



2020

- Portable Spas
- Swim Spas

### Portable Spa Pre-Delivery Guide

240V / 60 Hz Installation    230V / 50 Hz Installation

For spas sold after January 1, 2020 in the United States, Canada, and Internationally



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# Table of Contents

<b>Locating Your Spa . . . . .</b>	<b>1</b>
<b>Pre-Delivery Checklist. . . . .</b>	<b>1</b>
<b>Planning the Best Location . . . . .</b>	<b>1</b>
<b>Getting the Spa Into Your Yard . . . . .</b>	<b>2</b>
<b>Preparing a Good Foundation . . . . .</b>	<b>3</b>
<b>Clearance for Service Access . . . . .</b>	<b>4</b>
<b>Electrical Service Stub-up. . . . .</b>	<b>5</b>
<b>Electrical Requirements . . . . .</b>	<b>7</b>
<b>240V 60 Hz Electrical Installation . . . . .</b>	<b>7</b>
<b>120V 60 Hz Electrical Installation USA/Canada . . . . .</b>	<b>13</b>
<b>230V 50 Hz Electrical Installation . . . . .</b>	<b>14</b>

***This guide is intended for owners of Cal Spas portable and fitness/swim spas sold in the United States, Canada and world-wide after January 1, 2020.***

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Due to continuous improvement programs, all models, operation, and/or specifications are subject to change without prior notice.

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3/17/21

## CONTACT INFORMATION

For customer service, please contact your authorized dealer immediately. If you need additional information and/or assistance, contact:

**LMS Customer Service Department  
1462 East Ninth Street  
Pomona, CA 91766.**

Toll Free: 1-800-CAL-SPAS  
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# Locating Your Spa

## Pre-Delivery Checklist

Most cities and counties require permits for exterior construction and electrical circuits. In addition, some communities have codes requiring residential barriers such as fencing and/or self-closing gates on property to prevent unsupervised access to the property by children. Your dealer can provide information on which permits may be required and how to obtain them prior to the delivery of your spa.

Before Delivery	
	Choose a suitable location for the spa
	Plan your delivery route
	Lay a 5 - 8 cm concrete slab
	Install dedicated electrical supply
After Delivery	
	Place spa on slab
	Connect electrical components

## Planning the Best Location

### Safety First

Do not place your spa within 10 feet (3 m) of overhead power lines.

### Consider How You Will Use Your Spa

How you intend to use your spa will help you determine where you should position it. For example, will you use your spa for recreational or therapeutic purposes? If your spa is mainly used for family recreation, be sure to leave plenty of room around it for activity. If you will use it for relaxation and therapy, you will probably want to create a specific mood around it.

### Plan for Your Environment

If you live in a region where it snows in the winter or rains frequently, place the spa near a house entry. By doing this, you will have a place to change clothes and not be uncomfortable.

### Consider Your Privacy

In a cold-weather climate, bare trees won't provide much privacy. Think of your spa's surroundings during all seasons to determine your best privacy options. Consider the view of your neighbors as well when you plan the location of your spa.

### Provide a View with Your Spa

Think about the direction you will be facing when sitting in your spa. Do you have a special landscaped area in your yard that you find enjoyable? Perhaps there is an area that catches a soothing breeze during the day or a lovely sunset in the evening.

### Keep Your Spa Clean

In planning your spa's location, consider a location where the path to and from the house can be kept clean and free of debris.

Prevent dirt and contaminants from being tracked into your spa by placing a foot mat at the spa's entrance where the bathers can clean their feet before entering your spa.

### Allow for Service Access

Make sure the spa is positioned so that access to the equipment compartment and all side panels will not be blocked.

Many people choose to install a decorative structure around their spa. If you are installing your spa with any type of structure on the outside, such as a gazebo, remember to allow access for service. It is always best to design special installations so that the spa can still be moved, or lifted off the ground.

# Getting the Spa Into Your Yard

## Check the Dimensions of Your New Spa

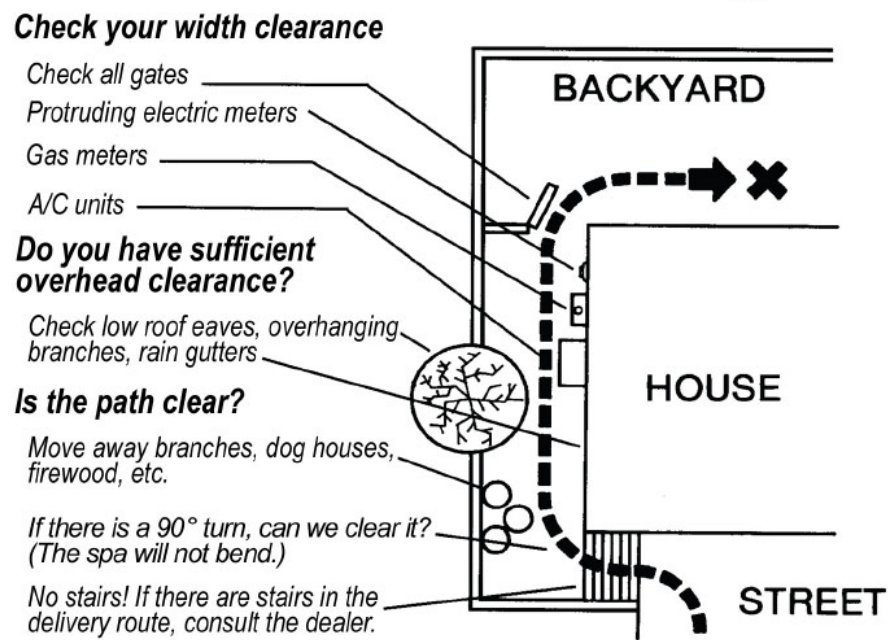
During delivery, the spa must remain on the delivery cart at all times. Compare the dimensions to the width of the gates, sidewalks, and doorways along the delivery route. It may be necessary for you to remove a gate or partially remove a fence in order to provide an unobstructed passageway to the installation location.

## Plan the Delivery Route

Consider the following when planning your delivery route:

- Check the width of gates, doors and sidewalks to make sure your spa will pass through unobstructed. You may have to remove a gate or part of a fence to allow for adequate width clearance.
- Are there low roof eaves, overhanging branches or rain gutters that could be an obstruction to overhead clearance?
- 8' spas need at least 42" wide gate and 9' height clearance.
- If the delivery route will require a 90° turn, check the measurements at the turn to ensure the spa will fit.
- Are there protruding gas meters, water meters or A/C units on your home which will cause obstructions along the delivery path to your yard?
- Are there stairs in your delivery route? If so, you must consult your Cal Spas dealer prior to delivery to make adequate preparations.

## A CRANE FOR MOVING THE SWIM SPA IS REQUIRED



## Special Circumstances

The use of a crane for delivery and installation is necessary if you are unable to provide an adequate delivery route. It is used primarily to avoid injury to your spa, your property or to delivery personnel. Your Cal Spas dealer may be able to assist you with the arrangements. If your spa delivery requires the use of a crane, the cost of a crane is generally not included in the standard delivery service. **For Swim Spa delivery: all Swim Spas must be installed with the use of a crane.**

## Preparing a Good Foundation

Your spa needs a solid and level foundation. The area that it sits on must be able to support the weight of the spa, with water and the occupants who use it. If the foundation is inadequate, it may shift or settle after the spa is in place, causing stress that could DAMAGE YOUR SPA SHELL AND FINISH.

**Damage caused by inadequate or improper foundation support is not covered by the warranty. It is the responsibility of the spa owner to provide a proper foundation for the spa.**

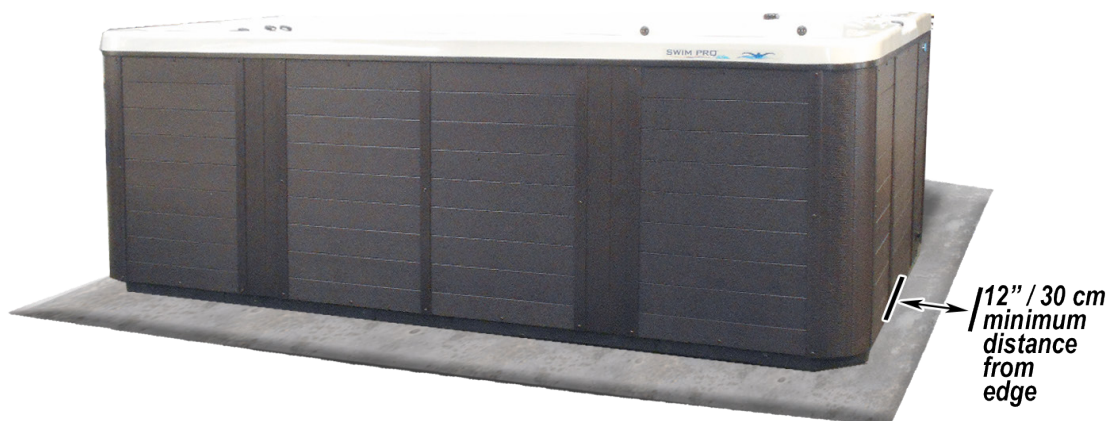
Place the spa on an elevated 3 to 4" / 30 cm concrete slab. Pavers, gravel, brick, sand, timbers or dirt foundations are **not** adequate to support the spa.

We strongly recommend that a qualified, licensed contractor prepare the foundation for your spa.

If you are installing the spa indoors, pay close attention to the flooring beneath it. Choose flooring that will not be damaged or stained.

If you are installing your spa on an elevated wood deck or other structure, it is highly recommended that you consult a structural engineer or contractor to ensure the structure will support the weight of 150 pounds per square foot (732 kg / m<sup>2</sup>).

To properly identify the weight of your new spa when full, remember water weighs 8.33 lbs. per gallon, or 1 kg per liter. For example, an average 8' spa holds approximately 500 gallons, or 1892 liters, of water. Using this formula, you will find that the weight of the water alone is 4,165 lbs, or 1892 kg. Combined with the dry weight of the spa you will note that this spa will weigh approximately 5,000 lbs, or 2267 kg, when full of water.



**Important: See pages 5 and 6 for planning the stub-up location before the foundation is laid.**

## Clearance for Service Access

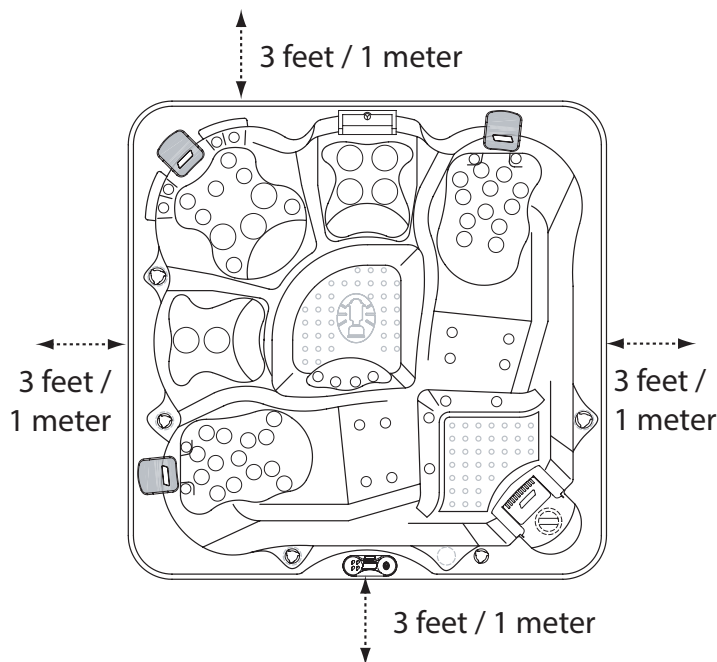
While you are planning where to locate your spa, you need to determine how much access you will need for service.

All spa models require a minimum of three feet / one meter access to all sides of the spa for potential service. For this reason, the spa should never be placed in a manner where any side is permanently blocked. Examples include placing the spa against a building, structural posts or columns, or a fence.

Spa models require access to all sides in case they need service or repair. See the figure below.

If you are planning to enclose or surround your spa with a deck, make sure there is easy access for service or repair.

Spas require clearance on all sides of the spa.



## Electrical Service Stub-up

The location of the electrical service cable is a decision each spa owner needs to decide. Running the electrical cable lay on top of the slab is visually unappealing and can present a trip hazard.

Most spa owners prefer to bury electrical conduit before the slab is laid and run the cable up through the slab. The location of the conduit in the concrete slab is called the stub-up.

You will need to have a contractor lay down a concrete slab before the spa is delivered (as described on page 3). The stub-up needs to be located directly next to the cabinet as shown in the figures below.

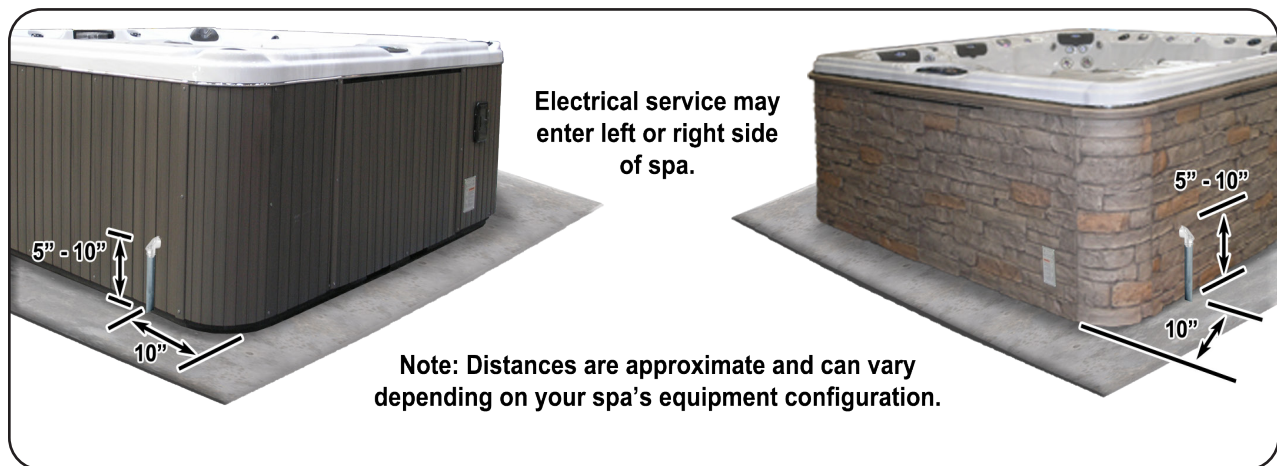
The spa installer or electrician will need to drill a hole in the spa cabinet approximately 5"-10" / 12-25 cm up from the concrete slab. This will be where the conduit will enter the spa equipment area.

Use rigid pipe and a metal elbow outside the spa. You can use flex pipe inside the equipment area to run the electrical wire from the elbow to the control box.

### Square and Rectangular Spas

The stub-up should be approximately 10" / 25 cm back from the front of the spa and no higher than 10" / 25 cm above the concrete slab. It can be placed on either the left or right side of the spa.

**Note:** The swim spa F-1781 requires TWO stub ups: one for the front end and a second for back end. They can be placed on either the left or right side as shown below.



### Hiding the Stub-up

Some spa owners prefer to locate the stub-up inside the spa cabinet. While this is certainly an option for providing electrical service to your spa, we can not provide the location of the stub-up for your particular spa model. Cal Spas manufactures a large number of different spa models, each with different options and configurations.

If you want to hide the stub-up inside the cabinet, you will have to wait until it is delivered to determine the best location where it will not interfere with the spa equipment.

### Triangular and Round Spas

The stub-up for triangular spas can be hidden behind the corner on one side. It can be seen only when you face the rear of the spa (as shown in the figure below). The stub-up should be approximately 10" / 25 cm back from the front of the spa and no higher than 10" / 25 cm above the concrete slab. It can be placed on either the left or right side of the spa.

The stub-up for round spas can be hidden slightly behind the curvature of the spa on the left side (as it is viewed from the back). The stub-up should be no higher than 10" / 25 cm above the concrete slab.

**Note: Distances are approximate and can vary depending on your spa's equipment configuration.**

**Front of spa** (with arrow pointing to the front of the triangular spa)

**Front of spa** (with arrow pointing to the front of the round spa)

**For models A621T and Z628T, locate the electrical service behind the spa on one of the two back sides -- left or right side of spa (but NOT BOTH).**

**For model A511R, locate the electrical service behind the spa on the left side (as it is viewed from the back).**



# Electrical Requirements

## 240V 60 Hz Electrical Installation

All 240V spas must be permanently connected (hard wired) to the power supply. See the GFCI and wiring requirements below.

**These instructions describe the only acceptable electrical wiring procedure. Spas wired in any other way will void your warranty and may result in serious injury.**

When installed in the United States, the electrical wiring of this spa must meet the requirements of NEC 70 and any applicable local, state, and federal codes.

**The electrical circuit must be installed by an electrical contractor and approved by a local building or electrical inspector.**

**Failure to comply with state and local codes**

**may result in fire or personal injury and will be the sole responsibility of the spa owner.**

The power supplied to the spa must be on a dedicated GFCI protected circuit as required by NEC 70 with no other appliances or lights sharing the power.

Use copper wire with THHN insulation. Do not use aluminum wire.

Use the table below and on the next page to determine your GFCI and wiring requirements.

Wires that run over 100 feet must increase wire gauge to the next lower number. For example: A normal 50 amp GFCI with four #6 AWG copper wires that run over 100 feet would require you to use four #4 AWG copper wires.

### GFCI and Wiring Requirements USA/Canada

**Applies to all spa models except Ultimate Fitness -- see next page**

Control System	GFCI Required	Wires Required	Wiring Diagram
NEO 1500 / BP501 (one pump system)	One 40 amp GFCI	Four #8 AWG copper wires	Use wiring diagram 1 (see page 10)
BP501G1 (two pump system) and BP501X (three pump system)	One 50 amp GFCI	Four #6 AWG copper wires	

**Applies to all fitness spas except F-1896 USA/Canada****Standard configuration with one 5.5 kW heater**

Pumps	Spa Model	Control System	GFCI Required	Wires Required	Wiring Diagram
2	F-1222	BP501G1	One 50 amp GFCI	Four #6 AWG copper wires	Use wiring diagram 1 (see page 10)
2	F-1325	BP501G1	One 50 amp GFCI		
2	F-1421	BP501X	One 50 amp GFCI		
3	F-1437	BP501X	One 50 amp GFCI		
4	F-1641	BP501X	One 60 amp GFCI		
4	F-1681	NEO 2100	One 60 amp GFCI		
4	F-1537	NEO 2100	One 60 amp GFCI		

**Configuration for Option OPT18-200 (auxiliary 5.5 kW heater)**

Pumps	Spa Model	Control System	GFCI Required	Wires Required	Wiring Diagram
3	F-1437	BP501X	One 50 amp GFCI	Four #6 AWG copper wires	Use wiring diagram 2 (see page 11)
3	F-1641	BP20X	One 60 amp GFCI and one 30 amp GFCI	Four #6 AWG copper wires	Use wiring diagram 2 (see page 11)

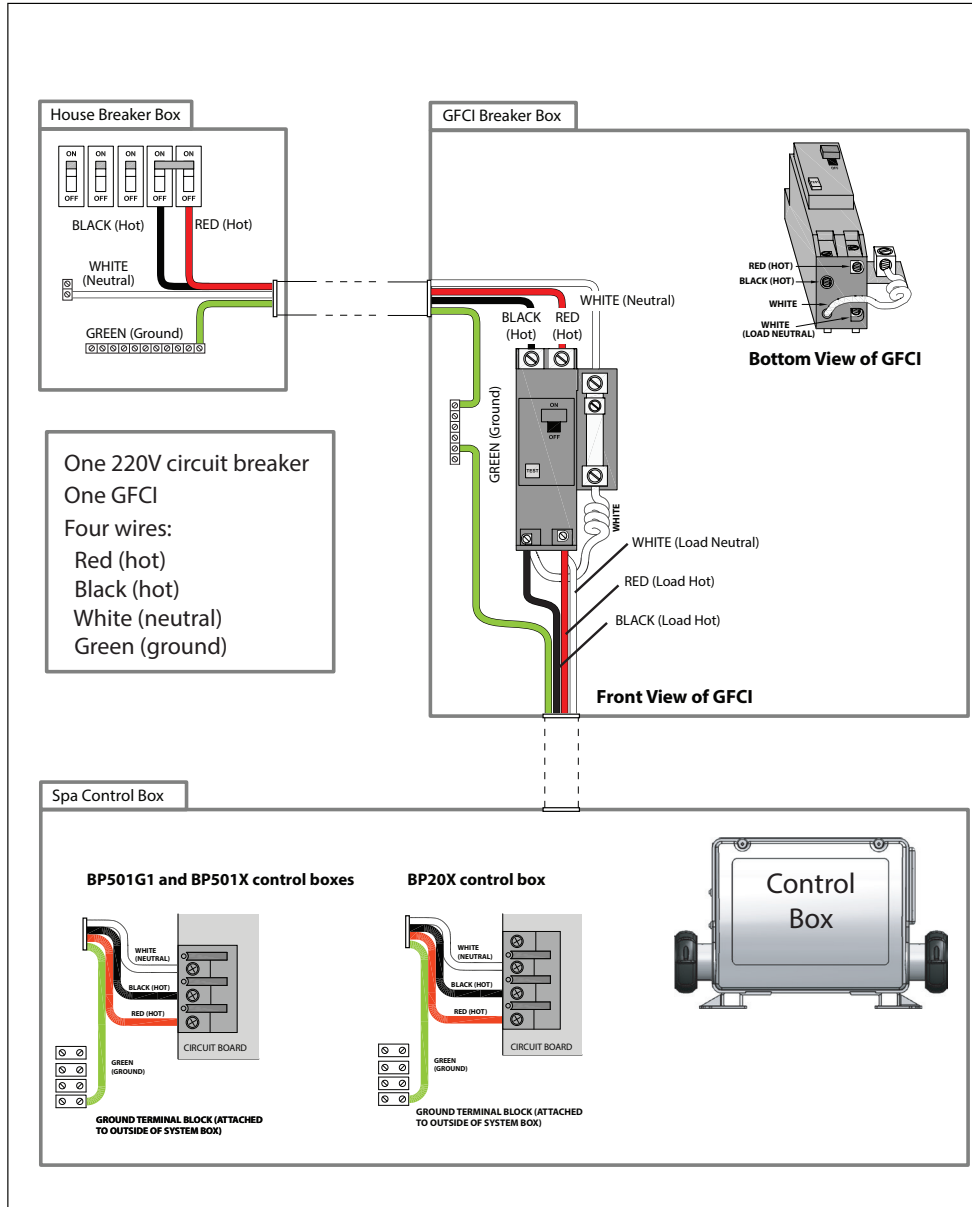
**Applies to model F-1896****Standard configuration with one 5.5 kW heater**

<b>Control System</b>	<b>Spa Side</b>	<b>GFCI Required</b>	<b>Wires Required</b>	<b>Wiring Diagram</b>
BP501G1	Service (spa side)	One 40 amp GFCI	Four #8 AWG copper wires	Use wiring diagram 3 (see page 12)

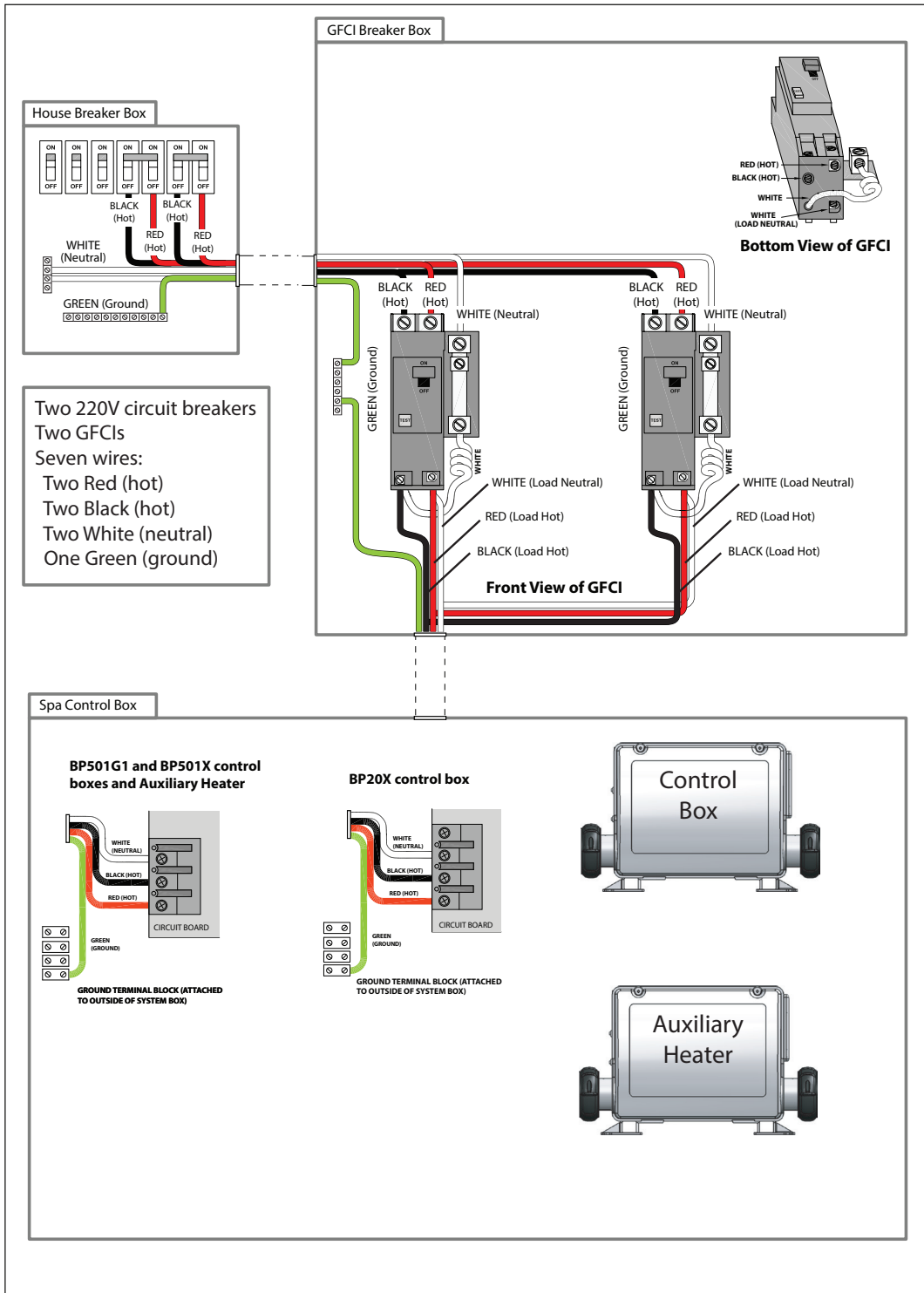
**Configuration for Option OPT18-200 (auxiliary 5.5 kW heater)**

<b>Control System</b>	<b>Spa Side</b>	<b>GFCI Required</b>	<b>Wires Required</b>	<b>Wiring Diagram</b>
BP20X	Service 1 (swim side)	One 60 amp GFCI	Four #6 AWG copper wires	Use wiring diagram 3 (see page 12)
	Service 2 (swim side)	One 30 amp GFCI	Three #8 AWG copper wires	

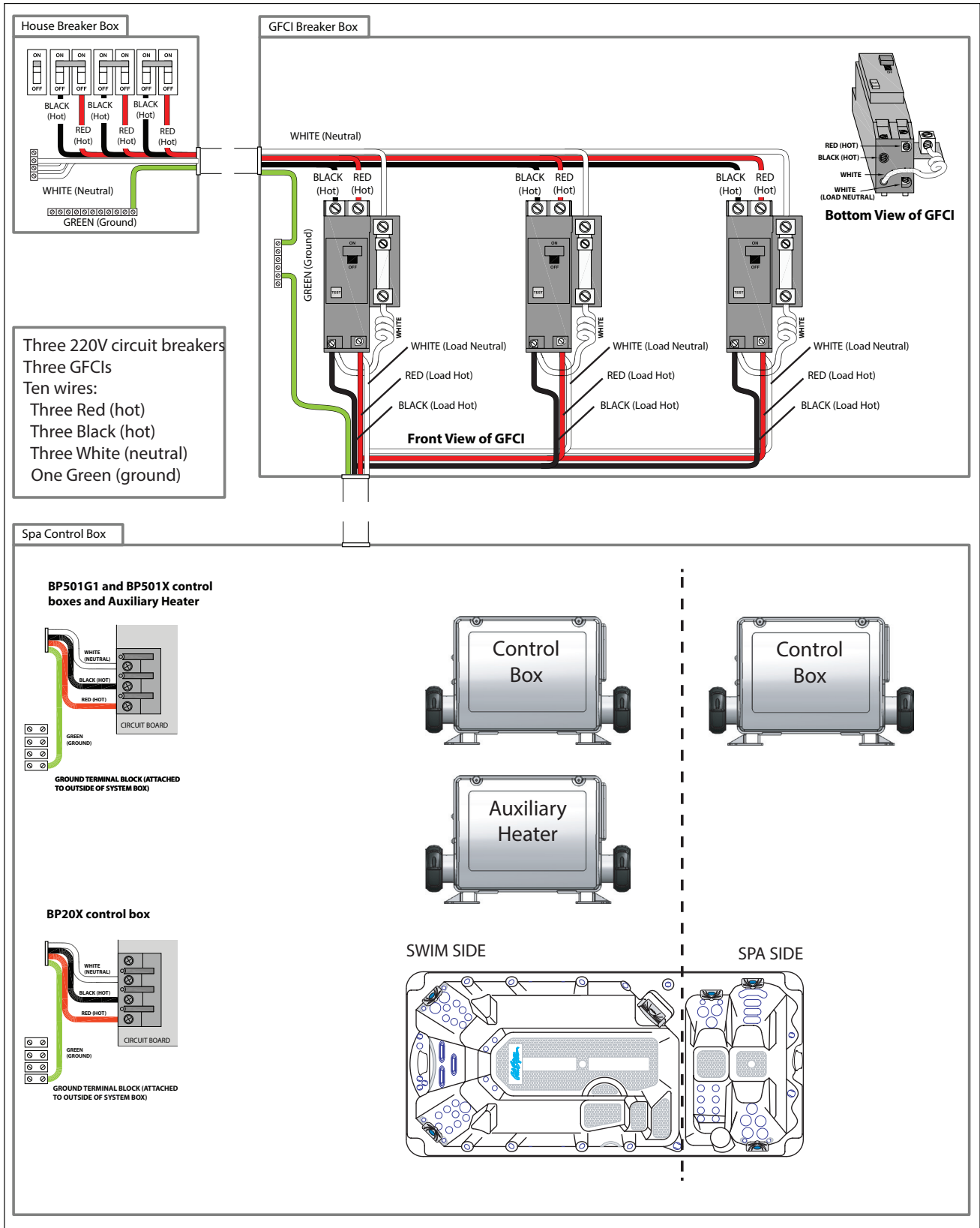
**GFCI Wiring Diagram 1 USA/Canada 60 Hz**



### GFCI Wiring Diagram 2 USA/Canada 60 Hz



**GFCI Wiring Diagram 3 USA/Canada 60 Hz**



## 120V 60 Hz Electrical Installation USA/Canada

Always follow applicable local, state and federal codes and guidelines.

Use only a dedicated electrical line with a 15-amp breaker.

Cord-and-plug connections may not use a cord longer than 15 ft (4.6 m) and must be plugged into a dedicated 15-amp GFCI connection. Do not use extension cords!

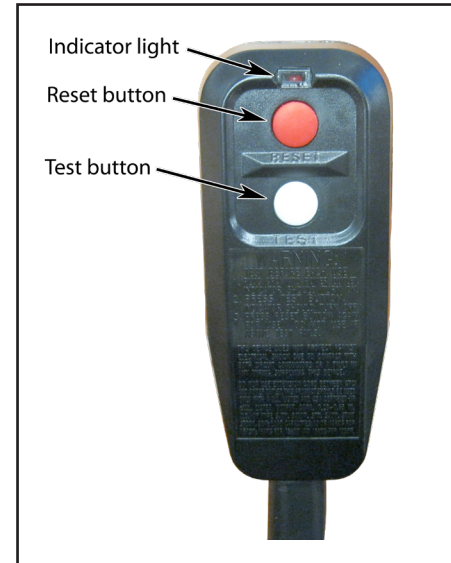
Always use a weatherproof-covered receptacle.

Receptacle shall be located not less than 5 ft (1.5 m) from and not exceeding 10 ft (3.0 m) from the inside wall of the spa.

Do not bury the power cord.

If your cord becomes damaged, replace it before next usage.

All 120V spas must have a GFCI. This can be either a 15-amp GFCI receptacle or a GFCI cord and plug kit as shown below (CKIT110 - P/N ELE09700086).



## 230V 50 Hz Electrical Installation

All 230V spas must be permanently connected (hardwired) to the power supply. These instructions describe the only acceptable electrical wiring procedure. Spas wired in any other way will void your warranty and may result in serious injury.

This is the only acceptable electrical wiring procedure. Spas wired in any other way will void your warranty. See the wiring requirements below and wiring diagrams on page 15 through page 21.

The electrical wiring of this spa must meet the requirements of any applicable local, state, and federal codes. The electrical circuit must be installed by an electrical contractor and approved by a local building / electrical inspector.

The power supplied to the spa must be on a dedicated

RCD protected circuit with no other appliances or lights sharing the power.

Use copper wire with THHN insulation. Do not use aluminum wire.

Use the tables below to determine your RCD and wiring requirements.

When wires larger than #6 AWG are required, install a junction box near the spa and use #6 AWG wire between the junction box and the spa.

Wires that run over 25 meters must increase wire gauge to the next lower number. For example: A normal 50 amp RCD with three #6 AWG copper wires that run over 25 meters would require you to use three #4 AWG copper wires.

### RCD and Wiring Requirements

**Note:** SINGLE PHASE ONLY!

Three phase power requires 400V.  
Only use 230V.

Use this table to determine your wiring configuration.

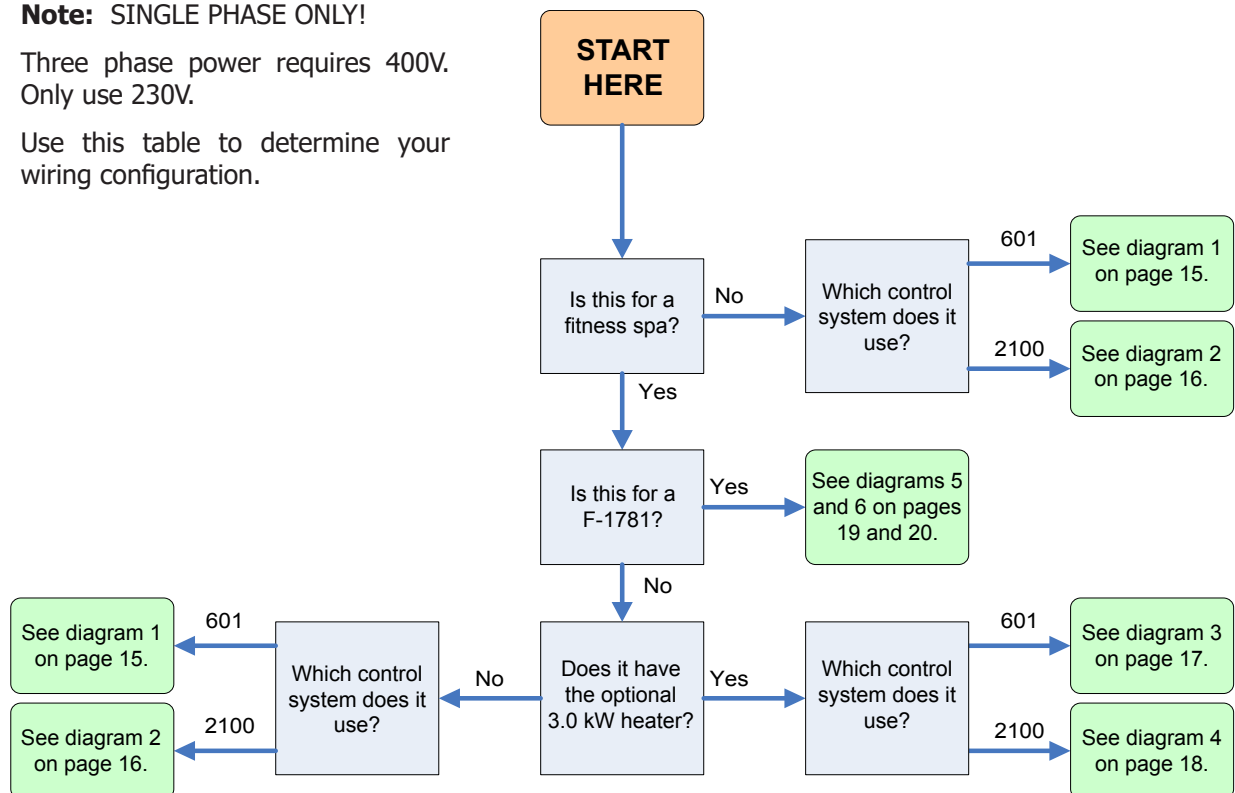
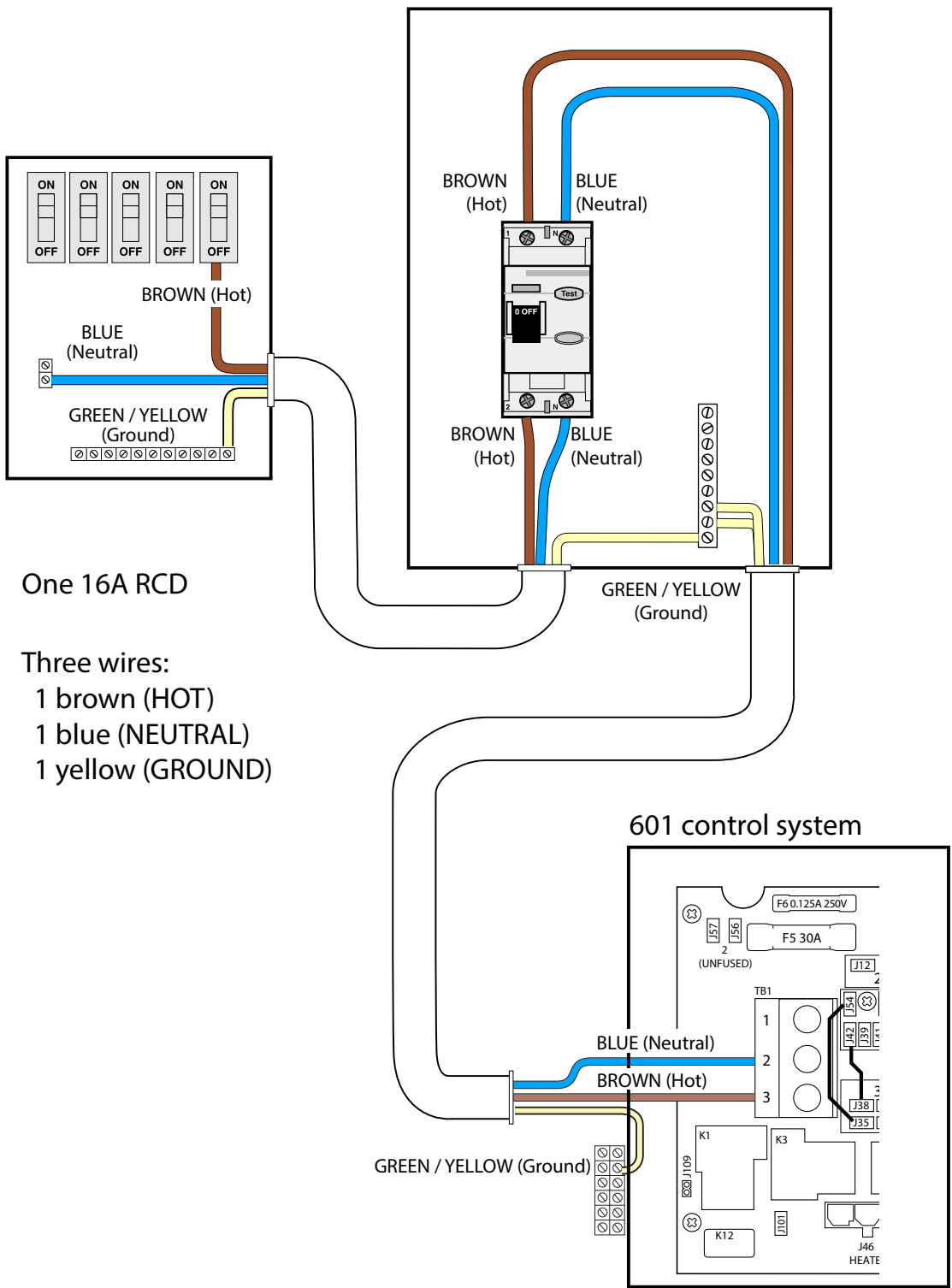




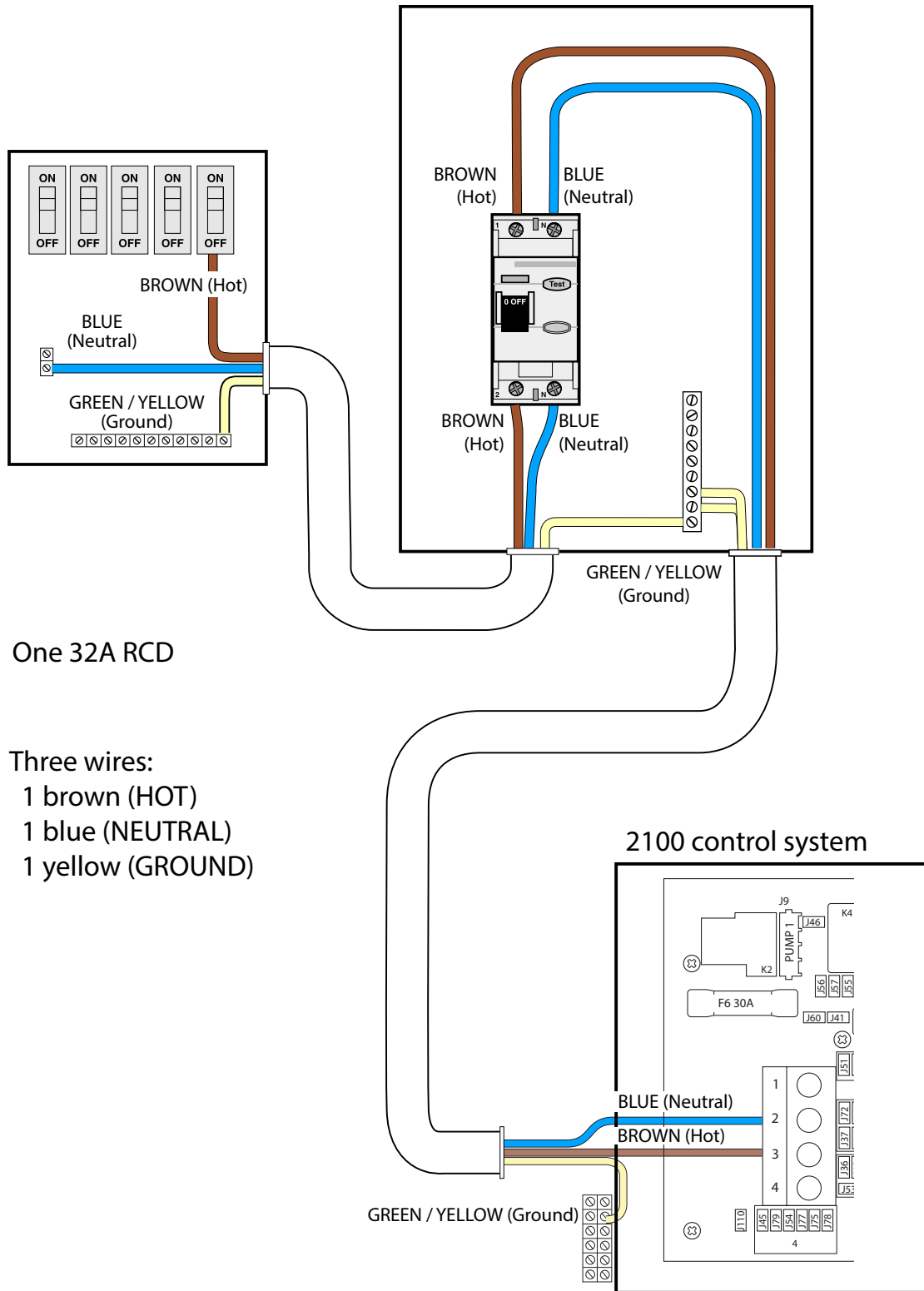
Diagram 1 230 Volts 50 Hz



One 16A RCD

- Three wires:
- 1 brown (HOT)
- 1 blue (NEUTRAL)
- 1 yellow (GROUND)

Diagram 2 230 Volts 50 Hz



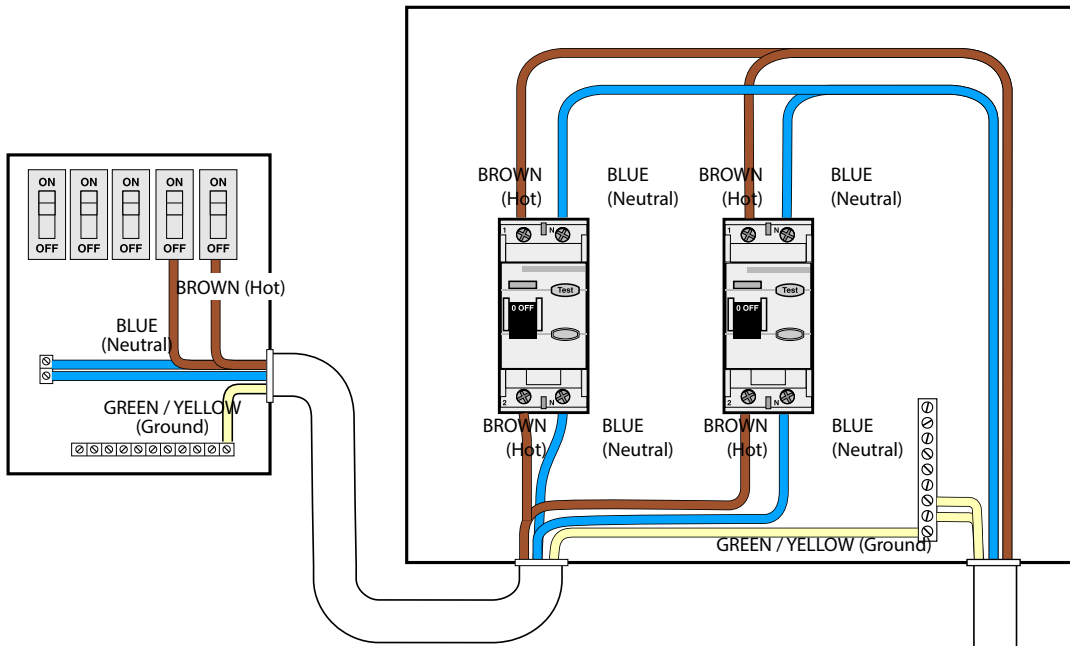
One 32A RCD

Three wires:

- 1 brown (HOT)
- 1 blue (NEUTRAL)
- 1 yellow (GROUND)

2100 control system

Diagram 3 230 Volts 50 Hz

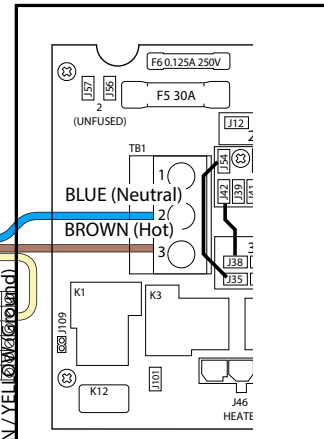


Two 16A RCDs

Six wires:

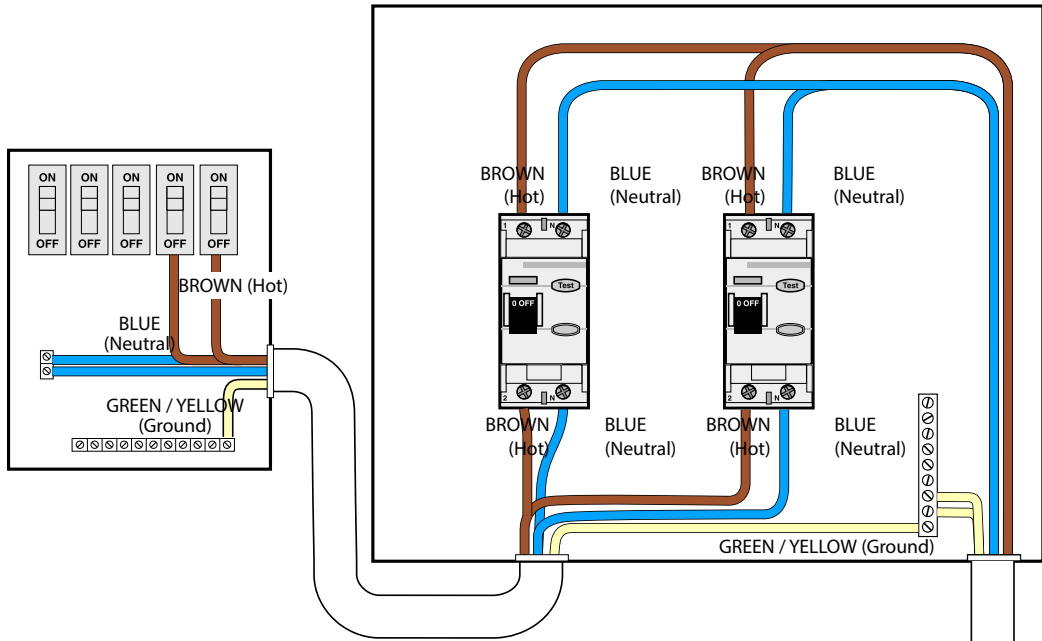
- 2 brown (HOT)
- 2 blue (NEUTRAL)
- 2 yellow (GROUND)

601 control system



5.5 kW heater box

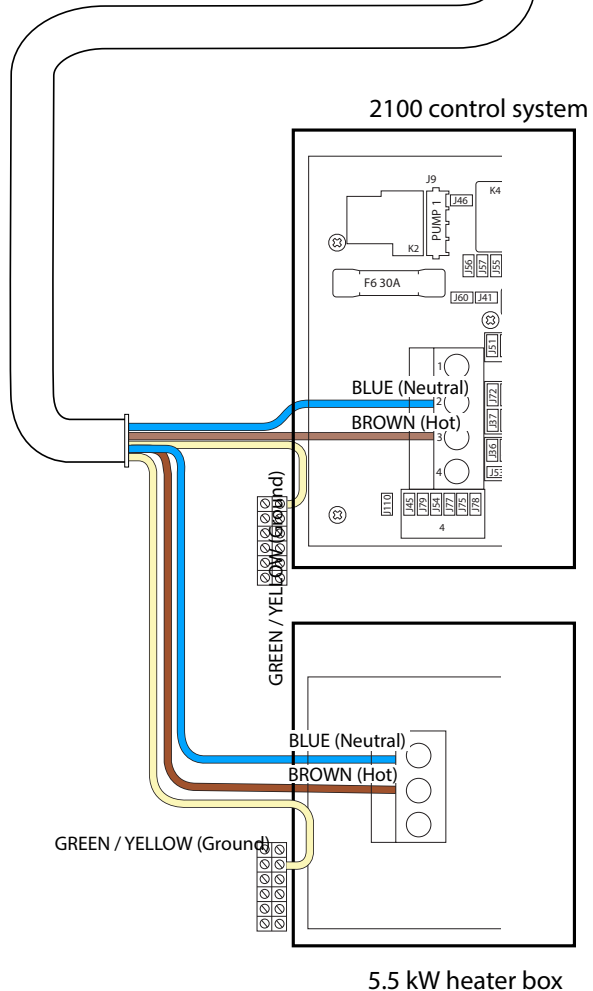
Diagram 4 230 Volts 50 Hz



One 32A RCD  
(connect to 2100 control system)

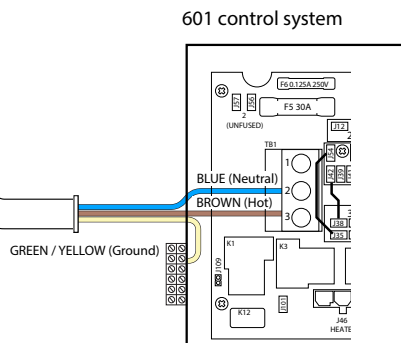
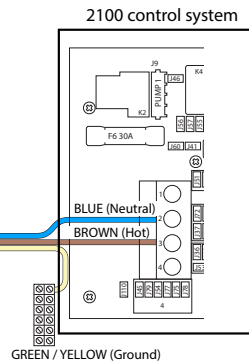
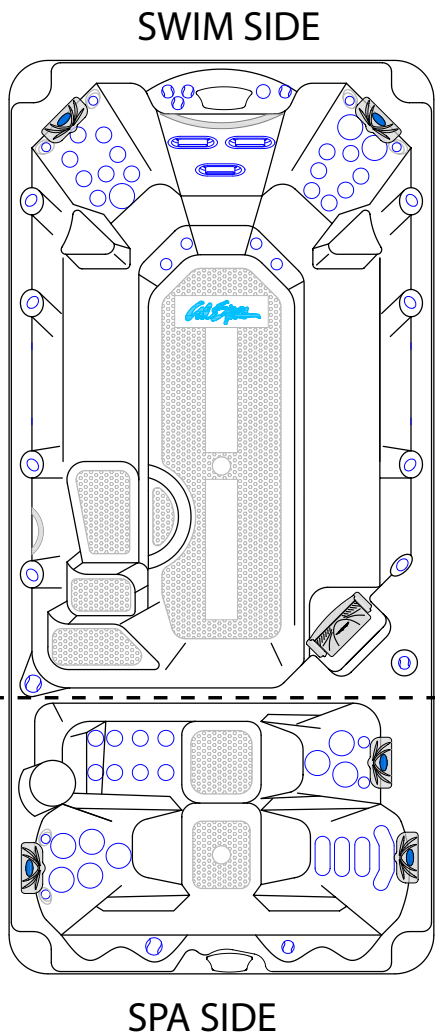
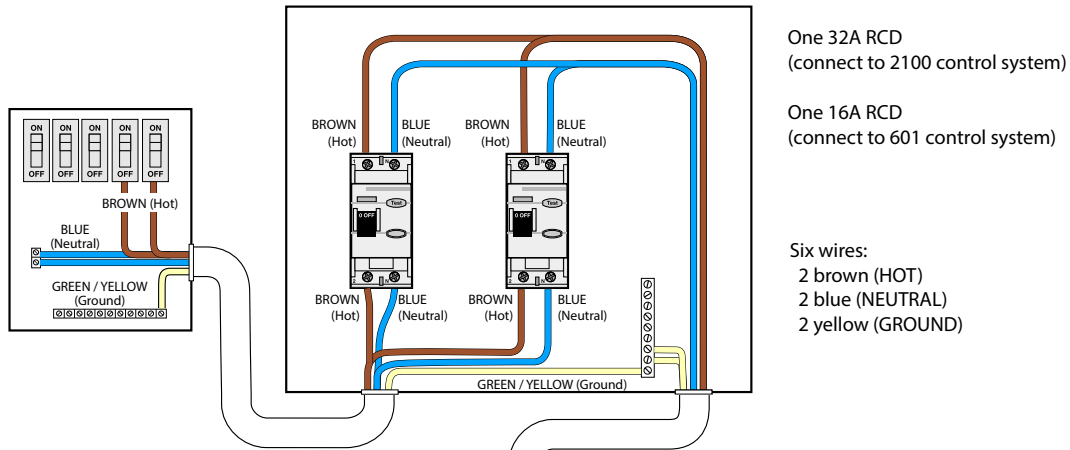
One 16A RCD  
(connect to 5.5 kW heater box)

Six wires:  
2 brown (HOT)  
2 blue (NEUTRAL)  
2 yellow (GROUND)



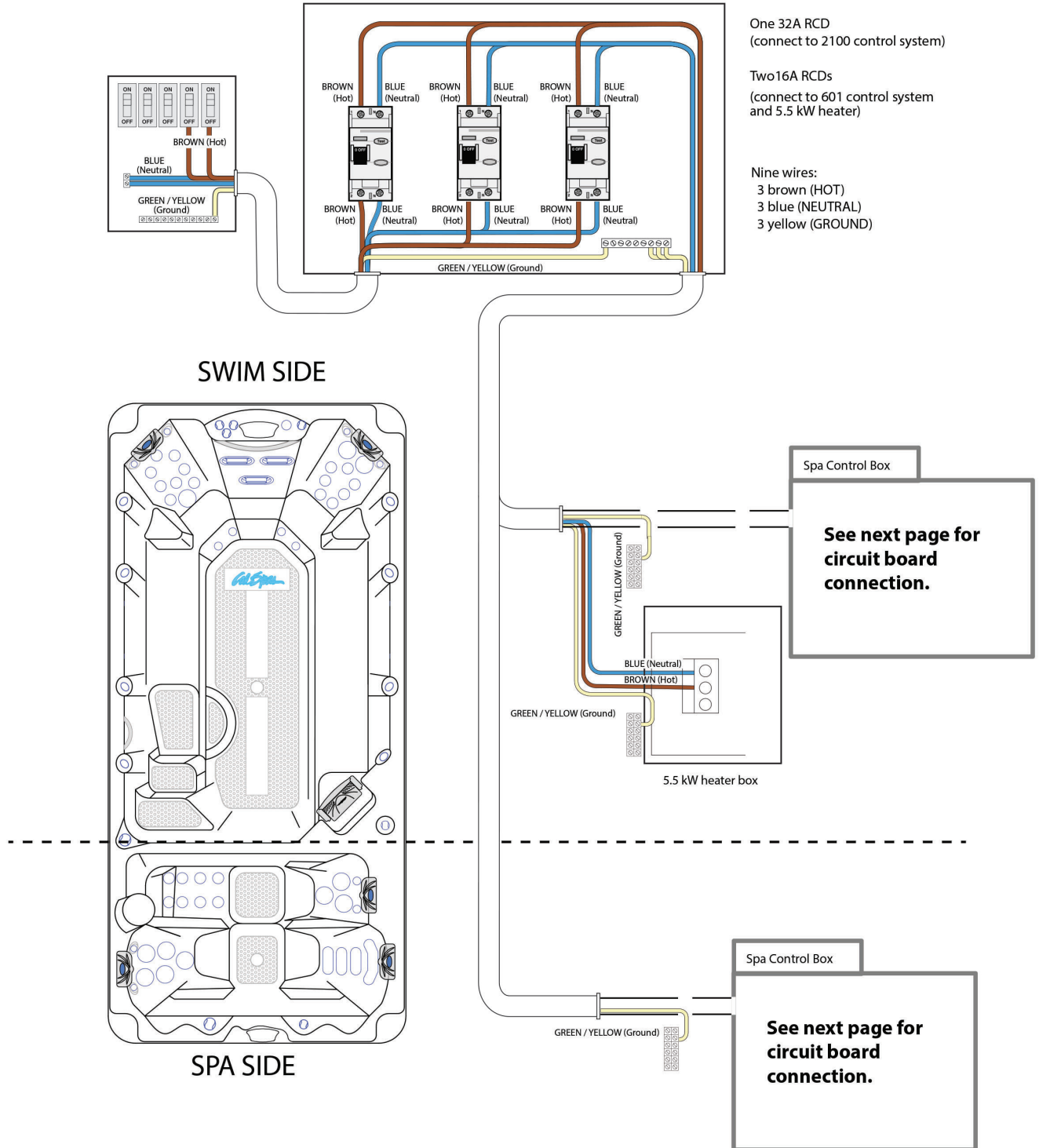
### Diagram 5 230 Volts 50 Hz

With 3.0 kW heater only



**Diagram 6 230 Volts 50 Hz**

With 3.0 kW heater and 5.5 kW heater



One 32A RCD  
(connect to 2100 control system)

Two 16A RCDs  
(connect to 601 control system  
and 5.5 kW heater)

Nine wires:  
3 brown (HOT)  
3 blue (NEUTRAL)  
3 yellow (GROUND)

Spa Control Box

**See next page for  
circuit board  
connection.**

Spa Control Box

**See next page for  
circuit board  
connection.**





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