

HOT TUB OWNER'S MANUAL



Intertek
113579
Conforms to ANSI/UL Std 1563
Certified to CSA Std C22.2 No. 218.1

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Your Owner's Manual Provides Important Safety Information.

PLEASE SAVE THESE INSTRUCTIONS.

IMPORTANT SAFETY INSTRUCTIONS

READ AND FOLLOW ALL INSTRUCTIONS.

WARNING – To reduce the risk of injury, do not permit children to use this product unless they are closely supervised at all times. Hot tub covers are equipped with clip tie-downs or snap locks. There is no representation that the cover tie-downs or snap locks will prevent access to the hot tub. Cover locks are to discourage unsupervised children from entering the hot tub and to secure cover in high-wind conditions.

WARNING – A wire connector is provided on this unit to connect a minimum 6 AWG (13 mm²) solid copper conductor between this unit and any metal equipment, metal enclosures of electrical equipment, metal water pipe, or conduit within 5 feet (1.5 m) of the unit.

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 hot tub unless they are supervised at all times.

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 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.

DANGER – Risk of Electric Shock. Install at least 5 feet (1.5 m) from all metal surfaces. As an alternative, a spa may be installed within 5 feet of metal surfaces if each metal surface is permanently connected by a minimum 6 AWG (13 mm²) solid copper conductor to the wire connector on the terminal box that is provided for this purpose.

WARNING – To reduce the risk of injury:

- The water in a hot tub 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 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 spa water temperatures to 38°C (100°F).
- Before entering a hot tub, the user should measure the water temperature with an accurate thermometer since the tolerance of water temperature-regulating devices varies.
- The use of alcohol, drugs, or medication before or during hot tub use may lead to unconsciousness with the possibility of drowning.
- Obese persons and persons with a history of heart disease, low or high blood pressure, circulatory system problems, diabetes, or any condition requiring medical treatment should consult a physician before using a hot tub.
- Persons using medication should consult a physician before using a hot tub since some medication may induce drowsiness while other medication may affect heart rate, blood pressure, and circulation.

CAUTION – Risk of Electric Shock. Do not leave compartment door open.

CAUTION – Risk of Electric Shock. Replace components only with identical components.

CAUTION – Do not operate the audio/video controls while inside the hot tub.

WARNING – Prevent Electrocutation.:

- Do not connect any auxiliary components (for example cable, additional speakers, headphones, additional audio/video components, etc.) to the system.
- These units are not provided with an outdoor antennae; when provided, it should be installed in accordance with Article 810 of the National Electrical Code, ANSI/NFPA 70.
- Do not service this product yourself as opening or removing covers may expose you to dangerous voltage or other risk of injury. Refer all servicing to qualified service personnel.
- When the power supply connections or power supply cord(s) are damaged; if water is entering the audio/video compartment or any electrical equipment compartment area; if the protective shields or barriers are showing signs of deterioration; or if there are signs of other potential damage to the unit, turn off the unit and refer servicing to a qualified service personnel.
- This unit should be subjected to periodic routine maintenance (for example, once every 3 months) to make sure that the unit is operating properly.

WARNING: CHILDREN SHOULD NOT USE SPAS OR HOT TUBS WITHOUT ADULT SUPERVISION.

WARNING: DO NOT USE SPAS OR HOT TUBS UNLESS ALL SUCTION GUARDS ARE INSTALLED TO PREVENT BODY AND HAIR ENTRAPMENT.

WARNING: PEOPLE USING MEDICATIONS AND/OR HAVING AN ADVERSE MEDICAL HISTORY SHOULD CONSULT A PHYSICIAN BEFORE USING A SPA OR HOT TUB.

WARNING: PEOPLE WITH INVECTIOUS DISEASES SHOULD NOT USA A SPA OR HOT TUB.

WARNING: TO AVOID INJURY EXERCISE CARE WHEN ENTERING OR EXITING THE SPA OR HOT TUB.

WARNING: DO NOT USE DRUGS OR ALCOHOL BEFORE OR DURING THE USE OF A SPA OR HOT TUB TO AVOID UNCONSCIOUSNESS AND POSSIBLE DROWNING.

WARNING: PREGNANT OF POSSIBLY PREGNANT WOMEN SHOULD CONSULT A PHYSICIAN BEFORE USING A SPA OR HOT TUB.

WARNING: WATER TEMPERATURE IN EXCESS OF 38°C (100°F) MAY BE INJURIOUS TO YOUR HEALTH.

WARNING: BEFORE ENTERING THE SPA OR HOT TUB MEASURE THE WATER TEMPERATURE WITH AN ACCURATE THERMOMETER.


WARNING: DO NOT USE A SPA OR HOT TUB IMMEDIATELY FOLLOWING STRENUOUS EXERCISE.

WARNING: PROLONGED IMMERSION IN A SPA OR HOT TUB MAY BE INJURIOUS TO YOUR HEALTH.

WARNING: DO NOT PERMIT ELECTRIC APPLIANCES (SUCH AS A LIGHT, TELEPHONE, RADIO, OR TELEVISION) WITHIN 1.5M (5 FT) OF THIS SPA OR HOT TUB.

IMPORTANT SAFETY INSTRUCTIONS, continued

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

- A green colored terminal or a terminal marked G, GR, Ground, Grounding, or with 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 supplying this equipment.
- 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 or spa to these terminals with an insulated or bare copper conductor not smaller than No. 6 AWG (13 mm²).
- All field-installed metal components such as rails, ladders, drains or other similar hardware within 1.5 m (5 ft) of the spa or hot tub shall be bonded to the equipment grounding bus with copper conductors not smaller than No. 6 AWG (13 mm²).

SAVE THESE INSTRUCTIONS.

WARNING: Prolonged immersion in hot water may induce hyperthermia. Hyperthermia occurs when the internal temperature of the body reaches a level several degrees above the normal body temperature of 98.6°F (37°C). The symptoms of hyperthermia include drowsiness, lethargy, and an increase in the internal temperature of the body. The effects of hyperthermia are:

1. Unawareness of impending hazard;
2. Failure to perceive heat;
3. Failure to recognize the need to exit the hot tub;
4. Physical inability to exit the hot tub;
5. Fetal damage in pregnant women;
6. Unconsciousness and danger of drowning.

WARNING: THE USE OF ALCOHOL OR DRUGS CAN GREATLY INCREASE THE RISK OF FATAL HYPERTHERMIA IN HOT TUBS OR SPAS.

CAUTION: MAINTAIN WATER CHEMISTRY IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTION.

CAUTION: TEST THE GROUND FAULT CIRCUIT INTERRUPTER BEFORE EACH USE OF THE SPA.

PROPER PLACEMENT OF YOUR HOT TUB

It is extremely important that the base on which the hot tub is placed is smooth, level, and can uniformly support the complete weight without settling or shifting. If these requirements are not met, possible damage to your cabinet or tub shell may result. Damage caused by improper support is not covered under warranty. It is the responsibility of the hot tub owner to meet these requirements and to assure the integrity of the hot tub support at all times.

We recommend a reinforced poured concrete slab that has a minimum thickness of 4 inches (10cm). If a wood deck is used, construction must comply with all local building codes.

Proper drainage around the hot tub is necessary to allow overflow, rain and other casual water to drain away from the hot tub so the equipment area does not get flooded and cause problems. Failure to do so will void warranty.

POWER INSTALLATION INSTRUCTIONS

Important Notice: The electrical installation of this tub must meet the requirements of all applicable country, state and local codes. The electrical installation must be performed by a qualified electrician and be approved by the local building/electrical inspection authority.

WARNING: DO NOT TURN ON POWER UNTIL TUB IS FILLED COMPLETELY WITH WATER!

230V/240V Service

1. NO PLUG-IN CONNECTIONS OR EXTENSION CORDS ARE TO BE USED IN CONJUNCTION WITH THE OPERATION OF THIS TUB. All wiring must be permanently connected (hard wired) to the equipment pack. Power supply that is not in accordance with these instructions will void warranty.
2. This tub requires that the power supply be on a dedicated circuit with no other electrical appliances or lights sharing the circuit that is providing power to the hot tub.
3. Do not use aluminum wiring. ALL WIRING MUST BE COPPER.
4. A suitable ground fault circuit interrupter (GFCI) as required by the local building/electrical inspection authority, must be included in the electrical circuit supplied to the hot tub.
5. Proper wire size must be used in accordance to the local building/electrical inspection authority.
6. All wires must be securely hooked up or damage could result. **TIGHTEN SECURELY!**

120V Service

1. This tub requires that the power supply be on a dedicated circuit with no other electrical appliances or lights sharing the circuit that is providing power to the hot tub.
2. Do not use aluminum wiring. ALL WIRING MUST BE COPPER.
3. A suitable ground fault circuit interrupter (GFCI) as required by the local building/electrical inspection authority, must be included in the electrical circuit supplied to the hot tub.
4. Proper wire size must be used in accordance by the local building/electrical inspection authority.

Cord Connection Option

The cord connection option is only available for 120V operation on the models rated 12/32 A. Only the manufacturer recommended power cord and GFCI should be used for cord connected installations. Plug the cord into a 120V receptacle.

POWER INSTALLATION INSTRUCTIONS, continued

Permanently connected installation instructions

Electrical installation should be performed by a qualified licensed electrician.

1. Remove cabinet service panel. The panel is secured with pan head Phillips screws.
2. Remove system controller cover.
3. If spa was manufactured with a cord.
 - a. Disconnect cord wires from terminal TB1 and ground wire from ground bar.
 - b. Loosen cord strain relief.
 - c. Remove cord.
 - d. Remove strain relief.
4. Drill hole for conduit through bottom or side of spa.
5. Secure conduit at system controller box.
6. Connect hot and neutral wires to corresponding terminals TB1. Connect ground wire to grounding bar on the outside of box by running it through hole marked for ground wire.
7. Voltage selection for North American 60 Hz systems.
 - a. 120V installation. Attach jumper to J11 and J32. A jumper wire is supplied in a bag attached to the back or side of controller. Switch DIP switch A10 to on (up).
 - b. 240V installation. Remove J11 to J32 jumper if installed. Switch DIP switch A10 to off (down).
8. Attach system controller cover.
9. Attach cabinet service panel.

WARNING: DO NOT TURN ON POWER UNTIL TUB IS FILLED COMPLETELY WITH WATER!

POWER REQUIREMENTS

Your Hot Tub is designed to provide optimum performance when connected to the maximum electrical service. The listing below will show the various options and performance levels available on your hot tub.

A new GFCI must be used for your Hot Tub installation. Do not use an existing breaker (GFCI), as its condition is unknown.

On all systems, your Hot Tub must be connected to a dedicated circuit breaker that is not shared with any other equipment.

DO NOT USE EXTENSION CORDS OF ANY KIND.

START-UP INSTRUCTIONS

1. Clean tub of all debris.
2. Use a garden hose to fill your hot tub through the empty filter canister (to avoid air pockets during filling) to the appropriate level of a minimum 2 inches (5.08cm) over the filter skimmer.
3. **DO NOT USE WATER THROUGH A WATER SOFTENER.**
4. Locate the shut-off T-valves. Make sure they are in the up or open position.
5. Check heater and pump unions. Occasionally during shipping these become loosened. A simple tightening of these (if necessary) will do, being careful not to over tighten.
6. Once water has reached correct level, turn power on to the hot tub.
7. To activate jets and to purge air from the pump, press/push jet button located on the top side control. A second press/push will put the pump on high speed. Repeat this process until water flows from the jets. When the jets are working, set the pump to low speed.
8. Some start-up chemicals will be needed; please see your dealer for recommendations.
9. Set the temperature located on the top side control to the desired setting. The heater will shut off when the water temperature reaches the set temperature.
10. Place the hot tub cover on tub. Keeping the cover on the hot tub when the tub is not in use will help minimize operating costs.
11. The time it will take for the water temperature to reach the desired setting will vary.

OPERATING INSTRUCTIONS

Air Control(s):

Your hot tub has at least one air control. This air control allows air to mix with the water that streams out of your jets. Each air control is responsible for a section of jets or a whirlpool diverter jet. In order for the air control to have any effect the jet(s) that it controls must be on and have water flow.

Topside Control Pad:

Your hot tub is equipped with an electronic topside control pad. The topside control pad will allow you to control the speed of the pump, the light, and the temperature setting, as well as some programming options. Familiarize yourself with the topside control by viewing the Operation Guide in this manual.

Deluxe L.E.D. Lighting System:

This L.E.D. Lighting System consists of individual light nodes that are in coordination with the L.E.D. light housed in the light lens within the vessel of the spa. The light varies in color and function by pressing the light button. To turn on the system simply press the light button once. To turn it off, repress the light button. To change the color or light function just press the light button once, press it one more time to shut it off and then after 3-5 seconds press it one more time. To turn it off, press it once more.

PermaWood®

Maintenance for PermaWood® is to use mild soap and water. Some strong household cleaners/solvents can cause damage/fading to the surface of the cabinet. All cleaners should be tested on an out-of-the-way section of cabinet before cleaning.

PermaShell®

PermaShell® cleans very easy because of its durable poly material. A spray cleaner that is low in "suds" and is applied then wiped off will most of the time be sufficient. With stubborn stains or marks, a "soft" scrub cleaner with very low abrasion (elements) will help when used with a non-abrasive cleaning pad.

Cover or Hot Tub Lid

See manufacturer's warranty and maintenance procedures.

When using a spa or hot tub "shock" water treatment, the cover must be removed for 30 minutes. Failure to remove cover may cause damage to cover.

Filters

Periodic filter maintenance is required in order to maintain proper hot tub

water quality and performance of equipment supplied with this hot tub. The manufacturer recommends cleaning your filters with high pressure water flow once a week. Once a month it is recommended that filters be soaked in a quality filter cleaning solution before high pressure spraying of the filter cartridge is applied.

Water Quality

It is important to maintain proper water quality to keep your hot tub and equipment in excellent condition. Please consult your Spa and Pool Professional on how to maintain proper water quality. If your spa is equipped with an Ozone Generator it will produce ozone only when the hot tub is running on low speed, but it cannot be used as the sole means to maintaining safe spa water.

Sanitation

Sanitizers are intended to kill bacteria and keep water clean.

We recommends Di-Chlor Granular Chlorine as a sanitizer. You will need to decide which chemical sanitizer you wish to use. Please consult with your spa retailer for what is available and its proper use. Spa owners with the ozonator still need to use a chemical sanitizer.

WARNING: The improper use of any sanitizer or sanitizing system including Di-Chlor Granular Chlorine could negate your warranty. The improper use of Bromine can potentially damage (fading) the shell of your hot tub. Failure to maintain water quality could also negate your warranty.

WINTERIZING YOUR HOT TUB

While we feel that some of the best times to use your spa can be during the colder months, we understand that there can be a need for some owners to close their tubs during the winter months.

We feel that winterization should be left to the professionals, but if done carefully using the following instructions your risk of damage from freezing can be minimized. Please note, we do not warrant against freezing damage in a tub that has been winterized, either by the owner or by a professional service center.

Things that will be needed:

- 2 gallons of NON-TOXIC (R-V type) antifreeze
- a strong wet/dry vacuum (shop vac)
- a turkey-baster
- 1 or 2 light plastic bowls approximately 5" diameter
- TIME approx. 2 hours

Instructions

1. Drain your tub. Inside the equipment room there is a spigot for a garden hose. It is attached to a clear vinyl hose near the main control box.
2. With the wet-vac remove any water remaining in the foot-well. Then with each jet in the open position, vacuum each jet nozzle until no more water comes out. **DO NOT FORGET** the small ozone jet in the foot-well.
3. With the vacuum over the whirlpool jet nozzle(s) and plastic bowls over the suction covers in the footwell, change it to each diverter position until there is no more water being drawn out.
4. Remove your filter, clean it and place in storage until you restart your tub. Pour NON-TOXIC antifreeze into the filter canister until it runs out into the foot-well of your tub through the suction covers.
5. With the turkey-baster, squirt a small amount of NON-TOXIC antifreeze into each jet. Usually the side jets will take around one ounce, and the

whirlpool jet(s) will take several ounces (about 5 squirts per whirlpool jet). **DO NOT FORGET** the small ozone jet that is located in the foot-well of your tub.

6. Place the cover on the tub, and place a tarp over the tub and cover. Making sure to securely tie down the tarp. The tarp will help reduce the amount of weather your tub is exposed to.

A couple of things you should be aware of:

When a tub is drained and left empty, o-rings and pump seals can dry out and lose their ability to seal properly. You should closely inspect for small leaks in the equipment area when you do your restart. If you are unsure of the location of the o-rings and pump seal, contact your dealer for help. If replaced early the damage caused by these failures can be inexpensive to fix.

Re-start up:

When restarting your tub, you will want to fill the tub and run all of the jets on high speed for 10-15 minutes. This will help flush the residue of the antifreeze out of the plumbing. Then drain the tub, clean the sides with an approved cleaner, place your filter back into the filter canister, re-fill your tub and balance your chemicals. You may notice slightly more foaming than normal when you first start using your tub, this can be reduced with anti-foaming agents and generally gets better over the first week or two of usage as the filter removes the anti-freeze and organic residue left behind after rinsing and cleaning.

Make sure you check your filter at least once per week and rinse it out as needed for the first few weeks. You may also find it necessary to soak your filter in a filter cleaner after a few days, depending on the level of contaminant left in the tub after the re-start.

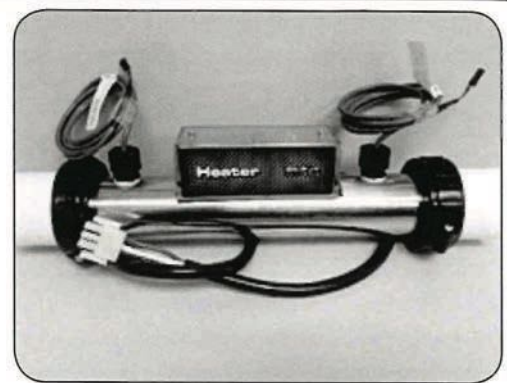
ELECTRONIC EQUIPMENT



Spa Pack (VS100)

MODEL

C110
C310
C410
C510
C610

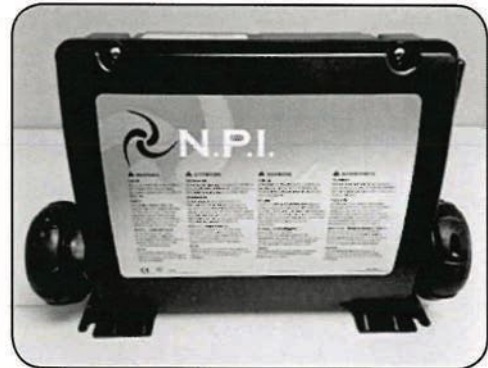


Heater (VS100)

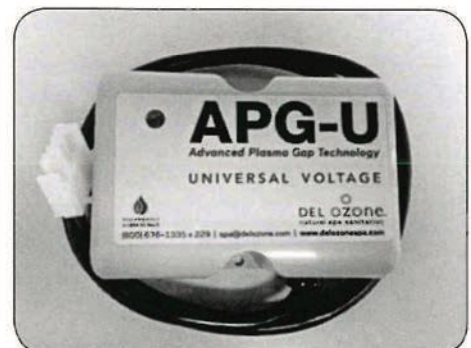
MODEL

C220 LED
C500 LED
C650 LED
C850 LED

Spa Pack with Heater (VS300 / VS 500)



Pump with Motor (may vary per model)



Ozone Generator

COMMON EQUIPMENT PROBLEMS AND SOLUTIONS

Symptoms

1. No jet action (air lock)

2. GFCI keeps tripping

3. Water in equipment area

4. Only a portion of the jets work

Solutions

- Shut-off T-valves must be in the up position.
Loosen pump/motor unions to allow air out.
-
- New install: incorrect GFCI wiring.
-
- Check: drain cap, equipment pump/motor unions, pump drain plug.
-
- Check that individual jets are open.
-

Note: If problem persists after performing the suggested solutions, contact your Dealer to assist in resolving the problem. Any other problems not listed above, contact your Dealer.

COMMON WATER PROBLEMS AND SOLUTIONS

Problem	Cause	Solutions
Calcium deposits on shell surface	<ul style="list-style-type: none"> • Hard water. • pH, total alkalinity not in balance. 	Clean with a non-abrasive Hot Tub surface cleaner. Test water, adjust pH as needed. Add a stain and scale control chemical.
Cloudy water	<ul style="list-style-type: none"> • pH, total alkalinity not in balance. • Damaged or dirty filter. • Addition of incompatible chemicals. • Low chlorine level. • Buildup of oils, soap, foreign matter. 	Add a water clarifier. Circulate for a minimum of 30 minutes. After water has cleared, clean filter cartridge with a filter cleaner or replace if necessary. Test chlorine and pH levels, adjust if necessary. Change water.
Colored water	<ul style="list-style-type: none"> • Copper or iron metals in Hot Tub due to water supply or corrosion of heater. • Total alkalinity, pH are low. 	Add an iron/stain and scale remover. Test pH, adjust if necessary.
Excessive Foam	<ul style="list-style-type: none"> • pH, total alkalinity not in balance. • Low calcium hardness. • Inadequate oxidation. • Addition of incompatible chemicals. • Buildup of body oils and/or contaminants. 	Add an anti-foam agent. Add shock. Adjust chlorine level. Test pH, adjust if necessary. Take water sample to dealer to check total alkalinity and calcium hardness. Change water.
Eye and skin irritation	<ul style="list-style-type: none"> • pH, total alkalinity not in balance. • Inadequate chlorine level. • Addition of incompatible chemicals. 	Test pH and chlorine levels, adjust if necessary.
Odor	<ul style="list-style-type: none"> • Inadequate ventilation. • Addition of incompatible chemicals. • Insufficient oxidation. • Inadequate cleaning of cover. • Low pH. • Chemical overdose. 	Test pH and chlorine levels, adjust if necessary. Clean with non-abrasive Hot Tub surface cleaner. Clean the underside of the cover with a cover cleaner or mild soap and warm water.
Waterline deposits & staining	<ul style="list-style-type: none"> • Buildup of body oils, impurities. • Use of clarifying agents with ozone. • Hard water (minerals in water). 	Test pH and chlorine levels, adjust if necessary. Clean with a non-abrasive Hot Tub surface cleaner. Add a scale/stain control chemical. Take water sample to your dealer.

ONE PUMP OPERATION GUIDE

For systems with Software v41 only

Initial Start-up

Your spa will enter Priming Mode (Pr) when it is energized. **During Priming Mode, press "Jets" button repeatedly and be sure the pump is free of air.** Priming Mode lasts less than 5 minutes. Press "Warm" to exit. After priming Mode, the spa will run in Standard Mode (see Mode section).



Temp Control (80° F - 104° F / 26° C - 40° C)

The last measured water temperature is constantly displayed. The water temperature displayed is currently only when the pump has been running for at least 1 minute. To display the set temperature, press "Warm" or "Cool" once. To change the set temperature, press a temperature button again before the display stops flashing. Each press of "Warm" or "Cool" will adjust the set temperature. After three seconds, the display will stop flashing and begin to display the current spa temperature.

Jets

Press "Jets" to turn the pump on or off, and to shift between low and high speeds. If left running, the pump will turn off after a preset length of time of 2 hours for low speed and 15 minutes for high speed. Low speed may run automatically at times, during which it cannot be deactivated from the panel, but high speed may be operated. The ozone generator will activate anytime low speed is running.

Pump 1 low-speed is responsible for heating and filtration and will be referred to simply as the pump.

In multi-button sequences, if the buttons are pressed too quickly in sequence, they may not register.

Low speed pump will run every 30 minutes from 2 to 5 minutes to check the tubs water.

Preset Filter Cycles

The first preset filter cycle begins 6 minutes after the spa is energized.

The second preset filter cycle begins 12 hours later. Filter duration is programmable for 1, 2, 3, 4, 5, 6, 7, or 8 hours. The default filter time is 1 hour. To program, press "Warm" then "Jets." Press "Warm or Cool" to adjust. Press "Jets" to exit programming.

Light

Press "Light" to operate the spa light. Turns off after 4 hours.

TWO PUMP OPERATION GUIDE



Temp Control (80° F - 104° F / 26° C - 40° C)

The last measured water temperature is constantly displayed. The water temperature displayed is current only when the pump has been running for at least 2 minutes. To display the set temperature, press "Warm" or "Cool" once. To change the set temperature, press a temperature button again before the display stops flashing. After three seconds, the display will stop flashing and begin to display the current spa temperature.

Jets 1

Press "Jets 1" to turn pump 1 on or off, and to shift between low and high speeds. The low-speed will turn off after 4 hours. High-speed will turn off after 15 minutes. Low speed may run automatically at times, during which it cannot be deactivated from the panel, but high speed may be operated.

Jets 2

Press "Jets 2" to turn pump 2 on or off, and to shift between low and high speeds. The device will turn off after 15 minutes.

Light

Press "Light" to operate the spa light. Turns off after 4 hours.

Mode

Mode is changed by pressing "Warm" or "Cool," then pressing "Mode."

Standard Mode maintains set temperature. Std will be displayed momentarily when you switch into Standard Mode.

Economy Mode heats the spa to the set temperature only during filter cycles. Ecn will display when water temp is not current, and will alternate with water temp when the pump is running.

Sleep Mode heats the spa to within 20 degrees F/10 degrees C of the set temperature only during the filter cycles. SLP will display when water temp is not current, and will alternate with water temp when the pump is running.

Preset Filter Cycles

The first preset filter cycle begins 6 minutes after the spa is energized. The second preset filter cycle begins 12 hours later. Filter duration is programmable for 2, 4, 6, or 8 hours or for continuous filtration (indicated by FILC). The default filter time is 2 hours. To program, press "Warm" or "Cool," then "Jets 1." Press "Warm" or "Cool" to adjust. Press "Jets 1" to exit programming. Low-speed pump1 and the ozone generator (if installed) run during filtration.

DIAGNOSTIC MESSAGES

Message

1 Pump	2 Pump	<u>Meaning</u>	<u>Action Required</u>
		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 current water temperature will be displayed.
HH	OHH	"Overheat" - The spa has shut down.* One of the sensors has detected 118°F/47.8°C 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	OHS	"Overheat" - The spa has shut down.* One of the sensors has detected that the spa water is 110°F/43.5°C.	DO NOT ENTER THE WATER. Remove the spa cover and allow water to cool. At 107°F/41.7°C, the spa should automatically reset. If spa does not reset, shut off the power to the spa and call your dealer or service organization.
SA	S _n A	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 condition.)
Sb	S _n b	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 condition.)
S _n	S _n S	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	HFL	A significant difference between temperature sensors has been detected. This could indicate a flow problem.	If the water level is normal, make sure all pumps have been primed. If problem persists, contact your dealer or service organization.
LF		Persistent low flow problems. (Displays on the fifth occurrence of message within 24 hours.) Heater is shut down, but other spa functions continue to run normally.	Follow action required for 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.	If water level is normal, make sure all pumps have been primed. Press any button to reset. This message will reset within 15 minutes. If problem persists, contact your dealer or service organization.
dY	d _n Y	Inadequate water detected in heater. (Displays on third occurrence of message.) Spa is shut down.*	Follow action required for message. Spa will not automatically reset. Press any button to reset manually.
IC	ICE	"Ice" - Potential freeze condition detected.	No action required. All equipment will automatically activate regardless of spa status. The equipment stays on 4 minutes after the sensors detect that the spa temperature has risen to 45°F/7.2°C or higher. An optional freeze sensor may be added to protect against extraordinary freeze conditions. Auxiliary freeze sensor protection is advisable in colder climates. See your dealer for details.

* NOTE - Even when spa is shut down, some equipment will turn on if freeze protection is needed.

Warning! Shock Hazard! No User Serviceable Parts.

Do not attempt service of this control system. Contact your dealer or service organization for assistance. Follow all owner's manual power connection instructions. Installation must be performed by a licensed electrician and all grounding connections must be properly installed.



HOT TUB WARRANTY REGISTRATION

TWO WAYS TO REGISTER YOUR HOT TUB:

Option 1: Online at www.nordichottubs.com

Option 2: Fill out form below, remove this sheet from the manual and mail your registration in an envelope to:

NPI / HOT TUBS
4655 PATTERSON AVE SE
GRAND RAPIDS MI 49512-5337



HOT TUB WARRANTY REGISTRATION

Model _____ Shell Color _____ Delivery Date _____

Serial Number _____ (Located in the equipment room and outside warning label)

OWNER INFORMATION

Name _____

Address _____

City _____ State / Province _____ Zip Code _____

Country _____ Phone Number _____
(Please include international & area codes)

Email _____

DEALER INFORMATION

Name _____ Installation Location _____

Address _____

City _____ State / Province _____ Zip Code _____

Country _____ Phone Number _____
(Please include international & area codes)

Email _____

I have read the Warranties and accept the terms there stated.

Owner's Signature

Date