

# ELECTRICAL INFORMATION

**Caution: Risk of electrical shock.  
Read and follow all instructions.**

## Important Safety Instructions

All electrical connections to this spa package **MUST** be done by qualified licensed electrician in accordance with National Electrical Code (NEC) and with state/local electrical codes in effect at the time of installation.

**NOTE: Prior to performing any service to the spa equipment, turn OFF all primary electrical power at the main circuit breaker or disconnect panel.**

To make spa electrical connections, remove the exterior equipment access panel, locate the electrical control box, remove the control box cover and follow the wiring diagram on the inside of the control box cover. **Connections should be made using copper conductors only.** Connecting wires, circuit breakers or fuses must all be sized to accommodate the Total Ampere load as specified on the equipment label.

This equipment is designed to operate on 50Hz or 60Hz alternating current only, at 240 volts or 120 volts, as required.

**NOTE: All unions must be hand-tight and all slice valves must be locked in the OPEN position before filling or refilling spa!**

**A clip is provided to help keep the slice valve open. Run spa and check for union water leaks before reinstalling front panel.**

## Ground-Fault Circuit Interrupter

A qualified licensed electrician must connect the spa to a circuit protected by a GFCI. This is a requirement by the National Electric Code, article 680-42, and is also in compliance with Underwriter's Laboratories, Inc.

## Residual Current Device



The appliance should be supplied through a residual current device (RCD) or Ground Fault Interrupter (GFCI) with a rated tripping current not exceeding 30mA.

Means for disconnection

must be incorporated in the fixed wiring in accordance with the wiring rules. Parts containing live voltage, except parts supplied with safety extra-low voltage not exceeding 12V, must be inaccessible to a person in the bath. Earthed appliances must be permanently connected to fixed wiring.

## Installation Options

On some models, knockouts are provided in the cabinet base to bring the conduit to the equipment compartment. A hole may need to be drilled in the pedestal or base if an alternate electrical service entrance is desired. Refer to the manufacturer's nameplate located on the kick plate to determine your spa's ampere requirements.

**Note: Copper wire is strongly recommended for all electrical connections.**

Spas installed for 120 volt operation require a 3-wire, 40, 30, 20 or 15 amp., 120 volt sub-feed in non-metallic pipe to the spa equipment compartment (line 1, neutral and ground). A green colored terminal (or wire connector marked "G", or "GR", or "Grounding") is provided in the control box. To reduce the risk of electrical shock, connect this terminal or connector to the grounding terminal of your electrical service or supply

panel with a continuous green insulated copper wire equivalent to the circuit conductor supplying this equipment, but no smaller than No. 12 AWG. A second pressure wire connector is provided on the surface of the control box for bonding to local ground points. To reduce the risk of electrical shock, this connector should be bonded with a No. 6 AWG copper wire to any metal ladders, water pipes, or any metal within 5 ft. of the spa.

Spas installed for 240 volt, 60 Hz, single phase operation require a 4-wire, 60, 50, 40 or 30 amp., 240 volt sub-feed in non-metallic pipe to the spa equipment compartment (line 1, line 2, neutral and ground). A green colored terminal (or wire connector marked "G", or "GR", or "Grounding") is provided in the control box. To reduce the risk of electrical shock, connect this terminal or connector to the grounding terminal of your electrical service or supply panel with a continuous green insulated copper wire equivalent to the circuit conductor supplying this equipment, but no smaller than No. 12 AWG. A second pressure wire connector is provided on the surface of the control box for bonding to local ground points. To reduce the risk of electrical shock, this connector should be bonded with a No. 6 AWG copper wire to any metal ladders, water pipes, or any metal within 5 feet (1.5m) of the spa.

#### CORD CONNECT

Certain models come with a power cord which contains the GFCI breaker. All electrical connections from the control pack to the outlet should be done by a qualified electrician. For your safety, when the electrician is installing the 15 amp single electrical outlet and waterproof cover, the outlet should be no further than 10 feet (3m) from the spa [N.E.C. Article 680 and all local codes].

The Ground Fault Circuit Interrupter (GFCI) is located on the power cord. This device is for your protection. It is very important to protect it along with the moisture resistant cover from damage. Test once a month, with the plug connected to the power supply.

#### **NEVER CONNECT SPA TO EXTENSION CORD!**

A pressure wire connector is provided on the exterior surface of the control box inside the spa. This is to permit the connection of a ground bonding wire between this point and any metal equipment, enclosures, reinforced concrete pad, pipe, or conduit within 5 feet (1.5m) of the spa (if needed to comply with local building code requirements). The bonding wire must be at least a #10 AWG solid copper wire.

Bond the spa to all exposed metal equipment or fixtures, handrails, and concrete pad per N.E.C. Article 680 and all local codes.

1. Push the "TEST" button on the GFCI breaker. The spa should stop operating and the GCFI power indicator will go out.
2. Wait 30 seconds, then push the "RESET" button. Power will be restored to the spa and the GFCI power indicator will turn on. If the GFCI fails to operate in this manner, your spa may have an electrical malfunction, and you may be risking electrical shock. Turn off all circuits and do not use the spa until the problem has been corrected by an authorized service agent.

**WARNING:** Removal of the GFCI from the spa's power cord will result in an unprotected spa and will void the spa's warranty.

**IMPORTANT:** Should you ever find the need to move or relocate your spa, it is essential that you understand and apply these installation requirements. Your spa has been carefully engineered to provide maximum safety against electrical shock.

**INSTRUCTIONS:**

Find your spa listed within the charts on pages 16-20 of this manual then refer to the key below to determine what electrical service your spa requires.

240 Volt Installation Units Electrical Requirements		120 Volt Installation Units Electrical Requirements	
Letter	Requirement	Letter	Requirement
A	- 240 volt/60 amp. - 60 Hz - Single phase - 4-wire service (line 1, line 2 neutral and ground)	E	- 120 volt/40 amp. - 60 Hz - Single phase - 3-wire service (line 1, neutral and ground)
B	- 240 volt/50 amp. - 60 Hz - Single phase - 4-wire service (line 1, line 2, neutral and ground)	F	- 120 volt/30 amp. - 60 Hz - Single phase - 3-wire service (line 1, neutral and ground)
C	- 240 volt/40 amp. - 60 Hz - Single phase - 4-wire service (line 1, line 2, neutral and ground)	G	- 120 volt/20 amp. - 60 Hz - Single phase - 3-wire service (line 1, neutral and ground)
D	- 240 volt/30 amp. - 60 Hz - Single phase - 4-wire service (line 1, line 2, neutral and ground)	H	- 120 volt/15 amp. - 60 Hz - Single phase - 3-wire service (line 1, neutral and ground)
Z	<b>NOT NORTH AMERICAN</b> - 240 volt - 50 Hz - Single-, two-, or three- phase service - Refer to wiring diagram or pouch on control system inside cabinet for specific wiring and phase information.	<div style="background-color: red; color: white; padding: 10px; text-align: center;"> <p><b>SECTION Z:</b> <b>APPLIES TO SPAS INSTALLED OUTSIDE OF NORTH AMERICA</b></p> </div>	

Number	Meaning
1	The heater will remain running with pump(s) on high speed.
2	The heater can be activated only with the pump on low speed. Only the spa light can be operating at the same time without disabling the heater. See your authorized dealer to select this option.

Check your SALES AGREEMENT  
 Most spas have a blower  
 see pages 20, 21

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DEDICATED 240V UNITS WITHOUT BLOWER					
MODELS	NORTH AMERICA				NOT NORTH AMERICA
	240V/60A	240V/50A	240V/40A	240V/30A	240V/50Hz
9000		B1	C2		Z
8500		B1	C2		Z
8000		B1	C2		Z
7500		B1	C2		Z
7000		B1	C2		Z
5600	A1		C2		Z
5400	A1		C2		Z
5300	A1		C2		Z
5200	A1		C2		Z
5100 (240V)			C1	D2	Z
4600		B1		D2	Z
4400		B1		D2	Z
4300		B1		D2	Z
4200		B1		D2	Z
4100			C1	D2	Z
811	A1		C2		Z
781	A1		C2		Z
780	A1		C2		Z
581	A1		C2		Z
482	A1		C2		Z
481	A1		C2		Z
480	A1		C2		Z
472	A1		C2		Z
471	A1		C2		Z
470	A1		C2		Z
461	A1		C2		Z
451			C1	D2	Z
381		B1	C2		Z

See page 16 for explanation of corresponding letters and numbers.

**CHECK YOUR SALES AGREEMENT**  
**MOST SPAS HAVE A BLOWER**  
 See pages 20-21

DEDICATED 240V UNITS WITHOUT BLOWER (continued)					
MODELS	NORTH AMERICA				NOT NORTH AMERICA
	240V/60A	240V/50A	240V/40A	240V/30A	240V/50Hz
380		B1	C2		Z
371		B1	C2		Z
370		B1	C2		Z
311		B1		D2	Z
Amour		B1	C2		Z
Cabaret	A1		C2		Z
Chateau	A1		C2		Z
Elegant	A1		C2		Z
Envie	A1		C2		Z
ES	A1				Z
ESR	A1		C2		Z
ESX	A1		C2		Z
Fontaine	A1		C2		Z
Grand	A1		C2		Z
Intrigue		B1	C2		Z
Joli	A1		C2		Z
Monarque	A1		C2		Z
Mystique	A1		C2		Z
Nuage	A1		C2		Z
Prestige	A1		C2		Z
Rendezvous	A1		C2		Z
Trio			C1	D2	Z

See page 16 for explanation of corresponding letters and numbers.

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DEDICATED 240V UNITS WITH BLOWER					
MODELS	NORTH AMERICA				NOT NORTH AMERICA
	240V/60A	240V/50A	240V/40A	240V/30A	240V/50Hz
9000	A1		C2		Z
8500	A1		C2		Z
8000	A1		C2		Z
7500	A1		C2		Z
7000	A1		C2		Z
5600	A1		C2		Z
5400	A1		C2		Z
5300	A1		C2		Z
5200	A1		C2		Z
5100 (240V)		B1	C2		Z
4600	A1		C2		Z
4400	A1		C2		Z
4300	A1		C2		Z
4200	A1		C2		Z
4100		B1		D2	Z
811	A1		C2		Z
781	A1		C2		Z
780	A1		C2		Z
581	A1		C2		Z
482	A1		C2		Z
481	A1		C2		Z
480	A1		C2		Z
472	A1		C2		Z
471	A1		C2		Z
470	A1		C2		Z
461		B1	C2		Z
451			C1	D2	Z
381	A1		C2		Z

See page 16 for explanation of corresponding letters and numbers.

**DEDICATED 240V UNITS WITH BLOWER (continued)**

MODELS	NORTH AMERICA				NOT NORTH AMERICA
	240V/60A	240V/50A	240V/40A	240V/30A	240V/50Hz
380	A1		C2		Z
371	A1		C2		Z
370	A1		C2		Z
311		B1		D2	Z
Amour		B1	C2		Z
Cabaret	A1		C2		Z
Chateau	A1		C2		Z
Elegant	A1		C2		Z
Envie	A1		C2		Z
ES	A1				Z
ESR	A1		C2		Z
ESX	A1		C2		Z
Fontaine	A1		C2		Z
Grand	A1		C2		Z
Intrigue		B1	C2		Z
Joli	A1		C2		Z
Monarque	A1		C2		Z
Mystique	A1		C2		Z
Nuage	A1		C2		Z
Prestige	A1		C2		Z
Rendezvous	A1		C2		Z
Trio			C1	D2	Z

ENGLISH

See page 16 for explanation of corresponding letters and numbers.

CONVERTIBLE UNITS WITHOUT GFCI CORD				
Model	120V/40A	120V/20A	240V/50A	240V/40A
5100 (120V)	E1	G2	H1	C2
102	E1	G2	H1	C2
103	E1	G2	H1	C2
Cirque	E1	G2	H1	C2

**NOTE:** If you order the 5100 as a 120V model it leaves the factory as a 120V unit and can be converted up to 240 Volts. The 102, 103 and Cirque leave the factory as 240V units and can be converted down to 120 Volts. Electrical service requirements will change after conversion.

CONVERTIBLE UNITS WITH GFCI CORD				
Model	Cord Connected 120V/30A	Cord Connected 120V/15A	Cord Included 120V/30A	Cord Included 120V/15A
101			F1	H2
M50	F1	H2		
M61	F1	H2		
M71	F1	H2		
Duet			F1	H2
Image	F1	H2		
Forte	F1	H2		
Voeux	F1	H2		

**NOTE:** Units included in "Convertible Units with GFCI Cord" chart (above) leave the factory as 120V units and can be converted up to 240V units. See chart (below) "GFCI Cord Units After Conversion" for voltage and amperage requirements after conversion to a 240V unit.

GFCI CORD UNITS AFTER CONVERSION		
Model	240V/40A	240V/30A
101	C1	D2
M50	C1	D2
M61	C1	D2
M71	C1	D2
Duet	C1	D2
Image	C1	D2
Forte	C1	D2
Voeux	C1	D2

Applicable to North American Spas Only.

See page 16 for explanation of corresponding letters and numbers.