

# HYDRO SPA®

*Mark III*  
Mark Of Excellence



**CE**

**Export Owner's Manual**

Hydro Spa Inc., Congratulates you on your decision to buy a Hydro Spa. A Hydro Spa has the rare ability to be many things to many people; a centerpiece of quality time spent with family and friends; and a therapeutic center for sore muscles.



## Owner's Manual

This Owner's Manual will acquaint you with the operation and general maintenance of your new Hydro Spa Mark III. Please keep this manual available for reference.

If you have any questions about any aspect of your spa's set up procedures, operation or maintenance, contact your authorized Hydro Spa dealer or Technical Support at Hydro Spa 1-877-BEST-SPA.

**IMPORTANT:** Hydro Spa Inc., Reserves the right to change specifications, or design, without notification and without incurring any obligation.



Date Purchased: \_\_\_\_\_

Date Installed: \_\_\_\_\_

Dealer Name: \_\_\_\_\_

Dealer Address: \_\_\_\_\_

Dealer Telephone: \_\_\_\_\_

Spa Model and Serial Number: \_\_\_\_\_

**13055 49th St. N.  
Clearwater, FL 33762  
1-877-BEST-SPA  
727 573-9611 Fax 727 573-7758**

Part # 7531

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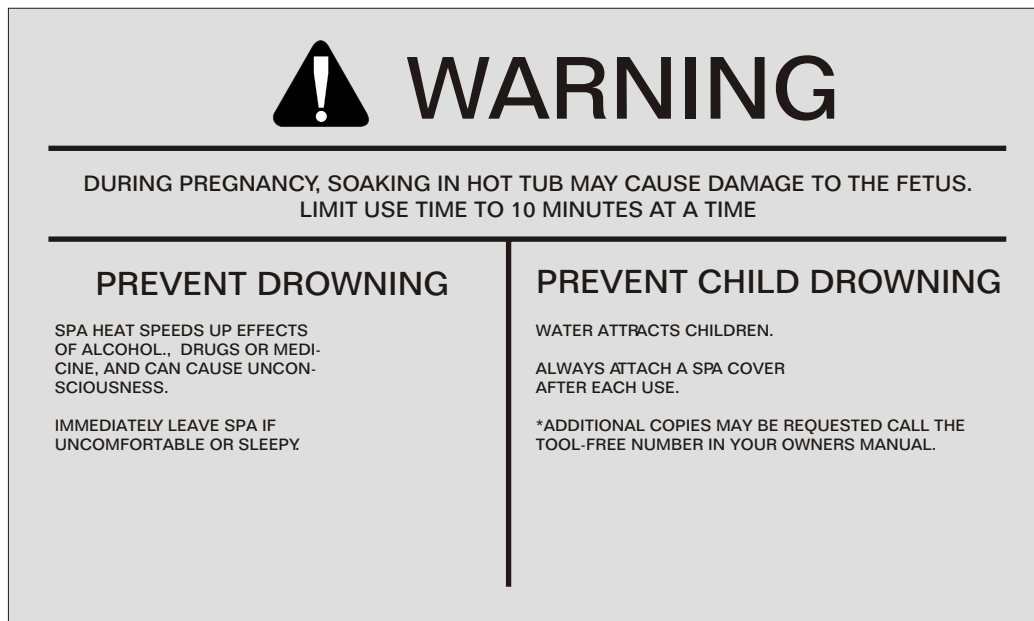
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# IMPORTANT SAFETY INSTRUCTIONS

When installing your spa and using this equipment, basic safety precautions should always be followed, to include the following:

- **READ AND FOLLOW ALL INSTRUCTIONS!** The following instructions are required by UL 1583 standard to be printed as a condition of their listing this product. They contain important safety information we strongly urge you to read and apply.
- **DANGER - TO REDUCE THE RISK OF INJURY:** Do not permit children to use spa unless they are closely supervised at all times.



## WARNING SIGN MUST BE POSTED

The WARNING sign (RED) above is packed with your new Hydro Spa. This sign must be posted in a prominent place in close proximity to the spa installation site immediately upon completion of spa installation.

- **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. If you did not receive a warning sign or your sign has become damaged, please contact your spa dealer or manufacturer.
- **DANGER** - A wire connector is provided on this unit to connect a minimum No. 8 AWG (8.4mm<sup>2</sup>) solid copper conductor between unit and any metal equipment, metal inclosures of electrical equipment, metal water pipe, or conduit, if that item is located within 5 feet (1.5m) of the unit.
- **DANGER - RISK OF ACCIDENTAL DROWNING:** Extreme Caution must be exercised at all times, to prevent unauthorized access by children. To avoid accidents, ensure that children cannot use spa unless they are supervised at all times. Cover spa and use safety locks to prevent accidents.

## IMPORTANT SAFETY INSTRUCTIONS

- **DANGER - TO REDUCE THE RISK OF INJURY:** The suction fittings in the spa are sized to match the specific water flow created by the pump/pumps. Should the need arise to replace the suction fittings or the pump/pumps, be sure that the flow rates are compatible.
- **DANGER - RISK OF ELECTRICAL SHOCK:** Install at least 5 feet (1.5m) from all metal surfaces. As an alternative, a spa may be installed within 5 feet (1.5m) of metal surfaces if each metal surface is permanently connected by a minimum No. 8 AWG (8.4mm<sup>2</sup>) solid copper conductor to the wire connector on the terminal box that is proved for this purpose. Do not permit any electrical appliance, such as a light, telephone, radio or television within 5 feet (1.5m) of the spa, unless factory installed.
- Position spa to provide proper drainage of the compartment for electrical components.
- For floor recessed spas, install to permit access for servicing from above or below floor.
- **NEVER USE AN EXTENSION CORD!**
- Consideration should be taken for water splash out. Water can ruin wood floors and some finishes.
- **DO NOT** use a wall switch, ground fault circuit interrupter, circuit breaker, fuse, or plugging and unplugging the spa as a means of turning on or off your spa for normal everyday use.
- **DO NOT** block access door.
- Set the spa on a firm level (flat) surface. **DO NOT** set spa on blocks as structural damage may occur to spa.
- **WARNING -** To reduce the risk of injury. 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 young children and when spa use exceeds 10 minutes. Since excessive water temperatures have a high potential for causing fetal damage during early pregnancy, pregnant or possible pregnant women should limit water temperatures to 38° C (100° F). Before entering a spa, the user should test the water temperature with an accurate thermometer. The tolerances of water temperature-regulating devices vary. The use of alcohol, drugs, or medication before or during spa use may lead to unconsciousness with the possibility of drowning. Persons suffering from obesity, medical history or heart disease, low/high blood pressure, circulatory system problems, or diabetes, should consult a physician before using a spa. Persons using medication should consult a physician before using a spa because some medications induce drowsiness while others may affect heart rate, blood pressure and circulation.

### **HYPERTHERMIA**

Prolonged immersion in hot water may induce hyperthermia. A description of the causes, symptoms, and effects of hyperthermia are as follows:

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 include.

- Unawareness of impending hazard;
- Failure to perceive heat;
- Failure to recognize the need to exit spa;
- Physical inability to exit spa;
- Fetal damage in pregnant women; and
- Unconsciousness and danger of drowning.

## CHOOSING A LOCATION

**IMPORTANT:** Because of the combined weight of the spa, water and users, it is extremely important that the base upon which the spa rests be smooth, flat, level and capable of uniformly supporting this weight, without shifting or settling, for the entire time the spa is in place. If the spa is placed on a surface which does not meet these requirements, damage to the skirt and/or the spa shell may result. Damage caused by improper support is not covered under warranty. It is the responsibility of the spa owner to assure the integrity of the support at all times. It is strongly recommended that a qualified licenced contractor prepare foundation for your spa.

Manufacturer recommends a poured, reinforced concrete slab with a minimum thickness of 4 inches (10cm). Wood decking is also acceptable provided it is constructed so that it meets the requirements outlined above. The spa must be installed in such a manner as to provide drainage away from the spa. Placing the spa in a depression without provisions for proper drainage could allow rain, overflow and other casual water to flood the equipment and create a wet deck. Install so as to permit access to the equipment, either from above or below, for servicing. Make certain that there are no obstruction which would prevent removal of the cabinet side panels and access to the jets components, especially on the side with the equipment bay doors.

### Outdoor Location

In selecting the ideal outdoor location for your spa, we suggest that you take into consideration:

1. The proximity to changing area and shelter (especially in colder weather conditions).
2. The pathway to and from the spa (free of debris, dirt, leaves as not to be tracked into spa).
3. The closeness to trees and shrubbery (leaves and birds could create extra work).
4. A sheltered environment (less wind, weather exposure resulting in lowered operation and maintenance costs).
5. The overall enhancement of your environment. It is preferable not to place the spa under an unguttered roof overhang since run-off water will shorten the life expectancy of spa cover.

### Indoor Location

Be sure your spa will fit into the space you have chosen. Proper access into the home is needed to move the spa into place. Ventilation may be needed because of the humidity from the spa. In most cases, a spa cover is sufficient. Be sure to check the load carrying capabilities of the floor you will be installing your spa, as most homes meet the requirement of 80lbs per square foot (manufacturer not responsible). Insure you have proper drainage in the event of a leak or water spill due to over load of spa with people causing water damage (manufacturer not responsible. Incase of maintenance problems; leave enough room around the spa to work. Choose proper flooring area for spa.

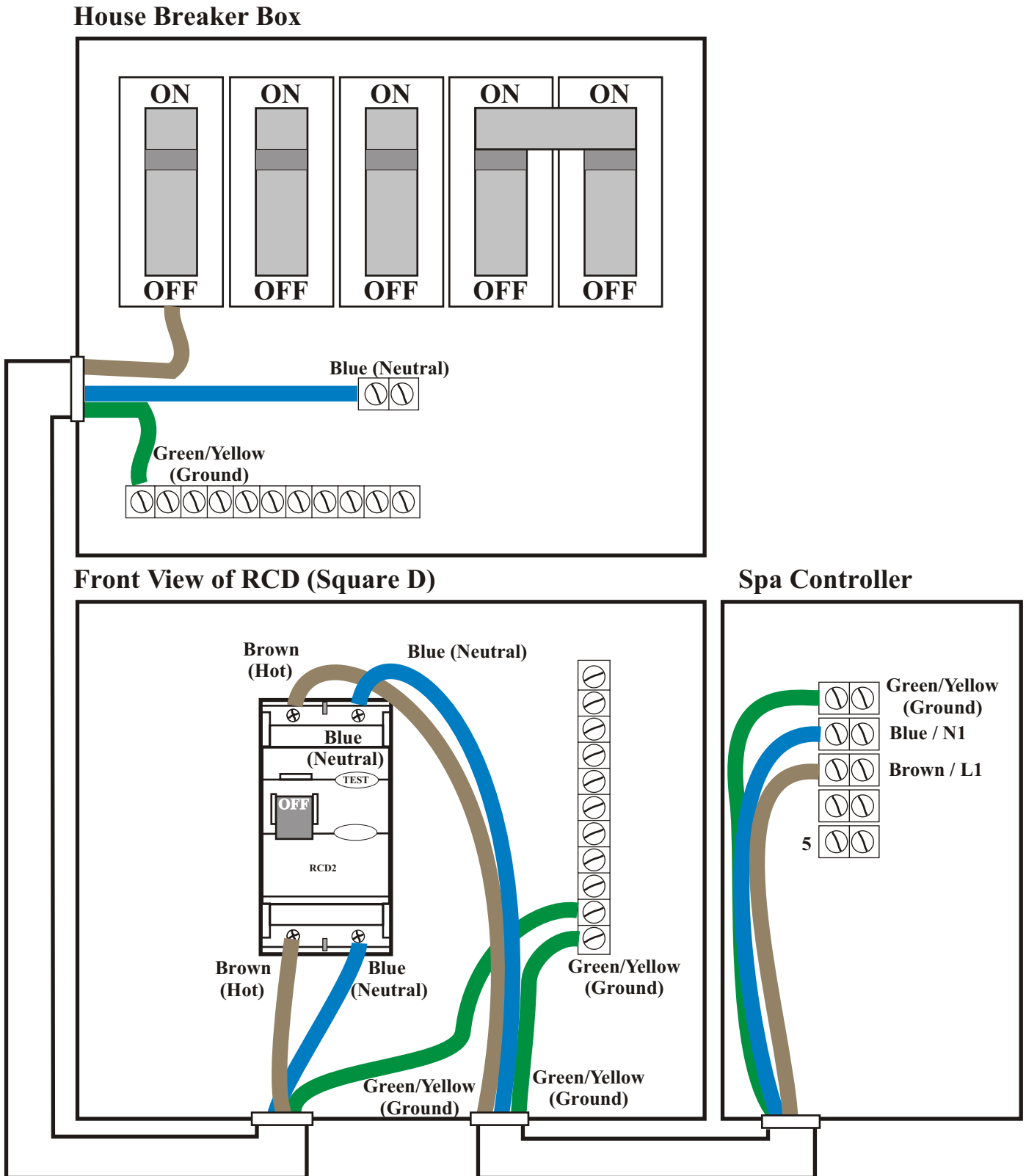
**WARNING - ALWAYS USE A CERTIFIED ELECTRICIAN WHEN HOOKING UP YOUR NEW SPA.**

## POWER REQUIREMENTS

MODEL	VOLTS	AMP DRAW	FREQUENCY	CONNECTION	APPLICATION
Millennium	220 - 240	2 x16 or 1x32	50	5 or 3 wire	HSEXP3
Omni	220 - 240	2 x16 or 1x32	50	5 or 3 wire	HSEXP3
Solaris	220 - 240	2 x16 or 1x32	50	5 or 3 wire	HSEXP3
Stratus	220 - 240	2 x16 or 1x32	50	5 or 3 wire	HSEXP3
Lexxus	220 - 240	2 x16 or 1x32	50	5 or 3 wire	HSEXP3
Tiara	220 - 240	2 x16 or 1x32	50	5 or 3 wire	HSEXP3

# POWER REQUIREMENTS

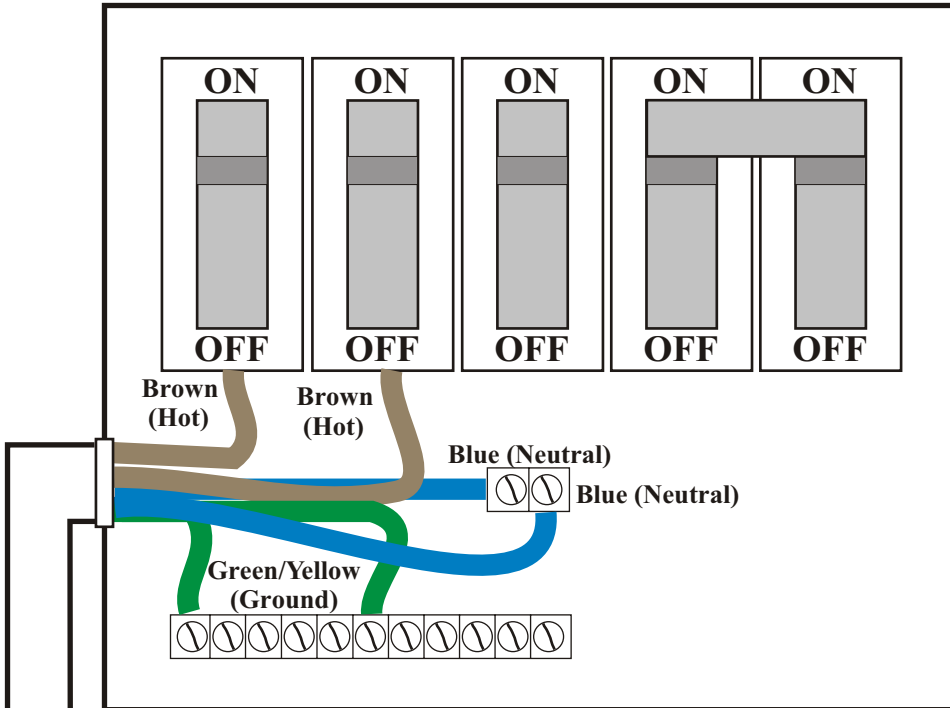
## Wiring Schematic 1 x 32 AMP (Install Jumpers A, B)



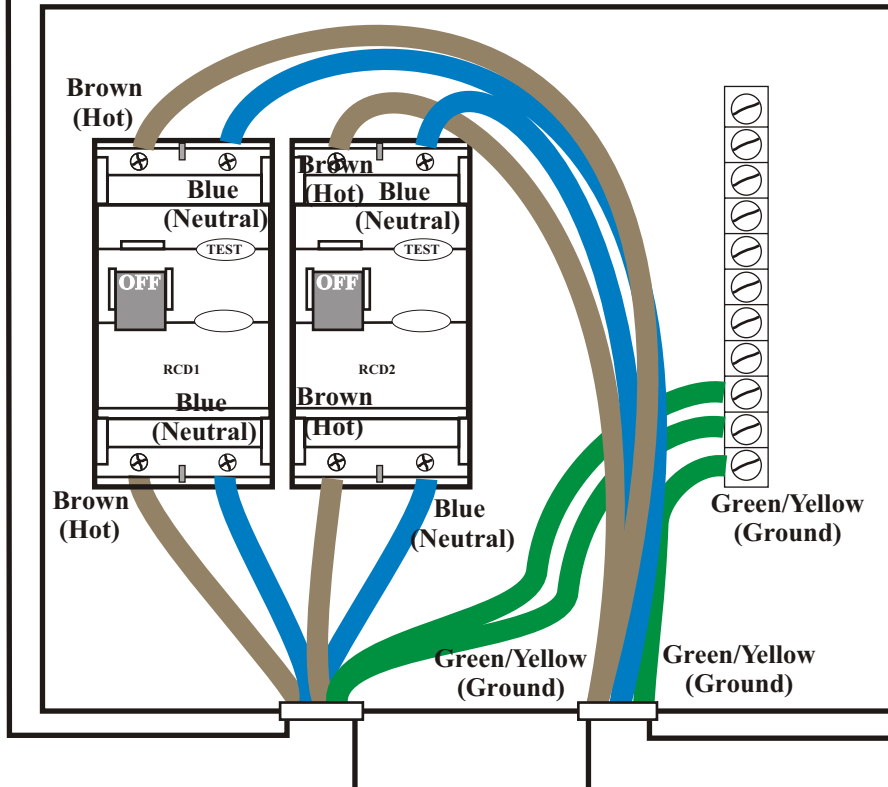
# POWER REQUIREMENTS

## Wiring Schematic 2 x 16 AMP (No Jumpers A,B)

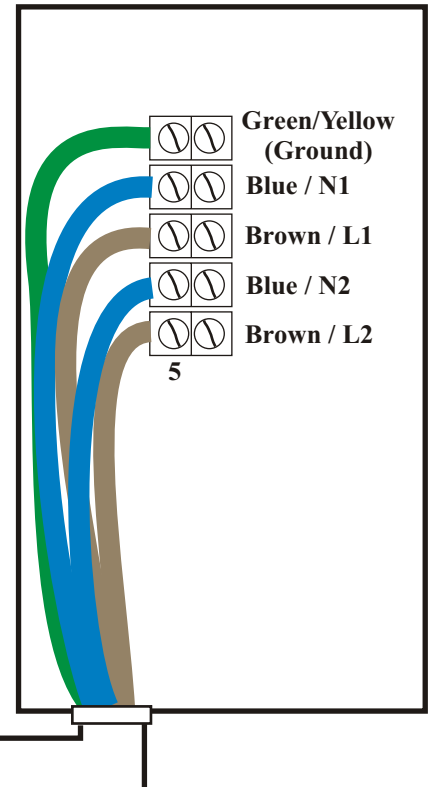
### House Breaker Box



### Front View of RCD (Square D)



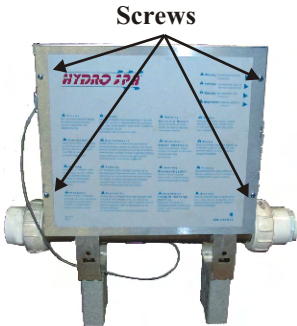
### Spa Controller



# POWER REQUIREMENTS

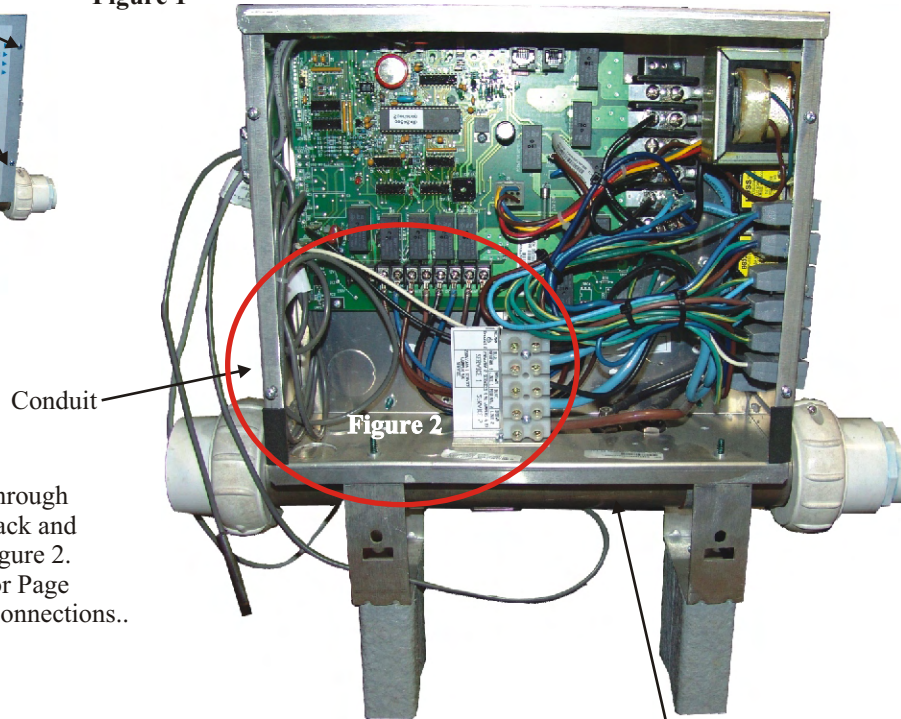
## HSEXP3 Control Equipment Pack System

Remove 4 screws from cover panel figure 1 and open carefully and put aside.



Screws

Figure 1



Conduit

Figure 2

Route the electrical wires through conduit of the equipment pack and attach wires to connector figure 2. See (Page 4 - 1 x 32 Amp or Page 5 - 2 x 16 Amp) to proper connections..

Heater Element and Tube

Pressure Switch Location



Pressure Switch Located on backside of HSEXP3 Control Equipment Pack System.

# ELECTRICAL WIRING INSTRUCTIONS

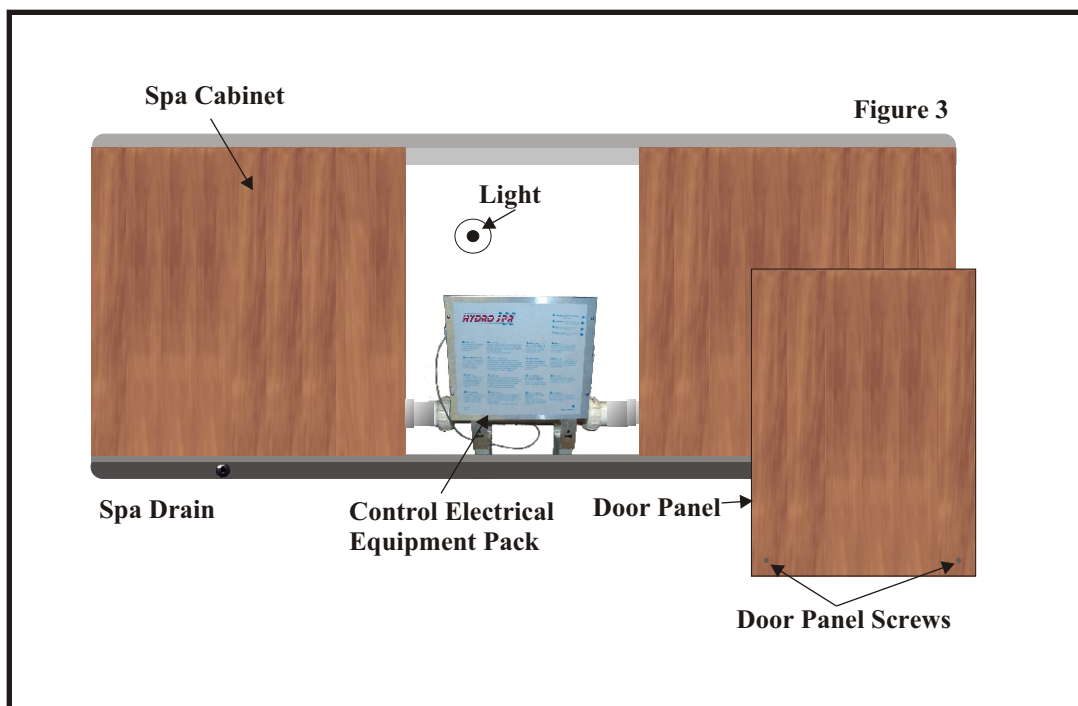
## IMPORTANT NOTICE:

1. This spa must be permanently connected (hard-wired) to the power supply. No plug-in connections or extension cords are to be used in conjunction with the operation of this spa. Supplying power to the spa which is not in accordance with these instructions will void both the independent testing agency listing and the manufacturer's warranty.
2. The power supplied to this spa must be a dedicated circuit with no other appliances or lights sharing the power provided by the circuit.
3. To determine the current and voltage and wire size required, refer to section "Power Requirements" (Pages 4-5).

Wire size must be appropriate per IEE Wiring Regulations

All wiring must be copper to ensure proper connections. Do not use aluminum wire.

4. The electrical circuit supplied for the spa must include a suitable ground fault circuit interrupter (GFCI), or RCD as required by IEE Wiring Regulations.
5. To gain access to the spa's power terminal block, remove the screws and cabinet panel setting it aside figure 3 (Page 7), then remove the securing screws from the panel figure 1, (Page 6) from the control equipment pack system.
6. Select the power supply inlet you want to use and remove the cabinet panel from the front of the spa to allow you to feed the cable through to the control box. Install the cable with connector through the conduit on figure 2, (Page 5).
7. Connect wires, color to color, on terminal blocks (Page 4 - 1 x 32 AMP) or (Page 5 - 2 x 16 AMP), TIGHTEN SECURELY! All wires must be hooked up securely or damage could result.
8. For 1 x 32 AMP service open plastic box behind of controller, pull the wire jumpers A, B. Install these jumpers according of wiring diagram. Remove these jumpers for 2 x 16AMP service.
9. Install control box door panel with screws and reinstall the cabinet side panels.



# START-UP INSTRUCTIONS

## FILLING THE SPA

Clear all debris from inside the spa. At the factory your spa shell was cleaned and polished, but you may want to treat it with a specially formulated spa cleaner available from your dealer prior to filling it for the first time.

Make sure the spa has been installed correctly, including electrical wiring connections as specified in the wiring diagram, and the spa is level.

**Do Not Over Fill.** Never fill your spa with water from a water softener, or use hot water while filling. Insure that your spa drain is shut off. Remove your filter lid and remove filter. Place your garden hose into the filter housing and begin filling with clean water see figure 4 (Page 8). With cartridge element removed fill spa using a common garden hose until 3” above filter housing. Once spa is at proper level, re-install filter cartridge and housing assembly locking it back in place replacing filter lid. Remember every person entering a spa displaces a given volume of water, so **adjust water level to number of people who will be entering spa.**

If your water is extremely “hard”, it is preferable to fill half-way with hard water and the rest of the way with softened water. Or, you may fill the entire spa with hard water if you use a special water additive available from you Hydro Spa dealer.

Always refill spa through filter housing to purge any trapped air from pump intakes. Failure to do so may cause air to be trapped in either pump #1 or the circulation pumps intake creating a (air lock), preventing either pump from circulating water. Insure both shutoff valves are fully open (see page 19). Re-install filter cartridge, filter housing assembly and lid. Make sure filter cartridge is clean before installing. See “Cleaning the Filter” for specific cleaning procedures (see page 26).



Figure 4

**Water Level 3” Above Filter Assy Housing Pillows**

## Filter Housing Assembly

Remove filter lid and rotate top filter housing counterclockwise and remove assembly. Remove filter cartridge upward, and inspect element for cleanliness.

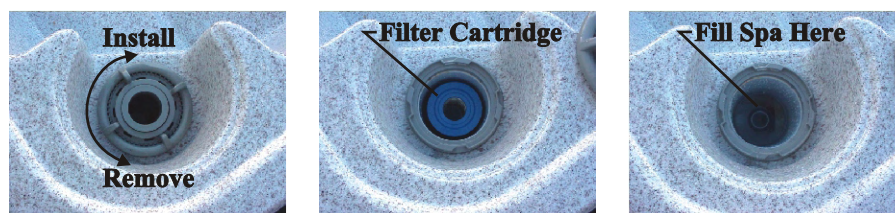


Figure 5

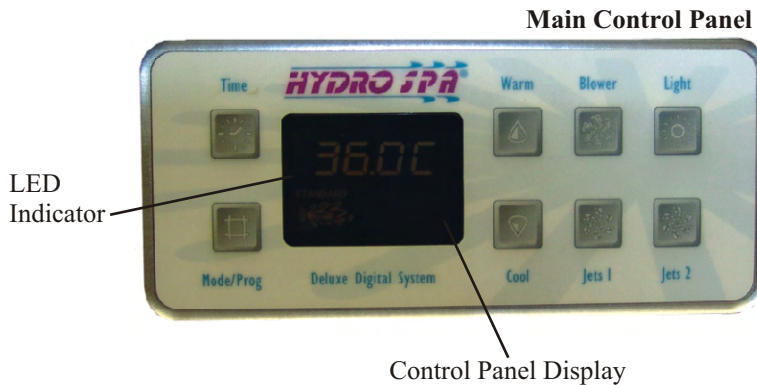
# START-UP INSTRUCTIONS

## Safety Check

Open the cabinet access door panel and check all pump unions to make sure they are hand tight. Loosening can occur during shipping and handling. Check Shut-Off Valves and insure both are open fully, otherwise your pumps will not function (Page 19)..

## Turn on Power

Turn on power to spa at the circuit breaker box. The heater and circulation pump will automatically activate. When your spa is powered up, it begins running in an economy mode. This setting is designed for periods of little or no spa use, but a 24 hour circulation pump and ozone generator constantly maintain water filtration and water quality. Press the mode pad to switch the spa to standard mode which will automatically heat and maintain the water at 37.5 C or your desired set temperature.



## Control panel pads

### Warm/Cold pads. Temperature Adjustment (26 C-40 C)

Press either pad once, and the LCD will display the temperature which has been set, as well as the words "Set Heat". Each time either of these pads is pressed again, the set temperature will increase or decrease. After three seconds, the LCD will automatically display the current spa temperature.

### Jets 1. Single speed pump operation in system with 24hour circulation pump

If spa equipped with two pumps the pump 1 is single speed pump. Press "Jets1" pad to operate pump1. The operating sequence for pump 1 is: On and Off. Pump 1 has only one speed and small jets icon is always solid. If left on the pump1 will automatically turn off after 30 minutes operation.

### Jets 2. Dual speed pump

Press the "Jets2" pad to operate pump2. Press the pad to turn on the Low speed (large jet icon blinks). Press the pad again to turn on the High speed (large jet icon is solid), and again to turn off the pump. The Low speed and the High speed will turn off after 30 minutes.

### Blower.

This pad turns the blower on and off. If left on, the blower will automatically off after 30 minutes.

### Light

Press the pad once to turn light on, press second time to turn light off. After 4 hours, the light will automatically turn off.

If your spa equipment with LED Spa Light when you turn spa light off and on again within 5 seconds, it advances to the assortment lighting effects. When you turn light off and leave it off for more than 5 seconds, it remembers that last effect you selected.

### Economy & Standard Modes

Press this pad to switch between modes. Standard mode maintain the set temperature at all times. In Economy mode the heater does not work.

### 20/50AMP Configuration (Jumper J9)

If the spa is to be operated on 1 x 32 AMP service, move J9 to 50 AMP position (down) on the circuit board to allow the heater to operate at the same time as the pumps, blower.

# START-UP INSTRUCTIONS

## AUTOMATIC FEATURES

### System Programming

When the spa is first powered up, the words “Set Time” will flash on display. To set the time, press Time and Mode pads, then Warm or Cool. After Warm or Cool is pressed once, the time will begin changing in one-minute increments. Press either pad to stop the time from changing. Press Mode pad to enter your correct time into the system.

### Locking the Panel

Press Time, Blower and Warm pads within 3 seconds. When locked, the display will show the temperature you have chosen, along with the lock symbol. All pads are frozen except the time pad.

### Unlocking the Panel

Press Time, Blower and Warm pads within 2 seconds. The lock symbol will disappear and all panel pads will work again.

### Locking the Temperature

While setting your spa water temperature, after you have pressed Warm and Cool pads, press Time, Blower, Warm within 3 seconds to activate the lock. When locked, the center display will show the spa temperature with lock symbol.

### Unlocking the Temperature

Press Warm or Cool pads then Time, Blower, Cool within 2 seconds.

### Freeze Protection

If the high limit sensor detects 4 C at the heater, then all equipment is automatically activated to provide freeze protection. This is normal spa function, no corrective action is necessary. The equipment stays on until the sensor detects 7 C at the heater. Freeze protection is enabled regardless of the status of the spa. In colder climates, an optional additional freeze sensor may be added to protect against freeze conditions. See your dealer for details.

### Spa Filtration

Your spa equipped with 24 hour circulation pump and ozone generator, each will run 24 hours per day to maintain the spa water quality. Also, once per day the blower will run for 30 seconds and the high speed pump 1 and pump 2 will run for 5 minutes. The circulation pump will turn off if the water temperature is 1 C above the set temperature. It turns on again at 0.5 C below the set temperature.

## SPA TROUBLESHOOTING

	No message on display	The control panel will be disabled until power returns. Spa setting will be preserved for 30 days with a battery backup.
OH	“Overheat”- The spa shut down.  Either the spa water has reached 45C or the high limit sensor high-limit sensor has detected 48 C at heater	Do not enter the water. Remove the spa cover and allow water to cool. At 43C, the spa should automatically reset. If Spa does not reset, shut off the power to the spa and call your dealer.
FLO	“Flow”(Flashing)-Flow of water is inhibited “Flow”(Not flashing)- A pressure switch malfunctioned.	Check and open flow valves. Check for correct water level. Clean Filter. Contact dealer
COOL	“Cool”- Water temperature is 10 C or more below the temperature you last set.	No action required. Spa is functioning properly.
ICE	“Ice”- Potential freeze condition is detected.	No action required. The pump(s) will automatically activate regardless of spa status.
Sn1	“Sensor 1”- Spa is shut down. High limit sensor is not working	Contact your dealer
Sn3	“Sensor 3”- Spa is shut down. Water temperature sensor is not working	Contact your dealer

### **Add Start-Up Chemicals**

Add the spa water chemicals as recommended by your Hydro Spa dealer. Refer to (Page ?) for general guidance.

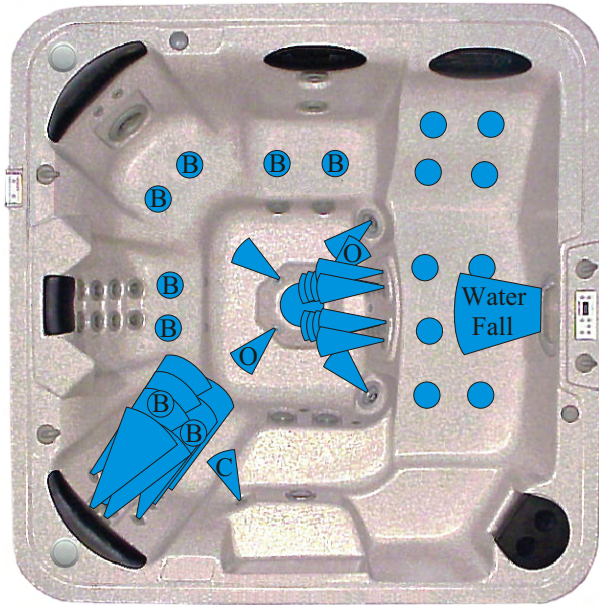
### **Place Cover On Spa**

Keep the insulating cover in place anytime the spa is not in use it will reduce the time required for heating, thereby minimizing operating cost. The time required for initial heat-up will vary depending on the starting water temperature and the capacity of your spa. Smaller spas heat at a rate of approximately 4 to 5 degrees per hour; larger spas heat at about 2 to 3 degrees per hour. Lock cover with safety locks when not in use.

**WARNING: RISK OF INJURY.** Always check water temperature carefully before entering spa.

# JET SYSTEM MENU - MILLENNIUM

## Jet System - Pump 1 Jets, Ozone Jets & Blower Jets



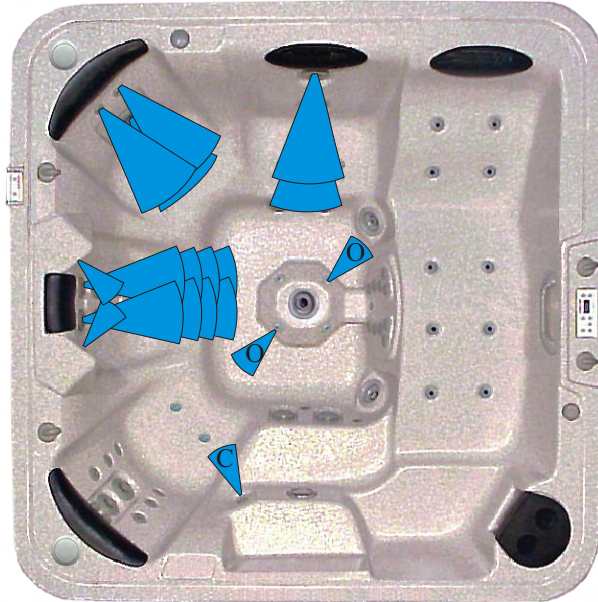
**Air Volume Controls** - 4 total will increase or decrease jets power by simply turning up or down air volume.

When **Blower** <sup>B</sup> is activated all jets located in the lower seats will come on.

**Adjustable Jets** may be turned down or off by simply turning their head, clockwise, which can change the flow of other jets in spa.

**Waterfall** may be turned down or up or off by adjusting volume control knob.

## Jet System - Pump 2 Jets & Ozone Jets



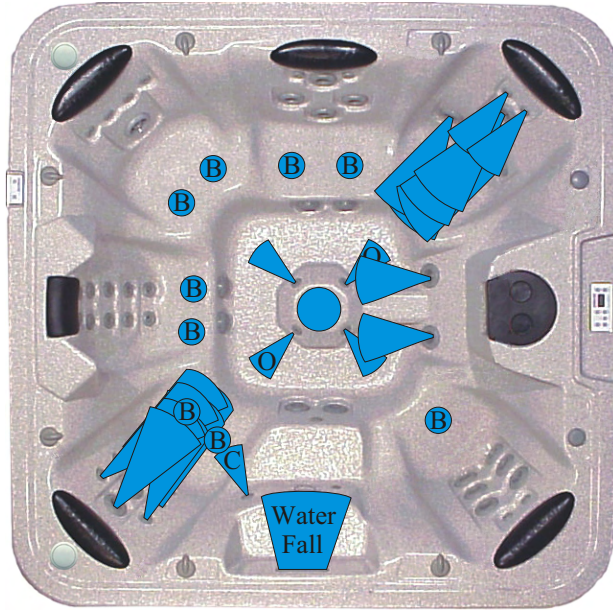
**Ozone Jets** <sup>O</sup> stay on all the time.

**Circ Pump Jets** <sup>C</sup> stay on all the time.

**Manufacturer reserves the right to change jets or jet direction from pumps without notice.**

# JET SYSTEM MENU - OMNI

## Jet System - Pump 1 Jets, Ozone Jets, and Blower Jets



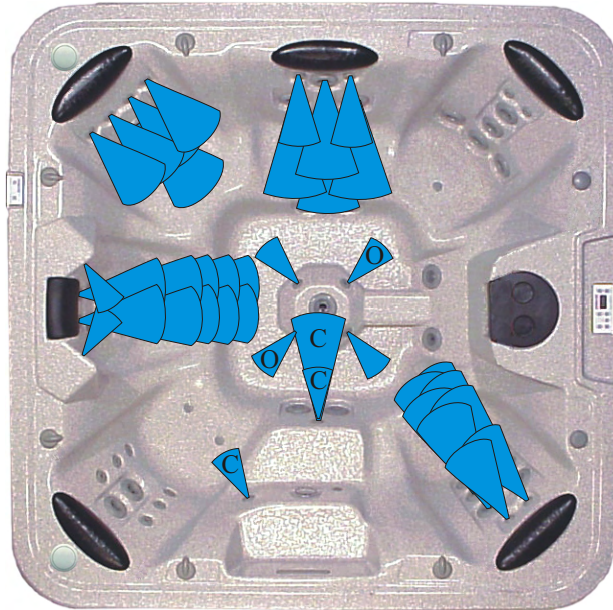
**Air Volume Controls** - 6 total will increase or decrease jets power by simply turning up or down air volume.

When **Blower** **B** is activated all jets located in the lower seats will come on.

**Adjustable Jets** may be turned down or off by simply turning their head, clockwise, which can change the flow of other jets in spa.

**Waterfall** may be turned down or up or off by adjusting volume control knob.

## Jet System - Pump 2 Jets



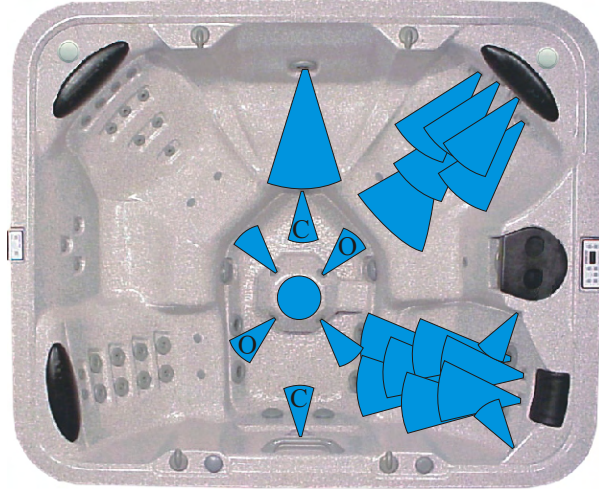
**Ozone Jets** **O** stay on all the time.

**Circ Pump Jets** **C** stay on all the time.

**Manufacturer reserves the right to change jets or jet direction from pumps without notice.**

# JET SYSTEM MENU - SOLARIS

## Jet System - Pump 1 Jets & Ozone Jets



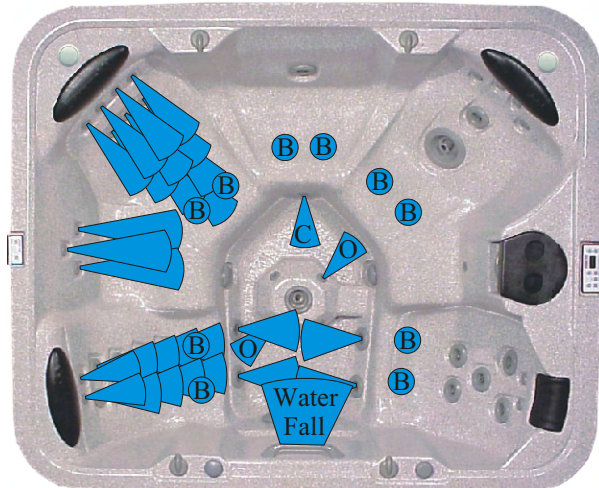
**Air Volume Controls** - 4 total will increase or decrease jets power by simply turning up or down air volume.

When **Blower** <sup>B</sup> is activated all jets located in the lower seats will come on.

**Adjustable Jets** may be turned down or off by simply turning their head, clockwise, which can change the flow of other jets in spa.

**Waterfall** may be turned down or up or off by adjusting volume control knob.

## Jet System - Pump 2 Jets and Blower Jets



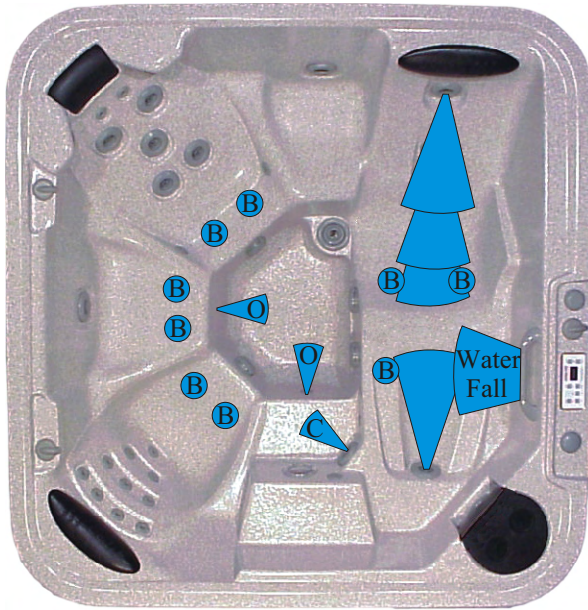
**Ozone Jets** <sup>O</sup> stay on all the time.

**Circ Pump Jets** <sup>C</sup> stay on all the time.

**Manufacturer reserves the right to change jets or jet direction from pumps without notice.**

# JET SYSTEM MENU - STRATUS

## Jet System - Pump 1 Jets, Blower Jets & Ozone Jets



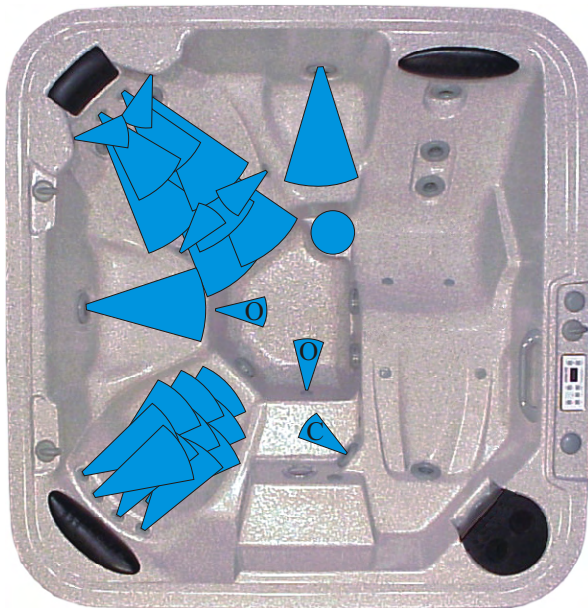
**Air Volume Controls** - 3 total will increase or decrease jets power by simply turning up or down air volume.

When **Blower** **B** is activated all jets located in the lower seats and lounge will come on.

**Adjustable Jets** may be turned down or off by simply turning their head, clockwise, which can change the flow of other jets in spa.

**Waterfall** may be turned down or up or off by adjusting volume control knob.

## Jet System - Pump 2 Jets



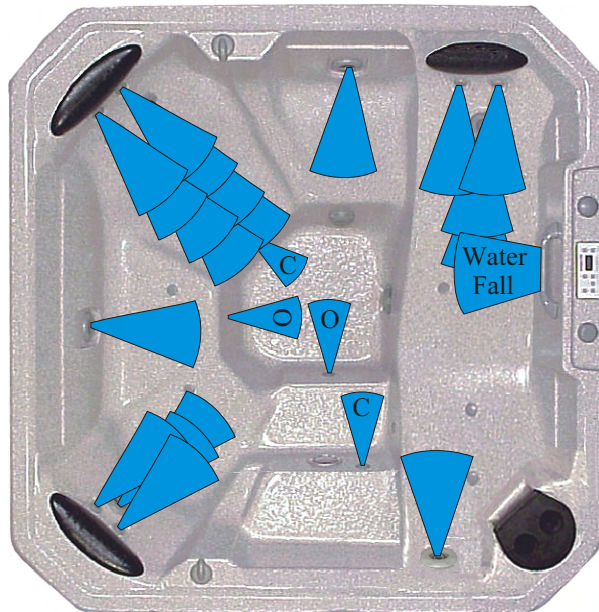
**Ozone Jets** **O** stay on all the time.

**Circ Pump Jets** **C** stay on all the time.

**Manufacturer reserves the right to change jets or jet direction from pumps without notice.**

# JET SYSTEM MENU - LEXXUS

## Jet System - Pump 1 Jets & Ozone Jets



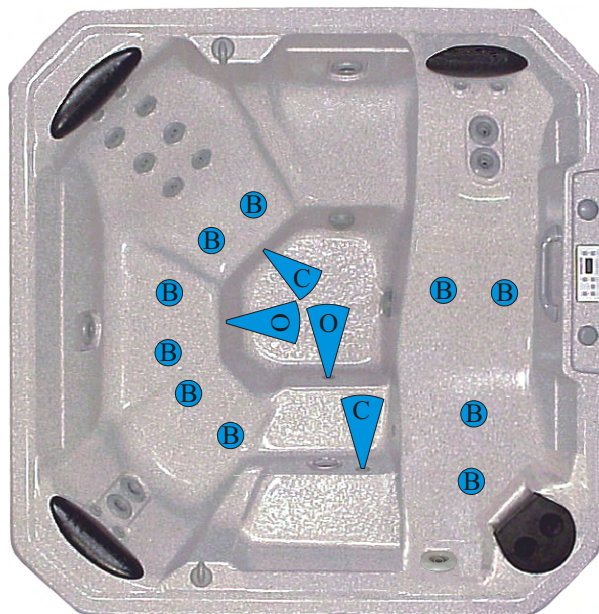
**Air Volume Controls** - 2 total will increase or decrease jets power by simply turning up or down air volume.

When **Blower** **B** is activated all jets located in the lower seats will come on.

**Adjustable Jets** may be turned down or off by simply turning their head, clockwise, which can change the flow of other jets in spa.

**Waterfall** may be turned down or up or off by adjusting volume control knob.

## Jet System - Blower Jets



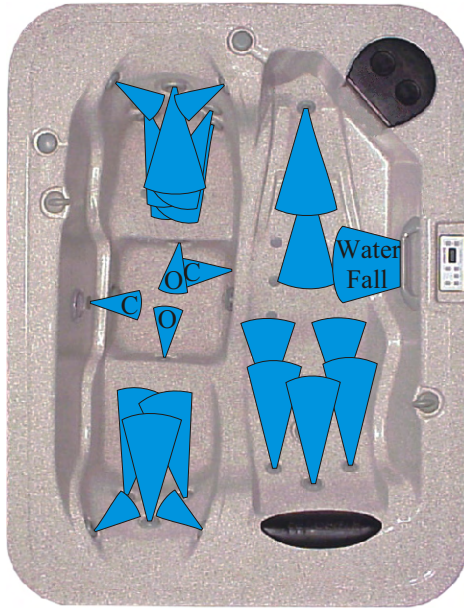
**Ozone Jets** **O** stay on all the time.

**Circ Jet Pump** **C** stay on all the time.

**Manufacturer reserves the right to change jets or jet direction from pumps without notice.**

# JET SYSTEM MENU - TIARA

## Jet System - Pump 1 Jets & Ozone Jets



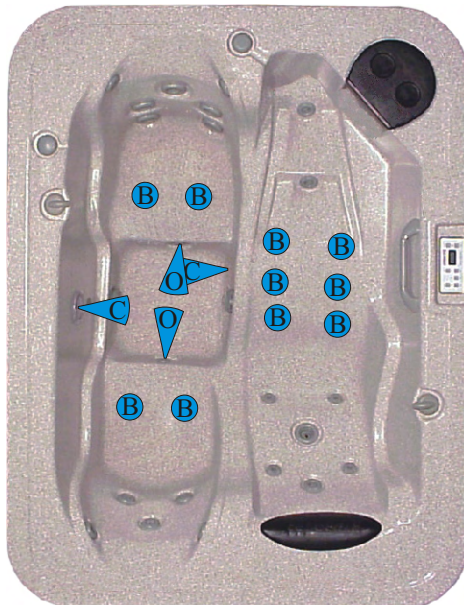
**Air Volume Controls** - 2 total will increase or decrease jets power by simply turning up or down air volume.

When **Blower** **B** is activated all jets located in the lower seats and lounge will come on.

**Adjustable Jets** may be turned down or off by simply turning their head, clockwise, which can change the flow of other jets in spa

**Waterfall** may be turned down or up or off by adjusting volume control knob.

## Jet System - Blower Jets & Blower Jets

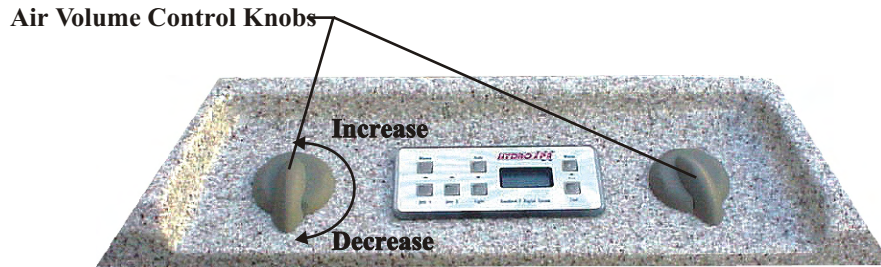


**Ozone Jets** **O** stay on all the time.

**Circ Pump Jets** **C** stay on all the time.

**Manufacturer reserves the right to change jets or jet direction from pumps without notice.**

# SPA CONTROL VALVES AND KNOBS



Rotating AVC “clockwise” will decrease jet pressure, and rotating AVC “counter clockwise” will increase jet pressure. **NOTE:** Turning radius is 180° only, and turning control knob past 180° will crack inside of valve causing it to leak or not function properly.

## Aromatherapy

Simply remove the Aromatherapy Cap and drop in one of your favorite scented beads container, and re-install cap see (figure 8). When the spa blower is activated, the scent will be released into vapor through the air injectors of your spa. See your dealer for replacement scented beads.

Figure 8



## WATERFALL CONTROL KNOB

Rotating Waterfall Control Knob “clockwise” will decrease waterfall flow, and rotating Waterfall Control Knob “counter clockwise” will increase waterfall flow.



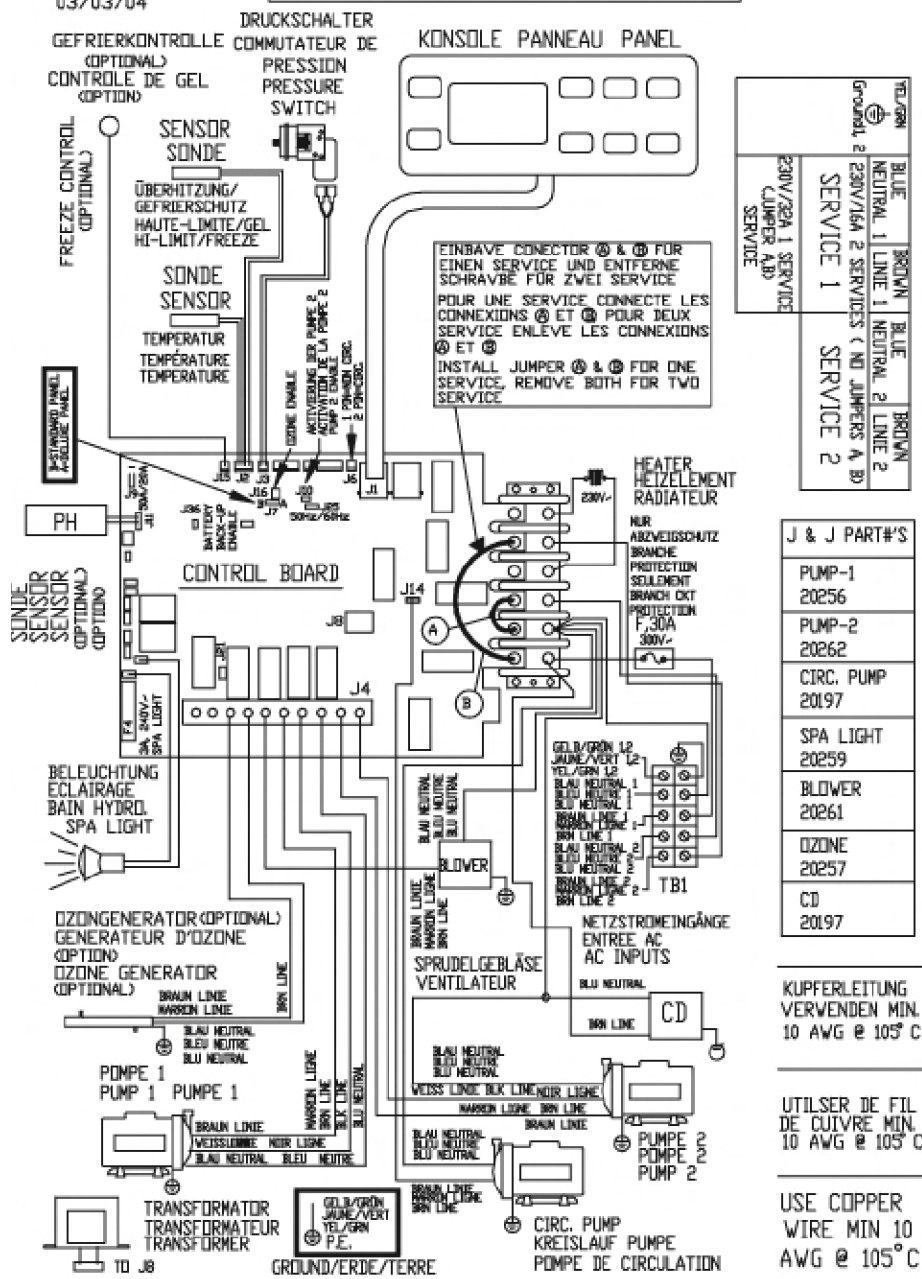
# WIRING DIAGRAM

P/N 53431 MODELL MODELE MODEL HSEXP3	Ⓝ
<b>Balboa Instruments</b> <i>Incorporated</i> TUSTIN, CA.	CE 50 Hz
MODELL: DE-HSEXP3-ECAH	
MODELE: DE-HSEXP3-FCAH	
PAT. NO. 4618797 (FABRIQUE AUX ETATS-UNIS)	

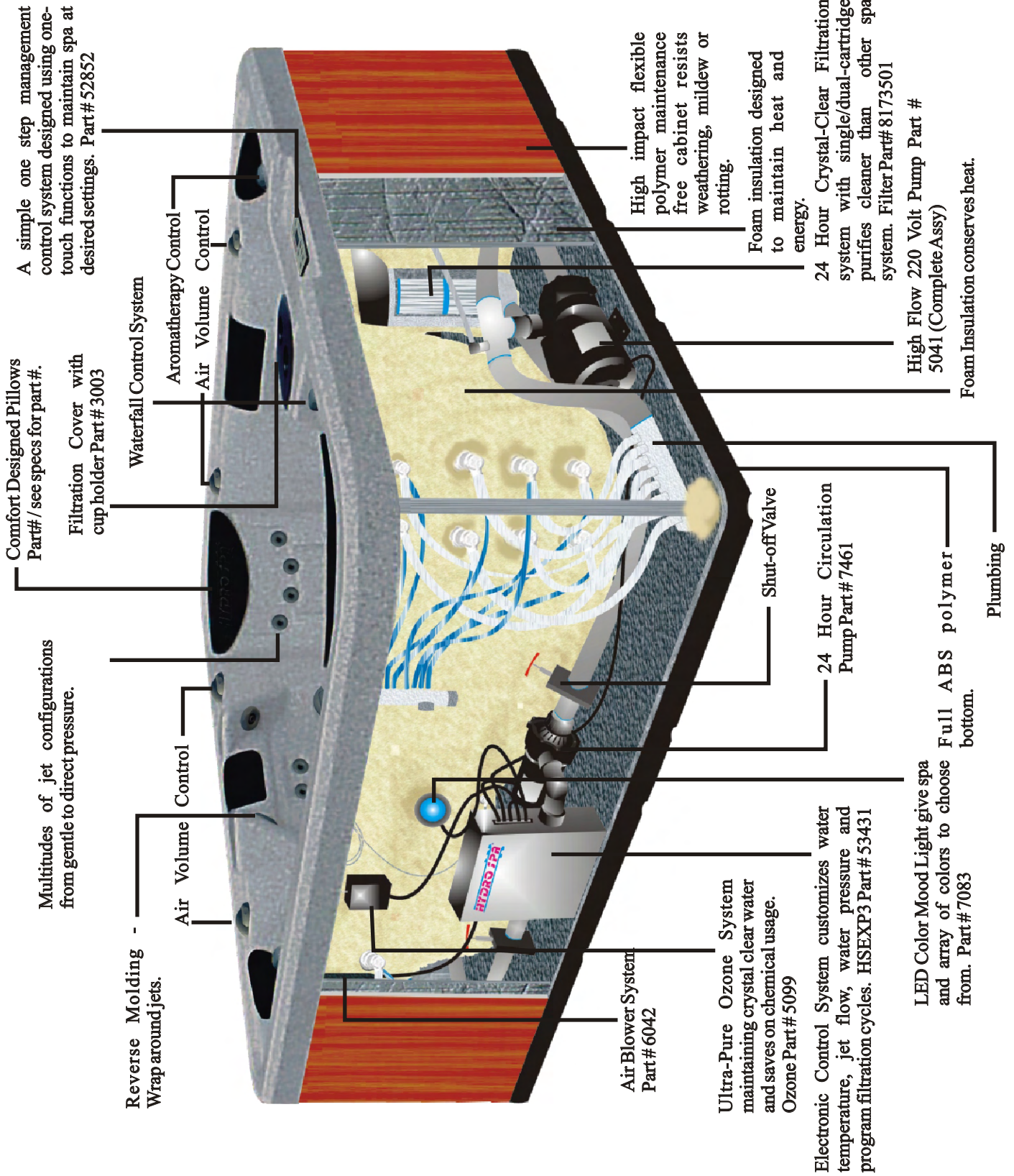
Ⓝ PE
Ⓝ Ground ERDE TERRE

**Balboa  
Instruments**  
*Incorporated*  
03/03/04

## SCHALTPLAN HSEXP3 SYSTEM SCHEMATIQUE DU SYSTEME HSEXP3 HSEXP3 SYSTEM WIRING DIAGRAM



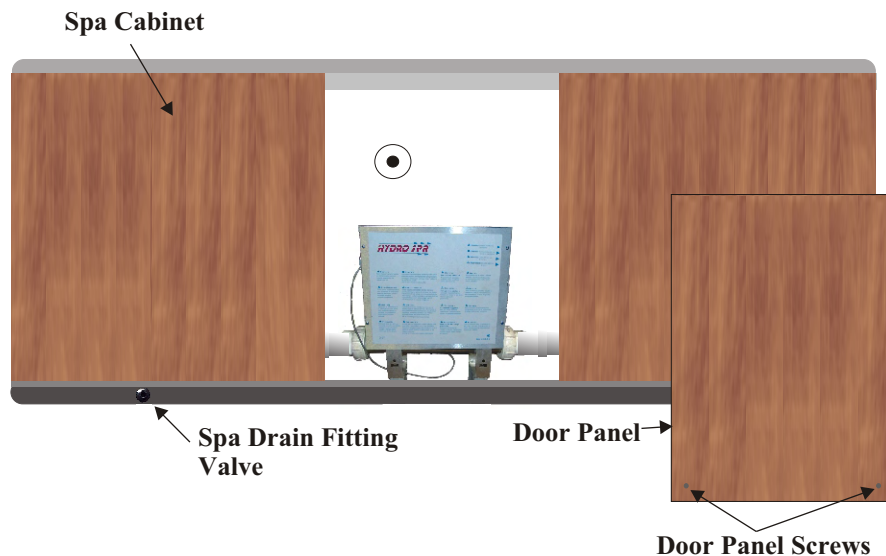
# ENGINEERING DESIGN AND PARTS LISTING



# SPA CARE AND MAINTENANCE

## Draining Your Spa

- Turn power off
- Select a safe suitable drainage capable of safely assimilating 300 plus gallons of water, which may contain both unsanitary contaminants and chemical residue that could be harm to plants or grass.
- Twist the drain fitting counter clockwise pull outward to open valve.
- The spa will drain by gravity flow.
- Close the disconnect drain fitting clockwise to close valve.
- Refill the spa through the filter shown on figure 5 (Page 8) before restoring power.



## Care of Spa Pillows

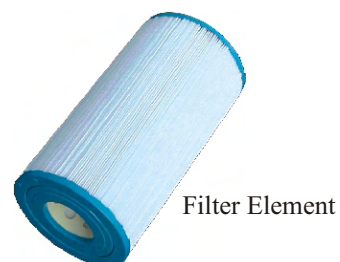
The spa pillows will provide you with years of comfort if treated with care. Spa pillows were designed to be above the water level to minimize the bleaching effects of chlorinated water, and other spa chemicals. To extend their life, remove the pillows whenever the spa has been drained and spa shell cleaned. Body oils can be removed with a mild soap and water solution. Always rinse off the spa pillows thoroughly to remove any soap residue. If the spa is not going to be used for a long period of time (vacation or during winter), the spa pillows should be removed until the next spa use.

To remove and replace the spa pillows: Carefully lift one end of the pillow away from the spa shell until the retainers are released from the shell. Reinstall pillows carefully by bending the pillow slightly to allow each of the pillow retainers to slip in the recess holes provided for each pillow.

## Filter Cleaning and Cartridge Replacement

The filter(s) in your spa should be cleaned at least every 2-3 weeks, depending on spa usage. This will ensure that the water is being filtered properly, and there is no restriction in the filter due to dirt and grease build-up.

Cleaning the filter can be done easily using a Filter Degreaser solution and following the directions on the bottle. Soak filter in a degreaser and power wash with a garden hose. It is recommended to have a second filter, which can be cleaned between filter changes. This will enable you to quickly exchange the dirty filter with a clean filter and immediately start your spa up again.



# SPA CARE AND MAINTENANCE

## Care Of The Exterior

### Spa Shell

Your spa shell is made of acrylic. Stains and dirt generally will not adhere to the surface. Using a soft rag or a nylon scrubber should easily remove most dirt. Most household chemicals are harmful to your spa's shell. See your dealer for the best product to use. The only products which have passed the manufacturer's test are Soft Scrub and Windex. Sodium bicarbonate (baking soda) can also be used for minor surface cleaning. Always thoroughly rinse off any spa shell cleaning agent with fresh water.

**NOTES:** Iron and copper in the water can stain the spa shell if allowed to go unchecked. Ask your Hydro Spa dealer about a stain and scale inhibitor to use if your spa water has a high concentration of dissolved minerals.

The use of alcohol or any household cleaners other than those listed to clean the spa shell surface is NOT recommended. **DO NOT** use any cleaning products containing abrasives or solvents since they may damage the shell surface. **NEVER USE HARSH CHEMICALS!** Damage to the shell by the use of harsh chemicals is not covered under the warranty.

**IMPORTANT:** Some surface cleaners contain eye and skin irritants. Keep all cleaners out of the reach of children and use care when applying.

### Maintenance Free Cabinet

Hydro Spa's consists of a rigid polymer that combines the durability of plastic with the beauty of redwood or gray looking cabinet. Cabinet will not crack, peel, blister or delaminate. Cleaning consists of simply spraying the cabinet with a mild soap and water solution to remove any stains and residue.

### Care Of Spa Cover

#### To clean and condition the vinyl cover:

- Remove the cover from the spa and gently lean it up against a wall or fence.
- Using a garden hose, spray the cover to loosen and rinse away any dirt or debris.
- Using a sponge and/or a soft bristle brush, and using a very mild soap solution (one teaspoon dishwashing liquid with two gallons of water), or baking soda (sodium bicarbonate), scrub the vinyl top in a circular motion. Do not let the vinyl dry with a soap film on it before it can be rinsed clean.
- Scrub the cover's perimeter and side flaps. Rinse clean with water.
- Rinse off the underside of the cover with water only (use no soap), and wipe it clean with a dry rag.
- To condition the cover after cleaning, apply a thin film of vinyl cleaner to the surface and buff to a high luster.

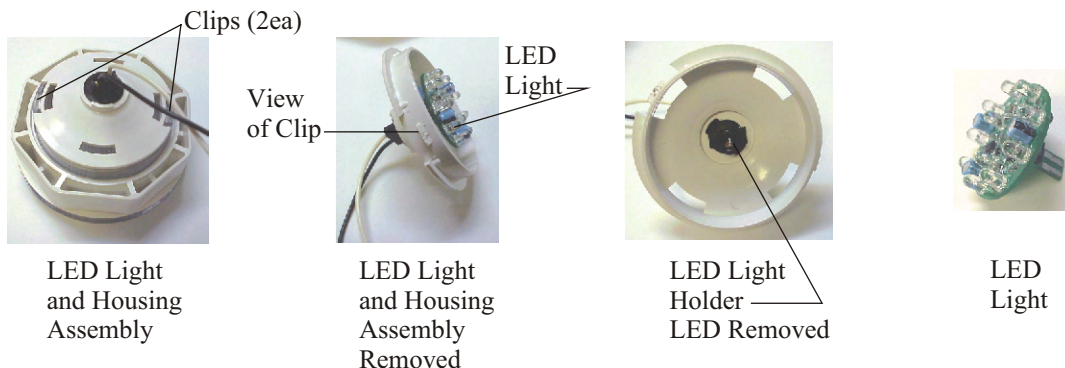
#### Important reminders:

- DO NOT walk or stand on top of cover (unless you own a "walk-on-cover").
- DO remove snow buildup to avoid breakage of the foam core from the additional weight of the snow.
- DO lock cover locking straps to secure the cover when the spa is not in use.
- DO NOT drag or lift the spa cover using either the flaps, or the cover lock straps.

### Light - LED Replacement

To replace the LED light bulb, open up the access door figure 3 (Page 7) and locate the light fixture shown below. Remove the LED light by (1) pushing in (one) of the two clips holding the outside wiring housing. Remove housing and LED light bulb with harness. Remove LED by pulling outward on LED holder. Replace LED light and re-install by placing LED light into light housing and carefully seat outer light housing. Replace Access door and screws.

**NOTE:** The replacement LED must be the same electrical rating as the factory installed LED light.



## SPA CARE AND MAINTENANCE

### Vacation Care Of Spa

Following these instructions to ensure that the water quality of your spa is maintained:

#### For Short Periods (3 to 5 days)

Adjust the pH  
Sanitize the water  
Lock cover for safety

#### For Long Periods (5 to 14 days)

Set temperature to its lowest level approximate water temperature of 80°F.  
Adjust the pH  
Sanitize the water  
Lock cover for safety

### Return Procedures

Sanitize the water following shock procedures  
Return water temperature to original setting  
Insure chlorine level had dropped below 5.0 ppm

**NOTE:** If you plan on not using your spa for periods exceeding 14 days, you may ask a family member or neighbor to assist with your spa maintenance, and if not available you will need to drain or winterize spa.

### Winterizing Your Spa

During the cold weather you may not wish to use your spa outside. In this case you may move it to a heated area, or leave it until the weather warms up.

**WARNING:** Allowing your spa water to freeze will cause severe damage to the spa shell, equipment, and plumbing and **WILL VOID WARRANTY.**

### The following steps should protect your spa from freezing:

- Disconnect the spa from the power supply.
- Open the valve and the spa will drain by gravity flow.
- Remove the filter cartridge, then clean and store in a dry place.
- Attach a wet/dry shop vac (capable of blowing air as well as vacuuming) into the filter housing.
- Turn blower on and allow it to blow out any water remaining in the plumbing lines. (Should take no more than 5 minutes).
- Reinstall the filter housing.
- Use the shop vac to remove water inside spa blown through jets.
- Use a shop vac and clean towel and remove any remaining water from bottom of spa until dry.
- Leave the drain open.
- Close the spa cover and fasten with tie down safety locks.

# WATER QUALITY AND MAINTENANCE

## **Maintaining the proper pH level is extremely important:**

- Optimizing the effectiveness of the sanitizer.
- Maintaining water that is comfortable for the user.
- Preventing equipment deterioration.

## **If the spa water's pH level is too low, the following may result:**

- The sanitizer will dissipate rapidly.
- The water may become irritating to spa users.
- The spa's equipment may corrode.

## **If the pH level is too low, it can be increased by adding pH/Alkalinity Up (sodium hydrogen carbonate) to the spa water:**

## **If the pH level is too high, the following may result:**

- The sanitizer is less effective.
- Scale will form on the spa shell surface and the equipment.
- The water may become cloudy.
- The filter cartridge pores may become obstructed.

## **If the pH is too high, it can be decreased by adding pH/Alkalinity Down (Sodium bisulfate) to the spa water.**

**NOTE:** After adding pH/Alkalinity Up (sodium hydrogen carbonate) or pH/Alkalinity Down (sodium bisulfate), wait at least two hours before testing the water for pH. Measurements taken too soon may not be accurate.

- It is important to check the pH on a regular basis. The pH will be affected by the bather load, the addition of new water, the addition of various chemicals, and the type of sanitizer used.
- When the pH is within the recommended range, proceed.

## **Maintaining Sanitizer Level**

- Sanitizer is extremely important for killing algae, bacteria and viruses, and preventing unwanted organisms from growing in the spa. At the same time, you don't want too high a sanitizer level, or it can irritate your skin, lungs, and eyes.
- Always maintain the sanitizer level in your spa at the recommended level for each type of sanitizer.
  
- Accurately measure the exact quantities specified, never more. Do not overdose your spa.
- Handle all containers with care. Store in a cool, dry well ventilated place.
- Always keep chemical containers closed when not in use. Replace caps on their proper containers.
- Don't inhale fumes, or allow chemicals to come in contact with your eyes, nose, or mouth. Wash your hands immediately after each use.
- Follow the emergency advice on the product label in case of accidental contact, or if the chemical is swallowed. Call a doctor or the local Poison Control Center. If a doctor is needed, take the product container along with you so that the substance can be identified.
- Don't let chemicals get on surrounding surfaces or landscaping. Rinse off with fresh water if spilled.
- Never smoke around chemicals. Some of the fumes can be highly flammable.
- Don't store chemicals in the spa equipment compartment.

# WATER QUALITY AND MAINTENANCE

## How To Add Chemicals To Spa Water

**IMPORTANT:** All spa water chemicals, including granulated dichlor, MPS, granulated pH increaser or decreaser, granulated total alkalinity increaser, liquid stain and scale inhibitor, and liquid defoamer must always be added directly into the filter compartment while the **JETS 1** or **JETS 2** pump is running in its high speed mode, and it must run for a minimum of ten minutes.

### Adding Spa Chemicals:

- Fold back the spa cover. Carefully remove and set aside the filter lid.
- Push the **JETS1** button to turn on the pump.
- Carefully measure the recommended amount of chemical and slowly pour it into the filter compartment. Use care not to splash chemicals on your hands, eyes, or on the spa shell surface or cabinet.
- Replace filter lid and run spa for 10 minutes on high speed. Re-install spa cover.

**IMPORTANT:** Super Chlorination/Non-Chlorine Shock Treatment - **NOTE:** After administering a super chlorination treatment or non-chlorine shock to your spa, leave the cover open for a minimum of 20 minutes to allow the oxidizer gas to vent. A high concentration of trapped oxidizer gas which may exist as a result of the shock treatment (not daily sanitation) may eventually cause discoloration or vinyl degradation to the bottom of the cover. This type of damage is considered chemical abuse and is not covered under the terms of the limited warranty of the spa cover.

### Balancing Total Alkalinity (TA)

- The recommended Total Alkalinity (TA) for your spa water is 125-150 ppm.
- Total Alkalinity is measure of the total levels of carbonates, bicarbonates, hydroxides, and other alkaline substances in the water. TA is referred to as the water's "pH buffer". It's a measure of the ability of the water to resist changes in pH level.
- If the TA is too low, the pH level will fluctuate widely from high to low. Fluctuations in pH can cause corrosion or scaling of spa components. Low TA can be corrected by adding pH/Alkalinity UP (sodium hydrogen carbonate).
- If the TA is too high, the pH level will tend to be high and may be difficult to bring down. It can be lowered by adding pH/Alkalinity down (sodium bisulfate).
- Once the TA is balanced, it normally remains stable, although the addition of more water with a high or low alkalinity will raise or lower the TA reading of the water.
- When the Total Alkalinity is within the recommended range, proceed.

### Balancing Calcium Hardness (CH)

- The recommended Calcium Hardness (CH) level for your spa is 150-200ppm.
- Calcium Hardness is a measure of the total amount of dissolved calcium in the water. Calcium helps control the corrosive nature of the spa's water. That's why calcium-low water (commonly know as "soft" water) is not recommended. It is very corrosive to the equipment, and can cause staining of the spa shell. If the calcium level is too low, we recommend using Calcium Increaser to bring the calcium hardness level to within the recommended range.
- If the CH is too high (commonly know as "hard" water), formation of scale on the spa's shell surface and equipment can result. CH can be decreased by dilution - a mixture of 75% hard and 25% soft water will be a good starting point. If soft water is not available, or practical for you, a stain and scale control such as Scale Defense should be added to the spa water, according to instructions on its label.
- Once the CH is balanced, it normally remains stable, although the addition of more water with a high or low calcium content will raise or lower the CH reading of the water.
- When the Calcium Hardness is within the recommended range, proceed.

### Balancing The pH

- The recommended pH level for your spa water is 7.4-7.6.
- The pH level is the measure of acidity and alkalinity. Values above 7 are alkaline; those below 7 are acidic.

# WATER QUALITY AND MAINTENANCE

## Maintaining the proper pH level is extremely important:

- Optimizing the effectiveness of the sanitizer.
- Maintaining water that is comfortable for the user.
- Preventing equipment deterioration.

## If the spa water's pH level is too low, the following may result:

- The sanitizer will dissipate rapidly.
- The water may become irritating to spa users.
- The spa's equipment may corrode.

If the pH level is too low, it can be increased by adding pH/Alkalinity Up (sodium hydrogen carbonate) to the spa water.

## If the pH level is too high, the following may result:

- The sanitizer is less effective.
- Scale will form on the spa shell surface and the equipment.
- The water may become cloudy.
- The filter cartridge pores may become obstructed.

If the pH is too high, it can be decreased by adding pH/Alkalinity Down (Sodium bisulfate) to the spa water.

**NOTE:** After adding pH/Alkalinity Up (sodium hydrogen carbonate) or pH/Alkalinity Down (sodium bisulfate), wait at least two hours before testing the water for pH. Measurements taken too soon may not be accurate.

- It is important to check the pH on a regular basis. The pH will be affected by the bather load, the addition of new water, the addition of various chemicals, and the type of sanitizer used.
- When the pH is within the recommended range, proceed.

## Maintaining Sanitizer Level

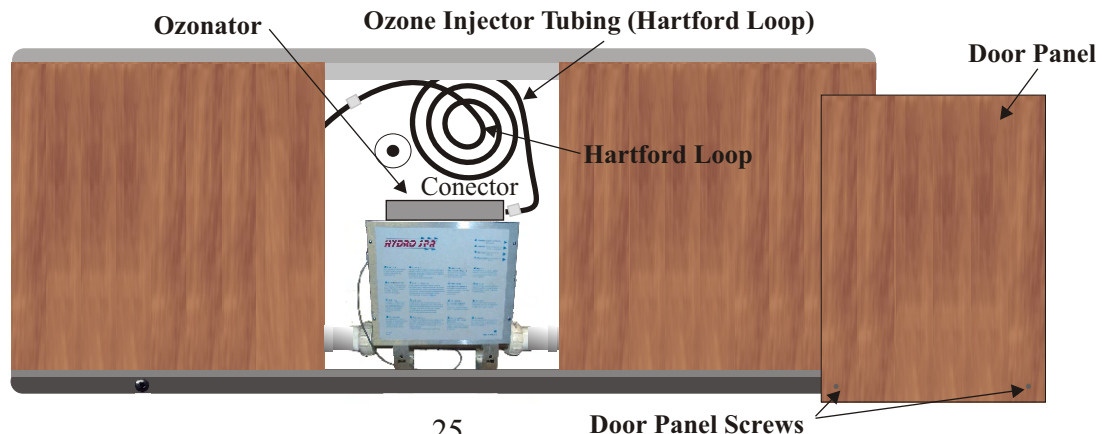
- Sanitizer is extremely important for killing algae, bacteria and viruses, and preventing unwanted organisms from growing in the spa. At the same time, you don't want too high a sanitizer level, or it can irritate your skin, lungs, and eyes.
- Always maintain the sanitizer level in your spa at the recommended level for each type of sanitizer.

## Ozone

**Hydro Spa's Ozonation System** drastically reduces the use of chemicals in the water. This also aids in maintenance requiring less attention from harsh chemicals and less frequency with which they are used. Ozone is operating with 24 hour circulation pump.

## Replacement Of Ozone Tubing and Ozonator

Call your dealer to provide you with maintenance service if replacement of ozonator or tubing is required. Remove door panel screws and set door panel aside. The Ozone is setting above the Control Electrical Equipment Pack shown below or in area. The ozonator plugs into the Control Electrical Equipment Pack. Tubing is mounted above the ozonator and has a Hartford Loop as shown below.



# WATER QUALITY AND MAINTENANCE

## Water Terminology

**Bromamines:** Compounds formed when bromine combines with nitrogen from body oils, urine, perspiration, etc. Unlike chloramines, bromamines have no pungent odor, and are effective sanitizers.

**Bromine:** A halogen sanitizer (in the same chemical family as chlorine). Bromine is commonly used in stick, tablet, or granular form.

**Calcium Hardness:** The amount of dissolved calcium in the spa water. This should be approximately 150-220 ppm. High levels of calcium can cause cloudy water and scaling. Low levels can cause harm to the spa equipment.

**Chloramines:** Compounds formed when chlorine combines with nitrogen from body oils, urine, perspiration, etc. Chloramines can cause eye irritation as well as having a strong odor. Unlike bromamines, chloramines are weaker, slower sanitizers.

**Chlorine:** An efficient sanitizing chemical for spas.

**Chlorine (or Bromine) Residual:** The amount of chlorine or bromine remaining after chlorine or bromine demand has been satisfied. The residual is, therefore, the amount of sanitizer which is chemically available to kill bacteria, viruses and algae.

**Corrosion:** The gradual wearing away of metal spa parts, usually caused by chemical action. Generally, corrosion is caused by low pH or by water with levels of TA, CH, pH or sanitizer which are outside the recommended ranges.

**DPD:** The preferred reagent used in test kits to measure the Free Available Chlorine.

**Halogen:** Any one of these five elements: fluorine, chlorine, bromine, iodine, and astatine.

**MPS:** Monopersulfate is the non-chlorine oxidizer used with the purification system.

**Nitric Acid:** The formulation of nitric acid, a highly corrosive chemical, is a byproduct of the ozone generating process. Nitric acid is produced in very small quantities and is readily dissolved in the water stream with ozone.

**Oxidizer:** The use of an oxidizing chemical is to prevent the buildup of contaminants, maximize sanitizer efficiency, minimize combined chlorine and improve water clarity.

**Ozone:** Ozone is a powerful oxidizing agent which is produced in nature and artificially by man. Ozone forms no byproducts of chloramines (ozone actually oxidizes chloramines) and will not alter the water's pH.

**Pathogen:** A microorganism such as bacterium that cause disease.

**pH:** The measure of the spa water's acidity and alkalinity. The recommended pH for the spa water is 7.4 to 7.6. Below 7.0 (considered neutral), the spa water is too acidic and can damage the heating system. Above 7.8, the water is too alkaline and can result in cloudy water, and scale formation on the shell and heater.

**ppm:** The abbreviation of "parts per million", the standard measurement of chemical concentration in water. Identical to mg/l (milligrams per liter).

**Reagent:** A chemical material in liquid, powder, or tablet form for use in chemical testing.

**Sanitizer:** Sanitizers are added and maintained at recommended residuals to protect bathers against pathogenic organisms which can cause disease and infection in spa water.

**Scale:** Rough calcium-bearing deposits that can coat spa surfaces, heaters, plumbing lines, and clog filters. Generally, scaling is caused by mineral content combined with high pH. Additionally, scale forms more readily at higher water temperatures.

## SPA WATER MAINTENANCE & TROUBLESHOOTING

<b>Problem</b>	<b>Probable Causes</b>	<b>Solutions</b>
Cloudy Water	Dirty Filter/s Excess oils / organic mater Improper sanitization Suspended particles / organic matter Overused or old water	Clean filter or replace. Shock spa with sanitizer. Add sanitizer. Adjust pH and/or alkalinity. Run jet pump(s) and clean filter. Drain and refill spa.
Water Odor	Excessive organics in water Improper sanitization Low pH	Shock spa with sanitizer. Add sanitizer. Adjust pH to recommended range.
Chlorine Odor	Chloramine level too high Low pH	Shock spa with sanitizer Adjust pH to recommended range.
Musty Odor	Bacteria or algae growth	Shock spa with sanitizer - if problem is visible or persistent, drain, clean and refill spa.
Organic buildup / scum ring around spa	Build-up of oils and dirt	Wipe off scum with clean rag - if severe, drain the spa, use a spa surface and tile cleaner to remove the scum, and refill spa.
Algae Growth	High pH Low sanitizer level	Shock spa with sanitizer and adjust pH Shock spa with sanitizer and maintain sanitizer level.
Eye Irritation	Low pH Low sanitizer level	Adjust pH. Shock spa with sanitizer and maintain sanitizer level.
Skin Irritation / Rash	Unsanitary water Free chlorine level above 5 ppm	Shock spa with sanitizer and maintain sanitizer level. Allow free chlorine level to drop below 5 ppm.
Stains	Total alkalinity and/or pH too low High iron or copper in source water	Adjust total alkalinity and/or pH. Use a metal deposit inhibitor.
Scale	High calcium content in water - total alkalinity and pH too high	Adjust total alkalinity and pH - If scale requires removal, drain the spa, scrub off the scale, refill the spa and balance the water.



# WARRANTY INFORMATION

## W A R R A N T Y

### **Lifetime Spa Structural Warranty**

Hydro Spa warrants the Mark III spa shell structure, against the loss of water through the fiberglass laminate of the shell caused by defects in materials and workmanship for as long as the original purchaser owns the spa. Contact your dealer if you have any questions concerning warranty issues, prior to contacting Hydro Spa.

### **10-Year Limited Hydro Spa Surface Warranty**

Hydro Spa warrants the Mark III interior acrylic spa surface against blisters, cracks, or delaminating resulting from a defect in the acrylic surface material for a period of 10 years from the date of purchase, based on the following formula: Retail cost divided by months covered (120) multiplied by months owned = replacement cost. Spa Surface Warranty issues will be notified to Hydro Spa by CERTIFIED MAIL to warranty department within 30 days of defect found or warranty will be void.

### **Lifetime Manifold Plumbing Warranty**

Hydro Spa warrants the Mark III plumbing manifolds, fittings, and parts to be free of defects in materials or workmanship for as long as the spa is owned by the original purchaser.

### **Limited Electrical Equipment Warranty**

**Hydro Spa warrants the Mark III electrical equipment and components to be free of defects in materials and workmanship for a period of 2 years from the date of purchase.**

### **Warranty Performance**

In the event of a defect covered under the terms of this Limited Warranty, notify your Hydro Spa Dealer. At the time of delivery warranted to be free of defects in workmanship and materials, light bulbs, light lenses, fuses, pillows, cabinet finish, filter, stereo, speakers, chrome and related equipment 90 days. Use all reasonable means to protect the spa from further damage. A service representative from your selling Dealer will repair the spa subject to the terms and conditions contained in this Limited Warranty. The service representative may assess reasonable travel charges, during inspection or repairs. If we determine that repairs are not feasible due to functional defect, we reserve the right to provide a replacement part or spa in lieu of repair. We will replace with a part of value equal to the original purchase. In such event, reasonable costs for removal of the defective spa and delivery and installation of the replacement spa will be the responsibility of the spa owner. We reserve the right to an on-site inspection by an authorized service representative. HYDRO SPA WILL NOT PAY REIMBURSEMENTS WITHOUT PRIOR AUTHORIZATION.

### **Limitations and Exclusions**

This limited warranty applies to spas sold after January 1, 2004 by Hydro Spa. This limited warranty applies only to the Original Purchaser and terminates with any transfer of ownership. This limited warranty does not apply to a spa used for any commercial, rental, club purposes, or for any spa used outside of the United States. The purchaser must establish the date of purchase by dated sales invoice or delivery receipt.

This limited warranty does not cover damage resulting from abuse, misuse, or neglect including any installation, operation, maintenance, or use of spa other than in accordance with the Owner's Manual of the spa. Improper operation of the spa at water temperatures outside the range of 32 degrees F. and 120 degrees F., damage caused by dirty, clogged, or calcified filter cartridges, damage to the spa surface caused by improper use of chemicals or cleaning agents, allowing undissolved spa sanitizing chemicals to lie on the surface, damage caused by improper pH balance or other improper water chemistry, damage caused by failure to provide even and sufficient support for the spa, are considered abuses and may invalidate this Limited Warranty. Damage caused by repairs or alterations performed by anyone other than an authorized service representative is not covered. Failure caused by accidents, acts of God, nonstructural normal wear and tear, cosmetic blemishes and other causes beyond our control is excluded.

**THE WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT SHALL HYDRO SPA BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.**

### **Disclaimers**

The spa owner is required to provide adequate access to the spa for any repair or inspection. Hydro Spa shall not be liable for loss of use of the Spa or other incidental or consequential costs, expenses or damages, which may include but are not limited to water damage, or the removal of a permanent deck or other custom fixture. Under no circumstances shall we, or any of our representatives be held liable for injury to any person or damage to any property, however arising. This warranty gives you specific legal rights and you may have other rights. No Agent, Dealer, Service Company, or other party is authorized to change, modify, or extend the terms of this Warranty in any manner whatsoever.



**13055 49th St. N.  
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1-877-BEST-SPA  
727 573-9611 Fax 727 573-7758**