



Important: When installed in the United States, the electrical wiring of this spa must meet the requirements of the National Electric Code (NEC) and any applicable state or local codes. The electrical circuit must be installed by an electrical contractor AND approved by a local building/electrical inspector.

Power Configurations for 680 Hartford, and Hawthorne Models (North America, 60 Hz)

This section describes the power configuration choices (Standard 50 Amp, Alternate 40 Amp, and Alternate 60 AMP) for Hartford and Hawthorne hot tub models.

Note

Wire size must meet NEC recommendations and is determined by maximum current draw and length or run.

Important: All of the alternative electrical configurations require a qualified technician to perform minor circuit board modifications. To avoid damage to the spa, do not activate power to the spa until these modifications have been made. We recommend Square-D or Cutler Hammer circuit breakers.

Config. #1	<p>Standard 50A Configuration (factory setting)</p> <ul style="list-style-type: none"> • 240 VAC/50A 3-wire configuration (2 hots and a ground) • 50A dual-pole GFCI breaker (hard wired only) • Electrical current draw of 36A 	<p>If the home's electrical system does not have 240 VAC/60A, the spa may be connected to a 240V/50A power source after a qualified electrician makes a minor circuit board modification.</p> <p>In this Standard 50A configuration, the heater yields the same rapid temperature rise as in 60A operation, but does not operate while both jets pumps are running in high-speed. Note: Pump 2 runs only in high-speed.</p>
Config. #2	<p>Alternate 40A Configuration (For homes where 240 VAC/50A or 240 VAC/60A power is unavailable).</p> <ul style="list-style-type: none"> • 240 VAC/40A 3-wire configuration (2 hots and a ground) • 40A dual-pole GFCI breaker (hard wired only) • Electrical current draw of 26A 	<p>If the home's electrical system does not have the full 240 VAC/50A or 240 VAC/60A power available, the spa may be connected to a 240V/40A power source after a qualified electrician makes a minor circuit board modification.</p> <p>In this configuration, the heater does not run while either of the jets pumps run. Note: Pump 2 runs only in high-speed.</p>
Config. #3	<p>Alternate 60A Configuration (Optional setting for maximum heater performance.)</p> <ul style="list-style-type: none"> • 240 VAC/60A 3-wire configuration (2 hots and a ground) • 60A dual-pole GFCI breaker (hard wired only) • Electrical current draw of 45A 	<p>If the home's electrical system has the full 240V/60A power available, the spa may be connected to a 240V/60A power source after a qualified electrician makes a minor circuit board modification.</p> <p>In this configuration, the heater operates while both jets pumps are running in high-speed. This may be preferable for owners of outdoor spas in cold climates because it will help their spas maintain water temperature during use.</p>

Electrical Tasks After Spa Delivery



Important safety information for all spa models

Proper grounding is extremely important. This spa is equipped with a Current Collector system. A pressure securing wire connector is provided on the outside of the load box to permit connection of a bonding wire between the spa and any metal within 5 ft. (1.5m) of the spa. Bonding wire must be at least #8 AWG (8.4 mm²) solid copper wire.

After the spa is placed in the specified location, the electrician must perform the tasks listed below to complete the electrical installation. Give this information to the electrician when he begins to install your spa.

Task	Action
1	To gain access to the spa's power terminal strip, remove the spa cabinet panel on the side of the spa under the control panel (see Figure 3 on the next page). After removing the spa cabinet panel, remove the four metal control box cover screws and metal control box cover.
2	Locate the power supply inlet (front of the spa near the base). Select the inlet you want to use, then feed the power cable through to the control box.
3	Insert the power cable through the large opening provided on the left-side of the metal control box.
4	Connect the wires, color to color, on the terminal strips and tighten securely.
5	To complete the electrical installation, secure the metal control box door by replacing its 4 screws, then re-install the spa cabinet panel under the control panel.

For specific electrical information about the spa model being installed, look through Figures 3 through 9 in this section.

Electrical Tasks After Spa Delivery, Continued

Installing a 3-Wire 240 VAC Connection for:

- 880 Altamar, Cameo, Capri, Majesta, Marin, Maxxus, Optima Models;
- 780 Camden, Certa, Chelsee, Hamilton Models;
- Elite Constance, Victoria Models;
- 680 Burlington, Hartford and Hawthorne Models

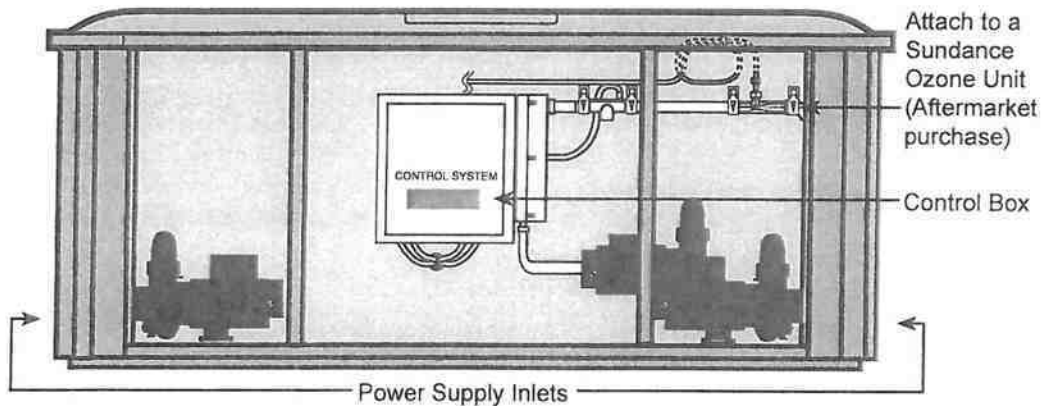
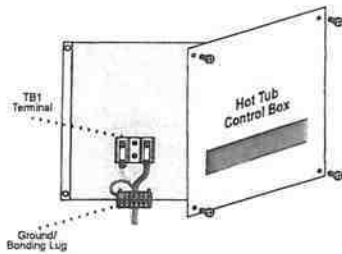


Figure 3: Spa equipment compartment (spa features subject to change without notice. Pumps location vary by model.)

Figure 4: The Control Box for 3-wire, 240 VAC connection

The location of the TB1 terminal may vary between models.



Note: TB1 terminal location will vary between models; 3-wire/240 VAC connection illustrated

Figure 5A
3-wire/240 VAC Connection
for 880 Altamar, Cameo,
Capri, Majesta, Marin,
Maxxus, Optima Models.

Hard Wired Connections Only

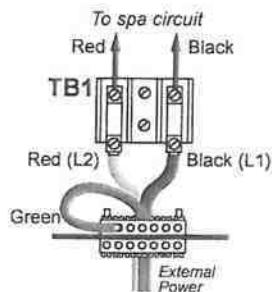
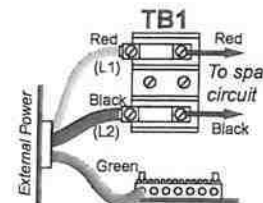


Figure 5B
3-wire/240 VAC Connection for
780 Camden, Certa, Chelsee,
Hamilton Models, Elite Constance,
Victoria Models, 680 Burlington,
Hartford, Hawthorne Models.

Hard Wired Connections Only

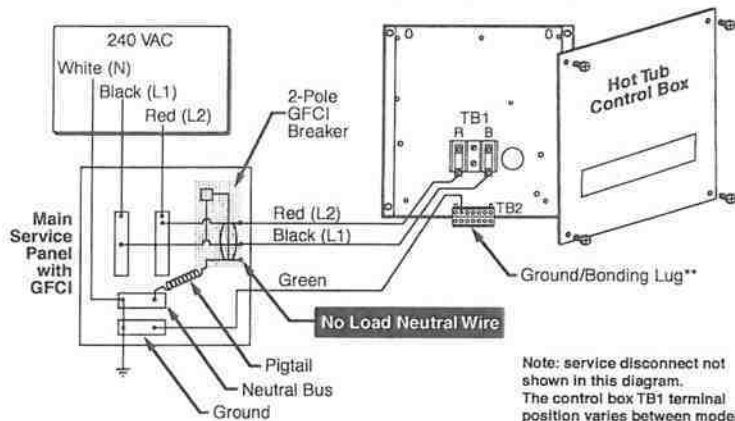


Connection Configuration #1

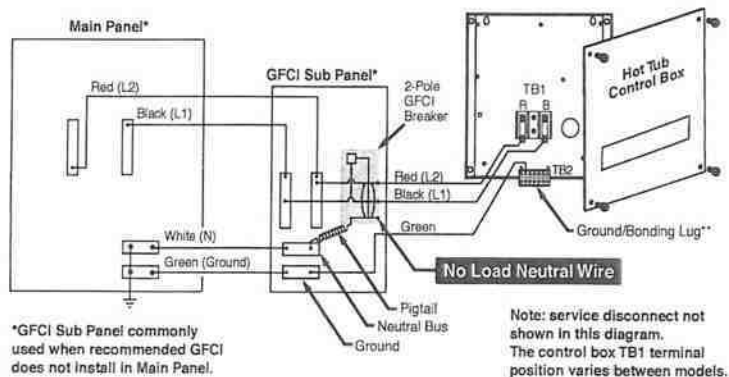
240 VAC Connections for 880 Altamar, Cameo, Capri, Majesta, Marin, Optima, Maxxus, 780 Camden, Certa, Chelsee, Hamilton Models, Elite Constance, Victoria Models, 680 Burlington, Hartford, Hawthorne Models (North America 60 Hz)

A pressure sensitive terminal block (bonding lug) is attached to the outside surface of the load box. This permits the connection of a bonding wire between this point and any metal equipment chassis, metal water pipe, or metal conduit within 5 ft (1.5m) of the spa. The bonding wire must be at least #8 AWG (8.4 mm²) solid copper wire.

2-Pole Circuit Breaker with 2-Wire Grounded Load Connection
(3 Wires to Hot Tub, 2-Hot (L1-L2), 1-Ground)



Main Panel with Secondary GFCI Shut-Off Box Using a
2-Pole GFCI Breaker with 2-Wire Grounded Connection
(3 Wires to Hot Tub, 2-Hot (L1-L2), 1-Ground)



Final Electrical Connections

Now, you can have the final electrical connections made to your spa. Various wiring diagrams are illustrated on the next few pages. Each spa model has a slightly different configuration, so use the chart below to find the configuration for your spa.

Configuration #	Details
1	240 VAC Connections for North America 60 Hz: <ul style="list-style-type: none">• 880 Altamar, Cameo, Capri, Majesta, Marin, Optima, Maxxus Models• 780 Camden, Certa, Chelsee, Hamilton Models• Elite Constance, Victoria Models• 680 Burlington, Hartford, Hawthorne Models
2	120 VAC Connections for North America 60 Hz: <ul style="list-style-type: none">• Denali, Dover, Tacoma Models
3	240 VAC Connections for North America 60 Hz <ul style="list-style-type: none">• Denali, Dover, Tacoma Models

Ask your electrician to view the diagrams on the next few pages to ensure all connections are correct.

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