SAVE THESE INSTRUCTIONS

Important User Safety Instructions

Your physiological response to hot water is subjective and depends on your age, health, and medical history. If you don't know your tolerance to hot water, or if you get a headache, or become dizzy or nauseous when using your hot tub, get out and cool off immediately.

READ AND FOLLOW ALL INSTRUCTIONS CAREFULLY

1. **DANGER:** Risk of Injury. The suction fittings in this hot tub 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 the hot tub if the suction fittings are broken or missing. Never replace a suction fitting with one rated less than the flow rate marked on the original suction fitting.

2. **ELECTRICAL SUPPLY:** The electrical supply for this product must include a suitably rated switch or circuit breaker to open all ungrounded supply conductors to comply with section 422-20 of the National Electrical Code, ANSI/NFPA 70. The disconnect must be readily accessible and visible to the hot tub occupant but installed at least 5 feet (1.5m) from the hot tub water.

- A green colored terminal or a terminal marked G, Gr, Ground, Grounding or the symbol* is located inside the supply terminal box or compartment. To reduce the risk of electric shock, this terminal must be connected to the grounding means provided in the electric supply service panel with a continuous copper wire equivalent in size to the circuit conductors that supply this equipment.

- At least two lugs marked "Bonding Lugs" are provided on the external surface or on the inside of the supply terminal box/compartment. To reduce the risk of electric shock, connect the local common bonding grid in the area of the hot tub to these terminals with an insulated or bare copper conductor not smaller than No. 6 AWG. This bonding wire must also be run between the pumps and the spa pack.

- All field-installed metal components such as rails, ladders, drains or other similar hardware within 5 feet (1.5m) of the hot tub shall be bonded to the equipment grounding buss with copper conductors not smaller than No. 6 AWG.

3. **WARNING: To Reduce the Risk of Injury:**

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

- Since excessive water temperatures have a high potential for causing fetal damage during the early months of pregnancy, pregnant or possibly pregnant women should limit hot tub water temperatures to100 °F (38 °C). If pregnant, please consult your physician before using a hot tub.
- Before entering the hot tub, the user should measure the water temperature with an accurate thermometer since the tolerance of water temperature-regulating devices may vary as much as +/- 5 °F (2 °C).

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

4. **SAFETY INFORMATION:** When using this electrical equipment, basic safety precautions should always be followed, including the following:

WARNING: Children should not use hot tubs without adult supervision.

WARNING: Do not allow children to submerge their head under water.

WARNING: Do not use hot tubs unless all suction guards are installed to prevent body and hair entrapment.

WARNING: People with infectious diseases should not use a hot tub.

WARNING: To avoid injury, exercise care when entering or exiting the hot tub. Where practical, install a safety grab bar or handrail. Turn off the jets before entering the hot tub to improve visibility of the steps or flat entry area.

WARNING: Do not use drugs or alcohol before or during the use of a hot tub to avoid unconsciousness and possible drowning.

WARNING: Pregnant or possibly pregnant women should consult a physician before using a hot tub.

WARNING: Water temperature in excess of 38 °C (100 °F) may be injurious to your health.

WARNING: Before entering the hot tub, measure the water temperature with an accurate thermometer.

WARNING: Do not use a hot tub immediately following strenuous exercise.

WARNING: Prolonged immersion in a hot tub may be injurious to your health.

WARNING: Do not permit electric appliances (such as lights, telephone, radio, television, etc.) within 5 feet (1.5m) of this hot tub unless such appliances are built-in by the manufacturer.

WARNING: The use of alcohol or drugs can greatly increase the risk of fatal hyperthermia in hot tubs.

WARNING: People using medication and/or having an adverse medical history should consult a physician before using a spa or hot tub.

WARNING: Test the GFCI (Ground Fault Circuit Interrupter) monthly.

Hyperthermia

Since your hot tub can be set to reach temperatures of 104°F (40° C), users should be aware that extended submersion in water that exceeds normal body temperature can lead to hyperthermia.

Hyperthermia occurs when the internal temperature of the body reaches several degrees above the normal body temperature of 98.6° F (37° C). The symptoms of hyperthermia drowsiness, lethargy, and an increase in the internal temperature of the body. The effects of hyperthermia include:

- Unawareness of impending hazard.
- Failure to perceive heat.
- Failure to recognize the need to exit the hot tub.
- Physical inability to exit the hot tub.
- Fetal damage in pregnant woman.
- Unconsciousness resulting in the danger of drowning.

If you sense any of the symptoms of hyperthermia, safely exit the hot tub immediately.

Cautions

- Observe a reasonable time limit when using the hot tub. Long exposures at higher temperatures can cause high body temperature. Symptoms may include dizziness, nausea, fainting, drowsiness, and reduced awareness. These effects could possibly result in drowning.
- Always test the hot tub water temperature before entering the hot tub. Enter and exit the hot tub slowly. Wet surfaces can be very slippery.
- Proper chemical maintenance of hot tub water is necessary to maintain safe water and prevent possible damage to hot tub components.
- Use the straps and clip tie downs to secure the cover when not in use. This will help to discourage unsupervised children from entering the hot tub and keep the hot tub cover secure in high-wind conditions. There is no representation that the cover, clip tie-downs, or actual locks will prevent access to the hot tub.
- For exercise, the water should not exceed 90 °F (32 °C).
- Maintain water chemistry in accordance with manufacturer's instructions.

Set-Up And Delivery Guidelines

Location

Some Points to Consider:

- How close is the spa from the exit or entrance to your house? (Consider the cold weather)
- Is the path to the spa clean of debris, sand, grass clippings? (So as not to track into spa)
- Is there any protection from wind, inclement weather?
- Can neighbors or passersby see the spa?
- If your spa is to be placed near where sprinklers may hit the cabinet, shell or equipment, please adjust or cap them to prevent prolonged water exposure.
- Generally, spas belong outdoors. Locating a spa indoors increases your risk of indoor flooding.

Outdoor Installations:

- Local electrical and plumbing codes.
- Consider local codes pertaining to fencing, enclosures, walls, electrical and plumbing. You will need to ensure that your spa is an adequate distance from power lines, both above ground and underground. Your spa will also need to be childproofed (covered and of adequate height).
- View from house for aesthetics and supervisory needs.
- Distance from house for wintertime soaking.
- Nighttime lighting.
- Locate the spa with an awareness to sunlight exposure, views, access, lot lines, lighting, wind direction, shielding, septic tanks, plants, trees. (Chemicals in the spa water splashed from within your spa may damage plant life.)
- Consider the location of the nearest bathroom.
- If your spa is to be located on a second story, be positive support is adequate.
- Area for placement of support equipment where adequate space will be needed for periodic removing and cleansing of the cartridge filter and general servicing.

- Provide adequate drainage away from the equipment and adequate elevation to allow draining by syphon.
- Location of electrical supply. Both 120 volt and 240 volt systems require hard wire installed from the electrical source to the spa support pack terminal.
- Locations at least 5 feet (1.52 m) from all metal surfaces. (A spa may be installed within 5 feet of metals surfaces, if, in accordance with Article 680 of the National Electrical Code, ANSI/NFPA 70-1984, each metal surface is permanently connected by a No. 8AWG (8.4 mm2) copper conductor attached to the wire connector on the terminal box provided for this purpose.)

Indoor Installations:

- Local electrical and plumbing codes.
- Ventilation fans and/or dehumidifiers should be provided to handle the high humidity developed by your spa. Walls, ceiling and wood trim should be resistant to high humidity.
- Chemicals will vaporize from the water and may cause an odor and possibly corrosion to certain home hardware. Never store chemicals inside the spa cabinet.
- During the normal use of the spa, water will escape the spa vessel. Never place the spa on or over any material which may be damaged by this water or the chemicals within the water. Keep damageable materials far enough away from the spa to avoid water damage, even if the spa should lose all its water.
- Consider and prepare for the unlikely event of rapid spa drainage. If placement of the spa is permanent, you may wish to provide floor drains to accommodate draining, etc. Always leave room all around the spa for easy access in case repairs are necessary.
- Consider and prepare for the unlikely event of spa removal.
- Do not set spa on finished floor without a waterproof barrier protection underneath.

Surface and Pad Requirements:

- Your new portable spa must be placed on a firm, flat and level surface, so the spa weight is supported uniformly. We recommend a 3-1/2”(93mm) thick concrete slab. Alternate decking methods may void warranty of spa shell.
- Please contact your Futura Spas dealer if you have any questions regarding location or placement of your new spa.

Requirements for Wood Decking, Gates and Balconies:

- Wood decking or balconies must be constructed to support 150 pounds per square foot (730 kg/m2). Refer to local and current building codes in your area.
- Consult an engineer for live loads in your area.

Leveling your spa:

After the hot tub is properly positioned on the support base, the entire unit should be checked with a level and shimmed as necessary. Should you find that the support base is sloped or otherwise uneven, level your hot tub using TAPERED wood shims where necessary, ensuring that the tapered end extends at least 36 inches under the unit. This will insure contact with the support substructure to appropriately distribute the weight of the unit. Do not just shim under the cabinet base outside edge, as this will cause structural stress on the unit, potentially causing unwarrantable damage to the hot tub structure and /or shell.

ELECTRICAL REQUIREMENTS:

All Self Contained Spas 120 Or 240 Volt Electric Spa Packs

- Your 120 volt spa pack requires a isolated (no other appliances or lights on this circuit at any time) 120 volt, 20amp GFCI Protected circuit breaker.
- Extension cords are not to be used in conjunction with the operation of the spa. Low voltage damage could result, which is not covered by warranty.
- Your 240 volt spa will require a 50 amp dedicated circuit breaker, GFCI, with proper wire size for length of run. The circuit must have 4 wires, 2 hots, a neutral and a ground.
- If you have any doubts, have your electrical system checked by a certified electrician.

Important Electrical Safety Instructions

SAFETY COMES FIRST. WHEN INSTALLING & USING THIS ELECTRICAL EQUIPMENT, BASIC SAFETY PRECAUTIONS MUST ALWAYS BE FOLLOWED!

1. READ AND FOLLOW ALL INSTRUCTIONS
2. Electrical installation must be completed by a qualified electrician in accordance with all National, Regional and Local Codes and Regulations in effect at the time of installation.
3. Connect only to a dedicated circuit protected by a class 'A' two-pole ground fault circuit interrupter (GFCI)
4. Use copper conductors only! 5 The hot tub equipment and all electrical plugs, outlets
5. and lights within 1.5m (5ft) of the unit must be G.F.C.I protected. Consult your electrician or local electrical authority for further details.
6. A green colored terminal or a terminal marked "G", "GR", "Ground", or "Grounding" is located inside the supply terminal box or compartment. To reduce the risk of electric shock, this terminal must be connected to the grounding means provided in the electric supply service panel with a continuous copper wire equivalent in size to the circuit conductors supplying the equipment.
7. At least two lugs marked "BONDING LUGS" are provided on the external surface or on the inside of the supply terminal box or compartment. To reduce the risk of electric shock, connect the local common bonding grid in the area of the hot tub to these terminals with an insulated or bare copper conductor not smaller than No.6 AWG (Canada/ Europe) / No.8 AWG (USA).
8. All field installed metal components such as rails, ladders, drains or other similar hardware within 3 m (10 ft) of the hot tub shall be bonded to the equipment grounding bus with copper conductors not smaller than No.6 AWG.

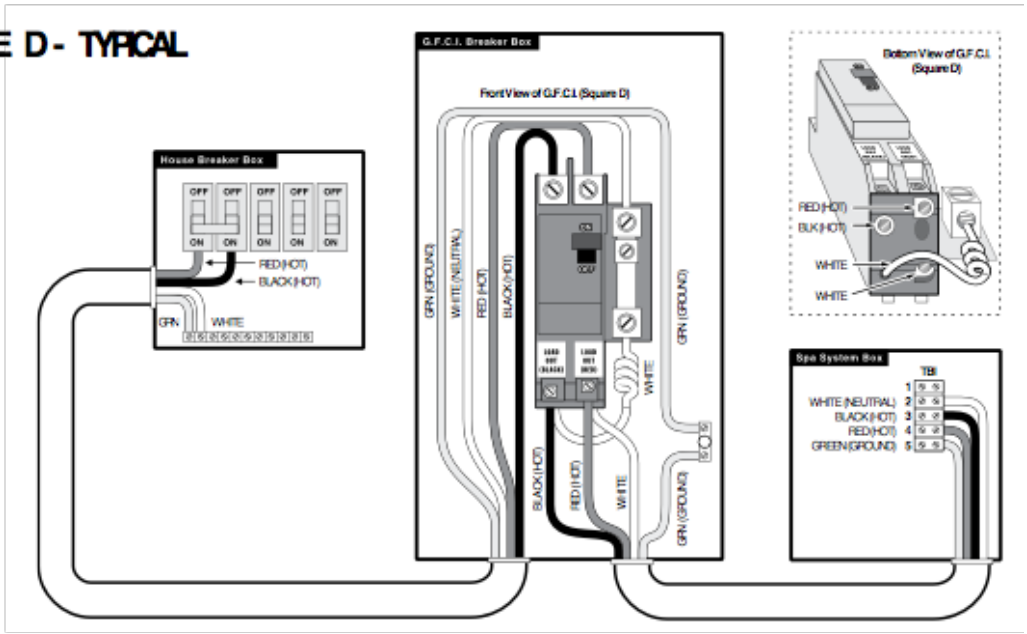
Wire Size

- North America – The minimum wire size for systems that require a 50A or 60A GFCI is #6/3 c/w ground (also referred to as #6 gauge / 4 conductor).
- Europe – The minimum wire size for European system is 2.5 mm2 copper wire.
- Important Note – This guide is for standard installations where the wire run is 15 m (50 ft.) or less. For longer wire runs, consult a qualified electrician.

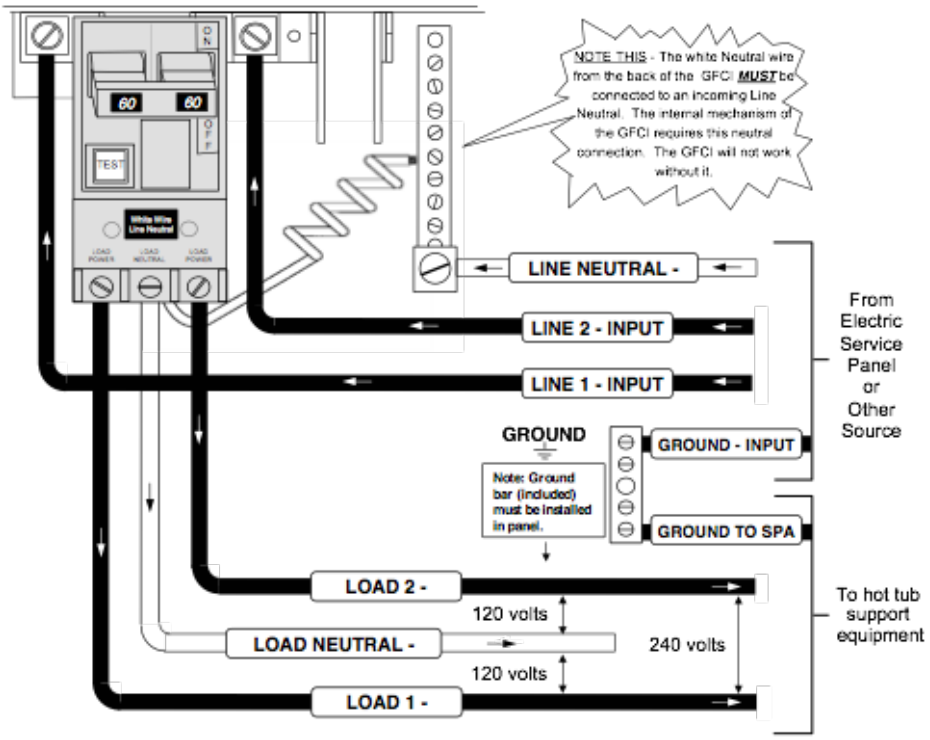
North America – GFCI Installation

Important Note: Installation of the GFCI – Circuit Breaker, including ampere sizing and selection of conductor size and type, must be performed by a qualified electrician in accordance with the National Electrical Code, or the Canadian Electrical Code, and all Federal, State/Provincial and local codes and regulations in effect at the time of installation.

SQUARE D - TYPICAL

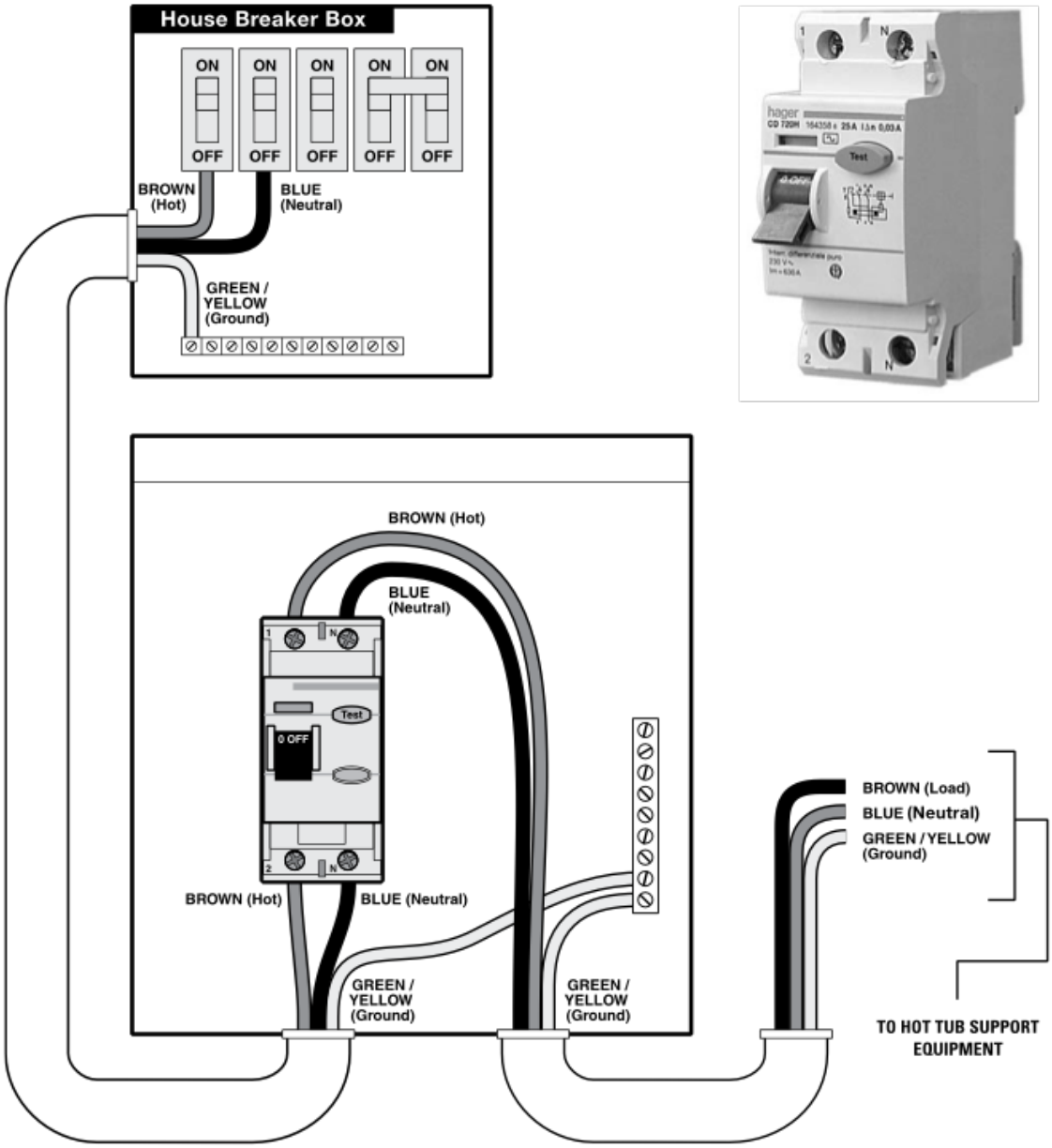


SIEMENS - TYPICAL



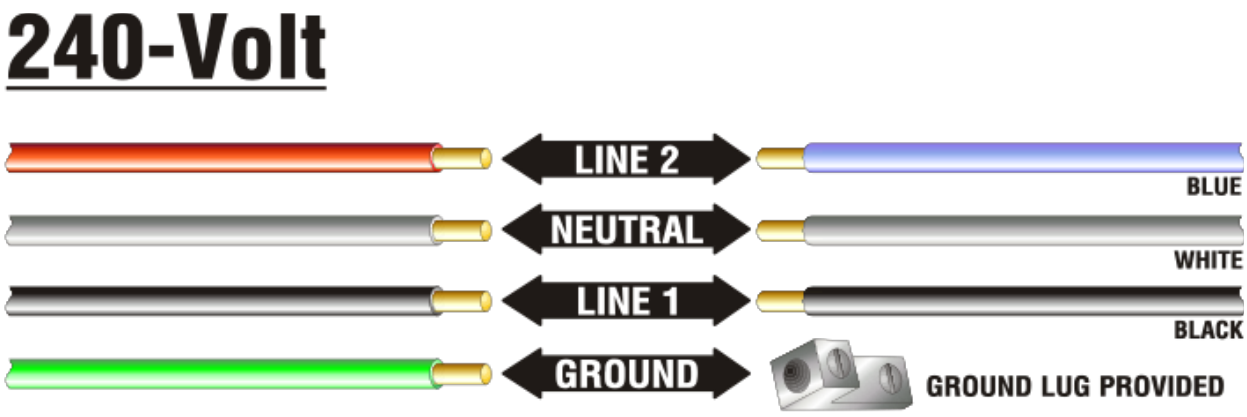
Europe - R.C.D. Installation - Typical

Important Note: Installation of the R.C.D. - Circuit Breaker, including ampere sizing and selection of conductor size and type, must be performed by a qualified electrician in accordance with National, Regional and Local Codes and Regulations in effect at the time of installation.



Electrical Connection To Spa

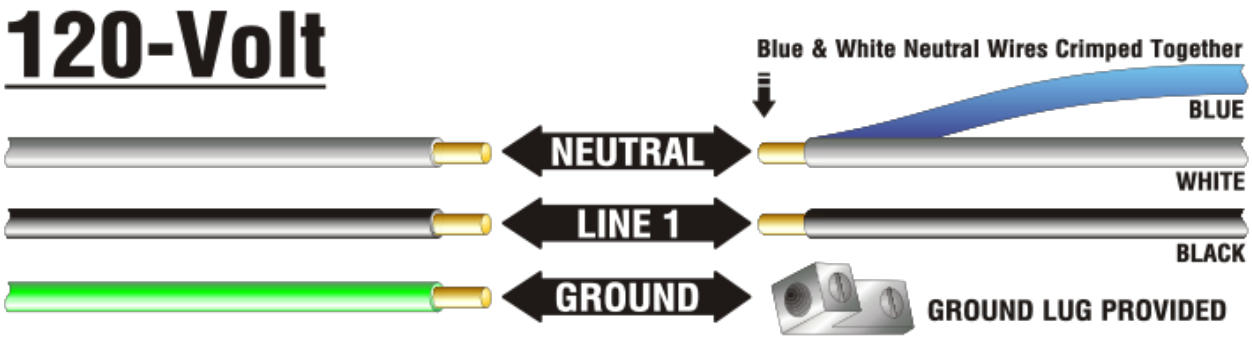
WARNING – Secure wires as defined by the NEC and in compliance with any local codes in effect at the time of installation. **ALL SPAS ARE FACTORY CONFIGURED FOR 240 VOLT INSTALLATIONS. DO NOT CHANGE ANY WIRING INSIDE OF THE SPA PACK.**



- Connect Line 2 to Blue Wire
- Connect input Neutral to White Wire
- Connect Line 1 to Black Wire
- Connect Ground to Ground Lug provided inside control box
- Connect Bonding wires to bonding lugs inside the spa

120 Volt connection for 120/240 Volt Convertible Spas

Futura Spas only makes two models that are 120/240 volt convertible. Check with your dealer to be sure the model you purchased is convertible. There are no wiring changes necessary inside of the spa pack.



- Connect input Neutral to White Wire (crimped together with Blue wire).
- Connect Line 1 to Black Wire.
- Connect Ground to Ground Lug provided inside control box.
- Connect Bonding wires to bonding lugs inside the spa

Start-Up Instructions

Filling Your Spa

- Your new spa has left the factory cleaned and polished. You may have to clean out any dirt that has accumulated during shipping. Use warm water and sponge or cloth.
- Be sure all fittings are connected, secure and hand tightened in the equipment enclosure. In cold weather months your Futura Spa is shipped with fittings disconnected to ensure no damage or freezing occurs during the spa's route from our factory to your home.
- Fill your Futura Spa with your garden hose. Place the hose inside spa and secure the hose in place. Filling through the filter helps to allow most of the trapped air in the pumps and heater to be eliminated.
- No not attempt to fill the spa for the first time when the outside temperature is below freezing. In cold temperatures the water in the pumps may start to form ice crystals before the filling process is complete preventing the pumps from turning.
- **Note**: Futura Spas recommends you do not fill your spa with hot water. Excessively ho water (over 107° F) may cause damage to components in the spa pack.
- **Also**: Do not fill your spa with water from a water softener. If your water is extremely hard your spa dealer can help you to remedy this problem.
- Continue filling the spa to half (1/2) way up the skimmer opening. Remove the hose and close the filter canister (see section on filter maintenance).
- Ensure that all jets are open. See section Jet & Feature Operation

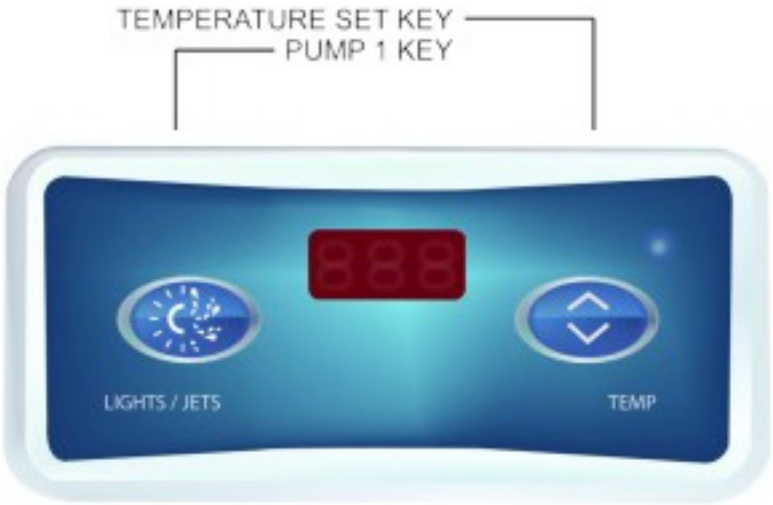
Starting

- Before applying voltage to power-up your hot tub, it is very important that you understand the sequence of events that occur when the system is activated in order that the pump can be primed efficiently and damage to the system can be avoided.
- Turn the main power “on” at your electrical panel
- When the hot tub turned on the water should start circulating immediately. If the motor works but you do not notice water circulation within the first 15 seconds, the pump may require priming due to trapped air (referred to as an ‘air lock’). To prime, turn power off at the main house panel (or GFCI) and try releasing the air by loosening the union on the discharge side of the pump(s) while the motor is not running. Turn the power back on. If the pump(s) does not prime after 15 seconds, sometimes momentarily turning the pump(s) off and on will help the system to prime.
- Important: Under NO circumstances should the pump(s) be allowed to operate without priming beyond 2 minutes, as this may not only cause unwarrantable damage to the pump, it may also cause the control system to go into an overheat condition.

  Definition: ‘Priming’ a pump is a term used to describe the process in which air trapped in the plumbing and pump wet-end (referred to as an ‘air lock’) is released, allowing the pump to move water efficiently through the plumbing system and to the jets.
- When the pump starts circulating on low speed, it will be necessary to release trapped air in the filter. Carefully loosen the vent valve counter-clockwise until there is the hissing sound of air escaping. Once there is a steady stream of water, close the vent valve, ensuring that the o-ring does not become pinched.
- When the spa first comes on the top side digital control will display Pr.r for approximately 3 seconds. The display will then automatically switch to flashing the current water temperature. Anytime there is an interruption of power to the spa it will flash the current water temperature. Press any key on the control panel to place the spa into normal operation mode.
- Turn the pump onto high speed and check for leaks. The control system will automatically return the pump to low speed after 15 minutes.
- Adjust the hot tub heat control at the topside panel to the desired water temperature.
- Adjust water balance (pH, TA, calcium hardness) to recommended levels and add sanitizer. See section Hot Tub Water Maintenance
- The hot tub will require 8-10 hours to reach the desired temperature for 240 volt installations twice as long for 120 volt spas.
- Keep insulated safety hard cover on the hot tub, and the air controls closed during the entire heat up process.

Control Systems

Eco-LL 1 Pump Solid State Control System



Default System Operation: When power is applied, or there is a temporary loss of power, the system will initiate its default programming. The filter cycle will begin 1-minute after the system has been powered up. The filtration cycle will be active for 2-hours and will repeat every 12-hours. The temperature will be maintained at 100° F.

Temperature Adjustment (80°F - 104°F): Temperature adjustment is controlled by pushing the set temperature pad. The display shows the actual water temperature unless the pad is pressed. When the pad is pressed, the display will show the set temperature. Pressing the pad a second time will cause the set temperature to increase or decrease depending on what direction was last chosen. Each successive press will change the set temperature in the same direction. If the opposite direction is desired, release the pad and let the display revert to the actual water temperature again. Press the pad to display the set temperature, and again to make the temperature change in the desired direction.

Pump 1 / Light Key: Press the control pad to turn on the light. Press the pad again and the low-speed pump, ozone generator (if installed), and light will operate. Press the pad a third time and the high-speed pump and light will run. Press the pad again and only the high-speed pump will be on. Press the pad a final time to turn off all functions. The light will automatically turn off after 4 hours of operation. The low- speed pump and ozone generator (if installed) turn off after 2 hours. The high-speed pump turns off after 15 minutes. When the heater is turned on the pump and ozone generator (if installed) are automatically activated. If activated, neither can be turned off with the function pad; however, the high-speed pump may be started.

Filtration

Filter Cycles: Your spa will automatically filter itself twice per day. The first cycle will begin one minute after the spa is powered up. The second cycle will begin 12 hours later. During the filtration cycle the low speed of the pump and ozone generator (if installed) will run continuously.

Setting Filter Cycle Duration: Your spa has two options for filter cycle duration. The default setting is for 2 hours of filtration. You can increase this to 5 hours of duration by moving the jumper located at J33 to cover both pins on the spa circuit board. See figure 1 for details

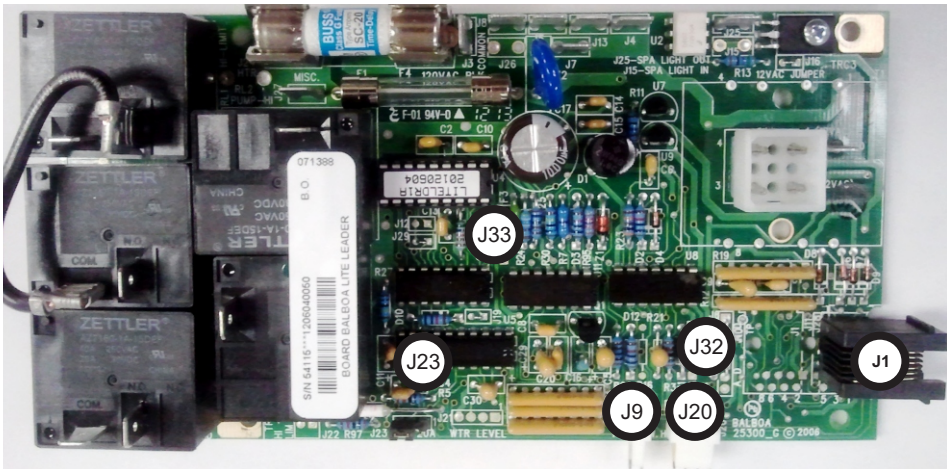
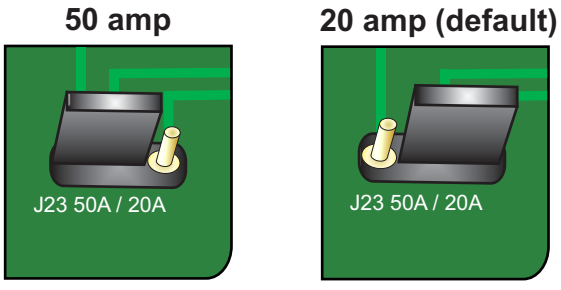


Figure 1

High Current Mode

Your spa has the option to run in High Current or Low Current mode. When operating in High Current mode the spa will heat (if needed) while the pump is running in high speed. This mode does use more electricity and will cost you more to run the spa but you will be able to use the spa for longer periods before the water feels like it is starting to cool off.

Your spa ships by default in low current mode. To change this setting move the jumper located at J23 from the 20 amp pins to the 50 amp pins. The spa must be hooked up to 240 volt electricity for this mode to function.



Eco-LL Error Messages

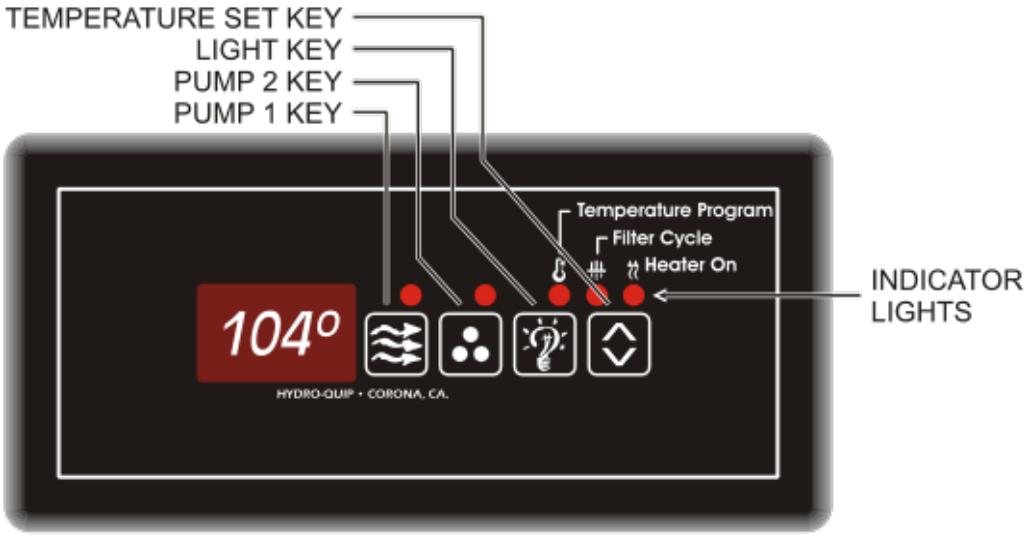
Open Sensor (Spa is deactivated) – If either the high-limit or water temperature sensor malfunctions the display will show “SN” (meaning sensor). Contact your dealer or service organization. Possible defective sensor.

Overheat Protection – DO NOT ENTER THE WATER. IF the spa water has reached 112°F, the display will flash “OH” (meaning overheat). Remove the spa cover to cool the water. At 110°F the spa should reset itself. If the high-limit sensor detects 118°F at the heater, the spa will shut down. When the spa cools to 110°F, press any button to rest the spa. If the spa will not reset, shut off power to the spa and contact your dealer or service organization.

Flow Switch Error – If the pressure switch malfunctions or is not properly adjusted, the display will read “FL”. Refer to section “Pressure Switch” for instructions on adjustment.

A dirty spa filter can restrict water flow and cause of "OH" and "FL" errors.

Eco-2 2 Pump Solid State Control System



Default System Operation: When power is applied, or there is a temporary loss of power, the system will initiate its default programming. The filter cycle will begin 24-hours after the system has been powered up. The filtration cycle will be active for 1-hour and will repeat every 24-hours. The temperature will be maintained at 100BF.

Pump 1 Key: Press this key once to turn Pump 1 onto High speed, press this key a second time to turn Pump 1 onto Low speed, a third press will turn the pump off. A built-in timer will shut the pump off after 20 minutes of operation unless done so manually. The Pump 1 Indicator will illuminate while the pump is running. If the filter cycle indicator is illuminated, a filtration cycle has begun and you will not be able to turn the pump off.

Pump 2 Key: Press this key once to turn Pump 2 onto Low speed, press this key a second time to turn Pump 2 onto High speed, a third press will turn the pump off. A built-in timer will shut the pump off after 20 minutes of operation unless done so manually. The Pump 2 Indicator will illuminate while the pump is running.

Light Key: Press this key to turn the Light on and off. The light will automatically shut off after 2 hours. The Light indicator will illuminate while the light is on.

Temperature Set Key: Press the Temperature Set key to increase the desired temperature. Release and press again lower the temperature. The temperature can be adjusted in 1° F increments from 59° F to 104° F (5°C to 40°C). The new setting will remain on the display for 5 seconds as a confirmation. During this time the temperature program indicator will illuminate to let you know this is the desired and not the actual temperature. After 5 seconds the display will return to the current temperature reading. When the temperature drops to 1°F below the set temperature, the heater will be turned on until the temperature is 1°F above the set temperature. The Heater On indicator will illuminate while the heater is on and flash when there is a call for heat and the heater has not yet been activated.

Filtration

Programming Filter Cycles: You May choose to filter the spa 1, 2 or 3 times per day as required to keep the water clean and sanitary. Press both the Pump 1 key. The current setting will be displayed as F1, 2 or 3. Use the Temperature Set key to increase or decrease the frequency of the filtration cycles per day. The filter cycle is now set. The cycles will repeat every 8, 12, or 24 hours within the scheduled 24-hour period starting from the time programmed. It is recommended to schedule the filtration cycles so they do not interfere with sleeping hours.

Programming Filter Cycle Duration: You May choose to filter your spa 1 - 8 hours per cycle as required to keep the water clean and sanitary. Press the Light key for 5 seconds. The current duration of the filter cycle will be displayed as D1 - 8. Use the Temperature Set key to increase or decrease the duration of the filter cycle. The duration is now set. To start a filter cycle immediately, press the Light key while the duration setting is still displayed.

Note: If a key is not pressed within 5 seconds during programming, the system will revert back to the monitoring mode. If the Pump and/or light where turned on during the programming process, turn them off. The system will revert back to display the water temperature within 5 seconds.

* If the spa is being used during the Filter Cycle, the cycle will be suspended for a period of 40 minutes or until the spa is no longer in use.

Eco-2 Error Messages

Pressure or Flow Switch Activated - This error will be displayed only when the pump is not activated. Cycle the pump through Low & High Speeds then off. If the error does not clear this is an indication that the pressure or flow switch is activated with no water flow. Contact our service department.

Pressure or Flow Switch Not Activated - This error will be displayed when the system has turned on the pump but dose not read water flow. While this error is shown the system will not turn on the heater. First be sure that the pump is running and water is circulating. Cycle the pump through the Low & High speeds. Clean the filter.

Temperature Sensor Malfunction - This error will be occur when a problem with the temperature sensor exists. This error may also occur if the system is activated while the water temperature is below 35°.

Overheat Protection - The spa has exceeded 119° F. The heater and pumps will be deactivated until the water cools to 109° F

High-Limit Protection - The spa has exceeded 112° F. The heater will deactivate while the pump will still operate. The pump can be turned on to help cool the water. The water must be cooled below 119° F and the power must be rest to clear the "HL" error. A dirty spa filter can restrict water flow and cause of "OH" and "HL" errors.

Freeze Protection -There are two levels of freeze protection integrated into the system.

1. SMART WINTER MODE, this mode will activate ant time the water temperature falls below 59° F. This mode will be active for a period of 24-hours. In this mode, if a pump has not been activated in the last 2 hours, the system will automatically turn it on for a 1-minute period to prevent freezing. The "Filter Cycle" indicator will illuminate while this mode is active.
2. If the spa water temperature drops below 49° F, the heater & pump will be activated activated until the water temperature reaches 50° F. While freeze protection is active no other functions will be possible.

Pressure Switch Adjustment

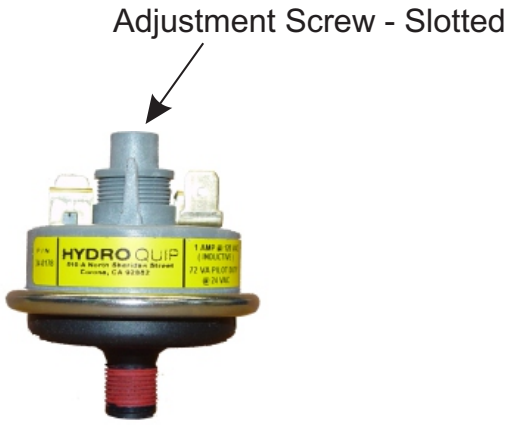
The function of the pressure switch is to turn the heater off if the pumps stop to function or if there is a restriction of water flow passed the heater element. This could be caused by a dirty filter or an obstruction in the spa plumbing.

The pressure switch has been preset at the factory to operate properly with your spas specific plumbing. Adjustment of the pressure switch is not normally required. If your spa is installed at an extreme elevation the atmospheric pressure difference may require an adjustment. If adjustment is required follow the following steps carefully.

IMPORTANT: After any pressure switch adjustment, it is important to test the control by turning on the pump low speed and the heater. While the spa is heating unplug the pump from the spa pack. The heater must turn off. If the heater stays on, plug the pump back in and readjust the pressure switch to achieve proper operation.

Adjustment

1. With power to the system **OFF**, remove the wires from the pressure switch terminals. (Secure the wires safely to prevent any chance of electrical shock.)
2. Rotate the pressure switch adjustment screw clockwise until it is all the way out.
3. Turn power to the system to **ON**.
4. Use the temperature adjustment button on the topside control pad to move the set point to the lowest setting.
5. Activate the low-speed of the main pump.
6. Place an volt-meter on the pressure switch terminals and verify a open circuit. (No Continuity)
7. Rotate the pressure switch adjustment screw counter-clockwise until the volt-meter indicates a closed circuit. (Continuity)
8. Turn the pump off and verify that the pressure switch once again reads and open circuit. (No Continuity)
9. Turn power to the system **OFF** and reconnect the pressure switch wires. Reapply power to the system and verify the spa is operating normally.



Cold Weather Conditions

In the case of a power failure or equipment breakdown the spa's freeze protection can not be activated. If the spa will not be running for an extended period in freezing conditions steps must be taken to prevent ice damage to the spa. Damage caused by freezing is not covered by any warranties. Drain the spa and place a small 100 watt lamp or small heater inside the spa cabinet. The heat will help prevent freezing for a short time.

Warm Weather Conditions

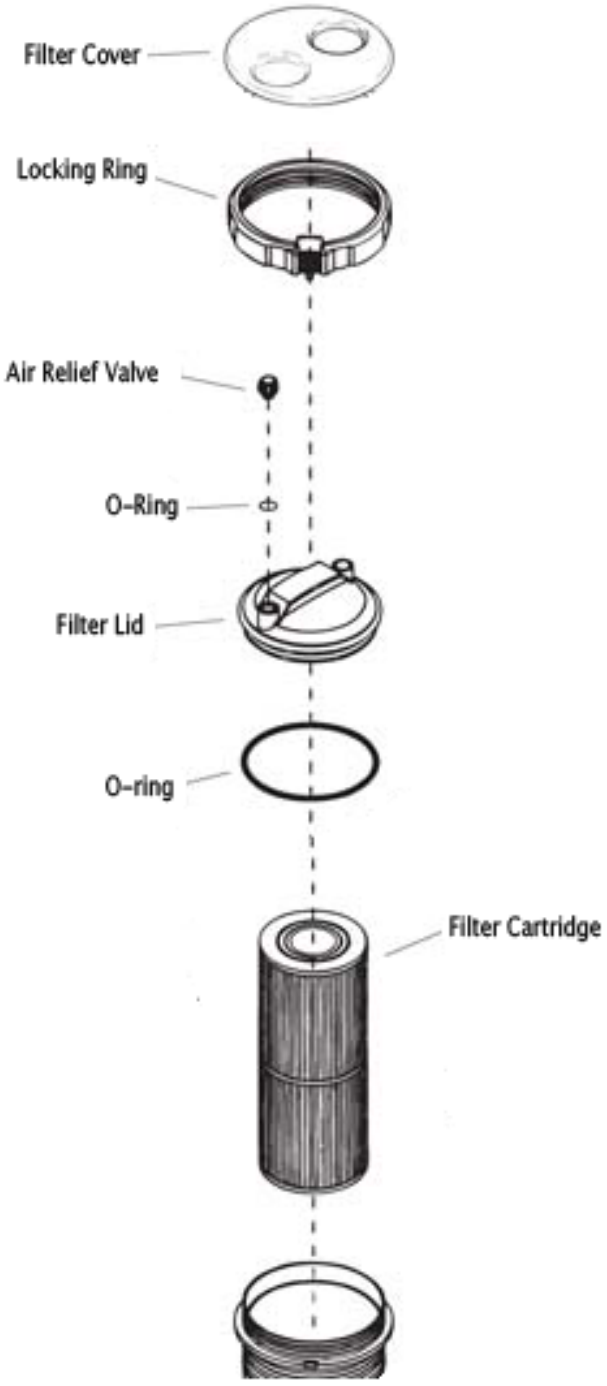
Since your spa will normally be expected to maintain warm to hot water to be ready for your use, a great deal of attention has been directed to the energy conservation detail of insulation so as to keep electrical costs down. This energy conservation efficiency is achieved by extensive insulation of the skirt, plumbing and spa shell.

This energy conservation feature may cause an inconvenience during warmer times of the year. During warm periods of the year, the temperature within the equipment compartment can elevate to a point that the pump will automatically turn off for a short period of time (15- 30 minutes) to allow the pump to cool down before automatically restarting. This cool down feature will not harm your spa but serves only to protect the pump from damage and as an indicator that it is too hot. To minimize this occurrence, refrain from using your Hydrotherapy Jets for prolonged periods of time during extreme hot weather.

The jet pump chosen for your spa has been specifically sized for maximum performance and your Hydrotherapy enjoyment.

Filter Maintenance

Filtration starts as soon as flow is steady through the filter. As the filter cartridge removes the dirt from the spa water, the accumulated dirt causes flow resistance.



Cleaning And Replacing Filter Cartridge

Your spa filter has been designed for quick and easy maintenance. The filter cartridge should be rinsed by hose once a week and cleaned with a cartridge cleaner once a month. A second filter cartridge is recommended and will speed up the process. This can be purchased from your Futura Spas dealer.

- Turn power **OFF** at the breaker.
- Remove filter cover. Loosen air relief valve before removing retaining ring. Do not remove air relief valve.
- Pull filter lid straight up to remove.
- Do not twist or pull filter lid up at an angle. This could cause damage to the filter canister, especially in freezing weather. Do not remove dome lid in icy conditions!
- Remove filter cartridge and clean with a garden hose and a high-pressure nozzle. Periodically you may need to soak your filter in a "cartridge filter cleaner" to remove excess minerals and/or oils. You can purchase this cleaner at your Futura Spas dealer.
- Rinse filter thoroughly before installing. Clean o-ring on dome lid and apply a light film of silicone lubricant to o-ring. Do not use a petroleum-based lubricant as it could damage the o-ring. Consult your Futura Spas dealer.
- Reinstall filter and lid and turn power ON to the spa. Tighten air relief valve once any trapped air has been bleed off.

Jets

Types of Jets

Your Futura Spa comes with different types of jets and jet configurations. Each type of jet has a specific purpose and operates differently than the others. All jets with the exception of the fixed ozone jet in the footwell are adjustable and can be turned on or off. They all combine to create a luxurious and invigorating hydrotherapy environment. Most of the jets are removable for easy cleaning. It is not uncommon for particulates to get caught in the jets causing them to stop rotating, especially in environments where there are trees overhead or nearby.

Jet Water Flow Adjustment

Your Futura Spa features adjustable water flow on specific hydrotherapy jets.

To reduce the flow: grasp the outer flange of the jet, and turn clockwise approximately a 1/4 turn. When it hits the stop, the jet is considered closed, and flow will be restricted.

To increase the flow: from the closed position, turn the jet counter-clockwise approximately 1/4 turn. When it hits the stop, the jet is open, and there is maximum jet flow. Do not attempt to turn the jet past the stop, as this will unclip the jet internal from the socket. All Futura Spas are shipped from the factory with the jets in the open position.

Jet Air Flow Adjustment

Your Futura Spa features adjustable air flow on specific hydrotherapy jets.

To reduce the flow: turn the handle on the air control clockwise. When it hits the stop, the air is closed, and air flow will be restricted.

To increase the flow: turn the handle on the air control counter-clockwise. When it hits the stop, the air control is fully opened. For maximum operating efficiency, the air controls must remain closed when your hot tub is not in use.

Jet Insert Removal & Replacement

To Remove:

- Turn the jet counter-clockwise to unclip & pull out of socket.

To Reinstall:

- Push the jet into the socket until it snaps into place, ensuring the square pin on the back of the jet lines-up with the groove in the socket flange.

Diverter Valve (If Equipped)

This valve, which is located along the top lip of the spa is used to divert the power from the pump to one of the “Hot Seats” or the other. The valve has a 180° range from one side to the other. By moving the valve to one side, the pump will deliver all of its power to one seat. Moving the valve to the other side will shift the power to the other seat. If the valve is moved to a position anywhere between both sides, the power will be shared between both sides.

Always: return the valve handle to the middle position before exiting the hot tub to ensure that there is air and water flow to the ozone jet

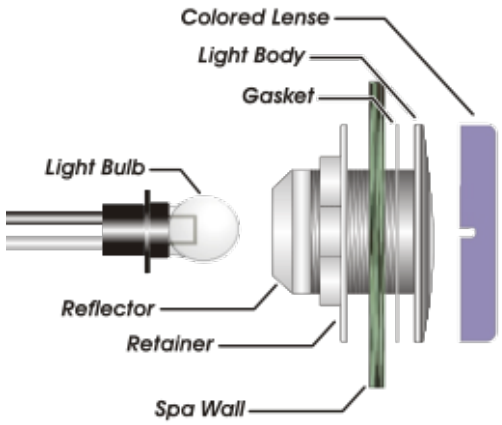
Waterfall Control (If Equipped)

If your hot tub has the optional waterfall feature, then you will have a waterfall flow control valve. The waterfall feature was designed to provide a gentle cascade of water over the neck and shoulder area. Simply turn the top of the control clockwise for less water flow, and counterclockwise for more water flow.

For maximum operating efficiency, turn the waterfall off when the hot tub is not in use.

12 Volt Underwater Light

All Futura Spas come equipped with an underwater low voltage light to enhance nighttime use. Pressing the "Light" Button on the top side control will turn the light on. Press the button again to turn the light off. This illustration shows how and where to find the bulb for replacement. It also shows the mounted spa light with a replacement (colored) lens. Colored lenses will further the enhancement of the light. Simply snap on or off to change the mood of your spa.



9-Bulb LED Underwater Light (If Equipped)

The 9-Bulb LED Underwater Light replaces the standard underwater light. Pressing the "Light" button on the top side control will turn the light on. Each subsequent press will change the mode of the light. After all the lighting modes are cycled through, the next press of the "Light" button will turn the LED lighting off.

Motion Glow Lighting (If Equipped)

Motion Glow Lighting is 16 - 20 individual LEDs placed around the top of the spa. They operate in conjunction with the 9-bulb LED Underwater Light. Pressing the "Light" button on the top side control will turn the Motion Glow Lighting on. Each subsequent press will change the mode of the Motion Glow Lighting. After all the lighting modes are cycled through the next press of the "Light" button will turn the Motion Glow Lighting off.

Water Maintenance

Water Conditions vary greatly from location to locations. Your dealer is familiar with local water conditions and which chemicals are compatible with the water and are designed specifically for your spa. This is the best person to advise you on proper water quality management. Proper water chemistry will insure years of trouble free operation. A careless attitude in regard to water maintenance will result in poor and potentially harmful conditions for soaking and even damage to your hot tub investment.

CAUTION: Never store hot tub chemicals inside the hot tub's equipment enclosure.

Two basic goals of the chemical water treatment are sanitizing and balancing the water. Sanitizing simply means keeping the water free from living microorganisms including algae, bacteria and viruses. The current most popular chemicals for sanitizing include chlorine, bromine and ozone. Balancing water means establishing a balance among pH, total alkalinity and total hardness. Water that is unbalanced can corrode the spa and it's support equipment or leave deposits of minerals. Properly balanced water is essential to allow the sanitizing chemical to work effectively. There are numerous chemical additives to help you in controlling pH, total hardness and total alkalinity. NEVER use softened water when filling your spa. Softened water is extremely corrosive to the metal parts of the spa equipment and may lead to an unforeseen failure.

Sanitizing

To destroy bacteria and organic compounds in the hot tub water, a sanitizer must be used regularly, either chlorine or bromine. Bromine residual of 2 to 3 ppm is generally considered desirable. A two-part bromine system or granular chlorine (Dichlor) can also be acceptable sanitizers. Chlorine residual should be 1 to 3 ppm.

IMPORTANT: Do not use Hydrogen Peroxide based sanitizers in your spa. When using Trichlor chlorine or Bromine tablets you must use a floating dispenser. These chemicals can have an extremely corrosive effect on certain materials in the spa. Damage caused by use of these chemicals, or improper use of any chemicals, is not covered under the spa's warranty.

pH Control

pH is a measure of relative acidity or alkalinity of water and is measured on a scale of 0 to 14. The midpoint of 7 is said to be neutral, below which is acidic and above which is alkaline. In hot tub water, it is ideal to keep the water between 7.2 to 7.8. A low pH will be corrosive to metals in the hot tub equipment. A high pH will cause minerals to deposit on the interior surface (scaling). In addition, the ability of the sanitation agents to keep the hot tub clean is severely affected as the pH moves beyond the ideal range. That is why almost all hot tub water test kits contain a measure for pH as well as sanitizer.

IMPORTANT: Heater and other component failure due to improperly maintained pH or Total Alkalinity is not covered under warranty.

Other Additives

Their are many other additives are available for your spa. Some are necessary to compensate for out-of-balance water, some aid in cosmetic water treatment and others simply alter the feel or smell of the water. In many cases if the water chemistry gets to far off, it is easier to drain and refill the spa then add lots of expensive chemicals to try to fix it.

Ozonator (If Equipped)

All Futura spas are factory prepared to accommodate an ozonator. The Futura Spas Corona Discharge Ozonator is regarded as the most advanced system on the market reducing chemical consumption and maintaining clearer, cleaner water. The Corona Discharge Ozonator runs when ever the spa is in the filtration cycle. Continuous use of an ozonator can dramatically reduce sanitizer consumption.

The ozonator will automatically activate when the spa enters its filtration mode or when the spa is heating. When the ozonator is active you will be able to notice a very faint blue light coming from the clear tube attached to the ozonator. The ozonator has a finite life and will need to be replaced after several years.

Draining & Winterizing Your Spa

After a certain time, you may find that the addition of chemicals will not clarify or eliminate odors in the spa. This is an indication that the water needs to be drained and replaced. Generally, depending upon bather load and water chemistry maintenance, this may need done every 3 months. With the use of ozone as the sanitizing agent, it is found that the water needs changed less frequently. Draining of a Futura Spa requires creating a siphon with your garden hose.

1. Turn off all power to the spa.
2. Hook-up garden hose to an exterior spigot on the house.
3. Place other end of garden hose into the bottom of the spa.
4. Turn on the garden hose allowing water to fill into the spa.
5. After several minutes, after all the air has been pushed out of the garden hose turn the water off and disconnect the hose from the house spigot.
6. Keep the garden hose below the spa and a siphon will start

Once the spa is empty, clean the interior surfaces with a product designed for cleaning the acrylic suffice and a soft towel. Do not use soaps or detergents as they will cause the fresh spa water to foam. Refill and restart the spa.

If your spa is to be used during the winter months in cold climate where the danger of freezing exists, certain precautions should be taken to avoid damage. An increased circulation cycle, and use of a rigid foam cover are suggested. Contact your dealer for advice. Many spa owners find that outdoor wintertime soaking is quite enjoyable, and we certainly suggest the use of a spa year-round, although certain situations do require closing the unit for the winter months (i.e., vacation homes). The only way to guarantee against freeze damage is to keep the spa powered on and running. If you must drain the spa for the winter follow these steps:

1. Drain the hot tub entirely.
2. Remove and clean the cartridge filter element
3. Using a wet/dry utility vacuum, remove remaining water from the jet openings, filter cartridge housing, and footwell.
4. Either pour or use a turkey-baster where necessary to add potable biodegradable RV antifreeze to areas such as pump wet end, jets and filter housing. DO NOT USE AUTOMOTIVE ANTIFREEZE.
5. Turn pump on for only a few seconds to circulate the antifreeze.
6. Unthread and disconnect all unions in the support equipment area. Remove lowest winter drain plug on pump face plate. Repeat for all pumps, where applicable.
7. Cover exposed plumbing connections with plastic bags and duct tape.
8. Where practical, disconnect hot tub support equipment and store in a dry heated area.
9. Install the safety hardcover, and cover the entire hot tub with a tarp to prevent premature weathering of the cabinet and the safety hard cover.
10. Remove snow build up regularly to prevent damage to the safety hard cover.

IMPORTANT: mixing potable biodegradable RV antifreeze with water significantly reduces its ability to protect against freezing. Therefore, it is very important ALL water is removed from the hot tub plumbing before adding.

Headrest/ Pillow Care

Pillows are attached to the spa with a plastic pin. They are not designed to be removed regularly. Pillows are inflatable with a standard sports ball inflation needle and a pump. If a pillow comes off of the spa reinsert the pillow into the receiver on the spa. If the pillow keeps coming off deflate it slightly. Pillows can be locked into place permanently by applying a small amount of clear 100% silicon sealant to the back of the pillow.

- Do not sit on pillows.
- Do not pull on pillows.
- Proper water chemistry must be maintained. Excessive levels of chlorine, bromine or ozone may damage your pillows.
- Pillows should be washed when you drain your spa with a mild soap and then wiped with conditioner.
- When you shock your spa, prop up your cover for a minimum of thirty minutes so excess gases may escape out of spa.
- Please be advised that pillows are not a warranty item.

Safety Hard Cover

When a hot tub is uncovered, over 90% of heat is lost from the water surface. Safety Hard Covers are designed for maximum thermal efficiency. They are hinged in the middle for easier handling, and the zip fastener allows the tapered foam inserts to be changed if damaged. The skirt of the safety hard cover hangs over lip of the spa to protect the acrylic. The locks, with one part fastened to the cabinet, prevent small children or animals from entering the hot tub. Do not drag the safety hard cover across the hot tub or decking. Fold the cover first, then lift by the handles. Safety Hard Covers are not designed to be stood or sat on. Standing on the hard-cover could cause the foam inserts to crack, which will lead to water absorption.

NEVER SIT, LEAN OR STAND ON YOUR HARDCOVER.

Clean the Safety Hard Cover as needed with a cover cleaning product or saddle soap. Never use cleaning products designed for the automotive or boating industry on a spa cover.

Troubleshooting

A good general rule is to visually inspect your spa and equipment area frequently. If anything looks broken, worn, or incorrect, contact your electrician or spa dealer. A simple repair may prevent an injury or more serious problems requiring expensive repairs. If your spa is not operating, check the following:

All equipment does not operate

- Check power source G.F.C.I. breaker.
- Check to assure spa has dedicated circuit.
- Check the “test” and “reset” buttons on G.F.C.I.
- Check internal fuses.

Pump does not work

- Check all items above.
- Check filter; clean or replace cartridge.
- Check for blockages (restrictions) at suctions, skimmer and pump basket.
- Push “jet” button to check if high speed is functioning on a dual-speed pump.
- Check if pump is plugged into spa pack
- Check for air lock (pump needs prime)

Inadequate jet action

- Make sure jets are turned on.
- Make sure air controls are open.
- Check for restrictions (blockages) in jets and/or main skimmer and pump basket.
- Check water level.
- Push “jet” button to check if high speed is functioning on a dual-speed pump.
- Check to be sure the optional Turbo diverter jet is in proper position.

No heat

- Check all steps under part “1.”
- Check for clogged filter element and other restrictions..
- Check water level.

• Check if pump is running.

No light
• Check “light” button.
• Check G.F.C.I. “test” and “reset” buttons.
• Check if light is plugged into spa pack
• Check for burnt out bulb

Water is cloudy
• Increase filtration cycle.
• Test water chemistry.
• Clean/replace filter cartridge.
• Check ozonator is running when spa is in filtration cycle