



Aber Hot Tub Manufacturing Ltd. British Columbia, Canada

2004 Owner's Manual

Please read this manual before proceeding with installation.

Introduction

Congratulations on your purchase of a Pacific Hot Tub!

Pacific Hot Tubs are built to the highest standards and will provide you with many years of enjoyment, providing you follow the instructions set out in this manual.

Please take the time to read all of the instructions before you install or attach any electrical power to your Pacific Hot Tub.

This manual explains many safety tips, installation instructions, operating directions, and maintenance procedures. Please follow these instructions carefully and retain this manual for future reference. If you have any further questions after reading this manual, your Pacific Hot Tub dealer will be happy to assist you.

Your comments and suggestions are appreciated. We welcome your phone calls, e-mails, and letters, letting us know about your tubbing experience. You can find us at on the Internet at **www.aberhottubs.com**

Owner's Record

Date Purchased: _____

Date Installed: _____

Dealer: _____

Address: _____

Telephone: _____

Hot Tub Model: _____

Hot Tub Color: _____

Serial No.: _____

Notes: _____

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General Safety Precautions

It is important that you read and understand the following warnings and precautions before using, or allowing someone else to use your new hot tub. Doing so will ensure that you get the most out of your investment.

1. Water temperature above 38°C (Celsius) may be injurious to your health.
2. Before entering the hot tub, measure the water temperature with an accurate thermometer. Prolonged soaking in temperatures in excess of 38°C (Celsius) may cause drowsiness, fainting and may induce Hyperthermia. Hyperthermia occurs when the internal temperature of the body reaches a level several degrees above the normal body temperature of 37°C (98.6°F). The symptoms of Hyperthermia include an increase in the internal temperature of the body, dizziness, lethargy, drowsiness, and fainting. The effects of Hyperthermia include failure to perceive heat; failure to recognize the need to exit the hot tub, unawareness of impending hazard; fetal damage in pregnant women; physical inability to exit the hot tub, and unconsciousness resulting in danger of drowning.
3. To avoid unconsciousness and possible drowning, do not use drugs or alcohol before or during the use of a hot tub.
4. The use of alcohol, drugs, or medication can greatly increase the risk of fatal hyperthermia. Any persons with heart or circulatory conditions, or on prescribed medication should consult their physician before using a hot tub.
5. Extreme caution must be exercised to prevent unauthorized access by children. To avoid accidents, ensure that children cannot use the hot tub unless they are supervised.
6. Do not use the hot tub unless all suction guards are installed to prevent body and hair entrapment.
7. People using medications and/or having an adverse medical history should consult a physician before using a hot tub.
8. People with infectious diseases should not use a hot tub.
9. To avoid injury, exercise care when entering or exiting the hot tub.
10. Pregnant or possibly pregnant women should consult a physician before using a hot tub.
11. Do not use your hot tub immediately following strenuous exercise.
12. Prolonged immersion in a hot tub may be injurious to your health.
13. Do not allow anyone to sit on the filter cover or filter cavity. This area is particularly unsafe for children to play in or around.
14. Caution: Maintain water chemistry in accordance with the manufacturer's instruction.

15. Columbia, Comet S and Fun Spa – Cord Connected Spa (only)

IMPORTANT SAFETY INSTRUCTIONS

DANGER – Risk of injury

- a) Replace damaged cord immediately.
- b) Do **NOT** bury cord.
- c) Connect to a grounded, grounding type receptacle only.

WARNING – This product is provided with a ground-fault circuit interrupter (located at the plug-in connector). The GFCI must be tested before each use. With the product operating, push the test button on the GFCI. The product should not operate. Push the reset button on the GFCI. The product should now operate normally. If the product fails to operate in this manner, there is a ground current flowing indicating the possibility of an electric shock. Disconnect the power until the fault has been identified and corrected.

Site Selection

Your Pacific Hot Tub is totally self-contained and portable. You can place it just about anywhere you wish; on a patio, deck, or even directly on the ground. Regardless of your choice of location, the hot tub should always be placed on a firm, level, well-drained base.

When considering an installation site, always allow for easy access to your equipment. The installation site should also allow enough room to completely remove and store the hot tub cover during use.

CAUTION: DO NOT INSTALL YOUR HOT TUB WITHIN 10' OF OVERHEAD POWER LINES.

If you are considering placing the hot tub on an elevated deck, platform, or indoors, we recommend that you consult a structural engineer or contractor prior to installation.

Warning: Do not permit electrical appliances (such as a light, telephone, or television) within 1.5 m of this hot tub.

INSIDE LOCATION

Although your Pacific Hot Tub has been designed to be operated outdoors during all seasons, some people choose to locate their unit indoors. Special precautions must be observed when putting your hot tub indoors, specifically in a heated room or solarium.

Proper ventilation:

The room must be properly vented to allow moisture and excess heat to escape.

Moisture:

Using your hot tub for 15 – 20 minutes gives off the same moisture/condensation as a 15 – 20 minute shower, so a proper bathroom fan should be installed.

Heat:

It is also very important not to allow heat generated by the hot tub equipment to become trapped in the hot tub area as this will lead to excess water temperatures, and could potentially cause premature equipment failure. The equipment cabinet should be vented if installed indoors, or in any area where the temperature is never below freezing.

Site Preparation

Your Pacific Hot Tub has been engineered for installation on any firm level surface. While a concrete slab is the best for long-term use, other solid foundations are acceptable. Other suggestions include Pea Gravel or Crushed Rock, Railroad Ties, or Pre-cast Stepping-Stones. As a homeowner, it is your responsibility to provide a suitable, level foundation for your hot tub since most delivery crews are not equipped to level or prepare sites. Keep in mind that placing the hot tub on grass or dirt may increase the amount of debris that is inadvertently brought into the hot tub water on users' feet.

It is important to note that structural damage resulting from incorrect placement on an inadequate foundation is not covered under the hot tub's structural guarantee.

Pacific Hot Tubs are pressure tested for leaks at the factory. However before doing a permanent installation, such as cementing it into the ground or installing it in a room, we recommend running the hot tub with water to ensure that there are no leaks and that the equipment is working properly.

Caution: If your hot tub is to be mounted below ground level, ensure that there is sufficient drainage for rainwater runoff and equipment access.

Delivery Access

A hot tub can be delivered either flat, or in the vertical position on a delivery cart, as long as there is sufficient clearance and a firm base on which to roll the cart. Please contact your Pacific Hot Tub dealer to determine the exact dimensions of your new hot tub so that you may determine whether it will fit through the intended delivery route.

Keep in mind that the hot tub must remain on the delivery cart at all times. It may therefore be necessary to remove a gate or partially dismantle a fence in order to provide an unobstructed passageway. Prior to delivery, check if the intended delivery pathway has sufficient overhead and width clearance. Remove any branches, doghouses, firewood, gates, and other protrusions that may be in the way.

Please note that it may be necessary to allow for additional overhead clearance if the hot tub will be rolled up an incline or moved up a short flight of stairs.

If the hot tub must be removed from the delivery cart in order to go over a wall, or because the entry is too narrow, a crane will be required. Don't panic, the use of a crane is common practice to avoid injury to your Pacific Hot Tub dealer's personnel, and/or damage to your property. For a minimal charge, a crane can be parked in your driveway, and a licensed and insured operator will lift your hot tub over the house and place it as close to the installation site as possible. Crane installations usually take about 30 minutes to complete and can be supervised by your Pacific Hot Tub dealer. Please note that if your delivery does require the use of a crane, you will probably be required to pay for its services upon completion of the delivery.

Electrical Connection

The electrical connections to the Digital Equipment Pack must be wired in accordance with all applicable, local electrical codes, and a licensed electrician must perform **all** electrical work.

The hot tub must be installed at least 1.5m (5ft) from all metal surfaces unless each metal surface is permanently connected by a minimum No.6 AWG solid copper conductor to the equipment “Bonding Lugs”.

1. Install a ground fault interrupter (GFCI) in the power supply panel.
It is mandatory that your hot tub and equipment be protected by a GFCI (ground fault circuit interrupter) of not less than 40 amp (50 or 60 amp for LXT series hot tubs) double pole.

CONTACT YOUR ELECTRICIAN FOR PROPER GFCI SIZING.

This must be a dedicated circuit with no other outlets or appliances on the same line as the hot tub equipment. The GFCI should be tested monthly or in accordance with the manufacturer’s instructions.

2. Run the appropriate wire from the main power supply panel in the approved conduit to the hot tub. Your Pacific hot tub pack requires a three wire electrical service, plus ground (Line 1-black, Line 2-red, Neutral-white, Ground-green). The wire should not be less than a #8/3, wired directly into a GFCI in the main electrical panel box or in a sub panel box close to the main panel.

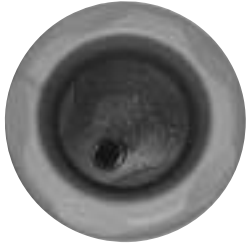
CONTACT YOUR ELECTRICIAN FOR PROPER WIRE SIZING.

3. Attach the power wires to the terminal block inside the hot tub pack. Refer to the wiring diagram inside the hot tub equipment enclosure.

Note: A connector marked “Ground” is provided within the control box. To reduce the risk of electrical shock, connect this connector to the grounding terminal of the electrical service panel with a continuous copper wire, equivalent in size to the conductors supplying this equipment. Bonding lugs are also provided on the equipment pack to connect a minimum No. 6 AWG solid copper conductor between the hot tub and any metal surfaces that are closer than 1.5 m (5ft.) to the hot tub.

4. Complete the conductor connections at the GFCI.

Pacific Hot Tub Features



XXL Jumbo Storm Soft Massage Jet

The soft massage jet works to create a gentle, soothing motion to help relax and ease the muscles in the lower lumbar region. To increase the speed of the rotating massage jet, turn the outside face of the jet counter-clockwise. To turn the jet off, turn the outside face of the jet clockwise.



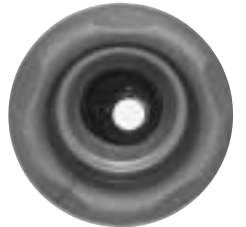
XL Twin Storm Rotating Stimulation Jet

This twin nozzle jet provides stimulating, energetic therapy. The two nozzles can be moved to meet in the center or at either side of the jet. To increase the speed of the rotating massage jet, turn the outside face of the jet counter-clockwise. To turn the jet off, turn the outside face of the jet clockwise.



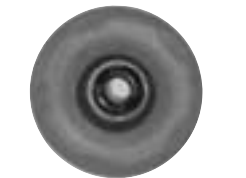
XL Pulsating Storm Massage Jet

This jet provides an invigorating pulsating massage. To increase the speed of the rotating massage jet, turn the outside face of the jet counter-clockwise. To turn the jet off, turn the outside face of the jet clockwise.



L/F Full-Sized Storm Directional Jets

The flow direction can be adjusted by aiming the swivel nozzle in the desired direction. The water flow can be changed at each jet by turning the outside face of the jet – clockwise to reduce flow, counter clockwise to return to full flow. All full size jets are interchangeable allowing you to personalize your hot tub.



L/F Mini Storm Directional Jet

The mini storm directional series jets provide invigorating therapy, and can be adjusted by aiming the swivel nozzle in the desired direction. Mini series jets are also interchangeable and can be turned on or off by a quarter turn.



L/F Mini Storm Massage Jet

The mini storm massage jets compliment the large storm size jets in creating a full body massage. Mini series jets are interchangeable with their jet size, and can also be turned on or off, just like the large size series. To remove the jet, simply pry the nozzle straight out.

Pacific Hot Tub Features



Directional Cluster Jets

The cluster jets are designed to give you a deep penetrating massage. The direction of the water-flow can be customized by adjusting the position of the jet nozzle.



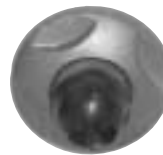
Cluster Jet

Cluster jets are also used in the footwell for the purpose of ozone injection. Do not cover the "Ozone Jet" with your foot – doing so can cause water to damage the ozone generator.



Divertor Valve

Several Pacific models are equipped with divertor valves. These valves allow for water flow to be changed to different seats in the hot tubs. Simply turn the valve to redirect the flow of water from one area to another.



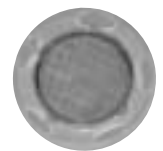
Directional Telescopic Neck Jet

To operate the neck jet, turn the outer face counter-clockwise, the center nozzle will pop out when jet pump is activated. When the neck jet nozzle is extended, the jet can then be adjusted directionally. To close the jet, turn the outer face clockwise. Do not force passed normal range of movement, this will crack the knuckle joint.



Silent Air Controls with Heated Intake

Lo-Pro silent air controls are designed to deliver immediate bubble action, with minimal noise. To open – turn counter-clockwise, and adjust according to personal massage preference. When the jet pump is on, the air control draws in the heat created by the motor and helps further reduce operation costs. The air control should remain closed when the hot tub is not in use in order to maximize heater efficiency.



Underwater Mood Light

All Pacific Hot Tubs come equipped with an underwater mood light, with two color lenses. The lenses are friction fit. To install, simply push the desired colored cap over the clear lens in your hot tub.



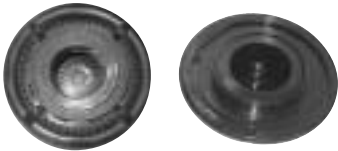
Full Flow – Hi Volume Skim Filter

This system comes with a floating skimmer and basket to catch hair or other debris that may enter the hot tub. The design of this skimmer allows the user to easily remove the cartridge filter for cleaning, which should be done on a regular basis. To remove the basket for access to the filter cartridge, turn the basket and lift (see Hot Tub Maintenance).

Pacific Hot Tub Features

Hot Tub Pillows

Featured on select models. Custom molded pillows provide comfort in various seats. To remove for maintenance use both hands to pull towards you from inside hot tub. (Do not pull upwards or downwards.)



Top Load Dual Filter System *(Titanium Series with Auqua Stealth System Option)*

Exclusive to the Titanium Stealth Series, this dual independent filtration system provides exceptional skimming action and easy access. One of the cartridges is used for constant filtration via the Stealth circulation system, the second provides extra filtration when there are people in the hot tub, and the jets are on. The two cartridges should be cleaned on a regular basis.

Note: Do not remove prefilter unless tub is empty of water – refer to Prefilter.



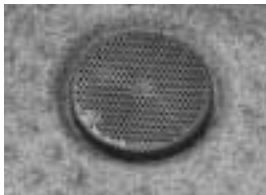
Safety Suction

Your Pacific hot tub has been equipped with a suction fitting that draws water in the event your skim filter becomes restricted and allows adequate water flow to your equipment. Safety Suctions are also used in the LXT Series hot tubs to supply water to the second jet pump.



Union Fittings

For ease of maintenance, your hot tub is equipped with union fittings that allow for easy removal of the equipment. During delivery to your home, the unions may vibrate loose and may require tightening at the final location. See 'Starting Your Hot Tub'.



Floor Drain

All models are equipped with a special floor drain, allowing the hot tub to drain completely. This eases the task of cleaning your hot tub. On hot tubs with the Corona Discharge Option, the floor drain acts as the point of entry for the ozone. **Care must be taken not to cover the floor drain. Do not attempt to lift or remove this cover.**



Hose Bibb/Drain Tap

All hot tubs are equipped with a hose bibb (drain tap) to make the process of draining your hot tub easy. Just attach your ordinary garden hose to the tap and gravity will do the rest of the work.



Prefilter

On tubs equipped with the Stealth System, the prefilter guards against fine debris from being pulled down into the Stealth Pump and clogging the system when the main hot tub filter is removed for cleaning. It is located within the filter chamber.

Note: The prefilter should only be cleaned when the hot tub is drained. Removing the prefilter (while the tub is filled) will result in debris clogging in the Stealth System.



Knife Valve

All hot tubs are equipped with knife valves. The valves prevent water from entering your hot tub equipment. They allow you to service the hot tub without draining the tub.

Starting Your Pacific Hot Tub in Above Freezing Temperature

After your hot tub has been moved to the final installation site and wired correctly, follow these instructions for start-up. **The same steps apply each time the hot tub is emptied and refilled:**

1. Turn off all electrical power to the equipment at the circuit breaker (GFCI).
2. Ensure gate valves are open.
3. Ensure hose bibb/drain tap (located in equipment area) is closed.
4. Clean the interior of the hot tub of any remaining debris. Completely wipe interior of the hot tub with a wet sponge. Do not use any abrasive cleaner, metal brushes, or tools. Windex or isopropyl alcohol will remove most stains.
5. Check to ensure that the filter is installed correctly.
6. **DO NOT FILL WITH HOT WATER! (Unless starting up tub in below freezing conditions then hot and cold can be mixed to 100° and added to tub once 12" of cold water has been added to tub first. Call your dealer for more details.**
7. Fill hot tub with water to the recommended level, at least 2/3's of the way up the opening of the skim filter. Low water levels can cause damage to the pump and heater unit. Note: Fill water by putting hose in filter area to reduce air lock in pumps.
CAUTION: The Control Module must never be operated without water in the hot tub; serious damage to the heater and/or pump may result.
8. Check all connections for leaks and hand tighten union fittings as required. The equipment may shift slightly during transportation, making hand tightening of the union fittings difficult. Should this occur, simply loosen or remove the screws securing the pump and module to the base, and shift the components into alignment so that the unions can be hand tightened.
9. Turn on circuit breaker at the main electrical panel. (Only when water level is adequate to avoid pump damage)
10. Refer to your digital control module information for operating of your Pacific Hot Tub.

Note: Do not expect to feel hot water immediately coming from the jets. The highly efficient heaters are designed to provide cost-saving, low level heating. Initially the hot tub will take approximately 7 – 8 hours to heat up, or 6 – 7 hours with the Stealth System. This performance figure is based on an average sized, fully insulated hot tub with a 3" thick insulated hot tub cover.

Starting Your Pacific Hot Tub in Below Freezing Temperature

CONTACT YOUR DEALER.

Special Instructions for Start Up of Hot Tubs Equipped With **THE STEALTH SYSTEM** (LAING) For European Models Only

Your Pacific Hot Tub is equipped with one of the most efficient heating systems in the industry. To simplify start up procedures and to protect your investment, a special purge line has been installed to ensure proper water flow through the Stealth System. Please follow these instructions when first starting (or re-starting) your hot tub.

Your hot tub is equipped with a Purge/Filtration Selector Valve located in the equipment area just above the jet pump. When first filling your hot tub, ensure that the selector valve is in the "Purge" (OPEN) position as illustrated below. This will allow water to flow from the jet pump into the Stealth System and eliminate any possible airlocks in the plumbing.

You may now start up your hot tub as described in the "Starting Your Hot Tub" section, then continue as described below.

Once water is flowing from all of the jets, turn the selector valve to the "Filtration" position (Purge line CLOSED) to stop the purge and engage the Stealth System. Leaving the valve in the "Filtration" position will ensure maximum suction through the filtration system.

The Selector Valve positions are as follows:

PURGE

VALVE OPENED



FILTRATION

VALVE CLOSED



Note: Do not remove prefilter when the hot tub has water in the tub. It is recommended to only remove for cleaning when Drain and Filling is taking place. If removed, debris can enter the Stealth pump and cause early failure or damage.

Operating Instructions

PHT 1000 and 2002 Controls (T & LT models)

Start Up

Power-up system and “Pur” will appear for 30 seconds while system is in purge mode and then normal operation will resume. The temperature setting will assume the previous value. It may be necessary to bleed excess air from heater body to prevent overheating of heater on start up.

Heat

Press **{Heat}** key to adjust temperature. Press **once and hold** will raise temperature.

Press a **second time and hold** will lower the temperature to the minimum set point of 70°F or 21°C. A red LED will flash at the topside control while there is a call for heat.

Light

Press **{Light}** key to activate light on/off.

Filter Cycles

Press **{Heat}** key and **{Auxiliary}** (Pump 2 or Blower) keys **simultaneously and hold** to adjust filter cycle from 2 to 12 hours of each 12-hour period. If the water temperature is higher than the set temperature, the tub will not go into a filter cycle.

Panel Lock

Press **{Heat}** key and **{Pump 1}** key **simultaneously** to activate panel LOC and the same to de-activate.

Celsius or Fahrenheit Display

Press **{Auxiliary}** (Pump 2 or Blower) and **{Light}** keys **simultaneously and hold** to toggle from degrees displayed in °F or °C.

Press **{Jets One}** key to activate Pump One. The system will run for 30 minutes at which time the system will automatically shut off unless done so manually prior to the 30 minute time period.

If the temperature reaches 112°F, the control will flash “OH” with the temperature and shut the system down until the temperature drops below 112°F. If the heater body temperature reaches 112°F, the control will flash “HOT” and the system will shut down. When it drops below 112°F, it will automatically turn back on. There is a third level of protection via a two-pole relay that will trip at 118°F. If this trips, the readout at the topside control will read “HL” (Hi-Limit) and the tub must cool to less than 112°F. This Hi-Limit trip can be manually reset by pressing the **{Heat}** key of the control pad. If this trips repeatedly, call your dealer for service.

Factory Programming

PHT 1000 and 2002 (T & LT models)

These programming instructions are for the installer of the spa pak and should not be issued to the end user. There are separate operating instructions in the manual.

Mini Max Digital – r09/r59 Factory Programming Procedure rev:0/5

Power-up system and “Pur” is displayed on topside panel for 30 seconds while in purge mode. Regular operation will then assume.

Press Heat and Light key until “r--” appears. “r--” is the revision level of the system that is being programmed. This is for system ID and is not adjustable. This revision level may change as additions or changes are made to the system.

HC or LC will appear. Press **Jets One** key to toggle from HC to LC operation. HC (Hi Current) operation allows heat capability at any time where LC (Low Current) operation will drop out the heater if Pump 1 high speed, Pump 2, or the blower is activated. When choice is made press **Heat** key to go to next mode.

100 to 106 or 38 to 41 will appear depending on the Celsius or Fahrenheit set up. Press **Jets One** key to change value for maximum temperature set capability for regular use. When choice is made press **Heat** key to go to next mode. **Set at 104°F or 40°C.**

P10, P11 or P12 will appear. Press **Jets One** key to change operation.

P10 = Pump 1 two speed with off position.

P11 = Pump 1 single speed.

P12 = Pump 1 two speed.

When choice is made press **Heat** key to go to the next mode.

P6 or P12 will appear. Press **Jets One** key to toggle between P6 or P12 to set the system purge time.

P6 = Purge every 6 hours.

P12 = Purge every 12 hours.

Press **Heat** key to go back to run mode. Recommend P12.

Dealer Use Only

Troubleshooting Guide

PHT 1000 and 2002 (T & LT models)

MINI MAX DIGITAL SPA PAK rev:05

Using CT250 Printed Circuit Board

No display at topside

- Check that connection to main board is clean and sound at J8.
- Test a new topside control.
- Check for 120V primary power going into the transformer and for 12V secondary power out of the transformer to J6 and J7 on the board before replacing the transformer.
- Replace board if there is 12V to J6 and J7.

Display flashes “th1/39” on system start up

- Check that temperature-sensing probe connection to main board is clean and sound at location J2.
- Try new temperature-sensing probe.

Display flashes “th2/current temperature” on system start up

- Check that the temperature-sensing probe is connected to the main board is clean and sound at location J1.
- Try new temperature-sensing probe.

Display flashes “th3/39” on system start up

- This indicates that both thermistors are detecting tub water temperature of less than 39°F (4°C) or they are both disconnected (open). Pump(s) and blower will run in this condition.

Display flashes “OH” (Overheat)

- This indicates that the spa water temperature is over 112°F. The system should be shut down in this state and will re-start automatically when the water cools below 112°F.

Display flashes “hot” (Overheat)

- This indicates that the heater body is over 112°F. The system should be shut down in this state and will re-start automatically when the water cools below 112°F.

Display flashes “HL” (High Limit)

- This indicates that either the heater or the spa has reached 118°F or higher. The system will not re-start automatically. To re-start the system, the water temperature must be below 112°F and the heater key at the topside control must be pressed.
- If “HL” stays on and cannot be disarmed, there has been high amperage drawn through the board – 48 Amps total max. – replace board.

Troubleshooting Guide

PHT 1000 and 2002 (T & LT models)

Display flashes “FLO”

- This indicates a flow problem where the pressure switch is not closing
- Check that filters are clean
- Check that water level is optimal (2/3 up the filter) opening
- Check for a flow obstruction or closed valve
- Check that topside program is set up correctly for pump speeds (see Factory-Programming instruction)

Display flashes “FLC”

- This indicates that the pressure switch is stuck in the closed position.
- Turn the power off and check the pressure switch for continuity using an Ohms meter for resistance or other buzzer style continuity tester.

Erratic operation or 0 at topside panel

- Check for proper connection at J8
- Shut off system and restart
- Check for debris inside topside panel control housing
- Check cable connection at the topside control remove, clean reconnect
- Try new topside control
- Replace main board

No Heat

- Check the topside control for “HL”. This indicates that the system has overheated. Make sure the temperature has fallen to less than 112°F and press the **Heat** key to reset.
- Check for flashing LED at topside control to indicate heat demand
- Check that filters are clean
- Check to see if the pilot light at the equipment panel is on. This indicates if power is actually getting to the heater element. If this light is on and there is still no heat, the element should be checked for continuity. If the element is open, it needs to be replaced.
- If the pilot light still does not turn on, then the pressure switch may need to be adjusted. The pressure switch is located on the heater body. This pressure switch is a protection switch that is meant to turn the heater off if the pump fails to operate or if there is not enough pump pressure. A test to see if the pressure switch has been adjusted correctly is to unplug the circulation pump and see if the heater shuts off. It should operate again when the pump is plugged back in. The heater should not be allowed to operate under static (gravitational) pressure when the pump is not on as it will cause an instant overheat.
- If a flow switch is used it must be checked for continuity when closed.
- Replace the circuit board if the above remedies do not work.

Troubleshooting Guide

PHT 1000 and 2002 (T & LT models)

Temperature Readout is Wrong

- Remove temperature sensor/thermister from the tub location and submerge it directly into the water. This will verify if the sensor has been installed where ambient air has affected it or if it is defective.
- Insulate the through wall dry well so the ambient air does not influence the temperature measurement.

Overheat

- If the water is too hot and the high limit has tripped, the water must be allowed to drop to less than 112°F before it will reset. Reset by pressing the heat key at the topside control or restarting the system.
- The circulation of the water may be too low, allowing the heater body to overheat. Be sure that all valves are fully open to allow maximum water flow over the heater element.

The friction and radiant heat from the pump motor can cause an extremely high ambient temperature around the spa and the equipment causing an overheat condition. If this condition is suspect, try running the spa with the equipment door off to see if it still overheats.

Pump(s), Blower or light does not shut off

- Try new topside control
- Replace main board

Circulation pump does not work

- Check the fuse and power connections.

Light does not work

- Press Light key at top side
- Check bulb
- Check 12V out to light at J4 and J5

Troubleshooting Guide

PHT 1000 and 2002 (T & LT models)

Filter Cycle does not operate

- Adjust the temperature set point to be within 2°F of the actual water temperature. If the water temperature creeps 2°F higher than the set temperature, the system will shut off to allow the water to cool. When the water cools down to the desired set point, filtration will resume. Proper ventilation of the equipment will minimize this interruption.

Ground Fault Interrupter Trips

- Check if it does it only when heat turns on, if so, check element by removing the power to the element terminal and turn the heat on. If it only faults when the element is connected with power, the element has a ground fault and must be replaced.
- This can be done with the pump(s), blower, ozonator or any other peripheral equipment as a process of elimination to see where the fault may be.
- Be sure that the neutral on the GFCI has been wired properly in the main panel.

General

- All connections should be checked that they are secure.
- Always exercise general electrical common sense for safety.

Operating Instructions

PHT 2004 S Controls (S models)

Start Up

Power-up system and "r.x.x." message is displayed for a few seconds, with "x.x." indicating the software revision of your system and then normal operation will resume (the display will blink until someone presses a key). It may be necessary to bleed excess air from heater body to prevent overheating of heater on start up. To have the system in purge mode press **Pump** key and run the pump in low speed for a few seconds and then press a second time to turn pump to high speed and run the pump one cycle (30 min) until the pump turns off automatically.

Heat

Press and hold **Up** or **Down** arrow key to set the current water temperature setting. The new and desired temperature ("Set Point" value) setting will be displayed for 5 seconds to confirm your new selection.

Water temperature can be adjusted by 1°F (0.5°C) increments from 59 to 104°F (15 to 40°C).

When water temperature is 1°F (0.5°C) lower than the Set Point, the heater will automatically turn on until water temperature reaches Set Point plus 1°F (0.5°C).

The "Heater" indicator lights up when the heater is on.

Note: If your system is configured in Low Current mode, the heater will not start if the pump is running at high speed. The "Heater" indicator will flash.

Light

Press **Light** key to turn light on at high intensity. Subsequent presses will change light intensity until it is turned off. A built-in timer automatically turns light off after 2 hours, unless it has been manually deactivated.

The "Light" indicator is displayed when light is on at high intensity. It flashes when light is on at low intensity.

Filter Cycle

The system automatically performs two filter cycles per day, at 12-hour intervals. During filter cycle, the pump will be activated for a predetermined number of hours. This process also sets the start time of the filter cycles, which will start up every 12 hours from the time the initial cycle has been programmed. To set filter cycle duration:

Press and hold **Light** key for 5 seconds. The display will show "Fxx", with "xx" representing the currently set filter cycle duration in hours.

Use **Up** or **Down** arrows to change setting from 2 to 6 hours.

When the setting you want is displayed, press **Light** key again. The filter cycle will start immediately.

40-minute filter cycle time out: If you turn pump or light on during a filter cycle, the cycle will be interrupted and will only resume 40 minutes after you (or the system) have turned the last active output off. The "Filter Cycle" indicator will flash.

Celsius or Fahrenheit Display

During normal operation, the display shows the SPA water temperature in °F or °C. To program these system parameters, the Light switch must be held for 20 seconds. After this time, the first parameter will be displayed; press two times and on the display appears: **Tux (TuC)**

Value **x**: **F** = Temperature display in Fahrenheit units (default)

C = Temperature display in Celsius units.

Use the **Plus/Minus** keys to modify its value and **Light** key is used to accept the new value.

Jets One

Press Pump key to turn pump on at low speed. Press a second time to turn pump to high speed (with a dual-speed pump). A third time turns pump off. A built-in timer automatically turns pump off after 20 minutes, unless it has been manually deactivated.

The "Pump" indicator lights up when pump is on at high speed. It flashes when pump is on at low speed.

If the water temperature reaches 112°F, the display will flash and stop all accessories (pump, light and ozonator). The pump will be allowed to be on only during the smart winter mode cycle. The system will return to the normal operating mode after the water temperature dropped to 109°F or below.


Factory Programming

PHT 2004 S Controls (S models)


1.1 Display units

During normal operation, the display shows the SPA water temperature in °F or °C (see low level programming to select the temperature unit). The screen resolution on the display is 1°F and 0.5°C. After a power-up, the display will blink until someone presses a key. This feature is to let the user know that a power failure has occurred.

1.2 Smart Winter Mode

This system prevents the water from freezing in the pump plumbing. An on-board sensor continuously checks the ambient air temperature in the enclosure. At any time, if the temperature goes below 0°C, the system activates the Smart Winter protection for the next 24 hours. During this mode, the system starts periodically a Smart Winter cycle if the pump didn't run since the last cycle. A Smart Winter cycle consists of circulating warmer water in the plumbing by turning the pump on for 1 minute. During a Smart Winter cycle, the filtering cycle LED  blinks on the display. Depending on the ambient temperature, the period of time between each cycle is 15, 30, 60 or 120 minutes.

1.3 Filtration cycle

When there is an active Filter cycle, the Filter cycle icon  will be on. It occurs twice a day (every 12 hours). It consists of starting the pump in high speed for 1 minute to purge the plumbing, then to low speed for the rest of the cycle. The ozonator will be on for the entire duration of the filtering cycle. At any other time, the ozonator is not allowed to be on.

The Filter cycle Duration is user programmable. By holding the light key, the display shows the current Duration value ("F 02, 03, 04, 05 or 06"). Use the Up and Down keys to adjust this value as desired. During the Duration adjustment, if the user doesn't use any keys for 5 seconds, the system "stores" the new Duration, but it will take effect only at the next cycle. However, if the user exits the Duration adjustment by pressing the Light key again, a Filter cycle is immediately started, and a new 12-hour cycle is started.

If an accessory (a pump or the light) is used manually, the Filter cycle is suspended (the ozonator and pump goes off*) the time the accessories are used. Once all accessories are turned off (whether manually or by the built-in timer), the Filter cycle remains suspended for an extra 40 minutes. Finally, when a Filter cycle is suspended, the Filter cycle icon will blink ON for 1/2 second, OFF for 1/2 second, ON for 1/2 second, and finally OFF for 1-1/2 second period.

*The pump stays on if there is a call for heat or started manually.

1.4 Low current option

This feature is to avoid overloading the input breaker/GFCI. If the LC mode (low current) is selected, the heater is not allowed to be on when the pump is running at high speed. There are no restrictions with the HC (high current) configuration. The LC/HC mode is selected by a low-level programming

LOW LEVEL PROGRAMMING

It is possible to configure various systems operating parameters from the keypad. This is normally done at Gecko factory or by the spa manufacturer, but may be done at anytime. The configuration will be kept into an EEPROM memory. To program these system parameters, the Light switch must be held for 20 seconds. After this time, the first parameter will be displayed (see below). For each parameter, use the Plus/Minus keys to modify its value. Light key is used to accept the new value and switch to the next parameter. The display returns to the normal display when there is no more parameter to change. There are four (4) low-level programmable parameters:

1. Input current mode configuration:
Display: HC or LC
Value: HC = High current breaker (default)
LC = Low current breaker
2. Pump speed configuration:
Display: SPx (ex. SP1)
Value x: 1 = 1 speed
2 = 2 speeds (default)
3. Temperature display units configuration:
Display: Tux (TuC)
Value x: F = Temperature display in Fahrenheit units (default)
C = Temperature display in Celsius units.
4. Light intensities configuration:
Display: L1 or L2
Value: L1 = One intensity
L2 = Two intensities (default)

NOTE: The system must be configured for 1 light intensity when a Colour Kinetic LED module is used.

Troubleshooting Guide

PHT 2004 S (S models)

GECKO uSPA pack

OWNER TROUBLESHOOTING

The pump has started up for one minute on several occasions and "Filter Cycle" indicator is flashing.

Not a bug but a feature! Our Smart Winter Mode protects your spa from the cold by automatically turning the pump on for one minute several times a day to prevent water from freezing in pipes.

3 flashing dots are displayed.

A problem has been detected.

Do not enter the water! Check and open water valves. Clean filter if necessary. Check water level. Add water if necessary.

Shut power off and power your spa up again to reset the system.

Call your dealer or service supplier if problem persists.

Water temperature is flashing.

Water temperature in the spa has reached 112°F (44°C).

Do not enter the water! Allow water to cool down. The system will reset automatically when water temperature reaches 109°F (43°C).

Call your dealer or service supplier if problem persists.

"r x.x" message is displayed.

At power-up, the "r x.x" message is displayed for a few seconds, with "x.x" indicating the software revision of your system.

The display is flashing.

A power failure has occurred. Press any key to stop the LED flashing, then reprogram filter cycle to adjust start time.

No display at topside

- Check that connection to main board is clean.
- Test a new topside control.
- Check for 120V primary power going into the transformer and for 12V secondary power out of the transformer before replacing the transformer.
- Replace board if there is 12V.

Display flashes ". . ." on system start up

- Check that temperature-sensing probe connection to main board is clean.
- Try new temperature-sensing probe.
- Check that the temperature-sensing probe is connected to the main board is clean.
- Try new temperature-sensing probe.
- Check that both thermisters are detecting tub water temperature of less than 39°F (4°C) or they are both disconnected (open). Pump(s) and blower will run in this condition.

“OH” (Overheat) Error Condition

- Check that the spa water temperature is over 112°F. The system should be shut down in this state and will re-start automatically when the water cools below 112°F.
- This indicates that the heater body is over 112°F. The system should be shut down in this state and will re-start automatically when the water cools below 112°F.

“HL” (High Limit) Error Condition

- This indicates that either the heater or the spa has reached 118°F or higher. The system will not re-start automatically. To re-start the system, the water temperature must be below 112°F and the heater key at the topside control must be pressed.
- If “HL” stays on and cannot be disarmed, there has been high amperage drawn through the board – 20 Amps total max. (12 Amps cord connection) – replace board.

“FLO” Error Condition

- This indicates a flow problem where the pressure switch is not closing
- Check that filters are clean
- Check that water level is optimal (2/3 up the filter) opening
- Check for a flow obstruction or closed valve
- Check that topside program is set up correctly for pump speeds (see Factory-Programming instruction)

“FLC” Error Condition

- This indicates that the pressure switch is stuck in the closed position.
- Turn the power off and check the pressure switch for continuity using an Ohms meter for resistance or other buzzer style continuity tester.

Erratic operation at topside panel

- Check for proper connection
- Shut off system and restart
- Check cable connection at the topside control remove, clean reconnect
- Try new topside control
- Replace main board

No Heat

- Check the topside control for “HL” Error Condition. This indicates that the system has overheated. Make sure the temperature has fallen to less than 112°F and press the **Heat (UP and Down key)** to reset.
- Check for flashing LED at topside control to indicate heat demand
- Check that filters are clean
- Check to see if the three dots (“ . . .”) are blinking on the upper control. This indicates a flow problem. If those “ . . .” are off and there is still no heat, the element should be checked for continuity. If the element is open, it needs to be replaced.
- If the pilot light still does not turn on, then the pressure switch may need to be adjusted. The pressure switch is located on the heater union and has a small plastic screw on it. This plastic screw should be turned counter clockwise to allow the heater to run on less water flow/pressure. This pressure switch is a protection switch that is meant to turn the heater off if the pump fails to operate or if there is not enough pump pressure. A test to see if the pressure switch has been adjusted correctly is to unplug the circulation pump and see if the heater shuts off. It should operate again when the pump is plugged back in. The heater should not be allowed to operate under static (gravitational) pressure when the pump is not on as it will cause an instant overheat.
- If a flow switch is used it must be checked for continuity when closed.
- Replace the circuit board if the above remedies do not work.

Troubleshooting Guide

PHT 2004 S (S models)

Temperature Readout is Wrong

- Remove temperature sensor/thermister from the tub location and submerge it directly into the water. This will verify if the sensor has been installed where ambient air has affected it or if it is defective.
- Insulate the through wall dry well so the ambient air does not influence the temperature measurement.

Overheat

- If the water is too hot and the high limit has tripped, the water must be allowed to drop to less than 112°F before it will reset. Reset by restarting the system.
- The circulation of the water may be too low, allowing the heater body to overheat. Be sure that all valves are fully open to allow maximum water flow over the heater element.

The friction and radiant heat from the pump motor can cause an extremely high ambient temperature around the spa and the equipment causing an overheat condition. If this condition is suspect, try running the spa with the equipment door off to see if it still overheats.

Pump(s), Blower or light does not shut off

- Try new topside control
- Replace main board

Circulation pump does not work

- Check the fuse and power connections.

Light does not work

- Press Light key at top side
- Check bulb
- Check 12V out to light

Filter Cycle does not operate

- Adjust the temperature set point to be within 2°F of the actual water temperature. If the water temperature creeps 2°F higher than the set temperature, the system will shut off to allow the water to cool. When the water cools down to the desired set point, filtration will resume. Proper ventilation of the equipment will minimize this interruption.

Ground Fault Interrupter Trips

- Check if it does it only when heat turns on, if so, check element by removing the power to the element terminal and turn the heat on. If it only faults when the element is connected with power, the element has a ground fault and must be replaced.
- This can be done with the pump(s), blower, ozonator or any other peripheral equipment as a process of elimination to see where the fault may be.
- Be sure that the neutral on the GFCI has been wired properly in the main panel.

General

- All connections should be checked that they are secure.
- Always exercise general electrical common sense for safety.

Operating Instructions

PHT 2004 LX Controls (LXT models)

Start Up

Power-up system and “95” message appears on blinking display, “95” indicating the temperature of water (in F) and then normal operation will resume (the display will blink until someone presses a key). It may be necessary to bleed excess air from heater body to prevent overheating of heater on start up. To have the system in purge mode press **Pump** key and run the pump in low speed for a few seconds and then press a second time to turn pump to high speed and run the pump one cycle (30 min) until the pump turns off automatically.

Heat

Press **Up/Down** arrow key to increase or decrease the desired water temperature. The selected temperature setting (“Set Point” value) will be displayed for 5 seconds to confirm your new selection.

The “Set Point” indicator displays the desired temperature, NOT the current water temperature!

The temperature can be adjusted by 1° increments from 59 to 104°F (15 to 40°C).

When water temperature is 1°F (0.5°C) lower than the Set Point, the heater will turn on until water temperature reaches the Set Point plus 1°F (0.5°C).

The “Heater” indicator lights up when the heater is on. It flashes when there is a request for more heat but the heater has not yet started.

Note: If your system is configured in Low Current Mode, the heater will not start if pump is running at high speed.

Light

Press **Light** key to turn light on. Press a second time to turn light off. A built-in timer will shut light off after 2 hours unless it has been manually deactivated.

The “Light” indicator is displayed when light is on.

Filter Cycle

The system automatically performs two (60-minute) filter cycles per day. The “Filter Cycle” indicator will be displayed when a filter cycle is on. During a filter cycle:

- Pump 1 and Pump 2 run for one minute at high speed, then
- Pump 1 runs at high speed for two minutes, then at low speed for a programmed period of time (in minutes), and the ozonator is turned on.

To set filter cycle duration:

Press and hold **Light** key for 5 seconds.

The display will show “xx”, with “xx” representing the currently set filter cycle duration in minutes.

Use **Up** or **Down** arrow key to change setting (from 30 to 240 minutes).

When the desired setting is displayed, press **Light** key to confirm.

The display will then show “xx”, with “xx” representing the filter cycle frequency per day.

Use **Up** or **Down** arrow key to change setting (from 1 to 4).
Press **Light** key again to set temperature unit (F or C).
When the desired setting is displayed, press **Light** key to save all settings and exit.

An irregularly flashing “Filter Cycle” indicator means that the system has stopped filtering after 3 hours because the water temperature exceeds the Set Point by more than 2°F (1°C). If the temperature cools down to 1°F (0.5°C) above Set Point before the scheduled end of the cycle, filtering will resume for the remainder of the programmed duration. Note: After a power failure, the filter cycle duration will return to its default value (1 hour). In this case, the first filter cycle will start 12 hours after power has been restored.

Lock Panel

This feature is especially helpful when young children have access to the keypad. In Lock mode, all keypad functions are locked but automatic features run as usual.

To activate or deactivate Lock mode, press (in this order) **Pump 1**, **Light** and **Pump 1** again.

When keypad is locked, the display will toggle between the “LOC” message and the current water temperature. If a power-up occurs, the keypad will be unlocked.

Celsius or Fahrenheit Display

During normal operation, the display shows the SPA water temperature in F or C. To program these system parameters, the Light switch must be held for 5 seconds. After this time, the first parameter will be displayed: **xx**
Value **xx**: filter cycle duration

Use the **Up/Down** keys to modify its value and **Light** key is used to accept the new value.

Press **Light** key will be displayed: **xx**

Value **xx**: filter cycle frequency

Use the **Up/Down** keys to modify its value and **Light** key is used to accept the new value.

Press **Light** key again to set temperature unit (F or C)

When the desired setting is displayed, press Light key to save all settings and exit.

Jets One

Press **Pump 1** key to turn Pump 1 on at low speed. Press a second time to turn Pump 1 at high speed. Press a third time to turn Pump 1 off. A built-in timer will turn pump off after 20 minutes unless it has been manually deactivated.

The “Pump 1” indicator lights up when when Pump 1 is on at high speed. It flashes when pump is on at low speed.

Press **Pump 2** key to turn Pump 2 on at low speed. Press a second time to turn Pump 2 at high speed. Press a third time to turn Pump 2 off. A built-in timer will turn pump off after 20 minutes unless it has been manually deactivated.

The “Pump 2” indicator lights up when when Pump 2 is on at high speed. It flashes when pump is on at low speed.

Suspension mode:

The Suspension mode is designed to facilitate filter changes, maintenance, etc. In this mode, all automatic features are disabled (e.g. heat and filter cycle). The only automatic feature that remains active is the Smart

Winter Mode.

To activate or deactivate Suspension mode, press and hold **Pump 1** key for 5 seconds. Suspension mode is activated for 40 minutes. The "OFF" message will be displayed. All keys are disabled except for the **Light** key.

If the water temperature reaches 112°F, the display will flash and stop all accessories (pump, light and ozonator). The pump will be allowed to be on only during the smart winter mode cycle. The system will return to the normal operating mode after the water temperature dropped to 109°F or below.

Factory Programming

PHT 2004 LX Controls (LXT models)

1.1 Ozone output

1.1.1 Ozone without a circulation pump

Duration	On during filter cycle
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1.1.2 Ozone with a circulation pump

Duration	This output is tuned on with the circulation pump.
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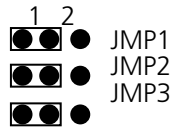
1.2 Circulation pump

Functionality	If the spas temperature is 2°F or greater than the set temperature the circulation pump will stop. Please note that even in overheat condition, if any jets is pressed, the circulation pump will start and will remain on for another 30 minutes after the pump has turned off. Please note that when the circulation pump is installed, it does affect the pressure switch status.
Duration	Until the temperature return to the set point.

1.3 Power-Up detection

Functionality	After a power-up, the display will blink until somebody presses a key. This feature is to let the user know that a power failure has occurred and that the set point has returned to its default value of 95°F (35°C).
Display	The display blinks after a power failure until a key is pressed.

System configuration
1.4 Jumper Configuration



Jumper Number	Function	Position 1 (Left)	Position 2 (Right)
JMP-1	Current Mode	HC No restricion	LC The Heater is not allowed to be turned on if Pump #1 is on at High speed or if pump #2 is activated.
JMP-2	Circulation Pump	Cp installed (Flow switch with CP)	Cp not installed (Flow Switch with Pump 1)
JMP-3	Pump #2 speed	Two speeds	One speed

This is normally done at Aber factory or by the spa installer, but may be done at anytime, as long as it is followed by a reset (power-up).

Troubleshooting Guide

PHT 2004 LX Controls (LXT models)

Gecko SSPA pack

No display at topside

- Check that connection to main board is clean and proper.
- Test a new topside control.
- Check for 120V primary power going into the transformer and for 12V secondary power out of the transformer before replacing the transformer.
- Replace board if there is 12V.

Display flashes “. . . ” on system start up

- Check that temperature-sensing probe connection to main board is clean.
- Try new temperature-sensing probe.
- Check that the temperature-sensing probe is connected to the main board is clean.
- Try new temperature-sensing probe.
- Check that both thermisters are detecting tub water temperature of less than 39°F (4°C) or they are both disconnected (open). Pump(s) and blower will run in this condition.

“OH” (Overheat) Error Condition

- This indicates that the spa water temperature is over 112°F. The system should be shut down in this state and will re-start automatically when the water cools below 112°F.
- This indicates that the heater body is over 112°F. The system should be shut down in this state and will re-start automatically when the water cools below 112°F.

“HL” (High Limit) Error Condition

- This indicates that either the heater or the spa has reached 118°F or higher. The system will not re-start automatically. To re-start the system, the water temperature must be below 112°F and the heater key at the topside control must be pressed.
- If “HL” stays on and cannot be disarmed, there has been high amperage drawn through the board – 48 Amps total max. – replace board.

Troubleshooting Guide

PHT 2004 LX Controls (LXT models)

“FLO” Error Condition

- This indicates a flow problem where the pressure switch is not closing
- Check that filters are clean
- Check that water level is optimal (2/3 up the filter) opening
- Check for a flow obstruction or closed valve
- Check that topside program is set up correctly for pump speeds
(see Factory-Programming instruction)

“FLC” Error Condition

- This indicates that the pressure switch is stuck in the closed position.
- Turn the power off and check the pressure switch for continuity using an Ohms meter for resistance or other buzzer style continuity tester.

Erratic operation at topside panel

- Check for proper connection (verify jumper #3)
- Shut off system and restart
- Check cable connection at the topside control remove, clean reconnect
- Try new topside control
- Replace main board

No Heat

- Check the topside control for “HL” error condition. This indicates that the system has overheated. Make sure the temperature has fallen to less than 109°F and press the **Heat** (Up/down key) to reset.
- Check for flashing LED at topside control to indicate heat demand
- Check that filters are clean
- Check to see if the board LED at the equipment panel is on. This indicates a flow problem. If this light is off and there is still no heat, the element should be checked for continuity. If the element is open, it needs to be replaced.
- If the board LED still does not turn off, then the pressure switch may need to be adjusted. The pressure switch is located on the heater body and has a small plastic screw (head for flat screw driver) on it. This plastic screw (head for flat screw driver) should be turned counter clockwise to allow the heater to run on less water flow/pressure. This pressure switch is a protection switch that is meant to turn the heater off if the pump fails to operate or if there is not enough pump pressure. A test to see if the pressure switch has been adjusted correctly is to unplug the circulation pump and see if the heater shuts off. It should operate again when the pump is plugged back in. The heater should not be allowed to operate under static (gravitational) pressure when the pump is not on as it will cause an instant overheat.
- If a flow switch is used it must be checked for continuity when closed.
- Replace the circuit board if the above remedies do not work.

Troubleshooting Guide

PHT 2004 LX (LXT models)

Temperature Readout is Wrong

- Remove temperature sensor/thermister from the tub location and submerge it directly into the water. This will verify if the sensor has been installed where ambient air has affected it or if it is defective.
- Insulate the through wall dry well so the ambient air does not influence the temperature measurement.

Overheat

- If the water is too hot and the high limit has tripped, the water must be allowed to drop to less than 112°F before it will reset. Reset by restarting the system.
- The circulation of the water may be too low, allowing the heater body to overheat. Be sure that all valves are fully open to allow maximum water flow over the heater element.

The friction and radiant heat from the pump motor can cause an extremely high ambient temperature around the spa and the equipment causing an overheat condition. If this condition is suspect, try running the spa with the equipment door off to see if it still overheats.

Pump(s), Blower or light does not shut off

- Try new topside control
- Replace main board

Circulation pump does not work

- Check the fuse and power connections.

Light does not work

- Press Light key at top side
- Check bulb
- Check 12V out to light

Filter Cycle does not operate

- Adjust the temperature set point to be within 2°F of the actual water temperature. If the water temperature creeps 2°F higher than the set temperature, the system will shut off to allow the water to cool. When the water cools down to the desired set point, filtration will resume. Proper ventilation of the equipment will minimize this interruption.

Ground Fault Interrupter Trips

- Check if it does it only when heat turns on, if so, check element by removing the power to the element terminal and turn the heat on. If it only faults when the element is connected with power, the element has a ground fault and must be replaced.
- This can be done with the pump(s), blower, ozonator or any other peripheral equipment as a process of elimination to see where the fault may be.
- Be sure that the neutral on the GFCI has been wired properly in the main panel.

General

- All connections should be checked that they are secure.
- Always exercise general electrical common sense for safety.

Operating Instructions

PHT 2004 ULX Controls (ULXT models)

Start Up

Power-up system and “x.x.x.” message is displayed for a few seconds, with “x.x.x.” indicating the software revision of your system and then normal operation will resume (the display will blink until someone presses a key). It may be necessary to bleed excess air from heater body to prevent overheating of heater on start up. To have the system in purge mode press **Pump** key and run the pump in low speed for a few seconds and then press a second time to turn pump to high speed and run the pump one cycle (30 min) until the pump turns off automatically.

Automatic water heater start:

When water temperature is 1°F (0.5°C) lower than the Set Point, the heater will automatically turn on until water temperature reaches Set Point plus 1°F (0.5°C).

The “Heater” icon lights up when the heater is on.

Temperature display:

In normal mode operation, the display alternates between the hourly time and the current water temperature. The display toggles every 5 seconds.

Turning the light on:

Press **Light** to turn light on at high intensity. Pressing a second and a third time reduces light intensity. A fourth time turns light off. A built-in timer automatically turns light off after 2 hours, unless it has been manually deactivated.

The “Light” icon lights up when light is on at high intensity. It flashes when light is on at medium or low intensity.

If your spa is equipped with an optional fiber box, press **Light** key once to turn fiber box (motor & light) on. Press a second time to turn fiber box motor off and leave light on. A third time turns both fiber box motor & light off. A built-in timer automatically turns fiber box off after 2 hours, unless it has been manually deactivated. The “Light” icon lights up when fiber box light is on. It flashes when both fiber box motor & light are on.

Filter cycle start time & duration

The system automatically performs two filter cycles per day, at 12-hour intervals. During a filter cycle, Pump 2 & blower run for one minute, then Pump 1 runs at low speed for the programmed number of hours. The ozonator is also activated and “Filter Cycle” icon is on.

To program a filter cycle, you must enter two parameters: the start time of the cycle and its duration. If no filtering is required, the duration must be set to “OFF”. If continuous filtering is required, the duration must then be set to “12:00”.

To set the start time of the cycle:

1. Enter the programming mode by pressing **Program** key.
2. Select the Filter cycle start parameter by pressing **List** key until “Flon” is displayed.
3. Press **Enter** key to display the current setting.
4. Use **Up** or **Down** arrow key to change setting.

5. Press **Enter** key to confirm the new setting.
The spa side control will return to normal mode.

To set the duration of the cycle:

1. Enter the programming mode by pressing **Program** key.
2. Select the Filter cycle duration parameter by pressing **List** key until "FIdu" is displayed.
3. Press **Enter** key to display the current setting.
4. Use **Up** or **Down** arrow key to change setting.
5. Press **Enter** key to confirm the new setting.
The spa side control will return to normal mode.

Keypad lockout

This function allows you to prevent unauthorized parameter setting of the unit. The basic functions of the spa will remain accessible (pump, blower and light outputs) but it will be impossible to change the temperature Set Point, to override the Economy mode or to enter the programming mode.

When the keypad is locked, the "Lock" icon will be displayed.

To lock the keypad:

1. Enter the programming mode by pressing **Program** key.
2. Select the Keypad lockout parameter by pressing **List** key until "Loc" is displayed.
3. Press **Enter** key to display the current setting.
4. Use **Up** or **Down** arrow key to change setting.
5. Press **Enter** key to confirm the new setting.
The spa side control will return to normal mode, with keypad locked, and the "Lock" icon will be displayed.

To unlock the keypad:

1. Enter the programming mode by pressing **Program** key. "Loc" is displayed.
2. Press **Up** arrow key.
3. Press **Pump 1** key.
4. Press **Light** key.

The "Lock" icon will disappear and the spa side control will return to normal mode.

If the unlock process takes more than 15 seconds, the spaside control will return to normal mode but the keypad will remain locked.

Temperature unit

Water temperature can be displayed in °F or °C.

To select the temperature display unit:

1. Enter the programming mode by pressing **Program** key.
2. Select the Temperature unit parameter by pressing **List** key until "Tu" is displayed.
3. Press **Enter** key to display the current setting.
4. Use **Up** or **Down** arrow key to change setting.
5. Press **Enter** key to confirm the new setting.
The spa side control will return to normal mode.

Starting Pump 1:

Press **Pump 1** to turn Pump 1 on at low speed. Press a second time to turn Pump 1 to high speed. A third time

turns Pump 1 off. A built-in timer automatically turns Pump 1 off after 20 minutes, unless it has been manually deactivated.

The "Pump 1" icon lights up when Pump 1 is on at high speed. It flashes when Pump 1 is on at low speed.

Starting Pump 2:

Press **Pump 2** to turn Pump 2 on at low speed. Press a second time to turn Pump 2 to high speed. A third time turns Pump 2 off. A built-in timer automatically turns Pump 2 off after 20 minutes, unless it has been manually deactivated.

The "Pump 2" icon lights up when Pump 2 is on at high speed. It flashes when Pump 2 is on at low speed.

Economy mode start time & duration

The Economy mode allows you to lower the temperature Set Point of the spa by 20°F (11°C) during a certain period of the day. When in Economy mode, the "Economy Mode" icon will be displayed.

To program the Economy mode, you must enter two parameters: the start time and the duration. If the Economy mode is not required, the duration must be set to "OFF".

You can manually override the current Economy status (on or off) for the rest of the day by pressing **Econo** key.

To set the start time of the Economy mode:

1. Enter the programming mode by pressing **Program** key.
2. Select the Economy mode start parameter by pressing **List** key until "ECon" is displayed.
3. Press **Enter** key to display the current setting.
4. Use **Up** or **Down** arrow key to change setting.
5. Press **Enter** key to confirm the new setting.

The spa side control will return to normal mode.

To set the duration of the Economy mode:

1. Enter the programming mode by pressing **Program** key.
2. Select the Economy mode duration parameter by pressing **List** key until "ECdu" is displayed.
3. Press **Enter** key to display the current setting.
4. Use **Up** or **Down** arrow key to change setting.
5. Press **Enter** key to confirm the new setting.

The spa side control will return to normal mode.

Time of day

This function allows you to set the internal clock of the system.

The unit will keep time in memory for about 48 hours in case of power failure.

To set the time:

1. Enter the programming mode by pressing **Program** key. "CL" is displayed.
2. Press **Enter** key to display the current setting.
3. Use **Up** or **Down** arrow key to change setting.
4. Press **Enter** key to confirm the new setting.

The internal clock will be adjusted and the spa side control will return to normal mode.

Parameter summary

CL	Time of day
Flon	Filter cycle start
Fidu	Filter cycle duration
ECon	Economy mode start
ECdu	Economy mode duration
Tu	Temperature unit (°F or °C)
Loc	Keypad lockout

If the water temperature reaches 112°F, the display will flash and stop all accessories (pump, light and ozonator). The pump will be allowed to be on only during the smart winter mode cycle. The system will return to the normal operating mode after the water temperature dropped to 109°F or below.

Troubleshooting Guide

PHT 2004 ULX Controls (ULXT models)

Gecko MSPA-PACK

OWNER TROUBLESHOOTING

Pumps have started up for one minute on several occasions and “Filter Cycle” icon is flashing.

Not a bug but a feature!

Our Smart Winter Mode protects your system from the cold by turning pumps on for one minute several times a day to prevent water from freezing in pipes.

3 flashing dots are displayed.

A problem has been detected.

Do not enter the water! Check and open water valves. Clean filters if necessary. Check water level. Add water if needed. Shut power off and power your spa up again to reset the system.

Call your dealer or service supplier if problem persists.

Water temperature is flashing.

Water temperature in the spa has reached 112°F (44°C).

Do not enter the water! Allow the water to cool down. The system will reset automatically when water reaches 109°F (43°C).

Call your dealer or service supplier if problem persists.

Filter cycle stops and “Filter Cycle” icon is flashing.

Not a bug but a feature!

To prevent excessive water temperature caused by too long filter cycles, the system will cancel a filter cycle after 3 hours if water temperature exceeds Set Point by more than 2°F (1°C).

The display is flashing.

A power failure has occurred. Press any key to reset the system. After a long power failure, you may have to reset the time.

Troubleshooting Guide

PHT 2004 ULX Controls (ULXT models)

Gecko MSPA-PACK

No display at topside

- Check that connection to main board is clean.
- Test a new topside control.
- Check for 120V primary power going into the transformer and for 12V secondary power out of the transformer before replacing the transformer.
- Replace board if there is 12V.

Display flashes “. . . ” on system start up

- Check that temperature-sensing probe connection to main board is clean.
- Try new temperature-sensing probe.
- Check that the temperature-sensing probe is connected to the main board is clean and sound at location J1.
- Try new temperature-sensing probe.
- Check that both thermisters are detecting tub water temperature of less than 39°F (4°C) or they are both disconnected (open). Pump(s) and blower will run in this condition.

“OH” (Overheat) Error Condition

- This indicates that the spa water temperature is over 112°F. The system should be shut down in this state and will re-start automatically when the water cools below 109°F.
- This indicates that the heater body is over 112°F. The system should be shut down in this state and will re-start automatically when the water cools below 109°F.

“HL” (High Limit) Error Condition

- This indicates that either the heater or the spa has reached 118°F or higher. The system will not re-start automatically. To re-start the system, the water temperature must be below 112°F and the heater key at the topside control must be pressed.
- If “HL” stays on and cannot be disarmed, there has been high amperage drawn through the board – 48 Amps total max. – replace board.

“FLO” Error Condition

- This indicates a flow problem where the pressure switch is not closing
- Check that filters are clean
- Check that water level is optimal (2/3 up the filter) opening
- Check for a flow obstruction or closed valve
- Check that topside program is set up correctly for pump speeds (see Factory-Programming instruction)

“FLC” Error Condition

- This indicates that the pressure switch is stuck in the closed position.
- Turn the power off and check the pressure switch for continuity using an Ohms meter for resistance or other buzzer style continuity tester.

Erratic operation at topside panel

- Check for proper connection (verify jumper #2)
- Shut off system and restart
- Check for debris inside topside panel control housing
- Check cable connection at the topside control remove, clean reconnect
- Try new topside control
- Replace main board

Troubleshooting Guide

PHT 2004 ULX Controls (ULXT models)

No Heat

- Check the topside control for “HL” Error Condition. This indicates that the system has overheated. Make sure the temperature has fallen to less than 112°F and press the **Heat (Up/Down key)** to reset.
- Check for flashing LED at topside control to indicate heat demand
- Check that filters are clean
- Check to see if the board LED at the equipment panel is on. This indicates a flow problem. If this light is off and there is still no heat, the element should be checked for continuity. If the element is open, it needs to be replaced.
- If the board LED still does not turn off, then the pressure switch may need to be adjusted. The pressure switch is located on the heater body and has a small plastic screw (for flat screw driver) on it. This plastic screw (for flat screw driver) should be turned counter clockwise to allow the heater to run on less water flow/pressure. This pressure switch is a protection switch that is meant to turn the heater off if the pump fails to operate or if there is not enough pump pressure. A test to see if the pressure switch has been adjusted correctly is to unplug the circulation pump and see if the heater shuts off. It should operate again when the pump is plugged back in. The heater should not be allowed to operate under static (gravitational) pressure when the pump is not on as it will cause an instant overheat.
- If a flow switch is used it must be checked for continuity when closed.
- Replace the circuit board if the above remedies do not work.

Temperature Readout is Wrong

- Remove temperature sensor/thermister from the tub location and submerge it directly into the water. This will verify if the sensor has been installed where ambient air has affected it or if it is defective.
- Insulate the through wall dry well so the ambient air does not influence the temperature measurement.

Overheat

- If the water is too hot and the high limit has tripped, the water must be allowed to drop to less than 112°F before it will reset. Reset by restarting the system.
- The circulation of the water may be too low, allowing the heater body to overheat. Be sure that all valves are fully open to allow maximum water flow over the heater element.

The friction and radiant heat from the pump motor can cause an extremely high ambient temperature around the spa and the equipment causing an overheat condition. If this condition is suspect, try running the spa with the equipment door off to see if it still overheats.

Pump(s), Blower or light does not shut off

- Try new topside control
- Replace main board

Circulation pump does not work

- Check the fuse and power connections.

Light does not work

- Press Light key at top side
- Check bulb
- Check 12V out to light.

Troubleshooting Guide

PHT 2004 ULX Controls (ULXT models)

Filter Cycle does not operate

- Adjust the temperature set point to be within 2°F of the actual water temperature. If the water temperature creeps 2°F higher than the set temperature, the system will shut off to allow the water to cool. When the water cools down to the desired set point, filtration will resume. Proper ventilation of the equipment will minimize this interruption.

Ground Fault Interrupter Trips

- Check if it does it only when heat turns on, if so, check element by removing the power to the element terminal and turn the heat on. If it only faults when the element is connected with power, the element has a ground fault and must be replaced.
- This can be done with the pump(s), blower, ozonator or any other peripheral equipment as a process of elimination to see where the fault may be.
- Be sure that the neutral on the GFCI has been wired properly in the main panel.

General

- All connections should be checked that they are secure.
- Always exercise general electrical common sense for safety.

Factory Programming

PHT 2004 ULX Controls (ULXT models)

1.1 Economy switch

Functionality	When economy mode is set, the pack regulates the water temperature 20°C below the actual set point. Press Economy button and follow sequence.	
Sequence	1st press	2nd press
Display	ON	OFF
Default	OFF	
Logo or arrow	the display will toggle between the actual water temp and “Econ”.	

1.2 Clock key

Functionality	Allows user to display and modify the real time clock.			
Sequence	Touch key	Hold key for 5 secs.	2nd press	3rd press
Display & Settings	Displays time for 5 seconds.	The hours blink. Use up & down keys to set hours.	Minutes blink. Use up & down keys to set minutes.	Save & Exit.
Default	12:00 – Flashing on power reset.			

1.3 Program key

Functionality	Press and hold the Program switch until the program icon lights up (about 2 seconds), 1st parameter will appear (Up/Down keys modify values)	
Duration	Press Program key to display next parameter, System will reset after last parameter	
Display	As table below	
Parameter	Display	Value of x
Time of day	xx:xx	00:00 to 11:59 (AM/PM)
Filter Cycle start time	FS xx	1 to 12
Filter Cycle duration	Fd xx	0 to 12
Temperature unit	Tu x	(F or C)
Keypad Unlock or Lock	ULOC	ULOC
	LOC	LOC

Note 1: At any time during the programming, if the user does not touch the keypad for more than 10 seconds, the unit will exit the programming mode and go back to the normal display. Any changes done so far are saved.

Note 2: Even if the Filter cycle is always on, the Pump #2 and Blower outputs (if installed) will be purged at the Filter Start hour (ie. twice a day).

1.4 Smart Winter mode

Functionality	Turn pumps on when ambient temperature is below 68°F (20°C)*
Duration	Pumps activate for 1 minute (every 2 hours or less) for at least 24 hours.
Logo or arrow	Filter arrow or logo blinks.

Note: All pumps and blower outputs are activated for 1 minute at various time intervals based on ambient temp.

When the smart winter mode is starting the pumps don't start all at the same time. Here the sequence follows:

- 2 first seconds: Pump #1 Low and circulation pump is starting.
- After 2 seconds: Pump #1 is changing speed and goes to high speed.
- After 4 seconds: Pump #2 is starting to Low speed.
- After 6 seconds: Pump #2 is changing speed and goes to high speed.
- After 1 minute: All other pumps are stopping and pump #3 is starting.

Note: If a key is pressed during a 1 minute cycle, the cycle will be cancelled.

1.5 Power-up detection

Functionality	After a power up, the display will blink until somebody presses a key. This feature is to let the user know that a power failure has occurred.
Duration	Until key is pressed.
Logo or arrow	Display will blink.

1.6 Inverted display

Functionality	Hold Filter key for 5 seconds and the display will invert.
Reset	At power up display defaults to the non-inverted mode.

Note: In the inverted mode, some icons (ie. F and C) are not displayed.

1.7 Temperature displayed in Fahrenheit or Celsius

Functionality	Hold light key for 5 seconds and the temperature unit will toggle between F and C.
Reset	At power up display defaults to the non-inverted mode F.

Low level programming

Functionality	Hold Econo key for 20 seconds, 1st parameter will appear (Up/Down keys modify values)					
Duration	Press Econo key to display next parameter, System will reset after last parameter.					
Display	As table below, Default values in bold.					
Parameter	Display	Value of x				
Pump #1	P1 x	1 = Single speed	2 = Dual speed			
Pump #2	P2 x	0 = Not installed	1 = One speed	2 = Two speeds		
Pump #3	P3 x	0 = Not installed	1 = One speed			
Blower	bL x	0 = Not installed	1 = One speed	2 = Two speeds	3 = three speeds	
Light	LI x	0 = Not installed	1 = 12 VAC (single intensity)	2 = 12 VAC (three intensity)	3 = 120 VAC	4 = INTERNAL Fibber box
Ozone	O3 x	0 = Not installed	1 = on only during Filter cycle	2 = always on	3 = on with the circulation pump	
Circulation Pump	CP x	0 = Not installed	1 = regulated (with spa temperature)	2 = always on	3 = always on but off when 2 degrees over set point	
Filtration cycle	FC x	1 = filtration cycle enable		2 = Filtration cycle replaced by a purge cycle		
Pressure switch	PS x	0 = with pump one		1 = with the circulation pump (CP can not be at 0)		
Time out output	To x	0 = 20 minutes	1 = 30 minutes	2 = 40 minutes		
Current pump #1	C1 x	Select the current of the pump #1 (1 – 15)				
Current pump #2	C2 x	Select the current of the pump #2 (1 – 15)				
Current pump #3	C3 x	Select the current of the pump #3 (1 – 15)				
Current blower	Cb x	Select the current of the blower (1 – 8)				
Current heater	CH x	Select the current of the heater (12 – 23)				

1.8 Jumper configuration

Jumper Number	Function	Position 1 (Left)	Position 2 (Right)
JMP-1	Input Current Mode	HC The Heater will be turned off if more than two pumps are activated on high speed.	LC The Heater must not be turned on if ANY pumps (1, 2 or 3) are at high speed.
JMP-2	Keypad	Keypad with 10 keys	Keypad with 8 keys
JMP-3	TSC	TSC-4	TSC-8
JMP-4	TSC	TSC-47	TSC-8

Note: Keypad with 10 keys mandatory if Pump #3 or RTC required. Factory Default values in bold (for CP installed).

*If CP not installed is chosen then software will automatically default to Pump #1.

General Troubleshooting Guide

Pacific Models

Symptom	Possible Cause	Action
No heat	<ol style="list-style-type: none"> 1. Water level too low 2. Dirty filter 3. Pressure switch adjustments too high 4. Faulty pressure switch 5. Burnt out heating element 	<p>Add water</p> <p>Clean filter</p> <p>Adjust pressure switch</p> <p>Field service required (replace)</p> <p>Field service required (replace)</p>
Poor jet pressure	<ol style="list-style-type: none"> 1. Individual jets closed 2. Dirty filter 3. Knife valves not open fully 	<p>Ensure all jets open</p> <p>Clean filter</p> <p>Open knife valves</p>
Intermittent jet action	<ol style="list-style-type: none"> 1. Water level too low 	<p>Add water</p>
Tub water too hot	<ol style="list-style-type: none"> 1. Temperature set point (thermostat) too high 2. High outdoor ambient temperature 3. Improperly ventilated 4. Temperature probe out of well 5. Faulty hot tub-side control unit/thermostat 	<p>Turn down set point (thermostat)</p> <p>Reduce filter cycle times or remove insulated cover</p> <p>Improve air flow</p> <p>Replace probe into well properly</p> <p>Field service required (replace)</p>
High limit tripped	<ol style="list-style-type: none"> 1. Dry-fire (water level too low) 2. Pump left on high speed 3. Extreme ambient temperatures 	<p>Field service required (replace element)</p> <p>Will automatically reset.</p> <p>Wait for it to cool.</p>
GFI tripping	<ol style="list-style-type: none"> 1. Ground fault in heater (Corrosion) 2. Wet equipment 3. Improper size wire or GFI 4. Leaking heater element seal 	<p>Field service required (replace)</p> <p>Dry off equipment</p> <p>Re-wire to spec</p> <p>Field service required (replace)</p>
Cover too heavy	<ol style="list-style-type: none"> 1. Water logged 	<p>Remove foam inserts to dry</p> <p>Or replace inserts</p>
No digital read out	<ol style="list-style-type: none"> 1. Hot tub-side control has come unplugged from module 2. Power surge or power out 3. Faulty hot tub-side control unit 	<p>Plug in hot tub-side control</p> <p>Shut power for 2 minutes then Reset</p> <p>Field service required (replace)</p>
Hot tub light doesn't turn on	<ol style="list-style-type: none"> 1. Bulb burnt out 2. Hot tub side control has come unplugged 	<p>Replace bulb</p> <p>Plug in controls</p>

Hot Tub Maintenance

Thermal Cover

A vinyl cleaner should be used regularly on your thermal cover. This will help guard against the sun's damaging ultra violet rays and help to prevent mildew stains. We recommend a periodic treatment of non-silicone spray for outdoor covers to help repel rainwater. We also recommend that every six months you should remove the cover inserts to allow them to air out. Do not allow snow to build up on the cover. Never allow anyone to stand or sit on the cover, and avoid dragging it across rough surfaces.

The underside of your hot tub cover is a good reflection of the condition of your water. Poor water balance will quickly change the color and texture of the cover's underside.

It can also minimize the life expectancy of your hot tub cover. Please take steps to correct any water chemistry problems quickly to avoid serious damage to your cover. Even with perfect water balance, it is recommended that you wash the inside of your cover on a monthly basis to remove any chemical residue.

Note: When adding more than the normal daily amount of disinfectant (i.e.: shock treatment) leave the hot tub cover off or 1/2 open for a minimum of a 1/2 hour. Failure to do so could damage the under side of the cover and void the warranty.

Cedar Skirting

At the factory, a water-based clear stain has been applied to your cedar skirt. We recommend re-staining the skirt every year with a water-based sealant to keep the cedar looking its best.

Pump Seal

Your jet pump is built using a "wet end" pump, and a "dry end" motor, with a seal in the middle. Depending on use and chemical balance, this seal will eventually need replacing. Check your motor monthly to ensure that there is no water leaking from the motor area.

If you detect any signs of leakage, contact your dealer immediately.

DAILY MAINTENANCE

- Check chlorine or bromine and pH level.

WEEKLY MAINTENANCE

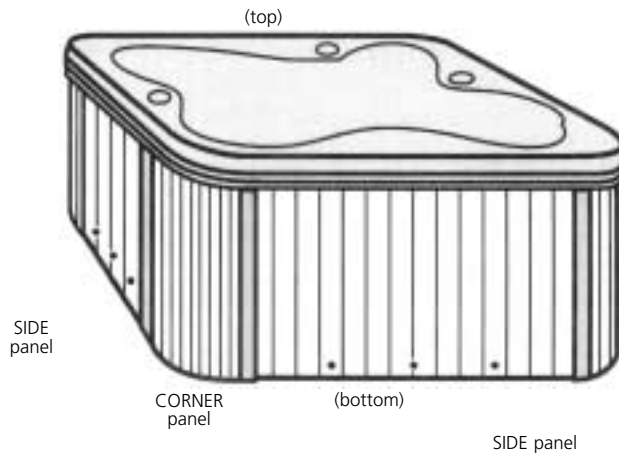
- Check water level and top to prior level, if required.
(At least 2/3's the way up the skim filter opening.)
- Clean and check the skimmer basket.
- Check for water scum line, and wipe.

Pacific Hot Tubs

Cabinet Removal Instructions

STEP – 1

To remove any of the 4 CORNER panels on your Pacific Hot Tub, first you must remove each of the SIDE panels located adjacent to the corner.



STEP – 2

There are 3 screws along the bottom of each of the SIDE panels. To remove these screws you need to first remove the protective plastic screw caps.



(Screw/Plastic Cap Detail)

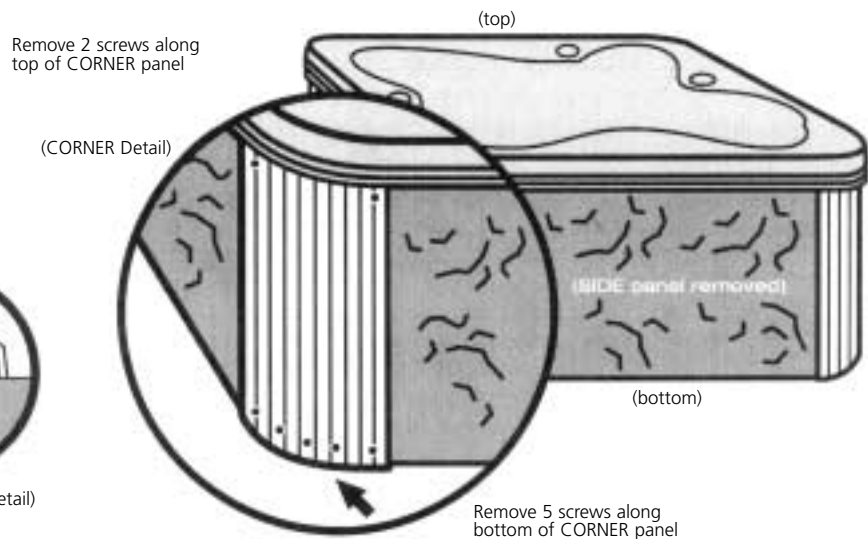


STEP – 3

There are a total of 7 screws on each of the CORNER panels, 5 along the bottom (three protected by plastic caps) and 2 on the top.



(Screw/Plastic Cap Detail)



Hot Tub Maintenance

MONTHLY MAINTENANCE

Cleaning the Filter: Filtering is done by pumping water through the fine polyester mesh of the filter. As water flows through the filter, suspended particles become trapped on its surface. It is necessary to remove the filter and clean the cartridge surface, generally every 4 weeks, depending on usage and water quality. Cleaning is accomplished by washing all the entrapped dirt from the filter with a garden hose with a high-pressure nozzle. Occasionally, the cartridge will need a more thorough cleaning to remove oils and grime from its surface. Turn power to the hottub off before removing the cartridge. Clean with a medium-pressure nozzle, then place the cartridge in a container, soaking the cartridge 3 to 6 hours or overnight in filter-cleaning solution or a similar filter-cleaning product. The average life expectancy of the filter cartridge is approximately 1 to 2 years with proper care and water quality maintenance.

EVERY 2 TO 3 MONTHS

Draining the Hot Tub: Attach a garden hose to the drain tap/hose bib located in the equipment cabinet of your hot tub. Open the drain tap/hose bib and let the water drain (this will take approximately 2 to 4 hours depending on the size of your tub) and clean the inside surface of your hot tub. Do not use any soap products or abrasive cleansers. Refill hot tub with fresh water, refer to start-up instructions. Obtain a water sample and have it tested. At this time your water must be rebalanced to protect your investment.

Note: Do not drain hot tub during below freezing conditions. If draining is required during below freezing, contact dealer for proper procedures.

In order to ensure your hot tub operating at its optimum, expect to drain/refill your hot tub at least 4 times a year (more often may be required depending on usage and bather load).

Winterizing

PACIFIC HOT TUBS ARE DESIGNED FOR WINTER USE. IF YOU WOULD LIKE TO SHUT DOWN YOUR HOT TUB FOR THE WINTER, CALL YOUR DEALER. FOR A MINIMAL CHARGE THEY WILL WINTERIZE THE EQUIPMENT AND PLUMBING TO PREVENT DAMAGE TO THE INTERNAL PARTS OF YOUR HOT TUB. SEVERE DAMAGE, THAT IS NOT COVERED BY THE GUARANTEE, CAN OCCUR IF WINTERIZING IS NOT DONE BY A QUALIFIED TECHNICIAN.

Do not allow snow to build up on the cover.

SERVICE CALLS

For any Guarantee service required, please call the Certified Pacific Hot Tub dealer where you purchased the hot tub. If you need further information, please call 1-800-263-7727, or visit our web site at <http://www.aberhottubs.com>

BEFORE CONFIRMING A SERVICE APPOINTMENT:

Have ready the serial # and model # of your hot tub (located on the silver data plate on the front of the hot tub), your date of purchase, and store receipt.

It will be necessary to confirm that the electrical installation is in accordance with the Canadian Electric Code Part 1. Please be ready to supply the name and telephone number of the licensed electrician that wired your hot tub.

Chemical Safety

- Do not mix chemicals with each other before adding to hot tub. Add only one chemical at a time.
- Accurately measure and use exact quantities specified – never more than what is recommended.
- Never add concentrated chemicals directly into hot tub. Dilute with water in a large plastic pail.
- Always add chemicals to water and never water to chemicals.
- Always add diluted chemical slowly and uniformly towards the center of hot tub. Never add chemical directly to skimmer unless directed to do so on package.
- Chemicals may be corrosive, so handle with care. Store in a cool, dark place.
- **KEEP OUT OF REACH OF CHILDREN.**
- Never smoke near chemicals, some are highly flammable.
- Ensure any spilled chemicals are carefully cleaned up. They may be corrosive and may cause damage or bodily harm.

Chemicals and General Supplies

HOT TUB TABS	Stabilizing chlorinating tablets used to control bacteria and algae in hot tub water.
pH UP	Raises the pH of hot tub water.
pH DOWN	Lowers the pH of hot tub water.
STAIN AND SCALE	Multi-purpose concentrate that eliminates and prevents staining and scale formation. Also helps clarify cloudy water.
HOT TUB SHOCK (Non-Chlorine)	Destroys organic contaminants and restores water clarity.
FILTER CLEAN	Filter cleaner; A cleaning solution used to remove body oils from the filter cartridges.
HOT TUB TEST KIT	A kit that tests for pH, chlorine and/or bromine levels in the hot tub water.
FLOATING DISPENSER	Accessory used to hold chlorine or bromine tablets or sticks (up to 1-3/16" diameter) allowing them to slowly dissolve.
THERMOMETER	Tool used to verify temperature in the hot tub.
FILTERS	Replacement filters.

Regular Maintenance

DAILY MAINTENANCE

- Operate filter for at least 4 hours per day (on systems without a Stealth System or Tidal Wave System).
- Test pH and adjust to between 7.2 and 7.6.
- Test chlorine or bromine level and adjust.
- Re-test again each day for one week if the hot tub has just been refilled.

WEEKLY TREATMENT:

- Shock water as per instructions on hot tub shock table.
- Clean any oil and grease from water line, if present.
- Remove and clean filter (if necessary) by spraying with garden hose
- (see "Cleaning the Filter").
- Depending on use, Filter Clean may be required.

GENERAL MAINTENANCE AND CARE:

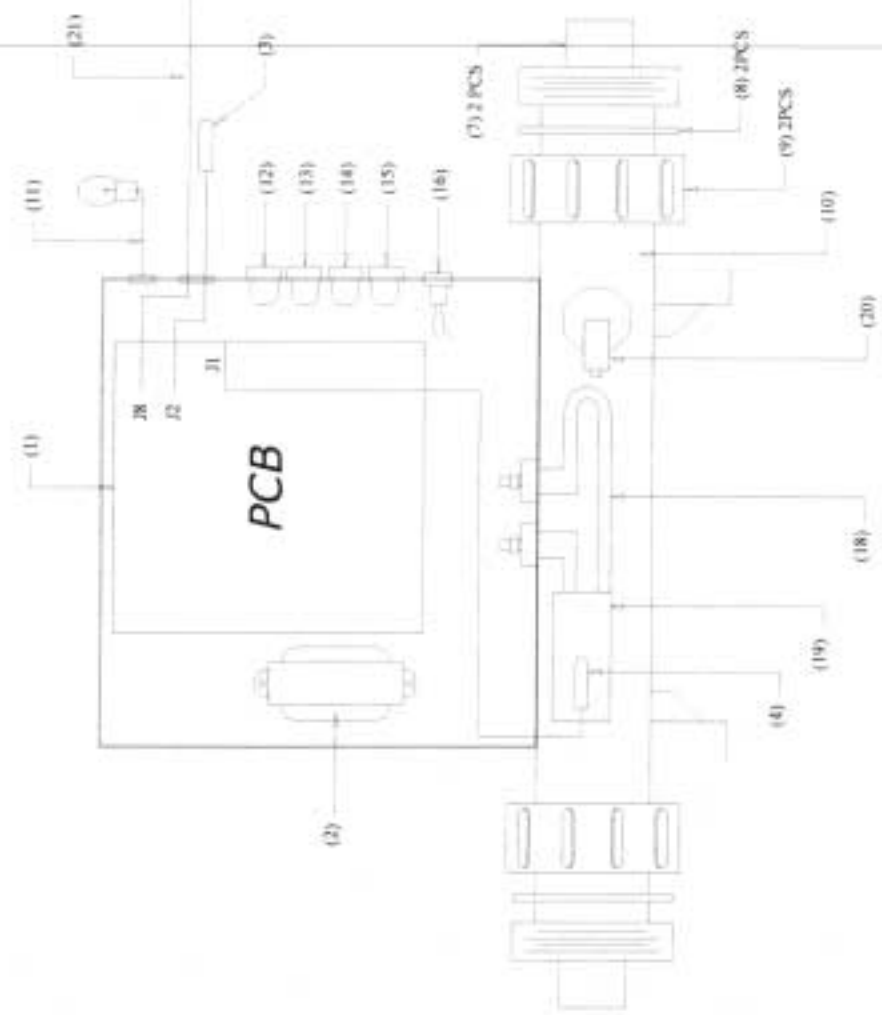
- Every 3 to 4 weeks clean filter with Filter Clean*.
- Change water at least every 90 days.
- Periodically clean and protect vinyl cover with a vinyl cleaner.
- Test kits – rinse vials after each use.
- Replace reagents annually and store in dark cool place.
- Test total alkalinity monthly.

***This will vary greatly with frequency of hot tub usage, bather load, etc.**

WARNING: Failure to adhere to regular maintenance procedures will lead to improper water balance which will in turn contribute to the failure of the:

- heater element
- pump seal
- pressure switch
- coupling seals
- hot tub pillows

This will not be covered under warranty.



ITEM	PART NO.	DESCRIPTION
1	4-10-1503A	CIRCUIT BOARD
2	4-10-1931A	2A TRANSFORMER
3	4-10-1919A	TEMP. SENSOR
4	4-10-1919A	TEMP. SENSOR
5	1-628A	CONTROL
6	4-60-6603	CONTROL GASKET
7	4-60-1904B	1" TAIL PIECE
8	4-60-1902	2" TAIL PIECE
9	4-60-1402	"O" RING 2" FLAT
10	4-60-1302	UNION NUT
11	4-10-0103A	HEATER BODY
12	4-10-0208	LIGHT CORD
13	4-10-1702	OZONE REC.
14	4-10-1704	PUMP 1 REC.
15	4-10-1703	PUMP 2 REC.
16	4-10-1701	IF 120V BLOWER REC.
17	4-10-1706	IF 240V BLOWER REC.
18	4-10-1703	CIRC. PUMP REC.
19	4-10-1511	PILOT LIGHT
20	4-10-0707A	4KW ELEMENT
21	4-10-0710	IF 5 SW ELEMENT
22	4-10-0201	CAPILLARY COVER
23	4-10-1812	PRESSURE SWITCH
24	4-10-1508D	CONTROL CABLE

PHT 1000 & PHT 2002 MINI MAX DIGITAL SPA PAK

PARTS LIST DWG # 4-30-1414

Rv. 01 Jan 07/2001

YOUR SPA PAK MAY NOT HAVE ALL OPTIONS SHOWN.
IF A GFCL IS NOT INCLUDED IN YOUR SPA PAK, ONE
MUST BE INSTALLED IN YOUR POWER SUPPLY.

www.correct-tech.com
CORRECT-TECH INC., MESS. ON.

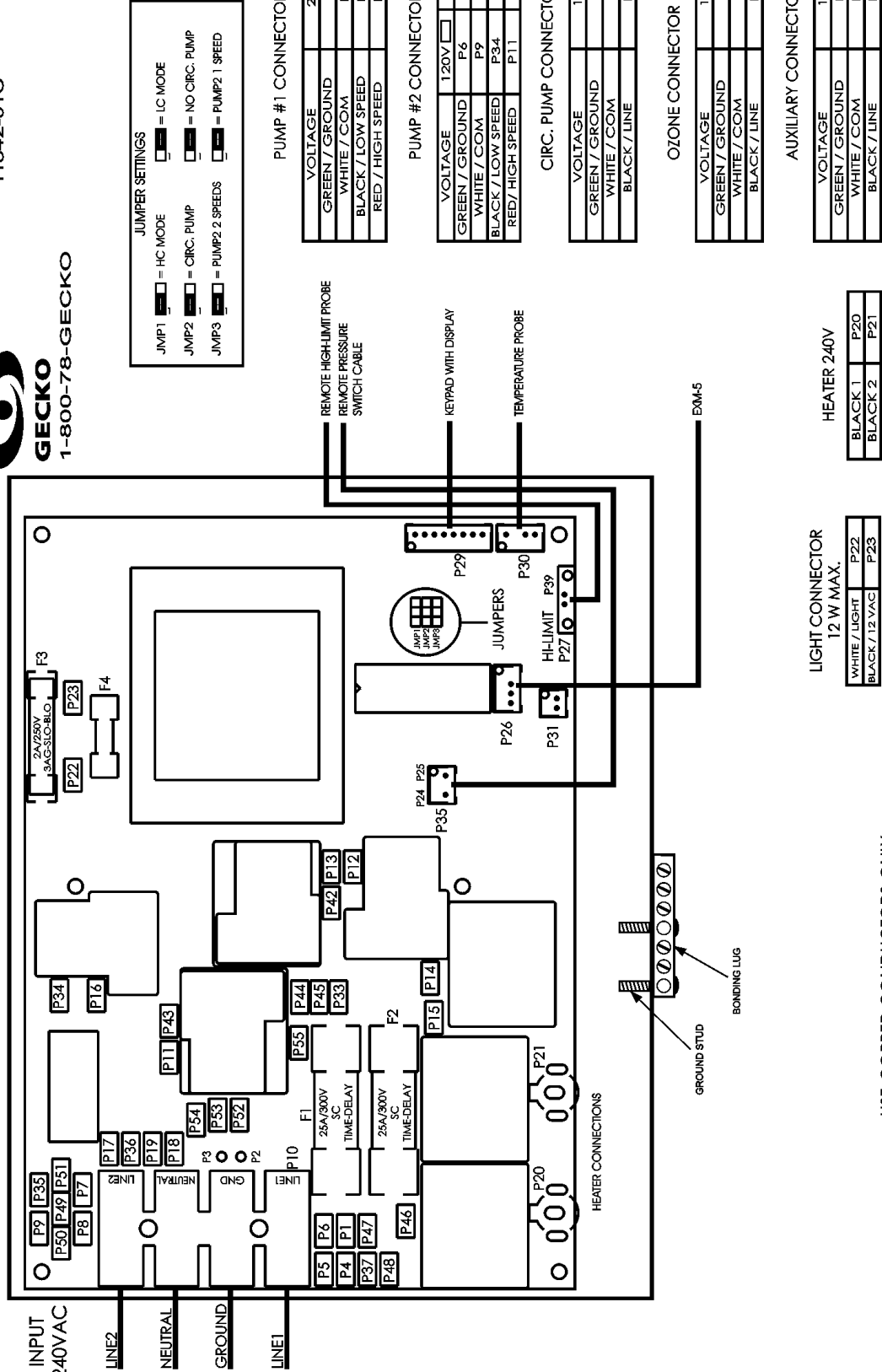
LXT Models

(equipped with Aqua-Stealth)

SSPA-MP-P122-P222-O1-CP1-NE-LS-FB1-HR-JUM-PA1
11842-01C



1-800-78-GECKO



JUMPER SETTINGS

JMP1 = HC MODE = LC MODE
 JMP2 = CIRC. PUMP = NO CIRC. PUMP
 JMP3 = PUMP2 2 SPEEDS = PUMP2 1 SPEED

PUMP #1 CONNECTOR

VOLTAGE	240V
GREEN / GROUND	P4
WHITE / COM	P18
BLACK / LOW SPEED	P14
RED / HIGH SPEED	P12

PUMP #2 CONNECTOR

VOLTAGE	120V	240V
GREEN / GROUND	P6	P17
WHITE / COM	P9	P19
BLACK / LOW SPEED	P34	P34
RED / HIGH SPEED	P11	P11

CIRC. PUMP CONNECTOR

VOLTAGE	120V
GREEN / GROUND	P5
WHITE / COM	P8
BLACK / LINE	P16

OZONE CONNECTOR

VOLTAGE	120V
GREEN / GROUND	P1
WHITE / COM	P7
BLACK / LINE	P16

AUXILIARY CONNECTOR

VOLTAGE	120V
GREEN / GROUND	P37
WHITE / COM	P35
BLACK / LINE	P33

LIGHT CONNECTOR
12 W MAX.

WHITE / LIGHT	P22
BLACK / 12 VAC	P23

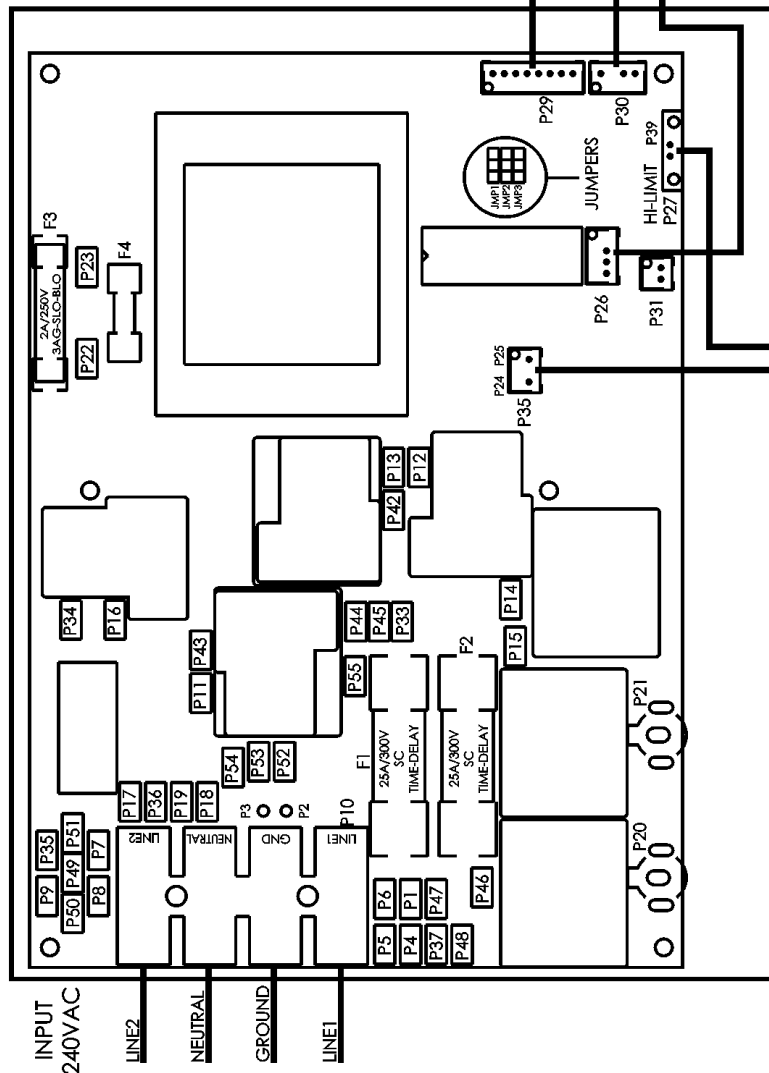
HEATER 240V

BLACK 1	P20
BLACK 2	P21

USE COPPER CONDUCTORS ONLY.
 CONNECT ONLY TO A CIRCUIT PROTECTED BY A CLASS A, GROUND FAULT INTERRUPTER.
 FOR SUPPLY CONNECTIONS, USE CONDUCTORS SIZED ON THE BASIS OF 60°C AMPACITY BUT RATED MINIMUM 90°C.

LXT Models

SSPA-MP-P122-P222-O1-CP1-NE-LS-FB1-HS.5-JUM-PA2
11865-01A



JUMPER SETTINGS

JMP1 = HC MODE = LC MODE

JMP2 = CIRC. PUMP = NO CIRC. PUMP

JMP3 = PUMP2 2 SPEEDS = PUMP2 1 SPEED

PUMP #1 CONNECTOR

VOLTAGE	240V
GREEN / GROUND	P4
WHITE / COM	P18
BLACK / LOW SPEED	P14
RED / HIGH SPEED	P12

PUMP #2 CONNECTOR

VOLTAGE	120V	240V
GREEN / GROUND	P6	P6
WHITE / COM	P9	P17
BLACK / LOW SPEED	P34	P34
RED / HIGH SPEED	P11	P11

CIRC. PUMP CONNECTOR

VOLTAGE	120V
GREEN / GROUND	P5
WHITE / COM	P8
BLACK / LINE	P16

OZONE CONNECTOR

VOLTAGE	120V
GREEN / GROUND	P1
WHITE / COM	P7
BLACK / LINE	P16

AUXILIARY CONNECTOR

VOLTAGE	120V
GREEN / GROUND	P37
WHITE / COM	P35
BLACK / LINE	P33

LIGHT CONNECTOR
12 W MAX.

WHITE / LIGHT	P22
BLACK / 12 VAC	P23
BLACK 1	P20
BLACK 2	P21

HEATER 240V

BLACK 1	P20
BLACK 2	P21

USE COPPER CONDUCTORS ONLY.
CONNECT ONLY TO A CIRCUIT PROTECTED BY A CLASS A, GROUND FAULT INTERRUPTER.
FOR SUPPLY CONNECTIONS, USE CONDUCTORS SIZED ON THE BASIS OF 60°C AMPACITY BUT RATED MINIMUM 90°C.

ULXT Model

MSPA-MP-P122-P222-P312-B1-O1-CP1-NE
-A11-A21-LS-H5-5-RTC-IR-SPW-JJM-GE1
9753-01C



GECKO
1-800-78-GECKO
INTL: 800-4325-6000

KEYPAD WITH DISPLAY

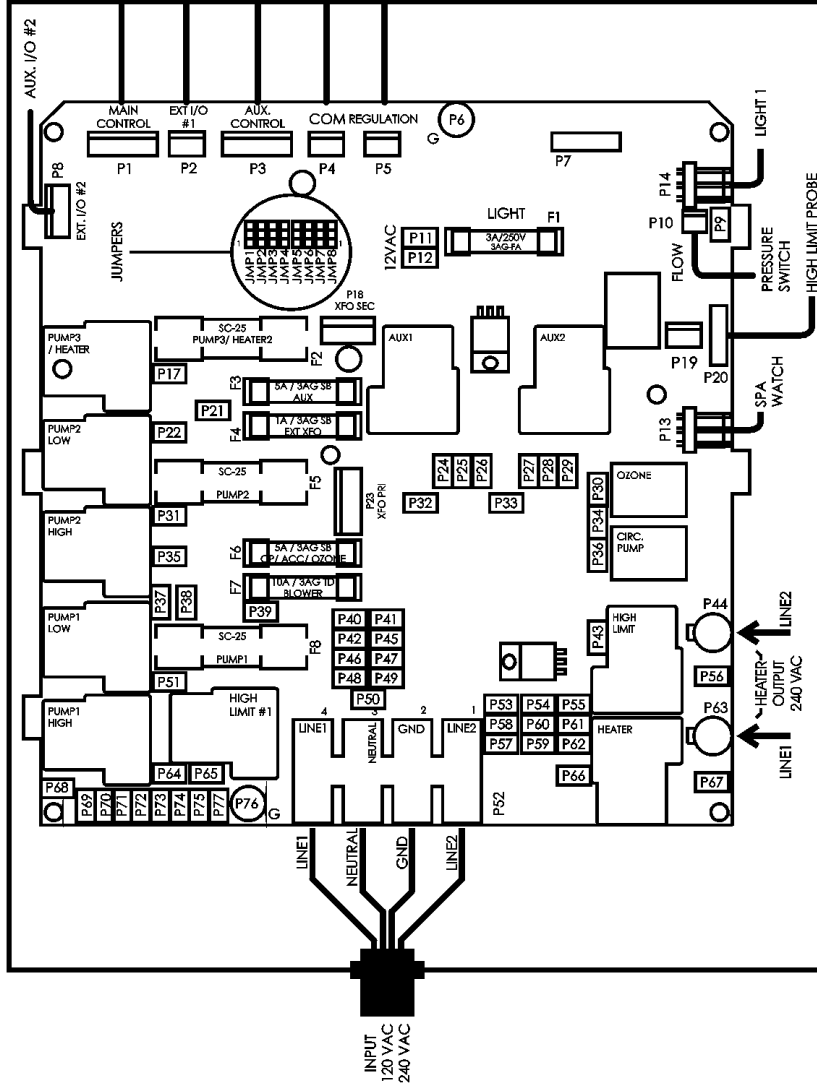
AUXILIARY I/O

KEYPAD WITHOUT DISPLAY
(CABLE IS POLARISED)

COMMUNICATION PORT

JUMPER SETTINGS

JMP1	HC MODE	IC MODE
JMP2	10 KEYS	8 KEYS
JMP3	TSC-4	TSC-8
JMP4	TSC-8 INVERTED	TSC-8 NORMAL



PUMP #1 CONNECTOR

VOLTAGE	120V	240V
GREEN / GROUND	P69	P69
WHITE / COM	P48	P57
BLACK / LOW SPEED	P37	P37
RED / HIGH SPEED	P64	P64

PUMP #2 CONNECTOR

VOLTAGE	120V	240V
GREEN / GROUND	P70	P70
WHITE / COM	P45	P58
BLACK / LOW SPEED	P22	P22
RED / HIGH SPEED	P35	P35

PUMP #3 CONNECTOR

VOLTAGE	120V	240V
GREEN / GROUND	P71	P71
WHITE / COM	P40	P63
BLACK / LINE	P21	P21

BLOWER CONNECTOR

VOLTAGE	120V	240V
GREEN / GROUND	P72	P72
WHITE / COM	P49	P59
BLACK / LINE	P43	P43

OZONE CONNECTOR

VOLTAGE	120V	240V
GREEN / GROUND	P73	P73
WHITE / COM	P46	P60
BLACK / LINE	P30	P30

HEATER

GREEN/GROUND	GROUND
BLACK 1	P63
BLACK 2	P44

CIRC. PUMP CONNECTOR

VOLTAGE	120V	240V
GREEN / GROUND	P74	P74
WHITE / COM	P41	P54
BLACK / LINE	P36	P36

SPA WATCH CONNECTOR

POWER	P13
COMM	P4

FIBER BOX CONNECTOR

VOLTAGE	120V
GREEN / GROUND	P75
WHITE / COM	P50
BLACK / LINE (AUX 1)	P24
RED / LINE (AUX 2)	P28

LIGHT CONNECTOR 24 W MAX.

LIGHT 1	P14
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