

SPA PREPARATION & START-UP GUIDE



**GUIDELINES TO SIMPLIFY YOUR SPA
DELIVERY AND INSTALLATION**



1-800-451-1420
www.pdcspas.com



CONGRATULATIONS on the purchase of your new hot tub.
This PDC Spa is designed for countless years of
enjoyment, offering relaxation and an asset to your
home and lifestyle.

Please take the time to carefully read this guide as
it has been provided to offer tips for safe and efficient delivery
and installation. This guide should never take the place
of your Owners Manual, but to be reviewed in conjunction with it. There
are sections in this guide regarding delivery, site selection and preparation,
electrical requirements, and general
considerations for preparation.

Always read and refer to the Owners Manual that
will be sent with your spa, with additional copies available
on the web site under the customer care section: www.pdcspas.com.

Take note of the safety label on the spa cabinet
and the copy in your Owner's packet, of which should be
displayed within view of the spa. Take note of the serial
number location for possible future reference.
The serial number can be found inside the
top load filter housing on the spa lip.



PDC Spas . 800-451-1420 . www.pdcspas.com

Consider Applicable Codes and Permits

Most cities and boroughs require permits for the installation of electrical circuits or the construction of exterior surfaces; decks, sunrooms, concrete pads, etc. Contact the codes departments in your area for the parameters you are required to meet.

Also, some areas have adopted residential barrier codes, which may require fencing or self-closing gates on the property to prevent children and/or unsupervised, unwanted guests from entering the spa. Your PDC Spa is complete with a locking thermal cover that meets the ASTM standards for safety covers and as a result, is usually exempt from most barrier requirements. As a general practice, your local Building Department will inform you of any applicable barrier requirements at the time a permit is obtained for the installation of an electrical circuit.

Site Location

Choosing a spot for your spa is a personal choice, although there are many considerations that are common for all spa owners. Site preparation and selection is the owner's responsibility. Carefully read these guidelines to consider numerous variables in choosing the best location for your hot tub.



- The closer to the house, the better. The easier the access, the more frequent the use. Is there a convenient short path or sidewalk to the hot tub, one that is clear of debris and comfortable to walk in your bare feet or slippers? Enjoying the spa in the winter time is by far a great enjoyment. Do not let a long distance from the house to the spa prevent you from using the spa during the colder fall and winter months.
- Accessibility. Is it easy to get to for installation and servicing? Your Owners Manual will indicate where the equipment is located behind the cabinet walls and it should remain easy to get to for occasional servicing and/or maintenance. Review that section before permanently placing the spa.
- Privacy. Is it in direct eye-view of the neighbors? Visible, or not visible, from certain areas of the home. Consider your bathroom or changing room location.
- Type of use. Will you use your new spa personally; near the master bedroom? Or is it intended to be enjoyed by the whole family and your friends? If so, the hot tub may fit better on the center of your deck for all to use and enjoy.
- Consider your view from inside the spa. What will you be looking at from the best seat in the hot tub? Imagine soaking in the warm swirling water while gazing at a wall or fence. Strategically place your hot tub to enjoy your natural surroundings like a colorful sunset.
- Aesthetics. Consider the design of your home and backyard environment. Where will it look the best and still complement your home?
- Landscaping. Large trees that shed their leaves in the autumn may create debris in the spa water if you use your spa during that time of the year. You may want to consider another location without that concern and also keep in mind flowers and shrubs that may deter rather than enhance the spa area.
- A flat, level surface is required for your spa to rest on. You may want to consider the best and easiest spot in your yard to accommodate this.

- Over-head phone and electrical lines should not be near or above the spa.
- Indoor Installations. Most hot tubs are installed outside on a deck or patio, although if you choose to place yours indoors in a sunroom, etc., there are additional concerns that need to be addressed. Remember that the more people you have in the spa, the more water is displaced onto your floor. Consider flooring and material nearby that may be damaged by spa water. There should be adequate drainage for spillage and consider the event of having to replace the spa water several times a year. Ventilation should also be a consideration, due to the moisture that is introduced into the air with each spa use, much like a bathroom. The use of fans or vents may be used to allow the heat and moisture to escape.
- Child access. Your new hot tub will have a locking thermal cover that meets or exceeds the ASTM cover safety standards. The cover must be in place and locked when not in use and the spa should never be used by unattended children. Consider the view of the hot tub from the home to keep an eye on children and/or uninvited guests.
- Local and National Codes. Your new hot tub must be installed in accordance to all applicable codes. You may want to contact your local office for an update on those regulations as they may help in deciding the appropriate location.
- Electrical Considerations. Your PDC Spa® requires a 120/240v/50 amp Ground Fault Circuit Breaker for any spa with more than one pump or 120/240v/40 amp Ground Fault Circuit Breaker for any single pump system. Contact a qualified electrician for this connection and consider the location and available amperage of your current electrical service for the best location of the new spa. (Refer to the “Electrical” section in this guide for further information.)



Site Preparation

Once you have a location selected, there are several issues you should consider in preparing the site for the hot tub installation.

- A flat, level surface that is strong enough to support your spa is required. Once your spa is filled, it may weigh over 3 tons. Make certain the spot you choose can support a minimum of 100 pounds per square foot load, per recommended guidelines. Structural damage to the spa resulting from the incorrect installation or placement on inadequate foundation is not covered in the spa’s limited warranty.
- Most units are installed outside, on ground level, on either a concrete pad or strong wooden deck. If the spa is not on ground level, have a builder determine if the support is adequate. If the unit is placed directly on the ground, you will want to remove the grassy level, and place a layer of gravel on the soil. The best way to level the gravel is with a 2 x 4 to achieve a level surface. Pavers placed in a sand base is also a rather quick and convenient way to prepare the location site. Note that pavers, stepping stones, etc. still have a tendency to settle and may become unlevelled at some point. A reinforced concrete slab should be at least four inches thick with the reinforcing mesh or rod attached to a bond wire.
- Make sure your dimensions are correct as you prepare the site for your new spa. Click onto the website www.pdcspas.com or call our toll free number 800-451-1420 for dimensions of the spa model you have chosen. Allow a perimeter of the chosen ground surface to extend beyond the spa itself to provide a base for your step unit as well as a clean area for users to get in and out of the spa. The spa location and the spa itself must be level before filling with water.



- If you choose to place your spa on a deck, consider the load requirements and consult a builder to determine if your deck is of adequate strength. You should confirm that your deck will support a minimum of 100 lbs. per square foot.
- Allow adequate space to access the equipment behind the four access panels on the hot tub sides for possible future service needs. Your spa may have all equipment located under the end cabinet; the optional AdvantagePack™ design, making service quick and easy.
- Leave ample access to the GFCI circuit breaker for testing.
- A quick disconnect (manual disconnect) is to be installed between 5 feet and 15 feet of the spa, according to the National Electric Code, and within the line of sight from the hot tub. Consider where this can be located when preparing the spa site.
- A cabinet side drain has been installed on the bottom portion of the cabinet corner panel for easy draining. Locate this drain and allow ample access.
- If installing your hot tub below grade, consider that the drain plug will no longer be accessible. You may have to use a water pump in the instance that your spa needs drained.



Electrical Requirements

IMPORTANT: All spas installed in the US must meet the requirements of the National Electric Code (NEC) and any applicable state and local codes. The electrical circuit must be installed by a licensed electrician and approved by your local building/electrical inspector. Refer to the electrical GFCI installation diagram located on the back page of this booklet.

- All spas must be permanently connected to the power supply. The power supply is to be dedicated; no other appliances or lights sharing the circuit. The spa requires 50 or 40 amps of power.
- The electrical circuit must be protected with a 50 or 40 amp, 120/240V, GFCI circuit breaker. All wiring is to be #6 copper wire with ground. Review the GFCI diagram page indicating a typical GFCI installation and note that all connections are to be completed only by a licensed electrician.
- The NEC requires that a manual disconnect device for the spa be installed at least 5 feet from the spa edge and no more that 15 feet from the spa, within the line of sight, for spa safety.

Preparing for Delivery



Begin by confirming the dimensions of your spa model by accessing the website's specific model page; www.pdcspas.com. If you choose to move the unit to the site while still packaged, you will want to add additional inches to the spa measurements, depending on the packaging. Make certain you have adequate clearance for the move.



- Check that the path to the site is clear and is of adequate size to accommodate the unit. Walk the path and consider any obstacles that may make the move difficult.
- Note any gates, utility meters, AC units, shrubs, trees, etc. that may be in the way for the move.
- Check that there are no low eaves, gutters, overhead phone or electrical lines, tree branches, etc. that are in the way to the site.
- Consider any turns, narrow sidewalks or hallways, that may be prohibitive to the move.
- Stairs, steps, and anything other than a flat surface will make the move more difficult. Many installs require the use of a crane to get the spa in the exact location chosen, if it involves going over a fence, dealing with a considerable slope or placing the spa on an elevated surface. It is not as alarming as you may think. The move generally takes less than a half hour.

Initial Spa Start-Up

After the spa has been placed in the desired location, you only have a few more steps until you are relaxing in the warm waters of your new hot tub.

- Be sure that the power is turned off at the main circuit breaker.
- Make sure all T-valves on the suction and return sides of the spa pumps are in the open position to allow water to flow to and from the hot tub and the hot tub support pack. 
- Use a garden hose to fill the hot tub to the recommended level, assuring all suction are submerged in water. For best operating results, the water level should be just below the bottom of the spa pillows.
- Once the hot tub is filled, locate the filter on the top of the spa lip. Remove the gray lid and locate the small black bleeder valve on the top of the white filter lid. Carefully open the air bleeder valve by turning slowly in the counter-clockwise direction. You will hear the release of built up air in the spa plumbing lines. Wait until you see a constant flow of water from the bleeder valve (no water unless pump is turned on), then tighten the valve to the closed position. Be careful not to over tighten for possibility of breaking the valve. This will prevent the pumps from getting air-locked at initial start-up. If the pump does get air-locked, locate pump #1, loosen the return fitting from the top of the pump a few turns. After about 10 seconds, tighten the union and continue with the spa start-up. 
- Turn the power “on” at the main circuit breaker and then press the pump 1 button on the spa side control to activate the filtration cycle.
- Turn all small gray air regulator valves located on the spa lip to the “off” position, minimizing the pressure flowing through the jets. When the system has fully primed, all of the jets should be freely rotating and free of excess air. Allow the spa to operate in this position for about five minutes. 
- Set the thermostat by using the up/down arrows on your keypad to the desired temperature. As the spa begins heating the water, there will be a heating icon displayed on the spa control indicating the heater is on.

- The economical, gradual heating of the water takes place over a number of hours, depending upon the size of the spa. When the desired temperature is reached, not over 104°F (40°C), leave the thermostat at this setting and the temperature will automatically be maintained. It will be less efficient if you lower the temperature after spa use and increase it before spa use.
- Set the filtration cycle to the desired setting per instructions found in the Control Section of the this guide or in the Owners Manual.
- Chemically treat the spa water. Refer to the Water Chemistry Section in the Owners manual and follow the instructions on the container of any product used.
- Cover the spa with the thermal cover to maintain temperature and lock it for safety.

Winterizing Your Hot Tub

If you wish to operate your spa during the winter months in cold climate where the danger of freezing exists, certain precautions should be taken to avoid damage to the spa. An increased circulation cycle is recommended so the water is moving more often. Be certain that you have a high quality cover that creates an efficient heat seal around the spa shell. Contact your dealer for advice.



Many spa owners find that outdoor wintertime soaking is quite enjoyable. PDC Spas certainly suggests the use of a spa year-round, although certain situations do require closing the hot tub for the winter months (i.e. vacation homes). If the spa will not be used for a period of time over the colder months, please perform the following winterizing procedures to prevent damage:

- Turn the heat all the way down using the up/down arrows on the spa control. Then turn the power “off” at the breaker.
- Attach a hose to the hose bib located on the corner cabinet panel. Begin by pulling the hose fitting all of the way out of the spa cabinet, about 2”. Attach the hose and push the fitting half way back in, about 1”, to start the gravity draining process. Remove any excess water from the spa shell using a dry sponge.
- Remove excess water from the air channel, only included on LX Series spas, by turning the power back on at the breaker. Turn the blower option on at the spa side control by hitting the “5” button. Allow the blower to run for several minutes to spray out the excess water. Wipe out the spa and repeat as necessary. Then, shut off all electrical power to the unit.
- The filter cartridge should be removed from the filter housing, cleaned and stored in a dry place. All pumps, motors and connecting lines should be drained fully to protect from freezing. Blow air through all connection lines to remove water using a shop-vac. You may wish to use a non-toxic RV type anti-freeze to guarantee better freeze protection. Be sure to read the manufacturer’s instructions and remove all anti-freeze before the next spa use.
- Cover the spa with a waterproof rigid cover and/or tarp to protect it from snow, ice and wind.



Quick Reference Card - 600 Series Control

Custom edition for PDC Spas

in.k600



PDC's advanced in.k600 keypad features a low profile with a large LCD display, streamlined interface and raised keys that let users easily control all hot tub functions and programming directly from spa side, creating a true and unique user experience.

Standby Mode

When this feature is activated, it allows you to stop all pumps at the same time by a simple click of a button! Use Standby key to pause all pumps*. Progress bar will display the remaining time before the system automatically exits Standby mode (user can also exit Standby mode at any time by pressing again on Standby key). In order to warn the user, the spa light will flash for a few seconds before the exit of Standby mode and restart the pumps. The "Stby" message is also displayed during Standby mode.

** Pump will stay turned on if there is a request for more heat.*

Pump 1 Key

Press the Pump 1 key to turn pump on at low speed. Press a second time to turn pump on at high speed. Press a third time to turn pump off. If spa is in filtration mode or calling for heat, the pump will be operating at low speed and will not turn off. A built-in timer automatically turns the pump off after 20 minutes, unless pump has been manually deactivated first.

Pump 2 Key

If spa is equipped with a second pump, press Pump 2 key to turn pump on at high speed. Pump 2 only operates at high speed, it is a single speed pump. Press a second time to turn pump off. A built-in timer automatically turns pump off after 20 minutes, unless pump has been manually deactivated first.

Pump 3 Key

If spa is equipped with a third pump, press Pump 3 key to turn pump on at high speed. Pump 3 only operates at high speed, it is a single speed pump. Press a second time to turn pump off. A built-in timer automatically turns pump off after 20 minutes, unless pump has been manually deactivated first.

Blower Key

Press Blower key (button labeled 5) to turn blower on. This function is only active on LX Series spa models. Press a second time to turn blower off. A built-in timer automatically turns blower off after 20 minutes, unless blower has been manually deactivated first.

Light Key

Press Light key to turn light on. Press a second time to turn light off. If the spa is equipped with the Illusion Lighting option, repeatedly press the light key to change colors. A built-in timer automatically turns light off after 2 hours, unless it has been manually deactivated first.

+ /- Keys

Use (+) or (-) key to set desired water temperature. The temperature setting will be displayed for 5 seconds to confirm your new selection. The "Set Point" icon indicates that the display shows the desired temperature, NOT the current water temperature.

Program Key

Use Program key to display the time or enter the programming menu by pressing and holding down the key. In programming mode, the following functions can be set: time, filter cycle start time, filter cycle duration, filter cycle frequency, and the choice of temperature display units, Fahrenheit (°F) or Celsius (°C).

Setting Time

Enter the programming mode by holding down the program key for 3 seconds. The display will show the current time setting and the hour will begin blinking.

Setting the hour:

- Use (+) or (-) key to change hour setting (AM/PM).

Setting the minutes:

- Press Ok key.
- Use (+) or (-) key to change minutes setting.

Setting Filter Cycle Start Time

Enter the programming mode by holding down the program key for 3 seconds. The display will show the current time setting. Press the program key twice until the display shows FSxx, with "xx" representing the filter starting hour.

- Use (+) or (-) key to change setting (01:00- 12:00 AM/PM).

Setting Filter Cycle Duration

Enter the programming mode by holding down the program key for 3 seconds. The display will show the current time setting. Press the program key three times until the display shows Fdxx, with "xx" representing the filter duration in hours.

- Use (+) or (-) key to change setting (0-12 hours)*.

* It is recommended to filter 24 hours a day when first receiving your spa due to heavy bathing. You may decrease the filtration cycle as needed to run as few hours as possible, but still maintaining water clarity

Filter Cycle Frequency

Enter the programming mode by holding down the program key for 3 seconds. The display will show the current time setting. Press the program key 4 times until the display shows FFxx, with "xx" representing the number of filter cycles occurring per day.

- Use (+) or (-) key to change setting (up to 4)*.

* It is common to set the filter frequency at 2 or above so that your cycles are spread out through the day .

Setting Temperature unit

Water temperature can be displayed in either Fahrenheit (°F) or Celsius (°C). Enter the programming mode by holding down the program key for 3 seconds. The display will show the current time setting. Press the program key 5 times until the display shows either Eu °F or Eu °C.

- Use (+) or (-) key to change setting.
- Press Ok key a last time to go back to normal mode.

Smart Winter Mode

Our Smart Winter Mode is an automatic feature that protects your hot tub from the freezing. When the outside air temperature reaches 68°F, the spa will then activate the Smart Winter Mode by turning the pumps on several times a day to prevent water from freezing in pipes. When spa is in this mode, a snowflake icon will appear on the spa side control. You cannot manually set this feature.

Cooldown

After heating the spa water to the desired Set Point, the heater is turned off, but its associated pump (Pump1 Low-speed) remains on for a predetermined period of time to ensure adequate cooling of the heating element, this prolongs its useful life.

Quick Reference Card - 450 Series Control

Custom edition for PDC Spas

in.k450



PDC's advanced in.k450 keypad features a low profile with an LCD display, streamlined interface and raised keys that let users easily control all hot tub functions and programming directly from spa side, creating a true and unique user experience.

Pump 1 Key

Press the Pump 1 key to turn pump on at low speed. Press a second time to turn pump on at high speed. Press a third time to turn pump off. If spa is in filtration mode or calling for heat, the pump will be operating at low speed and will not turn off. A built-in timer automatically turns the pump off after 20 minutes, unless pump has been manually deactivated first.

Pump 2 Key

If spa is equipped with a second pump, press Pump 2 key to turn pump on at high speed. Pump 2 only operates at high speed, it is a single speed pump. Press a second time to turn pump off. A built-in timer automatically turns pump off after 20 minutes, unless pump has been manually deactivated first.

Pump 3 Key

If spa is equipped with a third pump, press Pump 3 key to turn pump on at high speed. Pump 3 only operates at high speed, it is a single speed pump. Press a second time to turn pump off. A built-in timer automatically turns pump off after 20 minutes, unless pump has been manually deactivated first.

Light Key

Press Light key to turn light on. Press a second time to turn light off. A built-in timer automatically turns light off after 2 hours, unless it has been manually deactivated first.

Up/Down Arrows

Use Up or Down arrows to set desired water temperature. The temperature setting will be displayed for 5 seconds to confirm your new selection. The "Set Point" icon indicates that the display shows the desired temperature, NOT the current water temperature.

Programming Mode

Use Light key to display the time or enter the programming menu by pressing and holding down the key. In programming mode, the following functions can be set: time, filter cycle start time, filter cycle duration, filter cycle frequency, and the choice of temperature display units, Fahrenheit (°F) or Celsius (°C).

Setting Time

Enter the programming mode by holding down the Light key for 3 seconds. The display will show the current time setting and the hour will begin blinking.

Setting the hour:

- Use Up or Down arrows to change hour setting (AM/PM).

Setting the minutes:

- Press Light key a second time.
- Use Up or Down arrows to change minutes setting.

Setting Filter Cycle Start Time

Enter the programming mode by holding down the Light key for 3 seconds. The display will show the current time setting. Press the Light key three times until the display shows FSxx, with "xx" representing the filter starting hour.

- Use Up or Down arrows to change setting (01:00- 12:00 AM/PM).

Setting Filter Cycle Duration

Enter the programming mode by holding down the Light key for 3 seconds. The display will show the current time setting. Press the Light key four times until the display shows Fdxx, with "xx" representing the filter duration in hours.

- Use Up or Down arrows to change setting (0-12 hours)*.

* It is recommended to filter 24 hours a day when first receiving your spa due to heavy bathing. You may decrease the filtration cycle as needed to run as few hours as possible, but still maintaining water clarity

Filter Cycle Frequency

Enter the programming mode by holding down the Light key for 3 seconds. The display will show the current time setting. Press the Light key five times until the display shows FFxx, with "xx" representing the number of filter cycles occurring per day.

- Use Up or Down arrows to change setting (up to 4)*.

* It is common to set the filter frequency at 2 or above so that your cycles are spread out through the day .

Setting Temperature unit

Water temperature can be displayed in either Fahrenheit (°F) or Celsius (°C). Enter the programming mode by holding down the Light key for 3 seconds. The display will show the current time setting. Press the program key six times until the display shows either Eu°F or Eu°C.

- Use Up or Down arrows to change setting.

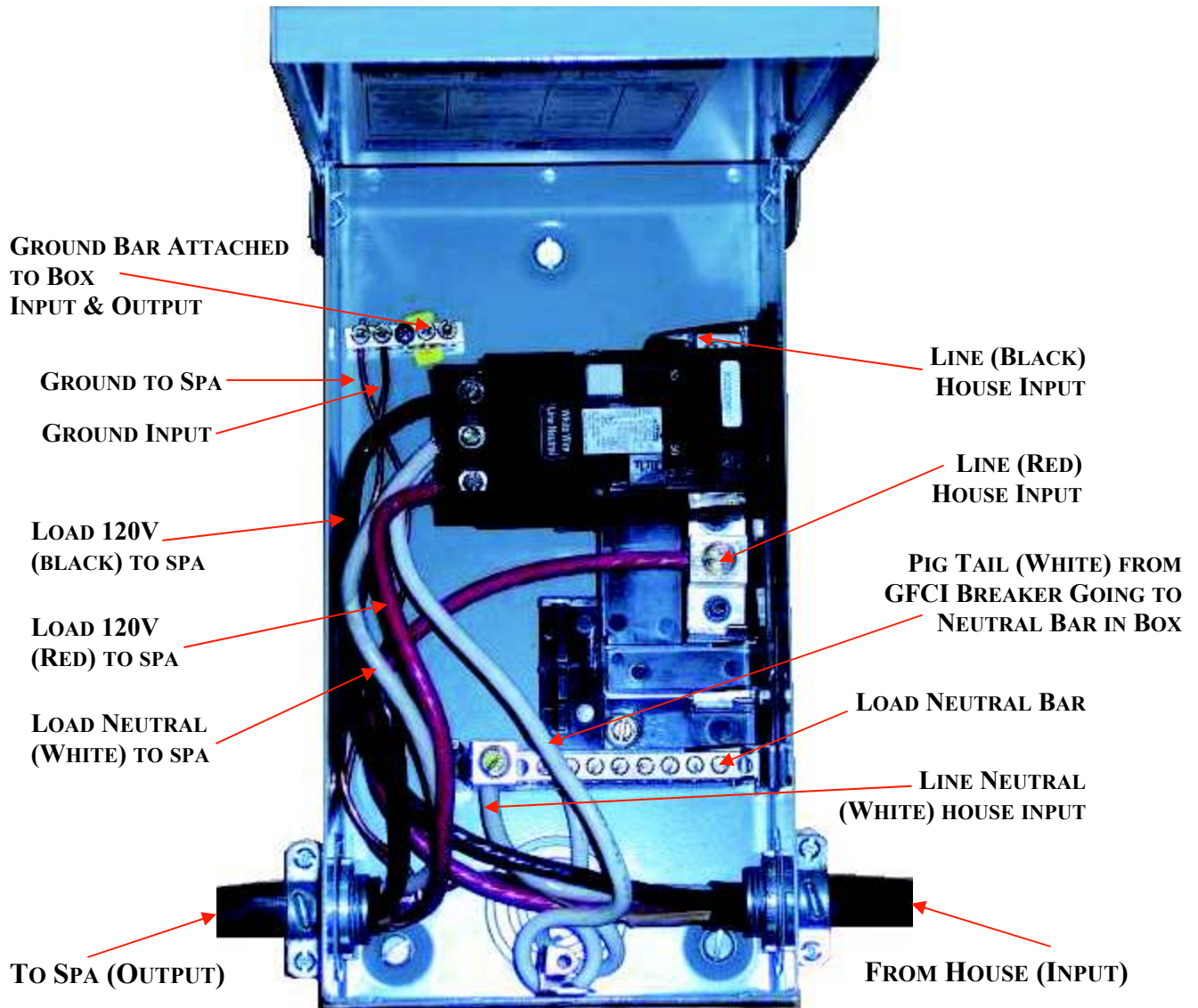
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Cooldown

After heating the spa water to the desired Set Point, the heater is turned off, but its associated pump (Pump1 Low-speed) remains on for a predetermined period of time to ensure adequate cooling of the heating element, this prolongs its useful life.

BREAKER BOX
50 OR 40 AMP, 120/240 VOLT,
TYPICAL INSTALLATION
 (NOT INCLUDED)



TO BE NOTED: Installation of this GFCI Circuit Breaker, including ampere sizing and choice of conductor size and type, must be completed by a qualified electrician in accordance with the National Electrical Code, and all applicable federal, state, and local codes and regulations in effect at the time of installation.

TO BE NOTED: The white Neutral wire from the back of the GFCI Circuit Breaker **MUST** be connected to an incoming Line Neutral. The internal mechanism of the GFCI requires this Neutral connection for proper GFCI function.

IMPORTANT:
6 GAUGE COPPER WIRE MUST BE USED
TEST GFCI MONTHLY & PRIOR TO EACH USE.