (shown below).

1. The GFCI circuit breaker may be installed in the main panel, and a suitable switch, circuit breaker or other disconnecting device installed in the sub-panel (Option A).

2. The GFCI circuit breaker may be installed in the sub-panel, and a suitably rated circuit breaker (non-GFCI) installed in the main panel (Option B)



Service Disconnect
Option A



Service Disconnect
Option B

VOLTAGE CHECKS

Set voltmeter to AC Volts. Voltages should check out as follows:

Line 1 Black to Line 2 Red – 240 VAC (Range of acceptability: 216 VAC – 246 VAC)

Either Line to Neutral – 120 VAC (Range of acceptability: 108 VAC – 132 VAC)

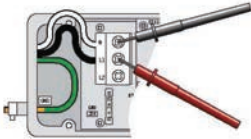
Either Line to Ground – 120 VAC (Range of acceptability: 108 VAC – 132 VAC)

Neutral to Ground – 0 Volts

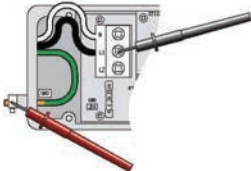
These readings should be consistent at all points in all electrical enclosures and breaker boxes. If the readings are not in the acceptable ranges, do not power up the system and call an electrician to evaluate the installation.

120 VAC Systems

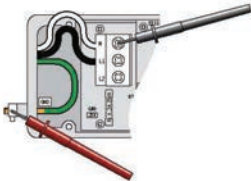
120 VAC (108 VAC-132 VAC)
Line 1 and Neutral



120 VAC (108 VAC-132 VAC)
Ground and Line 1

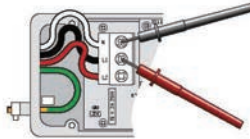


0 Volts
Ground and Neutral

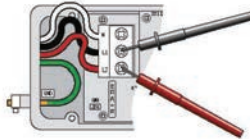


240 VAC Systems

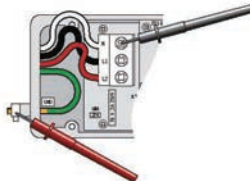
120 VAC (108 VAC-132 VAC)
Line 1 and Neutral



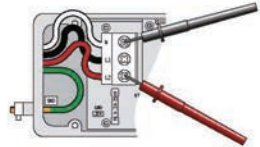
120 VAC (216 VAC-264 VAC)
Line 1 and Line 2



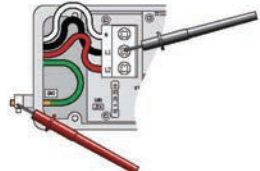
0 Volts
Ground and Neutral



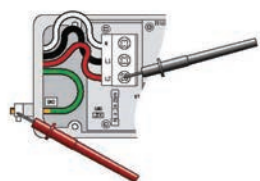
120 VAC (108 VAC-132 VAC)
Line 2 and Neutral



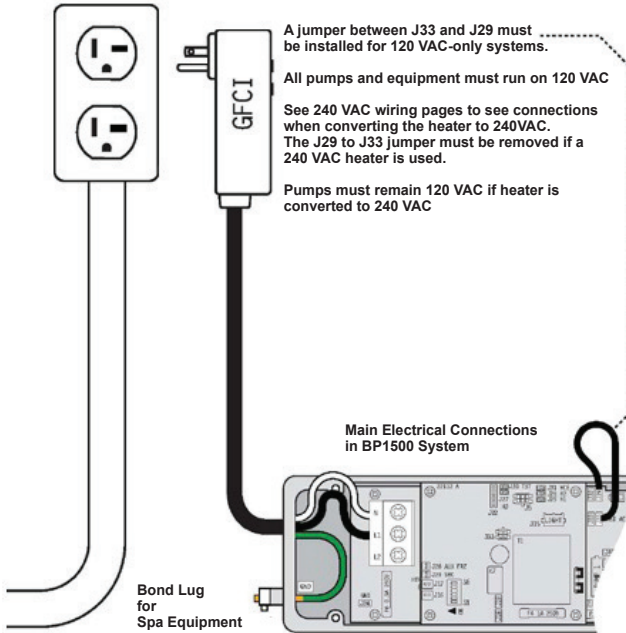
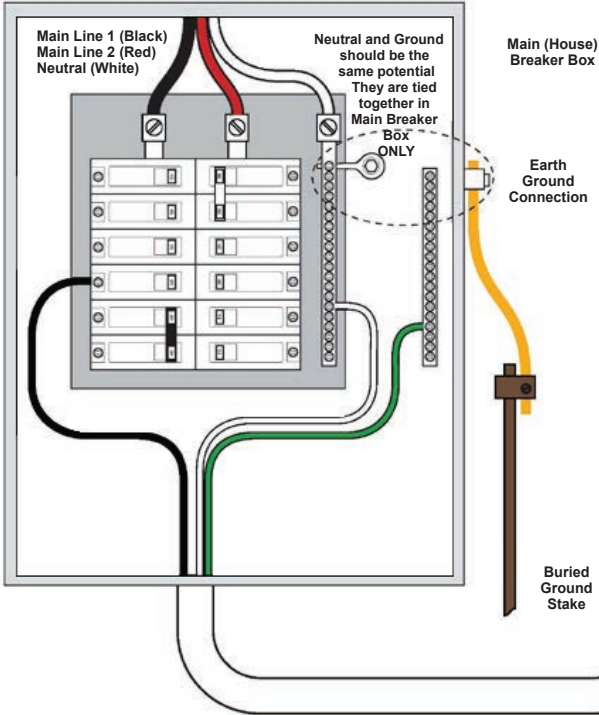
120 VAC (108 VAC-132 VAC)
Line 1 and Ground



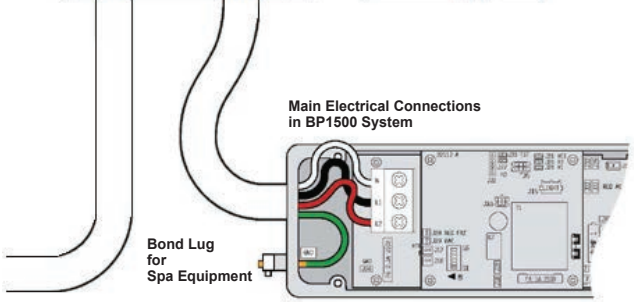
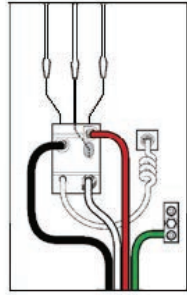
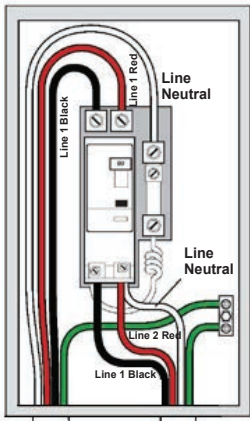
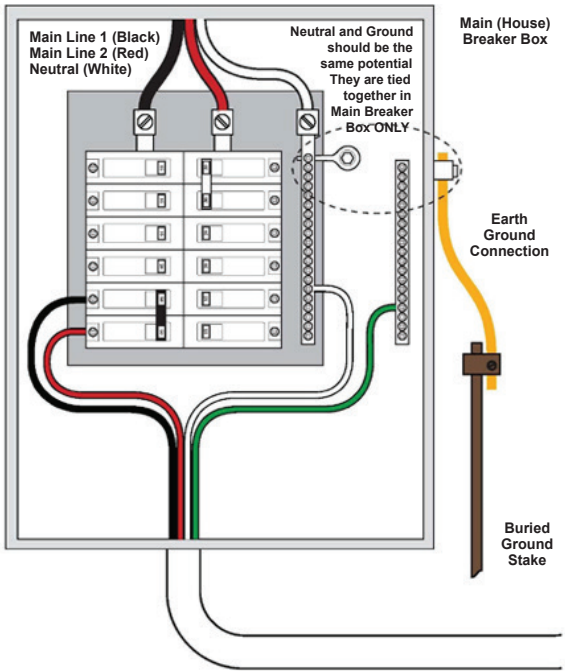
120 VAC (108 VAC-132 VAC)
Line 2 and Ground



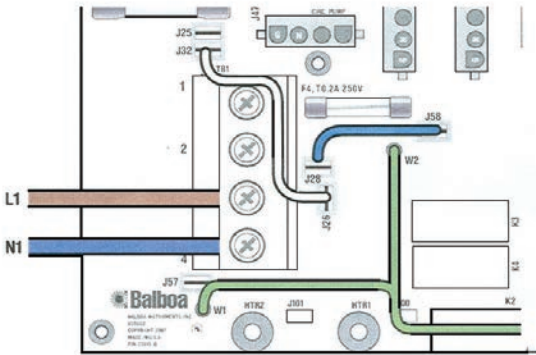
60 Hz SOUTH SEAS 120 VAC WIRING SCHEMATIC



60 Hz SOUTH SEAS 240 VAC WIRING SCHEMATIC



50 Hz SOUTH SEAS SINGLE/DUAL/THREE PHASE



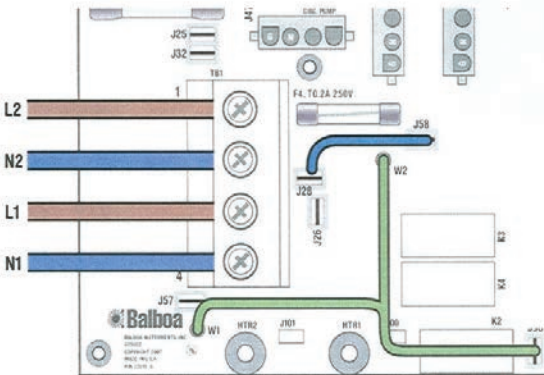
**Single Service,
TN and TT
Electrical Systems
(1 X 16 Amp or 1 X 32 Amp)**

3 Wires (1 Line + 1 Neutral + 1 Protective Earth)

Protective Earth wire (Green / Yellow) must be connected to system ground terminal as marked.

This option is configured and shipped as the default.

All equipment (pumps, blower and heater) runs on service line L1



**Dual Service,
TN and TT
Electrical Systems
(2 x 16 Amp)**

5 Wires (2 Lines + 2 Neutrals + 1 Protective Earth)

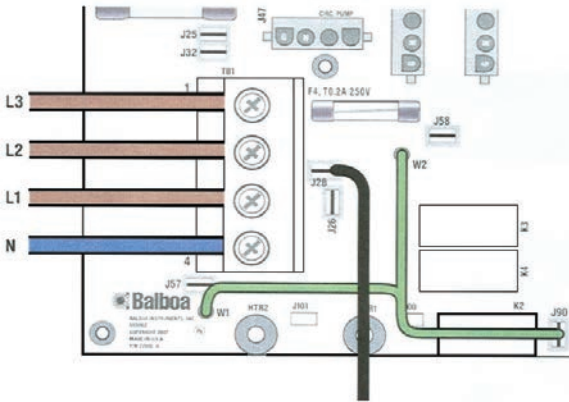
Protective Earth wire (Green / Yellow) must be connected to system ground terminal as marked.

The heater runs on service line L1, while all other equipment, such as pumps and blowers, run on service line L2

Completely remove the white wire from J26 and J32.

Note: J32 and J25 are electrically identical. The white wire may be attached to either terminal before removal.

50 Hz SOUTH SEAS SINGLE/DUAL/THREE PHASE



To an optional
fuse-protected
expansion board.

3-Phase Service, TN and TT Electrical Systems (3 x 16 Amp)

5 Wires (3 Lines + 1 Neutral + 1 Protective Earth)

Protective Earth wire (Green / Yellow) must be connected to system ground terminal as marked.

IMPORTANT - Service MUST include a neutral wire, with a line neutral voltage of 230 VAC.

The heater runs on service line L1.

All main-board equipment run on service line L3

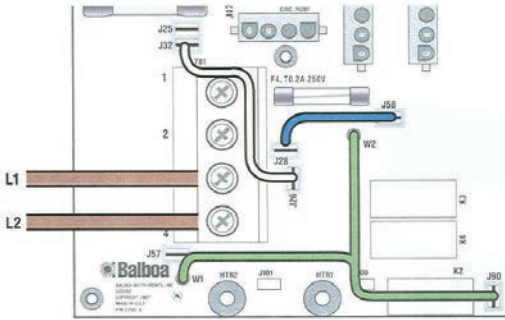
Additional equipment, such as expansion boards, run on service line L2

Completely remove the white wire from J26 and J32, or J25

Completely remove the blue wire from J28 and J58.

If an expansion board is installed, black wire must connect to J28 (Line L2) only.

50 Hz SOUTH SEAS SINGLE/DUAL/THREE PHASE

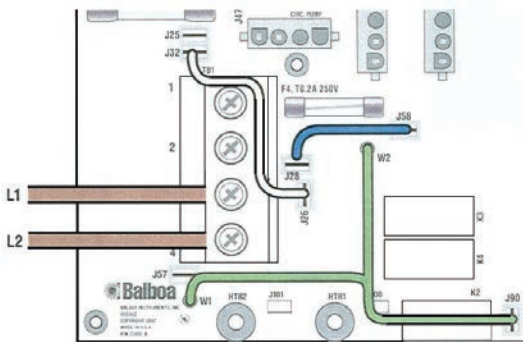


**Single Service,
IT Electrical System
(No Neutral)**

**Line - Line voltage is 230 VAC (1 X 16 Amp or 1 X 32 Amp)
3 Wires (2 Lines + 1 Protective Earth)**

Protective Earth wire (Green / Yellow) must be connected to system ground terminal as marked.

All equipment (pumps, blower and heater) runs on service line L1 with L2 acting as the return.



**3 Phase Service,
IT Electrical System
(No Neutral)**

L3  **Line 3-Cap (Insulate) end,
Do not Connect.**

**Line - Line voltage is 230 VAC
4 Wires (3 Lines + 1 Protective Earth)**

Protective Earth wire (Green / Yellow) must be connected to system ground terminal as marked.

All equipment (pumps, blower and heater) runs on service line L1 with L2 acting as the return.