

Hilo - Santo - Tonga

Celebrity

SPA OWNER'S MANUAL



LEISUREBAYSPAS

“Trend Setting Innovations Since 1973”

This Manual Contains

**IMPORTANT SAFETY
INSTRUCTIONS**

READ AND FOLLOW ALL INSTRUCTIONS

“SAVE THESE INSTRUCTIONS”

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WARNING SIGN MUST BE POSTED

An important WARNING sign (part Number 601030 or PL601035 Rev. A) is packed with your Leisure Bay Spa. This sign must be posted in a prominent place in close proximity to the spa installation site immediately upon completion of spa installation.

THIS WARNING SIGN MUST BE POSTED BEFORE THE SPA IS USED!

THIS SPA IS FOR RESIDENTIAL USE ONLY!



LEISUREBAYSPAS

IMPORTANT SAFETY INSTRUCTIONS

When installing and using this electrical equipment, basic safety precautions should always be followed, including the following:

1. READ AND FOLLOW ALL INSTRUCTIONS

2. Warning

To reduce the risk of injury, do not permit children to use this product unless they are closely supervised at all times.

3. A wire connector is provided on this unit to connect a minimum No. 8.4mm (8AWG) solid copper conductor between this unit and any metal equipment, metal enclosures of electrical equipment, metal water pipe, or conduit within 1.5m (5 feet) of the unit.

4. Warning

(For permanently installed units)

All Electrical Connections Must Be Performed By A Certified Licensed Electrician The electrical supply for this product must include a suitable rated switch or circuit breaker to open all ungrounded supply conductors to comply with all local electric codes. In addition, all 230 volt installations must be protected by a 230 volt 3ma maximum rated Residual Current Detector (RCD). The main disconnect device must have a 3mm contact gap separation and also provide all pole disconnection.

5. Danger

Risk of Accidental Drowning. Extreme caution must be exercised to prevent unauthorized access by children. To avoid accidents, ensure that children cannot use this spa unless they are supervised at all times. For additional protection, select a cover which is classified by the Underwriters Laboratories Meeting ASTM F1346-91 requirements.

6. Danger

Risk of Injury. The suction fittings in this spa are sized to match the specific water flow created by the pump. Should the need arise to replace the suction fittings or the pump, be sure that the flow rates are compatible.

Never operate spa if suction fittings are broken or missing. Never replace a suction fitting with one less than the flow rate marked on the original suction fitting.

7. Danger

Risk of Electric Shock. Install at least 1.5m (5 feet) from all metal surfaces. As an alternative, a spa may be installed within 1.5m (5 feet) of metal surfaces if each metal surface is permanently connected by a minimum No. 8.4mm (8AWG) solid copper conductor to the wire connector on the terminal box that is provided for this purpose.

8. Danger

Risk of Electric Shock. Do not permit any electric appliance, such as light, telephone, radio, or television, within 1.5m (5 feet) of a spa.

9. Warning To reduce risk of injury:

A. The water in a spa should never exceed 40°C (104°F). Water temperatures between 38°C (100°F) and 40°C (104°F) are considered safe for a healthy adult. Lower water temperatures are recommended for your children and when spa use exceeds 10 minutes.

B. Since excessive water temperatures have high potential for fetal damage during the early months of pregnancy, pregnant or possibly pregnant women should limit spa water temperatures to 38°C (100°F).

C. Before entering spa, the user should measure the water temperature with an accurate thermometer since the tolerance of water temperature-regulating devices vary.

D. The use of alcohol, drugs, or medication before or during spa use may lead to unconsciousness with the possibility of drowning.

E. Persons suffering from obesity or with a medical history of heart disease, low or high blood pressure, circulatory system problems, or diabetes should consult a physician before using a spa.

F. Persons using medication should consult a physician before using a spa since some medication may induce drowsiness while other medication may affect heart rate, blood pressure, and circulation.

10. Warning Sign

Included with this spa is a warning sign. It is extremely important that this sign be permanently placed in clear view of any persons using the spa. Occasional spa users may not be aware of some of the dangers hot water poses to pregnant women, small children, and people under the influence of alcohol, drugs, or medication. If you did not receive a warning sign or your sign has become damaged, please contact your spa dealer and ask for sign number PL601035 Rev A.

SAVE THESE INSTRUCTIONS



LEISUREBAYSPAS

IMPORTANT SAFETY PRECAUTIONS

Your spa can be a source of great pleasure. It offers healthful stimulating recreation and is a delightful fun center for you, your family and friends. However, it contains large quantities of water and is deep enough to present inherent dangers to life and health unless the following safety rules are strictly observed.

1. Never permit the spa to be used unless it is attended by at least one person other than the bather.

Someone should be present to lend assistance if the bather should be in trouble due to injuries, cramps, drowning especially in case of children, etc.

2. Always use care in and around your spa.

The spa has many rigid, unyielding parts and many areas that become wet and slippery; these are all potentially dangerous when rough play is permitted or if care is not used particularly when entering or leaving the spa.

3. Keep the water sanitary and healthful at all times.

Your filter system will remove suspended particles from the water. Regular application of spa chemicals in proper quantities will destroy harmful bacteria and prevent formation of algae. Your surface skimmer will remove insects, leaves, and other debris from the water surface. Unsanitary water is a serious health hazard.

4. The water in your spa should NOT be warmer than 38° - 40°C (100° - 104°F).

Always keep an accurate thermometer in the water because your spa's thermostat may be in error. Use a high quality, shatterproof thermometer with increments of one degree or less.

The National Spa and Pool Institute considers a temperature of 38°C (100°F) safe and comfortable for a healthy adult. Most healthy adults can enjoy this water temperature for as long as desired, although it may raise the body temperature to the water temperature and eventually become uncomfortable (like a fever). At higher water temperatures the soaking time should be shorter; never soak for more than 20 minutes when the water temperature is 39°C (102°F) or higher. If you are planning a long rest in the spa, lower the water temperature closer to normal body temperature, about 37.2°C (99°F). Some people find even lower water temperatures relaxing and pleasing. Try different water temperatures in the 36.6°-39°C (98°-102°F) range until you find what temperatures suit you best.

5. Hot water can raise the body temperature high enough to cause heat stroke.

This can be fatal even to healthy adults. If you have any questions about your own fitness or whether you should soak in the spa, check with your physician.

6. Prolonged immersion in hot water may induce hyperthermia.

Hyperthermia occurs when internal body temperature reaches a level several degrees above the normal body temperature of 36.6°C (98.6°F). The symptoms of hyperthermia include: (1) dizziness, (2) fainting, (3) drowsiness, (4) lethargy, (5) increases in the internal body temperature. The effects of hyperthermia include: (1) unawareness of impending hazard, (2) failure to perceive heat, (3) failure to recognize the need to exit spa, (4) physical inability to exit spa, (5) unconsciousness resulting in danger of drowning.

7. WARNING-The use of alcohol, drugs, or medication can greatly increase the risk of fatal hyperthermia in hot tubs or spas.

Despite the popular image of people in spas drinking wine or other alcoholic beverages, DO NOT use alcoholic beverages before or during spa use. Alcohol is a depressant which causes slowed reflexes and drowsiness, especially in conjunction with the relaxed soaking in hot water. This can lead to sleep or unconsciousness and possibly result in drowning. Using your spa with other people who are also drinking is not a preventative measure since they are likely to become similarly affected by the combinations of alcohol and hot water soaking.

Soaking in hot water causes changes in the circulatory system, such as enlargement of blood vessels near the skin. Therefore, people with a medical history of heart disease, circulatory problems, diabetes, high or low blood pressure should check with their physician before using spas. Additionally, people taking medications causing drowsiness, such as tranquilizers, narcotics, antihistamines, or anticoagulants should not use spas without asking their physician.

8. Broken or missing drain covers should be replaced immediately.

Accidents can occur when long hair or a body part is trapped by suction from a drain or outlet whose cover is broken or removed. Children are particularly vulnerable, and they should be warned against danger.

DO NOT :

Do not use electrical appliances in or around your spa. Do not use glass or other breakable items in or around your spa. Do not remove spa cabinet panels and attempt to make repairs. Do not attempt electrical repairs. Retain a certified licensed electrician.

SAVE THESE INSTRUCTIONS

Selecting A Good Location



Site Selection...

Your new spa will provide you and yours with hour upon hour of healthy, relaxing enjoyment. The following suggestions and recommendations will help you select a safe and compatible site for your spa, maximizing your enjoyment.

READ ALL SAFETY INSTRUCTIONS!

See pages 1 and 2 for other safety requirements and instructions

1. Certified Licensed Electrician Required

Electrical installation, (approval of and connection to power source) must be completed by a qualified certified licensed electrician in compliance with all codes.

2. No Overhead Power Lines

Do not locate your spa under overhead power lines or in near proximity to existing buried or exposed electrical circuits. See your certified licensed electrician.

3. Childproof Your Spa

Plan for limiting access of children. Precautions such as self closing and locking gates or access doors, fencing and other child barriers, as dictated by the site would be recommended.

4. UL Safety Cover Required

In addition to its insulating factors, a good cover also provides a measure of additional protection from unwanted access. Select a cover which is classified by the Underwriters Laboratories meeting ASTM F1346-91 requirements.

LEVEL, FLAT & SOLID LOAD BEARING SITE CRITICAL

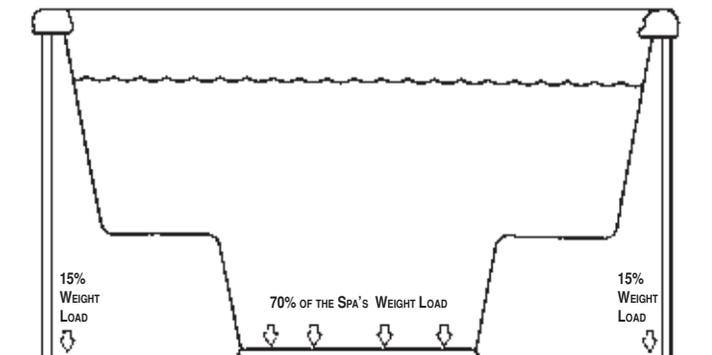
Solid Load Bearing Site

The site must provide a solid foundation with a minimum load bearing capacity of 61.23 kgr per 929.03 sq. cm (135 pounds per square foot). Concrete slabs and decks must be designed to support this weight. Do not select a site composed of individual unsupported bricks, blocks or other materials which will shift unevenly and cause damage to your spa's internal frame.



Level Site, Flat Surface

A level site is critical to both the performance and enjoyment of your spa. Water is unforgiving and will always settle level. A flat and level site provides the surface necessary to properly disperse weight between the footwell which bears most of the spa's weight and the structural frame which primarily provides stabilization and secondary support. The importance of proper support for the footwell in conjunction with the spa cabinet cannot be overstressed.



THE BULK OF YOUR SPA'S WEIGHT IS SUPPORTED BY THE FOOTWELL
Failure to provide support will result in damage to the spa's shell and will void the shell warranty!

WARNING: DO NOT SUPPLY POWER TO AN EMPTY SPA!

FILLING YOUR SPA

Filling your spa is the first step in maintaining water quality and chemical balance. Use only clear, uncontaminated potable water when filling the spa.

When Filling the spa open all jets and air controls.



Water Level

The correct water fill level varies with each individual installation. Every person entering a spa displaces a given volume of water.

Suggested "Fill Range" Provided

A fill range label has been placed on the surface skimmer face plate at the factory (see fig. 1). This label has a suggested minimum and maximum fill level that will provide a starting point for selecting a water level that meets your individual needs.

Chemically Treat Water Immediately

To assure the maintenance of water quality, it is imperative that you chemically treat the spa water immediately upon completion of filling. See the treatment sections on pages 13 and 14.

fig. 1

WINTERIZING YOUR SPA

Warning: Allowing the spa water to freeze will cause severe damage to the spa shell, equipment, and plumbing.

A spa can be a great asset to your health and relaxation during the winter months. However, for those who will be using a spa in freezing cold weather it is critical that a water temperature be maintained well above freezing.

Freeze Protection

Your Leisure Bay spa is equipped with a special feature called freeze protection. If the high limit sensor detects 40°F (4°C) at the heater, then all the equipment is automatically activated to provide freeze protection. This equipment stays on until the sensor detects 45°F (7°C) at the heater.

WARNING: We strongly recommend that you inspect and test your spa and controls on a daily basis during periods when temperatures are below 0°C (32°F). Every installation is different and many factors contribute to possible freeze damage situations; rate of temperature drop, thermal cover insulating properties, thermal cover installation, spa installation location, wind exposure, power outage, spa water temp., etc. The spa's freeze protection system is designed to protect your spa from unforeseen freeze situations. However, in severe freeze conditions or if you do not plan to use your spa for a period of time, it may be impossible for the freeze protect system to fully protect your spa. When severe conditions threaten, we strongly recommend that you have the unit drained and winterized by a "Spa Professional." Properly winterizing a spa is a complicated process and should not be attempted by an amateur.

DRAINING YOUR SPA

(Warning: Do not supply power to an empty spa!)



1. Turn Power Off

Turn power off at the spa consoles and deactivate disconnect switches at the G.F.C.I. plug or load center.

2. Locate Spa Drain Valve

Located under the lower corner of the spa as you are facing the console. See arrow.



Figure 1

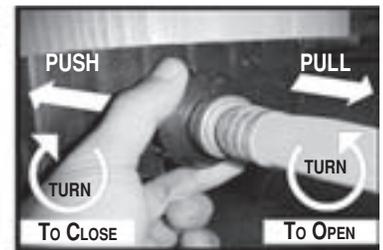


Figure 2

3. Remove Drain Valve Safety Cap

Draining your spa on a regular basis rids the spa of dissolved solids and protects your spa equipment from the effects of residual calcium hardness and total alkalinity problems.

4. Attach Hose & Select Safe Suitable Drain

Remove safety drain cap (see figure 1) and store for use when refilling your spa. Attach a standard garden hose to the drain valve.

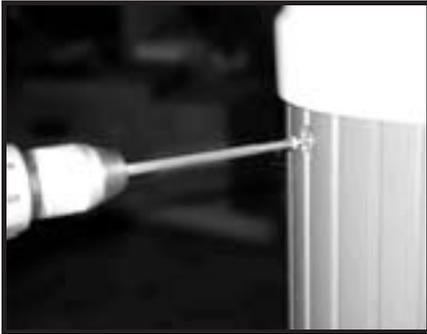
5. Drain the Spa

Route the hose to a sewer drain capable of safely assimilating 300 plus gallons of water which may contain both unsanitary contaminants and chemical residue. To open drain valve twist counter clockwise and pull (see figure 2).

CAUTION: Drain waste water may contain chemical residue and unsanitary contaminants which could be a hazard to health or the environment. Drain to specified sanitary sewer only.

Cabinet Panel Removal & Installation Instructions

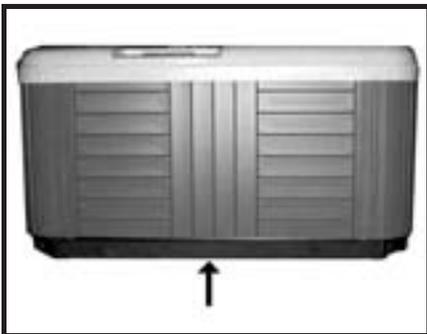
(For Use By Qualified Professionals Only)



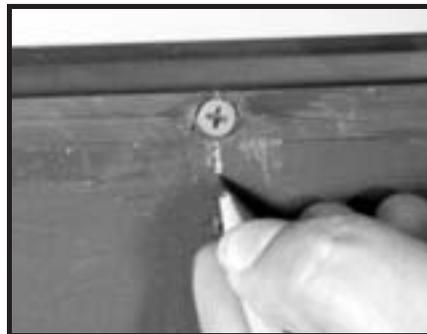
1. Remove and save fastener from corners.



2. Remove corner.



3. Locate bottom center screw.



4. Place a small mark on the base board below the screw. This will serve as a reference point during installation



5. Remove side bottom screws leaving the center one for last. Remove center screw while supporting panel in place



6. After the center screw is removed, the panel will slide down, then remove panel.



7. When Installing the panel, ensure that it is completely inserted in the top channel. Then follow the removal steps in reverse order.

WARNING: Shock Hazard!

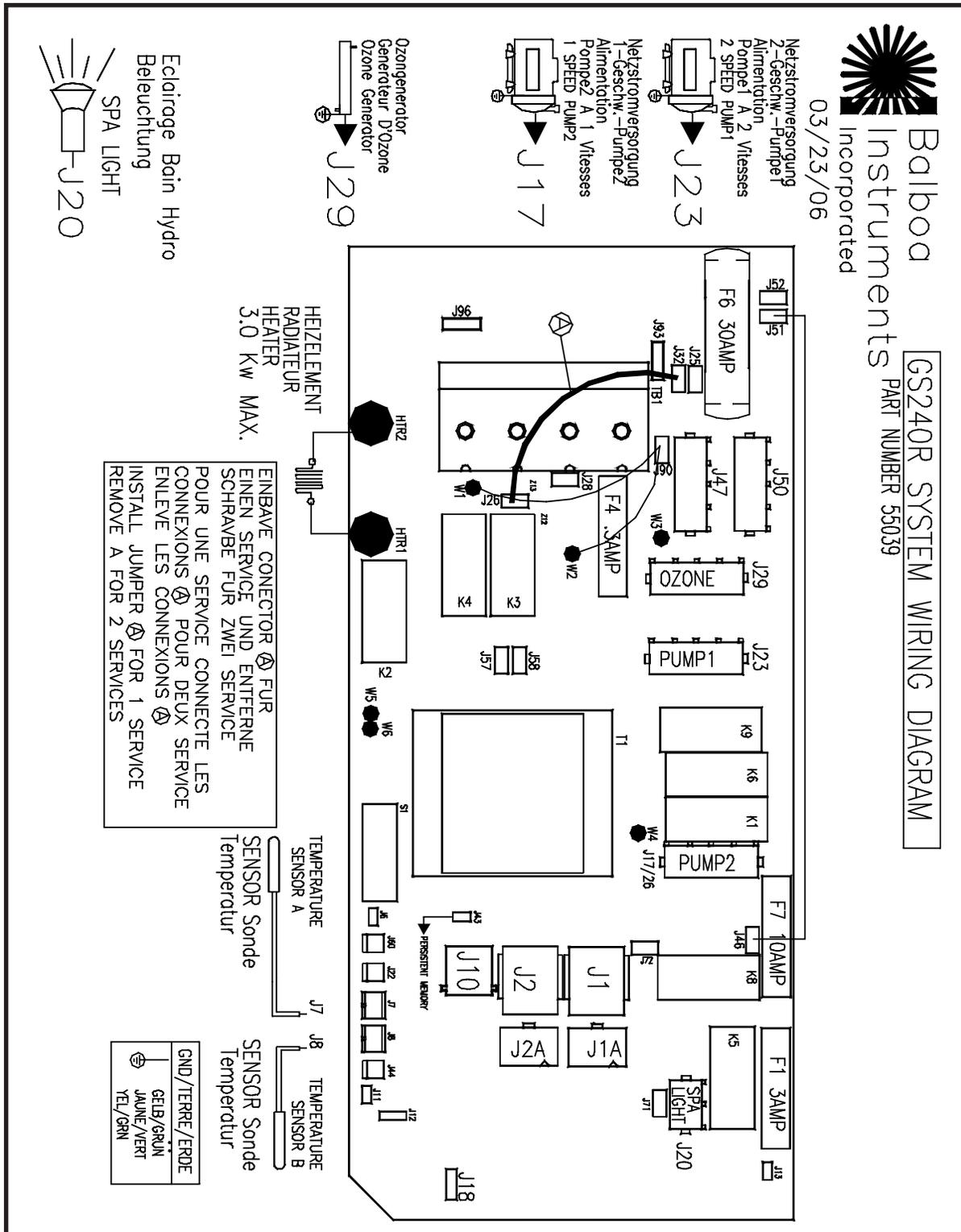
Spa Cabinet panels should be removed by qualified spa service professionals only!

ELECTRICAL DATA FOR THE USE OF CERTIFIED LICENSED ELECTRICIAN

WARNING: Shock Hazard! Under No Circumstances Should This Spa Be Installed By Anyone Other Than A Certified Licensed Electrician!

All wiring **MUST** be in accordance with the National Electrical Code and all local codes.

P5S3 & P9G3 WIRING DIAGRAM

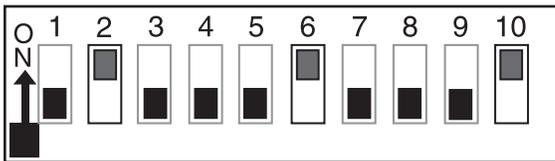


ELECTRICAL DATA FOR THE USE OF CERTIFIED LICENSED ELECTRICIAN

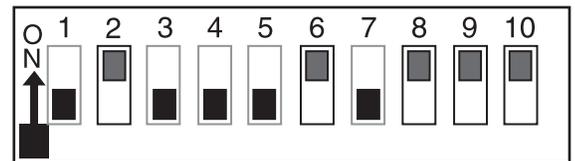
WARNING: Shock Hazard! Under No Circumstances Should This Spa Be Installed By Anyone Other Than A Certified Licensed Electrician!

All wiring **MUST** be in accordance with the National Electrical Code and all local codes.

P5S3 AND P9G3 SERIES DIP SWITCH CONFIGURATION



P5S3 Factory Set



P9G3 Factory Set

DIP SWITCH KEY

1 Test Mode (normally off)

2 Pump Time Out

In "ON" position, Pump turns off after 30 minutes
In "OFF" position, Pump turns off after 15 minutes

3 Panel Option (must be OFF)

In "ON" position, enables mini panel
In "OFF" position, enables current panel

4 Aux Freeze (must be OFF)

5 Panel Button Layout (must be OFF)

In "ON" position, enables J/L/-/+/w/BLW/AUX
In "OFF" position, enables B/J/T/L or J/T/L

6 Frequency (must be ON)

In "ON" position, 50Hz operation
In "OFF" position, 60Hz operation

7 Mode Changes (must be OFF)

In "ON" position, standard mode only
In "OFF" position, enables standard/economy/sleep

8 Temperature Display

In "ON" position, temperature is displayed in degrees Celsius
In "OFF" position, temperature is displayed in degrees Fahrenheit

9 Blower / Pump 2 Enable

In "ON" position, enables pump 2
In "OFF" position, disables pump 2

10 Amperage Setting

In "ON" position, for low current
In "OFF" position, for high current

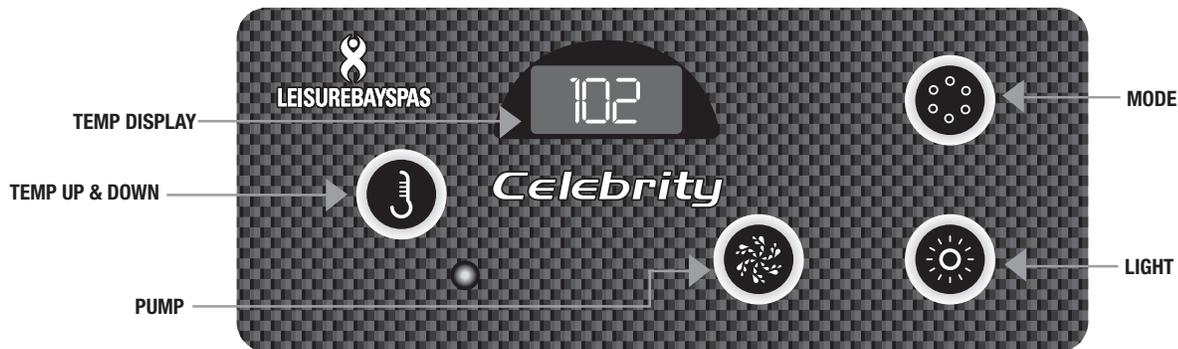


A grounding lug has been provided on the exterior of the control box to allow connection of a ground wire to a local grounding point in compliance with the National Electric Code (NEC) and all local codes.

Personal Comfort Control Console

The Leisure Bay Personal Comfort Control Console is your direct link to the most sophisticated solid state spa control center available. With a simple touch of the finger you can select any spa's functions from turning on the lights to powering up the jets. This state of the art control console allows you to program the spa's various operating functions to suit your individual needs by following the user friendly directions which follow. Should you have any questions regarding operations please contact your local Leisure Bay dealer.

P1 Hilo & Santo Control



Initial Start-Up

When your spa is first activated, it will perform a self diagnostics test showing a series of numbers followed by Pr, then by – along with the low speed pump. Also the internal clock that keeps track of the filtration cycles every 12 hours will start at that point. The system is preset to heat up to 38°C (100°F) and it is also preset to run on low speed for two hours. (F2)

Temperature Adjustment 21°C (70°F) - 40°C (104°F)

When the temp pad  is touched once, the LCD will flash and display the temperature which has been set. While flashing, press the temp pad again to increase or decrease the temperature. For the opposite temp. setting wait until LCD stops flashing, then press the temp pad again to change. The temperature will change in 1°F increments. After 5 seconds, the LCD automatically display the current spa temperature.

Jets

Press the  pad to turn the pump on and off. If left running, the pump will automatically turn off after 30 minutes, (Factory preset). For 15 minutes, see page 11 for dip switch settings.

Light

Press the  pad to turn the spa light on and off. If the light is left on, it will automatically turn off in 4 hours.

Freeze Protection

If the high-limit sensor detects 6°C (44°F) at the heater, then the equipment is automatically activated to provide freeze protection. This is a normal spa function; no corrective action is necessary. The equipment stays on until the sensor detects 7°C (45°F) at the heater. Freeze protection is enabled regardless of the spa's status.

Standby Mode

The spa can be disabled when the filter needs to be replaced. To place the system in standby mode, press the  pad then the  pad and the display will show "59". All spa functions are disabled except for freeze control. Press any panel button to resume spa operation.

Spa Water Maintenance

This function enables you to program the amount of water filtration and (ozone purification "optional") time.

Press the  then the  to enter the programming mode. Once in the programming mode press  to select the filtration time. Once selected, press the  button to exit the programming.

(F2) In this mode the water will be filtered for 2 hours every 12 hours.

(F4) In this mode the water will be filtered for 4 hours every 12 hours.

(F6) In this mode the water will be filtered for 6 hours every 12 hours.

(FC) In this mode the water will be filtered continuously.

FOR ADDITIONAL FEATURES (see page 10)

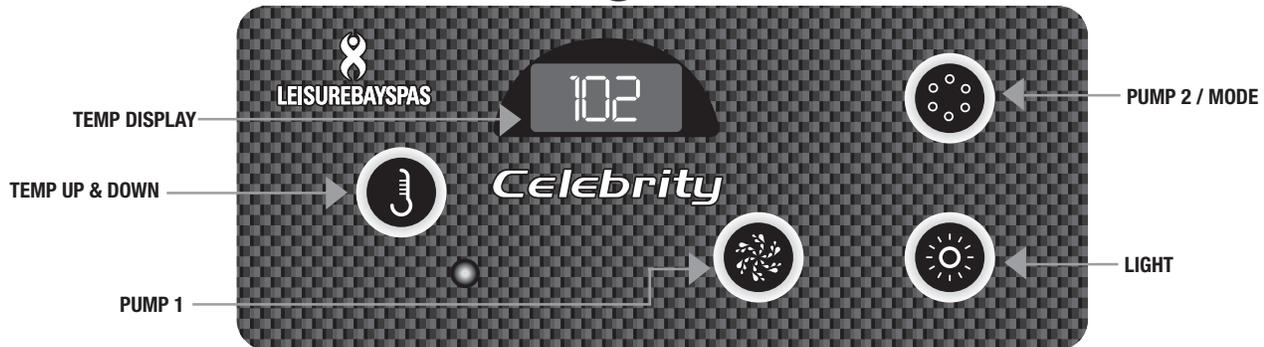
Display Messages (see page 11)

WARNING: SHOCK HAZARD! NO USER SERVICEABLE PARTS. Do not attempt service of this control. Contact your dealer or service center for assistance. Follow all owner's manual power connection instructions. Installation must be performed by a certified licensed electrician and all grounding connections must be properly installed.

Personal Comfort Control Console

The Leisure Bay Personal Comfort Control Console is your direct link to the most sophisticated solid state spa control center available. With a simple touch of the finger you can select any spa's functions from turning on the lights to powering up the jets. This state of the art control console allows you to program the spa's various operating functions to suit your individual needs by following the user friendly directions which follow. Should you have any questions regarding operations please contact your local Leisure Bay dealer.

P2 Tonga Control



Initial Start-Up

When your spa is first activated, it will perform a self diagnostics test showing a series of numbers followed by Pr, then by – along with the low speed pump. Also the internal clock that keeps track of the filtration cycles every 12 hours will start at that point. The system is preset to heat up to 38°C (100°F) and it is also preset to run on low speed for two hours. (F2)

Temperature Adjustment 21°C (70°F) - 40°C (104°F)

When the temp pad  is touched once, the LCD will flash and display the temperature which has been set. While flashing, press the temp pad again to increase or decrease the temperature. For the opposite temp. setting wait until LCD stops flashing, then press the temp pad again to change. The temperature will change in 1°F increments. After 5 seconds, the LCD automatically display the current spa temperature.

Jets

Press the  pad to turn pump 1 on press  pad to turn pump 2 on and off. If left running, the pump will automatically turn off after 30 minutes. (Factory preset). For 15 minutes, see page 12 for dip switch settings.

Light

Press the  pad to turn the spa light on and off. If the light is left on, it will automatically turn off in 4 hours.

Freeze Protection

If the high-limit sensor detects 6°C (44°F) at the heater, then the equipment is automatically activated to provide freeze protection. This is a normal spa function; no corrective action is necessary. The equipment stays on until the sensor detects 7°C (45°F) at the heater. Freeze protection is enabled regardless of the spa's status.

Standby Mode

The spa can be disabled when the filter needs to be replaced. To place the system in standby mode, press the  pad then the  pad and the display will show "S9". All spa functions are disabled except for freeze control. Press any panel button to resume spa operation.

Spa Water Maintenance

This function enables you to program the amount of water filtration and (ozone purification "optional") time.

Press the  then the  to enter the programming mode. Once in the programming mode press  to select the filtration time. Once selected, press the  button to exit the programming.

(F2) In this mode the water will be filtered for 2 hours every 12 hours.

(F4) In this mode the water will be filtered for 4 hours every 12 hours.

(F6) In this mode the water will be filtered for 6 hours every 12 hours.

(FC) In this mode the water will be filtered continuously.

FOR ADDITIONAL FEATURES (see page 10)

Display Messages (see page 11)

WARNING: SHOCK HAZARD! NO USER SERVICEABLE PARTS. Do not attempt service of this control. Contact your dealer or service center for assistance. Follow all owner's manual power connection instructions. Installation must be performed by a certified licensed electrician and all grounding connections must be properly installed.



LEISUREBAYSPAS

Additional Features for P1, P2

Spa Heating Modes

The **Heating Mode** offers the ability to control your heater in special circumstances. Your spa is preset at the factory to **Standard Mode**. However, the **Heating Mode** can be changed to **Economy** or **Sleep** by pressing the  then  button. With each press of the buttons, the display will cycle through the three different modes described below:

- 1. Standard Mode (ST):** Your spa is preset to this mode. This mode operates the heater whenever needed to maintain the programmed spa water temperature. (See **Temperature Adjustment**).
- 2. Economy Mode (EC):** This mode operates the heater only during programmed **Heating Cycles** (See “Setting Heating Cycles” below). This mode is ideal for areas that charge a premium for electricity during peak hours. This mode will maintain the thermostat setting. If it does not reach the thermostat setting, you may have to allow for more heating time by increasing the **Heating Cycles**.
- 3. Sleep Mode (SL):** This mode works in the same manner as the **Economy Mode** except the thermostat setting is automatically lowered by 20 degrees. This mode is best suited for extended leaves from home when it is not important to maintain constant water temperature, such as vacations or business trips.

Summer Set Temperature

In hot weather, it is possible for water temperature to exceed the temperature setting. This is especially common when your temperature setting is lower than air temperature. If the water temperature exceeds the temperature setting more than 3°, an automatic safety circuit will turn off all of the electrical systems. The systems will remain off until either the water temperature cools to below the setting, or the setting is increased above the water temperature.



LEISUREBAYSPAS

P5S3 and P9G3 Display Messages

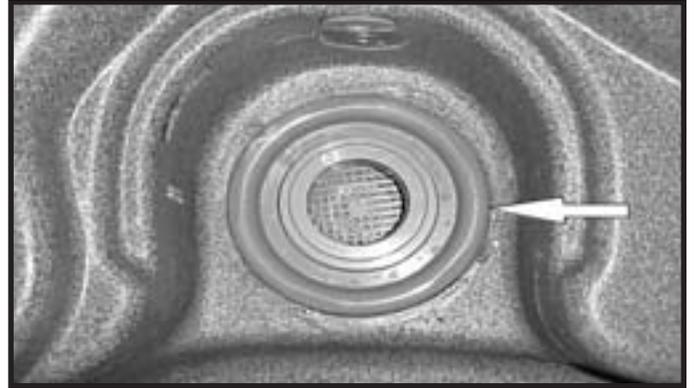
MESSAGE	MEANING	ACTION REQUIRED
	No message on display. Power has been cut off to the spa.	The control panel will be disabled until power returns. Spa settings will be preserved until next power up.
--	Temperature unknown.	After the pump has been running for 2 minutes, the temperature will be displayed.
HH	"Overheat" - The spa has shut down. One of the sensors has detected 47°C (118°F) at the heater.	DO NOT ENTER THE WATER. Remove the spa cover and allow water to cool. Once the heater has cooled, reset by pushing any button. If spa does not reset, shut off the power to the spa and call your dealer or service organization.
OH	"Overheat" - The spa has shut down. One of the sensors has detected that the spa water is 43°C (110°F).	DO NOT ENTER THE WATER. Remove the spa cover and allow water to cool. At 107°F, the spa should automatically reset. If spa does not reset, shut off the power to the spa and call your dealer or service organization.
IC	"Ice" - Potential freeze condition detected.	No action required. The pump and blower automatically will activate regardless of spa status.
SA	Spa is shut down. The sensor that is plugged into the Sensor "A" jack is not working.	If the problem persists, contact your dealer or service organization. (May appear temporarily in an overheat situation and disappear when the heater cools.)
Sb	Spa is shut down. The sensor that is plugged into the Sensor "B" jack is not working.	If the problem persists, contact your dealer or service organization. (May appear temporarily in an overheat situation and disappear when the heater cools.)
Sn	Sensors are out of balance. If alternating with spa temperature, it may just be a temporary condition. If flashing by itself, spa is shut down.	If the problem persists, contact your dealer or service organization.
HL	A significant difference between temperature sensors has been detected. This could indicate a flow problem.	Check water level in spa. Refill if necessary. If the water level is okay, make sure the pumps have been primed. If problem persists, contact your dealer or service organization.
LF	Persistent low flow problems. (Displays on the fifth occurrence of "HL" message within 24 hours.) Heater is shut down, but other spa functions continue to run normally.	Follow action required for "HL" message. Heating capability of the spa will not reset automatically; you may press any button to reset.
dr	Possible inadequate water, poor flow, or air bubbles in detected in the heater. Spa is shut down for 15 minutes.	Check water level in spa. Refill if necessary. If water level is okay, make sure the pumps have been primed. Press any button to reset, or this message automatically will reset within 15 minutes. If problem persists, contact your dealer or service organization.
dy	Inadequate water detected in heater. (Displays on third occurrence of "dr" message.) Spa is shut down.	Follow action required for "dr" message. Spa will not automatically reset. Press any button to reset.

CLEANING YOUR SPA FILTER

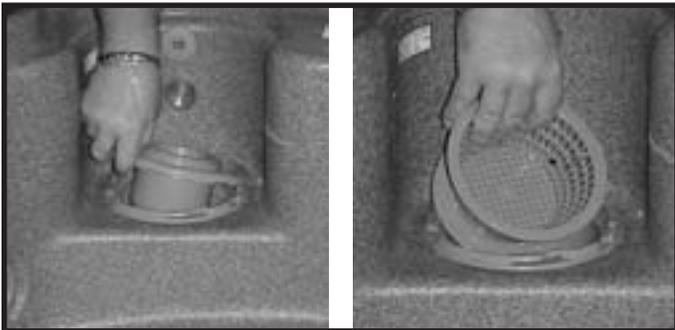
Proper care and cleaning of your spa filter is very important to the enjoyment of your spa. The filter is designed to remove emerged debris and contaminants, providing clear clean water for the bather. The most important maintenance step is to establish a cleaning routine to fit your use pattern. Heavy use and introduction of contaminants such as oily body lotions could mean cleaning on a weekly basis while average use might require only monthly cleaning.



1. Activate the standby mode or turn off electrical power. Remove filter cover and set aside.



2. To remove floating weir and basket rotate it a 1/4 turn counter clockwise.



3. Remove the floating weir and basket.



4. Remove filter cartridge and wash it with a garden hose inside and out until the cartridge is clean. Reinsert the filter and follow the steps in the reverse sequence.

NOTE:

1. Body oils, algae, and suntan oil can form a coating on the spa filter cartridge pleats which may not be thoroughly removed by the garden hose. To remove such substances, soak the filter in a solution of filter cleaner. Various brands of such cleaners are readily available at your local dealer.
2. Improper spa filter maintenance will alter the spa sensing device on your spa. This will lead to faulty heater and or pump operation. But generally, cleaning or replacing the filter cartridge regularly will remedy this situation.



Water Purification & Maintenance

You Deserve Pure, Crystal Clear Water

Pure, crystal clear water is part of the reward you receive for owning your very own spa. Maintaining water quality is a simple matter when a Use/Maintenance Routine is established early on in ownership.

Use/Maintenance Routine

The tasks required to maintain superior water quality are divided into two categories, Regular and Special. “Regular” tasks include those that should be routinely performed regardless of use pattern. For example, the spa filter should be cleaned at a minimum monthly, even if the spa is used only occasionally. “Special” tasks are those performed to compensate for increased spa use. For example, the filter on a spa that has experienced a heavy bather load resulting from vacation time and visiting friends or relatives might need cleaning on a weekly basis or more. Planning and establishing a routine of Regular and Special maintenance as required by time and bather load will significantly simplify your spa maintenance.

Starting Point For Developing A Use/Maintenance Routine

No hard set rules can be established for creation of a spa maintenance program since each individual spa has its own unique location conditions and bather patterns. The following chart of regular and special maintenance tasks is meant to provide a starting point. Water testing and experience will be the final indicators of what your routine should be.

	LIGHT USAGE	AVERAGE USAGE	ABOVE AVG. USAGE	HEAVY USAGE
Test & Adjust pH (7.2-7.8 Range)	Weekly	Twice Weekly	Thrice Weekly	Daily
Test & Maintain Bromine (3.0-5.0 ppm)	Weekly	Twice Weekly	Daily	Daily
Vacuum Spa	Monthly	Twice Monthly	Thrice Monthly	Weekly
Clean Spa Shell Water Line	Weekly	Weekly	Twice Weekly	Daily
Clean Spa Filter	Monthly	Twice Monthly	Twice Monthly	Weekly
Test & Maintain Alkalinity	Bi-Weekly	Weekly	Twice Weekly	Twice Weekly
Add “Non Chlorine Shock”			Weekly	As Required
Test & Maintain Calcium Hardness	Weekly	Weekly	Weekly	Weekly
Clean Cartridge with Chemical Cleaner	Quarterly	Monthly	Twice Monthly	As Required

ALWAYS FOLLOW THE MANUFACTURERS DIRECTIONS & INSTRUCTIONS ON THE CHEMICAL CONTAINER’S LABEL

IMPROPER WATER BALANCE WILL DAMAGE YOUR SPA’S SHELL & EQUIPMENT



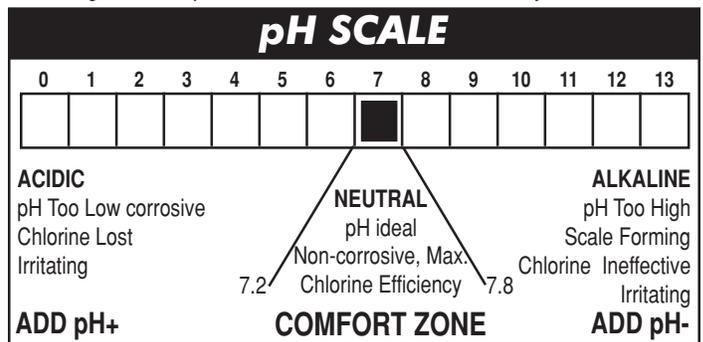
Water Balance Is Critical

Unlike ordinary drinking water, spa water is held captive in your spa and is used over and over. All water contains minerals, metals and other dissolved solids. In the case of spa water, these materials tend to concentrate due to normal usage and evaporation. Therefore, it is critical that you test and treat your spa water to maintain proper balance.

pH

pH is the measure of the degree of pH acidity or alkalinity of pool water. Practically speaking, it tells if water is neutral or how far away from neutral.

pH is a measure on a scale, to which numbers have been assigned, from 1 to 14. Seven is the middle of the scale and is considered exactly neutral. Readings below 7 are increasingly acidic, above 7 are increasingly basic or alkaline. Under normal conditions, it has been found that the proper pH for spa water is approximately 7.5 with pH 7.2-7.7 being an acceptable range. The chart to the right indicates different tendencies at assigned pH readings and what chemical to add.



Total Alkalinity

Alkalinity represents the amount of alkaline minerals in water. It is the measure of the buffering capacity or resistance to a change in pH of water. It minimizes changes in pH, making pH easier to control. Alkalinity and pH are sometimes confused. pH is a measure of DEGREE of acidity of water. Alkalinity is a QUANTITATIVE measure, telling you the total amount or quantity of alkaline minerals present. The proper alkalinity range is 80-120 ppm. If alkalinity is allowed to drift, corrosion or scaling may result. Have your spa water tested periodically for alkalinity by a qualified dealer.

Calcium Hardness

Total Hardness is used to describe the total amount of dissolved calcium and magnesium bicarbonates, as well as smaller quantities of other minerals in water. Unbalanced water, high in hardness, can cause water to become cloudy. Scale can form inside pipes restricting water flow and reducing their efficiency. Scale can also discolor a spa's interior. On the other hand, low hardness and unbalanced water can contribute to corrosive water conditions. Therefore, a certain amount of hardness is desirable. The desired range is between 100-200 ppm. Once again, your water should be tested periodically for hardness.

CLEANING THE SPA

From time to time it will be necessary to clean the exposed surface areas of your spa shell and cabinet. Do not use cleaners or compounds that contain harsh abrasives or caustic chemicals. Avoid using rubbing or buffing compounds.

Water Marks On Spa Shell

Water marks on the spa shell are best removed by applying a commercially available alcohol based window washing compound such as plain Windex to a soft rag or paper towel and wiping the surface in a circular motion.

Removing Tub Ring

Tub ring is best removed with a specialized commercially available cleaner such as Sun Surface Cleaner. Ask your local dealer for recommendations. Always apply with a soft wet sponge or paper towel.

Cleaning The Spa Cabinet

Use a mild dish detergent diluted with tap water and applied with a soft wet sponge or paper towel to clean the spa cabinet. Never use abrasive or caustic compounds.



Do not use cleaners or compounds that contain harsh abrasives or caustic chemicals. Avoid using rubbing or buffing compounds.

