

NESPA
TILED SPAS

Production Booklet

for

966 Palisades Beach SPA

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NESPA TILED SPAS - OWNER'S MANUAL

Welcome To Ultimate Relaxation!

Thank you for choosing your new spa built by Nespa Tiled SPAS. Please read the entire Owner's Manual before installing and using your spa. The goal of this manual is to provide you with safety and operational information plus some tips that will help you enjoy your spa to its fullest.

At the time of print, this manual is accurate in its information. Master Spas reserves the right to change or improve its product without prior notice. To check on updates or for other information, please visit www.tiledspas.com and follow the links to the customer service section.

Record Of Ownership

Name _____

Address _____

City _____ State _____ Zip _____

Phone # (____) _____ - _____ Date Purchased ____ / ____ / ____

Model _____ Serial # _____

Dealer Name _____

Service Tech Rep _____

Serial Number Location

The serial number for your spa is located in the filter area, on the spa system pack, or on the listing plate on the skirting.

NO DIVING

**DANGER: DIVING MAY
RESULT IN SERIOUS
INJURY OR DEATH.**



IMPORTANT SAFETY INSTRUCTIONS

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

READ AND FOLLOW ALL INSTRUCTIONS

- 1. WARNING** - To reduce the risk of injury, do not permit children to use this product unless they are closely supervised at all times.
 - 2. DANGER - RISK OF CHILD DROWNING.** Extreme caution must be exercised to prevent unauthorized access by children. To avoid accidents, ensure that children cannot use this spa unless they are supervised at all times.
- *NOTE:** A wire connector is provided on this unit to connect of a minimum No. 6 AWG solid copper conductor between this unit and any metal equipment, metal enclosures of electrical equipment, metal water pipe, or conduit within 5 feet (1.5m) of the unit.
- 3. DANGER - RISK OF ELECTRIC SHOCK.** Install spa at least five (5) feet (1.5M) from all metal surfaces. A spa may be installed within five (5) feet (1.5M) of metal surfaces if, in accordance with the National Electrical Code, each metal surface is permanently connected by a minimum No. 6 AWG (8.4mm) solid copper conductor attached to the wire connector on the terminal box. A grounding lug is provided for this purpose.
 - 4. DANGER - RISK OF INJURY.** The suction fittings in this spa are sized to match the specific water flow created by the pump. Should the need arise to replace the suction fittings or the pump, be sure that the flow rates are compatible.
- *NOTE:** Never operate the spa 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.
- 5. DANGER** - To reduce the risk of injury to persons, do not remove the suction grate. Suction through drains and skimmers is powerful when the jets in the spa are in use. Damaged covers can be hazardous to small children and adults with long hair. Should any part of the body be drawn into these fittings, turn off the spa immediately. As a precaution, long hair should not be allowed to float in the spa.

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IMPORTANT SAFETY INSTRUCTIONS (CONT.)

- 6. WARNING.** Install the spa so that water can be easily drained out of the compartment containing electrical components so as not to damage equipment. When installing the spa make sure to allow for an adequate drainage system to deal with any overflow water. Please allow for at least 2 feet of clearance around the perimeter of the spa to provide enough room to access for servicing. Contact your local dealer for their specific requirements.
- 7. WARNING - TO REDUCE THE RISK OF INJURY:**
- (A) Reminder - Never allow anyone to dive into a spa. Always enter feet first.
 - (B) Always enter and exit a spa slowly.
 - (C) Do not use the spa alone.
 - (D) Before entering the spa, always measure the water temperature with an accurate thermometer. Tolerance of water temperature regulating devices can vary as much as plus/minus 5° F (3° C).
 - (E) Persons suffering from obesity or with a medical history of heart disease, diabetes, high or low blood pressure or circulatory system problems should consult a physician before using the spa.
 - (F) Since excessive water temperatures have a high potential for causing fetal damage during early months of pregnancy, pregnant or possibly pregnant women should limit spa water temperatures to 100° F (38° C).
 - (G) Excessive water temperature can be dangerous. The water in the spa should never exceed 104° F (40° C). Water temperatures between 100°F (38°C) and 104°F (40°C) are considered safe for a healthy adult. Lower water temperatures are recommended for extended use (exceeding 10 minutes) and for young children. Long exposures at higher temperatures can result in hyperthermia.
 - (H) The use of alcohol, drugs, or medication before or during spa use may lead to unconsciousness with the possibility of drowning.
 - (I) Persons using medication should consult a physician before using a spa since some medication may induce drowsiness while other medication may affect heart rate, blood pressure and circulation.
 - (J) The spa should be covered with an approved locking cover when not in use, to prevent unauthorized entry and injuries.

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IMPORTANT SAFETY INSTRUCTIONS (CONT.)

- 11. DANGER - RISK OF ELECTRIC SHOCK.** Do not permit any electric appliance, such as a light, telephone, radio or television, within five (5) feet of the spa. Never operate any electrical appliances from inside the spa or while wet.
- 12. WARNING - RISK OF SUFFOCATION.** If this spa is equipped with a gas heater, it is intended for outdoor use only, unless proper ventilation can be provided for an indoor installation.

- 13. CAUTION - RISK OF ELECTRIC SHOCK.** Do not leave the CD compartment open.

CAUTION - RISK OF ELECTRIC SHOCK. Replace components only with identical components.

The CD player controls are not to be operated while inside the spa.

WARNING - PREVENT ELECTROCUTION. Do not connect any auxiliary components (for example, additional speakers, headphones, additional audio/video components etc.) to the system. These units are not provided with an outdoor antennae.

Do not service this product yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

If the power supply/supply cord(s) are damaged, water is entering the speaker, CD compartment, or any other component in the electrical equipment compartment area, the protective shield is showing signs of deterioration, or there are signs of other potentially hazardous damage to the unit, turn off the circuit breaker from the wall and refer servicing to a qualified service personnel.

The unit should be subjected to periodic routine maintenance once every quarter to make sure that the unit is operating properly.

- 14. DANGER - RISK OF ELECTRIC SHOCK.** Do not permit any electric appliance, such as light, telephone, radio, or television, within 5 feet (1.5m) of a spa.

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IMPORTANT SAFETY INSTRUCTIONS (CONT.)

HYPERTHERMIA

Hyperthermia occurs when the internal temperature of the body reaches a level several degrees above the normal body temperature of 98.6° F.

THE SYMPTOMS OF HYPERTHERMIA INCLUDE:

Dizziness • Fainting • Drowsiness • Lethargy • Increase in Internal Body Temperature

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 • Unconsciousness Resulting in a Danger of Drowning

(I) Children's body temperature can increase more rapidly than adults in the same water with elevated temperatures (above 99° F). Children should spend less time in water above body temperature than adults.

8. WARNING - The use of alcohol, drugs, or medication can greatly increase the risk of hyperthermia.

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

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

9. Reminder: A safe temperature for swimming or aquatic exercise is around 80° F.

10. People with infections, sores or the like should not use the spa. Warm and hot water temperatures may allow the growth of infectious bacteria if not properly disinfected.

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IMPORTANT SAFETY INSTRUCTIONS (CONT.)

15. A green coloured terminal or a terminal marked G, GR, Ground, Grounding or the symbol shown in Figure 14.1 of UL1563 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.
16. 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 spa to these terminals with an insulated or bare copper conductor not smaller than No. 6 AWG.
17. All field-installed metal components such as rails, ladders, drains, or other similar hardware within 3m of the spa shall be bonded to the equipment grounding bus with copper conductors not smaller than No. 6 AWG.

SAVE THESE INSTRUCTIONS.

PLAN APPROVAL DOCUMENTATION

APPROVED

Please initial **Yes** or **No** for each item. Production will not start until all items are reviewed and approved.

1. I have reviewed and approved the Spa dimensions, width, length and height.(Pg 1)
Yes_____ No_____ Other _____
2. I have reviewed and approved the jet quantity and locations. (Pg 1)
Yes_____ No_____ Other _____
3. I have reviewed and approved the Spa Tile Type, Grout and Layout. (Pg 1)
Yes_____ No_____ Other _____

I approve the above drawings **X**_____ **Date:**_____

Any changes to these plans from here forward shall be directed in writing to Nespa.

SPA FABRICATION AUTHORIZATION

Nespa's engineering and structural manufacturing departments may find it necessary to make slight adjustments (= 1") to your spa. This may include the size of the spa (OD/ID), tile cuts, depths, jet location, bench steps etc. These adjustments must be made in the primary stages of building the spa. The adjustments are generally made to ad structural and aesthetic integrity to the vessel. IE: balance of supporting gussets (exterior) and less tile cuts/ symmetrical cuts, grout lines, etc. (interior)

Please initial next to the following number that describes your project needs .

- _____ 1. YES, I understand adjustments need to be made. Nespa will use their expertise to make these adjustments as needed. I give them the authority to make changes. I will receive final accurate drawings prior to receipt of spa or spa hole construction (if changes were made to the size)
- _____ 2. NO, No changes can be made even under 1". Dimensions are fixed. More tile cuts may be needed, Structural supports may be altered to accommodate.
- _____ 3. Nespa will need to contact us for any changes to spa dimensions prior to continued spa fabrication.

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NESPA ENTERPRISES INC.

2800 Richter Ave. Suite C Oroville, CA 95966

Office: (530) 534-9910

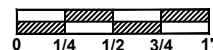
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E-Mail: jim@tiledspas.com Web Site: www.tiledspas.com



If printing as a PDF:

Page Scaling:



DWG TYPE

Revisions

DWG NAME

966 PALISADES

DATE

6/5/2013

SHEET

Cover Sheet

These drawings, concepts, and details contained herein are the original proprietary designs of NESPA ENTERPRISES, developed over many years of experience in the industry and as such are protected by the copyright laws of the United States Government. Reproduction of any of the above without written permission to do so by NESPA ENTERPRISES, is illegal.

SPECIFICATIONS	
SHELL WEIGHT:	1600 LBS.
WATER WEIGHT:	3461 LBS.
TOTAL SHELL & WATER WEIGHT:	5061 LBS.
WATER VOLUME:	55.5 Cu.Ft.
WATER GALLONS:	415 GAL.
SURFACE AREA:	24.0 SQ. FT.
ICC ES LISTED #:	PMG-1161
FDA#:	2030305

SKID SUPPORT STRUCTURE* BONDED TO SPA



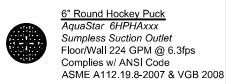
*SKIDS SUPPLIED
BY NESPA

LIGHT NICHE



LED SPA LIGHT

SIDEWALL SUCTION



8" Round Hockey Puck
AquaStar GHPH Lux
Sumpluss Suction Outlet
Floor/Wall 224 GPM @ 6.3fps
Complies w/ ANSI Code
ASME A112.19.8-2007 & VGB 2008

JET

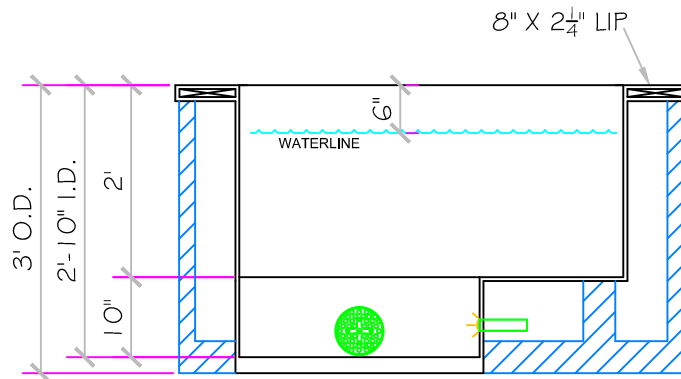
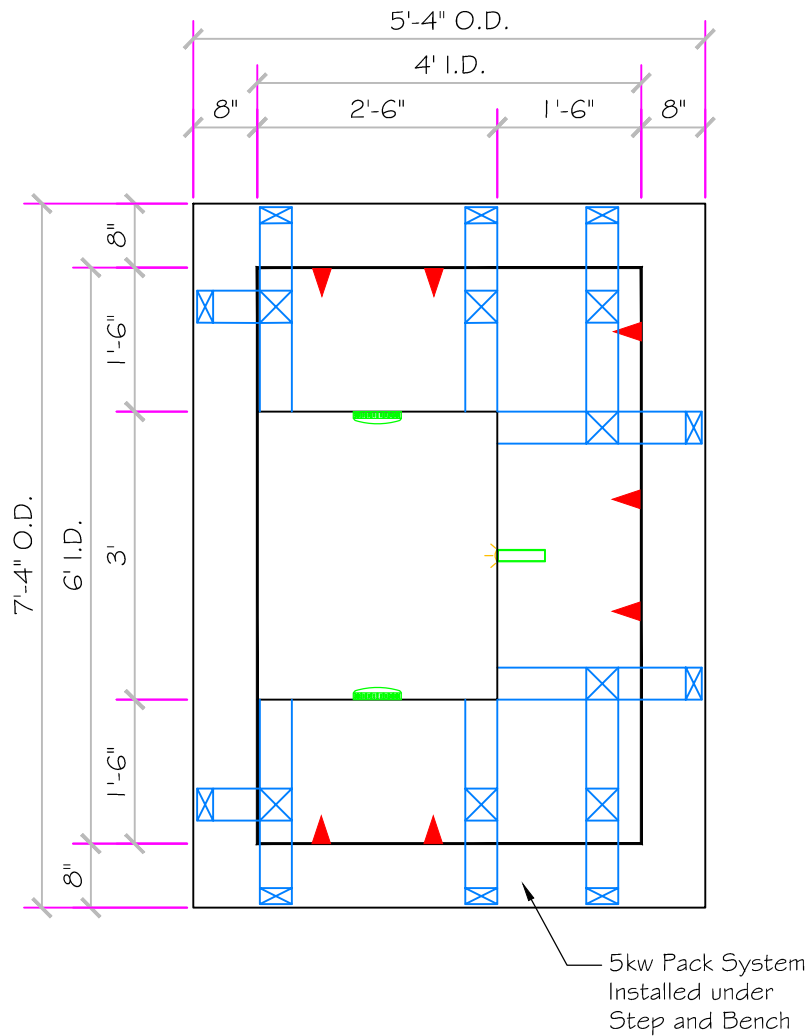
HYDRO INLETS
1-1/2" WATER - 1-1/2" AIR
HYDROAIR #10-5100
COMPLIES W/ ANSI CODE ASME A112.19.8-07
UL APPROVED

RETURN

INLET FITTINGS
1-1/2" WALL TYPE W/ EYEBALL
HYDROAIR #10-3500
COMPLIES W/ ANSI CODE ASME A112.19.8-07
UL APPROVED

FILL

INLET FITTINGS
1-1/2" WALL TYPE W/ EYEBALL
HYDROAIR #10-3500
COMPLIES W/ ANSI CODE ASME A112.19.8-07
UL APPROVED



APPROVED

6/27/2013 11:32:34 AM

*ALL DIMENSIONS SUBJECT TO 1/4" TOLERANCES

NESPA ENTERPRISES INC.

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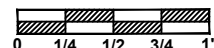
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DWG NAME

966 PALISADES

SCALE

1/2" = 1'



DATE

6/5/2013

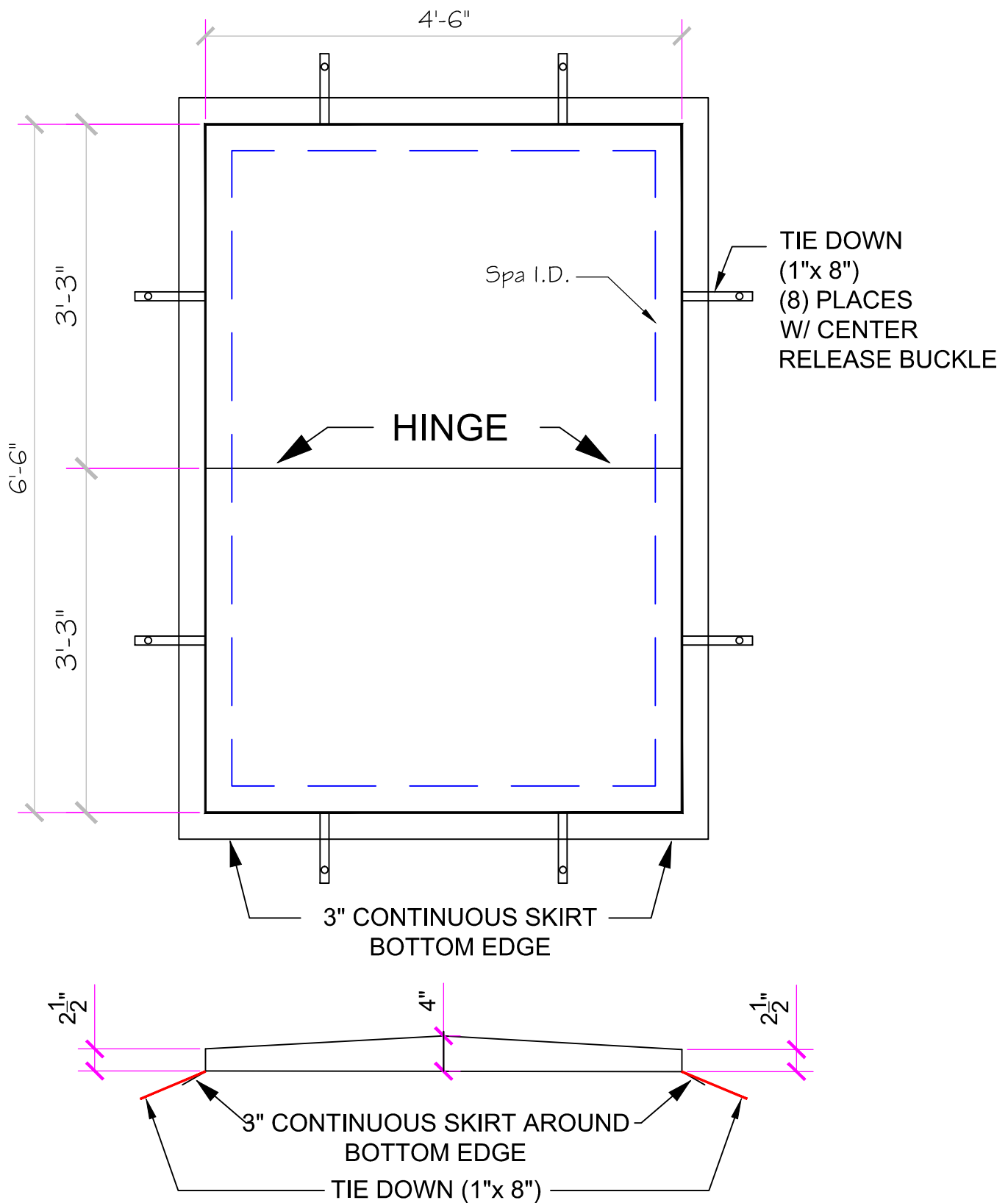
DWG TYPE

SD

SHEET

PAGE 1 OF 3

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SPA COVER #605-P
Light Grey. - 2 PC.
 For: 966 Palisades

APPROVED

6/27/2013 11:32:35 AM

ALL DIMENSIONS SUBJECT TO 1/4" TOLERANCES

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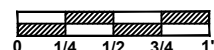
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DWG NAME

966 PALISADES

SCALE

3/4" = 1'



DWG TYPE

Cover

DATE

6/5/2013

SHEET

PAGE 3 OF 3

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SITE PREPARATION / GENERAL GUIDELINES

Portable spa installation is simple when properly planned. To that end, it is important that you read the following information carefully and consult with your Nespa Tiled Spas dealer.

- 1) Access - The actual dimensions of your new spa will determine the amount of space that is needed in moving the spa from curbside to its final installation area. Be sure to measure side yard dimensions, gates or doors and vertical obstructions such as roof overhangs and overhead cables. Any other space limiting obstacles such as trees or shrubs must be evaluated.
- 2) If the spa is being installed indoors, dimension limitations such as stairs, ceilings and walls must be taken into consideration. Please have your Master Spas dealer or delivery service review site or installation plans prior to delivery.
- 3) Surface/Pad Requirements - When your new spa is filled with water and bathers, it may weigh as much as several tons. It is imperative that the base beneath the spa can support the actual weight. The spa must be on a uniformly firm, continuous, and level surface. The recommended foundation is a concrete pad with a minimum thickness of four (4) inches with steel reinforcement bars crossed throughout the pad.

IMPORTANT

When installing your spa indoors, on a wood deck, or balcony, the same load requirements must be met. Total load may be as much as 90 pounds per square foot. You should speak with a qualified contractor or your local building department to confirm that your surface is adequate for supporting a spa. Be sure to locate your spa so that equipment remains above grade and is not subject to flooding.

The equipment side(s) of the spa must be accessible in the event that future service is needed. Periodical maintenance checks require entry into the equipment bay. When possible, it is wise planning for the future to leave access to all sides of the spa in the event your spas plumbing requires maintenance. Your spa warranty does not cover the cost of providing access for service.

GENERAL CONSIDERATIONS FOR OUTDOOR INSTALLATION

Again, proper planning will increase your total enjoyment factor with your new spa. Listed below are some additional items to consider when planning your installation.

- How spa will complement landscaping and vice versa
- View from inside spa and view of spa from inside of home
- Exposure to sunlight and shading from trees
- Privacy
- Getting to spa from house and return
- Proximity to dressing rooms and bathrooms
- Storage for spa chemicals
- Local building codes (if applicable)
- Power cable

GENERAL CONSIDERATIONS FOR INDOOR INSTALLATION

Installing your spa indoors creates an entirely different set of considerations. Here again, with proper planning, no matter what room your spa goes in, it will be your favorite room.

- Work with your Master Spas dealer and contractor to insure all local building, electrical and plumbing codes are met
- Plan for a floor drain to drain off excess water or for draining and cleaning your spa
- A ventilation fan may be necessary due to high humidity created by your spa
- Finished material in your spa room should also be capable of withstanding increased humidity

ELECTRICAL INSTALLATION REQUIREMENTS

ELECTRICAL INSTALLATION REQUIREMENTS

HAVE YOUR ELECTRICIAN READ THE FOLLOWING INFORMATION BEFORE INSTALLATION BEGINS

Electrical connections made improperly, or the use of wire gauge sizes for incurring power which are too small, may continually blow fuses in the electrical equipment box, may damage the internal electrical controls and components, may be unsafe and in any case will void your warranty.

It is the responsibility of the spa owner to ensure that electrical connections are made by a qualified electrician in accordance with the National Electrical Code and any local and state electrical codes in force at the time of installation.

These connections must be made in accordance with the wiring diagrams found inside the control box. This equipment has been designed to operate on 60Hz. alternating current only, 240 volts are required. Make sure that power is not applied while performing any electrical installation. A copper bonding lug has been provided on the electrical equipment pack to allow connection to local ground points. The ground wire must be at least 6 AWG copper wire and must be connected securely to a grounded metal structure such as a cold water pipe. All Master Spas equipment packs are wired for 240 VAC only. The only electrical supply for your spa must include a 50 AMP switch or circuit breaker to open all non-grounded supply conductors to comply with section 422-20 of the National Electrical Code. The disconnect must be readily accessible to the spa occupants, but installed at least five feet from the spa. A Ground-Fault Circuit Interrupter (GFCI) must be used to comply with section 680-42 of the National Electrical Code. A ground fault is a current leak from any one of the supply conductors to ground. A GFCI is designed to automatically shut off power to a piece of equipment when a current fault is detected.

Power hook-up to the spa must be 240 volt 3 wire plus ground (6 AWG copper).

Route the cable into the equipment area for final hook-up to terminals inside the control panel. The spa must be hooked up to a “dedicated” 240 volt, 50 amp breaker and GFCI. The term “dedicated” means the electrical circuit for the spa is not being used for any other electrical items (patio lights, appliances, garage circuits, etc.). If the spa is connected to a non-dedicated circuit, overloading will result in “nuisance tripping” which requires resetting of the breaker switch at the house electrical panel.

Rev. 05/01/06

Permanently Connected Equipment Assembly with Pump(s), Heaters, Luminaine, Ozone, Spa Side Control(s), Pump shut off device, and Audio/Video Components.

Note: Some of the above components may be optional or not available with every spa model.

WARNING: FAILURE TO PROVIDE A DEDICATED CIRCUIT FOR YOUR SPA ELECTRICAL INSALLATION CAN CAUSE EQUIPMENT DAMAGE AND INVALIDATE YOUR WARRANTY.

Your spa electrical installation must be accomplished by a qualified and licensed electrician in accordance with the National Electrical Code (NEC) Article 680, Canadian Electric Code, and with any local codes effective at the time of installation.

All connections must be made according to the electrical installation label inside the control box. Follow the instructions from the label if they are different than instructions found in this manual. If your electrician is not absolutely sure how to correctly connect your system, call your dealer. Do not guess. Any mistake may be costly and invalidate your equipment warranty.

The GFCI is a mandatory electrical safety device required for all portable spas and hot tubs as specified in the National Electrical Code Article 680-42. The GFCI in your particular installation may be installed at the electrical service panel, a separate sub-panel or built into your Spa's Equipment System. Equipment systems with a built in GFCI meeting the code requirements will be marked on the top of the control panel with an identification label.

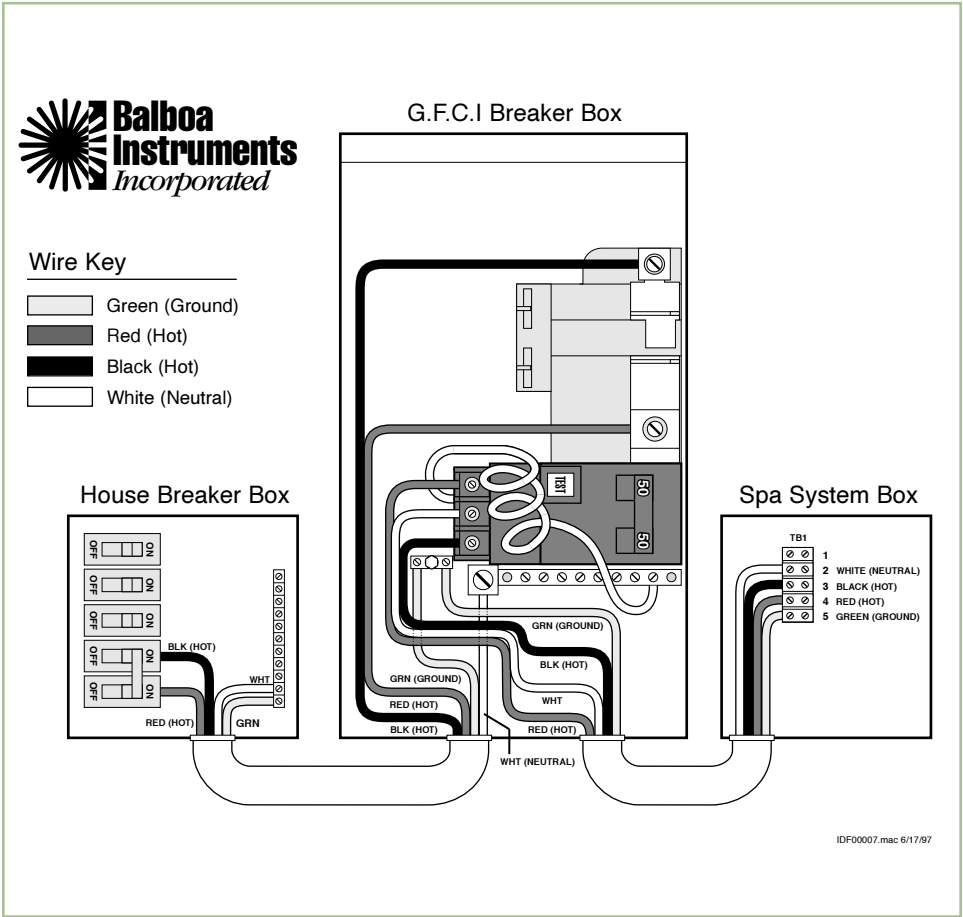
Your spa equipment requires a dedicated circuit. No other appliances or lights can be on this circuit. Refer to equipment data label for power supply requirements of your spa equipment. Use copper conductors only.

The ground must be equal to or larger than the largest power conductor.

NOTE: Due to the spa electrical installation requirement of some models, it may be required to SPLIT the incoming electrical service to accommodate the GFCI Circuit Breaker limitations.

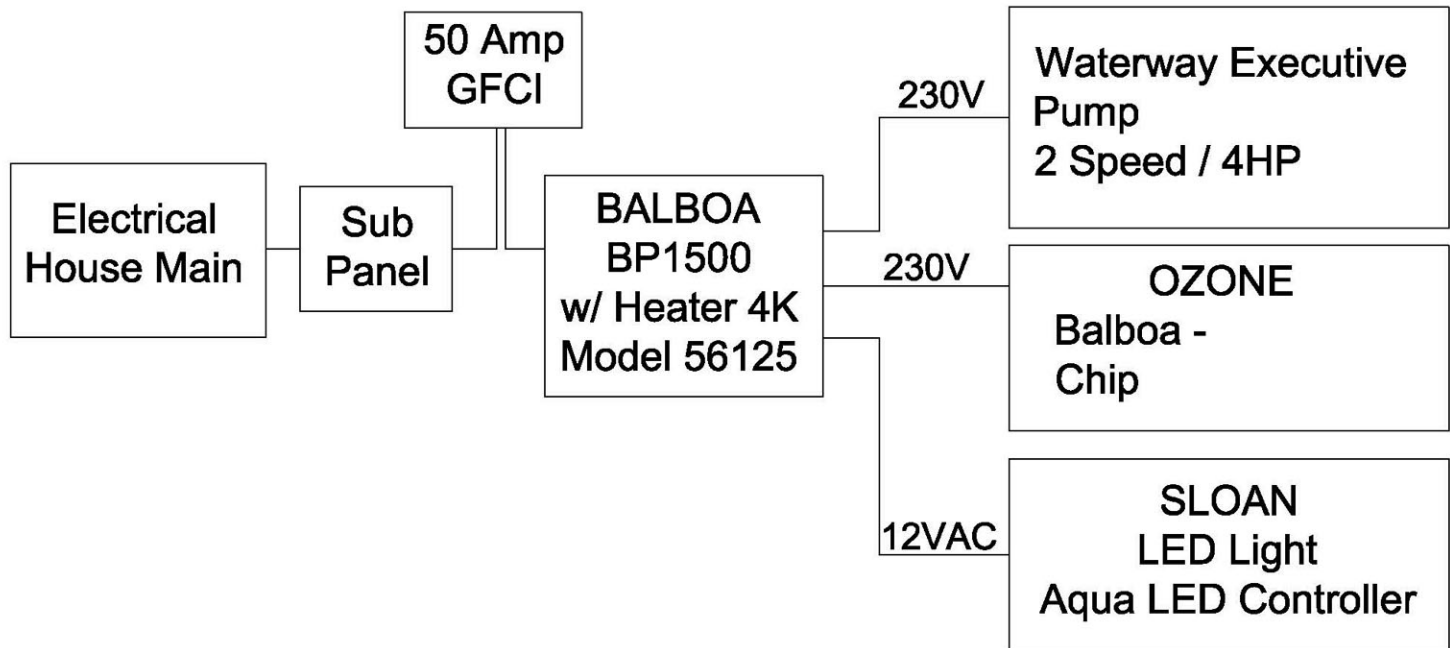
Contact your electrician if you need additional information on this topic or others related to your spa electrical installation.

WIRING SCHEMATIC - 240 VOLT SPA HOOK-UP



IDF00007.mac 6/17/97

* Actual wiring of GFCI will vary by manufacturer of GFCI. The GFCI shown is a Square D. Improper wiring of GFCI may result in permanent damage to spa system box. Repair / replacement of spa system box is not covered under warranty when damage results from improper wiring.



BP1500 Tech Sheet

Balboa Water Group

Part Number: 56125-02 4kW 800 Incoloy Element
56126-02 With 4kW Titanium Element

Compatible Plumbing Kits (Coupling nuts and seals included)

55911 2" Tailpieces (2-Speed Pump 1)
55914 1.5" Tailpieces (2-Speed Pump 1)
55912 1" Tailpiece Inserts (Circ)
55913 One Direct Circ Pump Coupling and one 1" Tailpiece Insert

UL System Model: BP15-BP1500-BJ
Software ID: M100_200 V6
Software Version: 6.0
Hex File: BP1500_6.0_BP15TP4A.hex
Configuration Signature: 0608A20D

Eng. Project: 3767

Base PCBs / PCBA's:

Power Board: 22117_B / 56128
Logic Board: 22121_E / 56127-02

Control Panels:

TP 600 55673-05
Software Version 2.3 and later
TP400T 50260
Software Version 2.4 and later
TP400W 50259
Software Version 2.4 and later

Auxiliary Panels

AX10A2 55919



User Interface and Programming Guide:

http://service.balboa-instruments.com/zz40940_download.zip

BALBOA
water group

Manufactured under one or more of these patents. U.S. Patents: 5332944, 5361215, 5550753, 5559720, 5,883,459, 6253227, 6282370, 6590188, 6976052, 6965815, 7030343, 7,417,834 b2, Canadian Patent: 2342614, Australian patent: 2373248 other patents both foreign and domestic applied for and pending. All material copyright of Balboa Water Group.

Template 40941_J 04-02-10

Setup 5

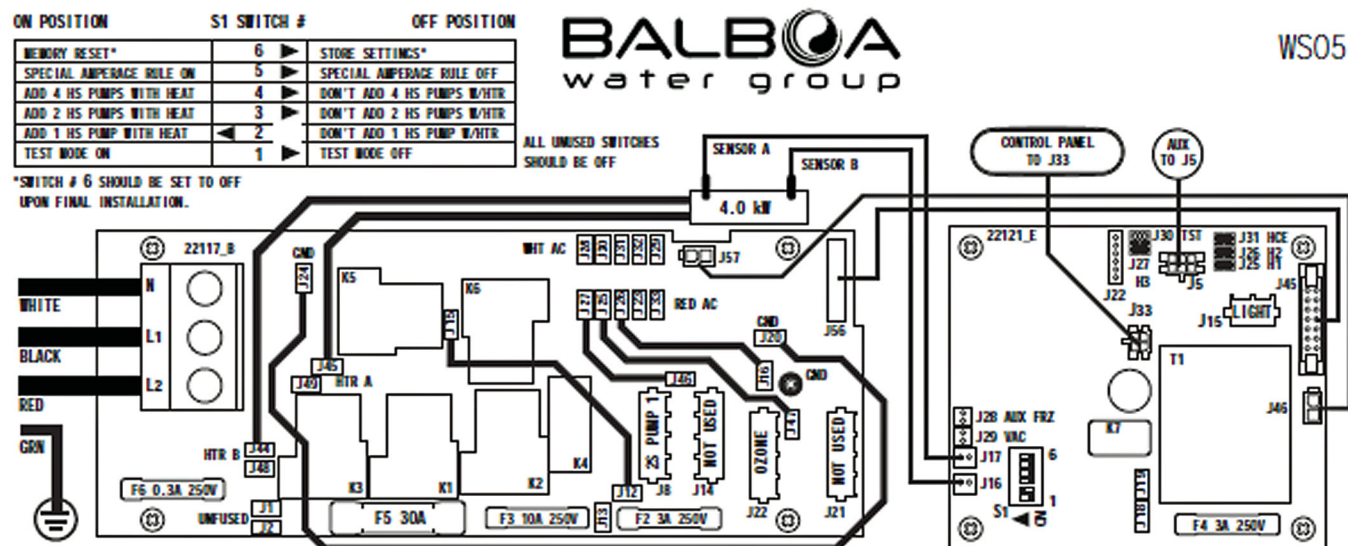
Power Requirements:

240VAC, 60Hz, 40A, Class A GFCI-protected service (Circuit Breaker rating = 50A max.)
4 wires (Hot-Line 1, Hot-Line 2, Neutral, Ground)

System Outputs:

Pump 1	240VAC	2-Speed	12A max	30-minute timer for Low Speed, 15 Minutes for High Speed
This is the heater pump and must be the same voltage as the Ozone				
Must deliver a minimum of 20 GPM through heater				
Ozone	240VAC		.5A max	Uses the same relay as Pump 1 Low
Must be the same voltage as heater pump				
Spa Light	12VAC	On/Off	1A max	4-Hour timer.
Heater	4kW @ 240VAC			
Misc.	J23 & J32	120VAC	4A max	Hot output (Stereo). Fused equipment or in-line fuse required.

Wiring Diagram and Settings



Software Configuration Changes based on Default Feature

	Orig. Setup 1	Changes to
J14, TP600 Button 2, TP400 Button 4, LED 2, AX10A2.	Pump 2	Not Used

Refer to Page 3 to choose a suitable Plumbing Kit.

Blue indicates changes from the original Setup 1 default

Manufactured under one or more of these patents. U.S. Patents: 5332944, 5361215, 5550753, 5559720, 5,883,459, 6253227, 6282370, 6590188, 6976052, 6965815, 7030343, 7,417,834 b2, Canadian Patent: 2342614, Australian patent: 2373248 other patents both foreign and domestic applied for and pending. All material copyright of Balboa Water Group.

Initial Start-up

When your spa is first actuated, it will go into Priming mode, indicated by "Pr." The Priming mode will last for less than 5 minutes (press "Warm" or "Cool" to skip Priming Mode) and then the spa will begin to heat the spa and maintain the water temperature in the Standard mode.



This system is equipped with a 24-hour circ pump. The circ pump and ozone generator (if installed) run continuously.

Warm/Cool (80°F - 104°F / 26°C - 40°C)

The start-up temperature is set at 100°F/37°C. The last measured temperature is constantly displayed on the LCD.

Note that the last measured spa temperature displayed is current only when the pump has been running for at least 2 minutes.

To display the set temperature, press the "Warm" or "Cool" pad once.

To change the set temperature, press the pad a second time before the LCD stops flashing.

Each press of the "Warm" or "Cool" pad will continue to either raise or lower the set temperature.

After three seconds, the LCD will stop flashing and display the current spa temperature.

Jets 1

Touch the "Jets 1" button once to activate pump 1. Press the "Jets 1" button again to turn off the pump. If left running, the pump will automatically turn off after 15 minutes.

Jets 2

Touch the "Jets 2" button once to activate the pump. Press the "Jets 2" button again to turn off the pump. If left running, the pump will automatically turn off after 15 minutes.

Light

Press the "Light" button to turn the light on and off. If left on, the light automatically turns off after 4 hours.

L.E.D. Light

Press the "Light" button to turn the light on and off. If you wish to change the "function" of the lights, turn the lights off, then on within 5 seconds. If you wish to leave the lights in the same "function" setting for the next use, turn the lights off and do not turn back on for at least 5 seconds.

Mode

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

Standard mode is programmed to maintain the desired temperature. Note that the last measured spa temperature displayed is current only when the pump has been running for at least 2 minutes. "St" will be displayed momentarily when you switch into Standard mode.

Economy mode heats the spa to the set temperature only during filter cycles. "Ec" will display solid when the temperature is not current, and will alternate with the temperature when the temperature is current.

Sleep mode heats the spa to within 20°F /10°C) of the set temperature only during filter cycles. "SL" will display solid when the temperature is not current, and will alternate with temperature when temperature is current.

Preset Filter Cycles (if configured)

Your spa comes standard with a 24 hour circulation pump that filters and maintains heat as programmed/configured.

Freeze Protection

If the temperature sensors detect a drop to below 44°F /6.7°C within the heater, the pump automatically activates to provide freeze protection. The equipment stays on until 4 minutes after the sensors detect that the spa temperature has risen to 45°F /7.2°C or higher. In colder climates, an optional additional freeze sensor may be added to protect against freeze conditions that may not be sensed by the standard sensors. Aux freeze sensor protection acts similarly except with the temperature thresholds determined by the switch and without a 4-minute delay in turnoff. See your dealer for details.

Message	Meaning	Action Required
	No message on display. Power has been cut off to the spa.	The control panel will be disabled until power returns. Time of day will be preserved for 30 days on your system. Spa settings are preserved on all systems.
--	Temperature is unknown.	After the pump has been running for 2 minutes, the temperature will be displayed.
HH	"Overheat" - The spa has shut down. One of the sensors has detected 118°F/48°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	"Overheat" - The spa has shut down. One of the sensors has detected that the spa water is 110°F/43°C.	DO NOT ENTER THE WATER. Remove the spa cover and allow water to cool. At 107°F/ 42°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.
IC	"Ice" - Potential freeze condition detected.	No action required. The pumps will automatically activate regardless of spa status.
SA	Spa is shut down. The sensor that is plugged into the Sensor "A" jack is not working.	If the problem persists, contact your dealer or service organization. (May appear temporarily in an overheat situation and disappear when the heater cools.)
Sb	Spa is shut down. The sensor that is plugged into the Sensor "B" jack is not working.	If the problem persists, contact your dealer or service organization. (May appear temporarily in an overheat situation and disappear when the heater cools.)
Sn	Sensors are out of balance. If alternating with spa temperature, it may just be a temporary condition. If flashing by itself, spa is shut down.	If the problem persists, contact your dealer or service organization.
HL	A significant difference between the temperature sensors has been detected. This could indicate a flow problem.	Check water level in spa. Refill if necessary. If the water level is okay, make sure the pumps have been primed. If problem persists, contact your dealer or service organization.
LF	Persistent low flow problems. (Displays on the fifth occurrence of "HL" message within 24 hours.) Heater is shut down, but other spa functions continue to run normally.	Follow action required for "HL" message. Heating capacity of the spa will not reset automatically; you may press any button to reset.

Diagnostic Messages

Message	Meaning	Action Required
drY	Inadequate water detected in heater. (Displays on third occurrence of "dr" message.) Spa is shut down.	Follow action required for "dr" message. Spa will not automatically reset; you may press any button to reset.
P_r	When your spa is first actuated, it will go into Priming mode.	See the M-7 Installation Instruction Manual for complete instructions on Power-up and Pump Priming. The Priming mode will last for up to 4 minutes and then the spa will begin to heat and maintain the water temperature in the Standard mode.
--F	Temperature unknown.	After the pump has been running for 2 minutes, the temperature will be displayed.
--E	Temperature not current in Economy or Sleep mode.	In Economy or Sleep mode, the pump may be off for hours outside a filter. If you wish to see the current spa temperature, either switch to Standard mode or turn Jets 1 on for at least two minutes.
SbY	Standby Mode has been activated by pressing a button combination on the user panel.	Press any button to leave Standby mode and return to normal operation.

PERIODIC REMINDER MESSAGES *Press*

the "Mode" button to reset a displayed reminder (if configured)

Message	Meaning	Action Required
rPH	Every 7 days	Test and adjust ph chemical levels per manufacturer's instructions.
rSA	Every 7 days	Test and adjust sanitizer chemical levels per manufacturer's instructions.
rCL	Every 30 days	Remove, clean, and reinstall filter per manufacturer's instructions.
rTG	Every 30 days	Test and reset GFCI per manufacturer's instructions.
rd_r	Every 90 days	Drain and refill spa per manufacturer's instructions.
rCO	Every 180 days	Clean and condition cover per manufacturer's instructions.
rTr	Every 180 days	Clean and condition wood per manufacturer's instructions.
rCH	Every 365 days	Install new filter.

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.

Diagnostic Messages

Message	Meaning	Action Required
	No message on display. Power has been cut off to the spa.	The control panel will be disabled until power returns. Time of day will be preserved for 30 days on your system. Spa settings are preserved on all systems.
<i>OHH</i>	"Overheat" - The spa has shut down. On some systems, an alarm may sound. One of the sensors has detected 118°F (approx. 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.
<i>OH5</i>	"Overheat" - The spa has shut down. One of the sensors has detected that the spa water is 110°F (approximately 43.3°C).	DO NOT ENTER THE WATER. Remove the spa cover and allow water to cool. At 107°F (approx. 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.
<i>ICE</i>	"Ice" - Potential freeze condition detected.	No action required. The pumps will automatically activate regardless of spa status.
<i>SnA</i>	Spa is shut down. The sensor that is plugged into the Sensor "A" jack is not working.	If the problem persists, contact your dealer or service organization. (May appear temporarily in an overheat situation and disappear when the heater cools.)
<i>SnB</i>	Spa is shut down. The sensor that is plugged into the Sensor "B" jack is not working.	If the problem persists, contact your dealer or service organization. (May appear temporarily in an overheat situation and disappear when the heater cools.)
<i>Sn5</i>	Sensors are out of balance. If this is alternating with the temperature, it may just be a temporary condition. If the display shows only this message (periodically blinking), the spa is shut down.	If the problem persists, contact your dealer or service organization.
<i>HFL</i>	A substantial difference between the temperature sensors was detected. This could indicate a flow problem.	Check water level in spa. Refill if necessary. If the water level is okay, make sure the pumps have been primed. If problem persists, contact your dealer or service organization.
<i>LF</i>	Persistent low flow problems. (Displays on the fifth occurrence of the "HFL" message within 24 hours.) Heater is shut down, but other spa functions continue to run normally.	Follow action required for "HFL" message. Heating capacity of the spa will not reset automatically; you may press any button to reset.
<i>dr</i>	Inadequate water detected in heater.	Check water level in spa. Refill if necessary. If the water level is okay, make sure the pumps have been primed. Press any button to reset.

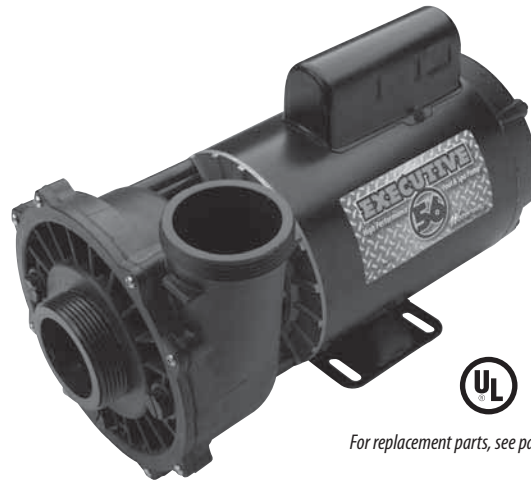
Message	Meaning	Action Required
dr	Possible inadequate water, poor flow, or air bubbles are detected in the heater. Spa is shut down for 15 minutes.	Check water level in spa. Refill if necessary. If the water level is okay, make sure the pumps have been primed. Press any button to reset, or this message will automatically reset within 15 minutes. If problem persists, contact your dealer or service provider.
dy	Inadequate water detected in heater. (Displays on third occurrence of "dr" message.) Spa is shut down.	Follow action required for "dr" message. Spa will not automatically reset; you may press any button to reset.

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FEATURES:

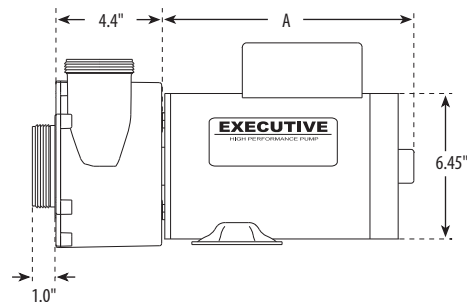
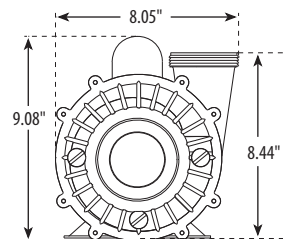
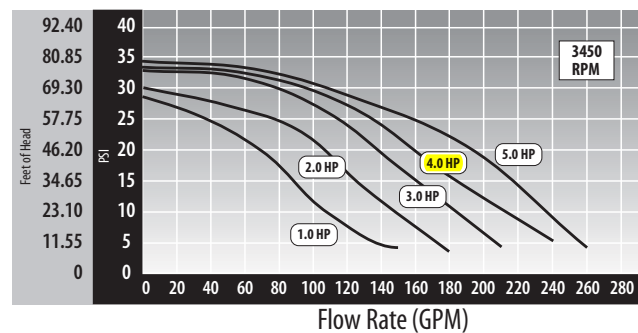
- Executive wet end designed specifically for 56-frame motors
- Two double shielded ball bearings with moisture resistant grease for quieter operation and longer life
- Two speed motors have four sets of insulated windings for increased efficiency
- 56-frame motor for added strength, cooler operating temperature and longer motor life
- Large 2 1/2" intake for improved flow performance and reduced noise
- Large 6 1/2" diameter wet end for higher head pressure
- Split capacitor, (start and run) for less energy consumption
- Thermally protected to extend life expectancy of motor
- Highly versatile wet end can be rotated every 90°
- Viton seals
- Three year warranty on motor and wet end



For replacement parts, see page 279

Call for available cords and plugs.

PRESSURE VERSUS FLOW RATE



2-Speed Executive 56-Frame Pumps

Part No.	Description	HP	Volts	Amps High Speed	Amps Low Speed	Hz	Dimension "A"	List (US \$)
3720821-1D	2" Intake - 2" Discharge	2	230	8.0	3.0	60	8.875"	605.01
3720821-13	2 1/2" Intake - 2" Discharge	2	230	8.0	3.0	60	8.875"	605.01
3721221-1D	2" Intake - 2" Discharge	3	230	10.0	3.4	60	9.875"	646.45
3721221-13	2 1/2" Intake - 2" Discharge	3	230	10.0	3.4	60	9.875"	646.45
3721621-1D	2" Intake - 2" Discharge	4	230	12.0	4.4	60	10.375"	704.82
3721621-13	2 1/2" Intake - 2" Discharge	4	230	12.0	4.4	60	10.375"	704.82
3722021-1D	2" Intake - 2" Discharge	5	230	16.4	4.8	60	10.375"	800.35
3722021-13	2 1/2" Intake - 2" Discharge	5	230	16.4	4.8	60	10.375"	800.35

1-Speed Executive 56-Frame Pumps

Part No.	Description	HP	Volts	Amps	Hz	Dimension "A"	List (US \$)
3710821-1D	2" Intake - 2" Discharge	2	230	8.0	60	8.875"	605.01
3710821-13	2 1/2" Intake - 2" Discharge	2	230	8.0	60	8.875"	605.01
3711221-1D	2" Intake - 2" Discharge	3	230	10.0	60	9.875"	646.45
3711221-13	2 1/2" Intake - 2" Discharge	3	230	10.0	60	9.875"	646.45
3711621-1D	2" Intake - 2" Discharge	4	230	12.0	60	10.375"	670.61
3711621-13	2 1/2" Intake - 2" Discharge	4	230	12.0	60	10.375"	690.21
3712021-1D	2" Intake - 2" Discharge	5	230	16.4	60	10.375"	690.21
3712021-13	2 1/2" Intake - 2" Discharge	5	230	16.4	60	10.375"	699.30

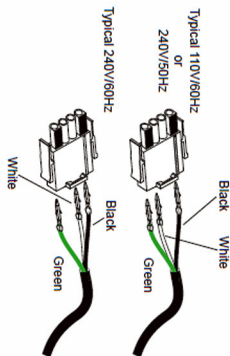


O₃zone™ by Balboa is a reliable and flexible system designed to generate ozone for your pool or spa. It has Universal Auto-range Voltage that can operate with any input voltage (110-240 VAC and 50/60 Hz).

Warning! Shock Hazard! No User Serviceable Parts. Do not attempt service of this ozonator. Contact your dealer or service organization for assistance. Follow all owners manual instructions. Installation must be performed by a licensed electrician. Installation must be in compliance with all state, national, and local building & electrical codes. No usable parts inside.



Diagram 3



This unit is shipped with the wiring as shown. 110V or 240V can be applied to the black and white wires. To match alignment of the white wire of the ozone generator connector with the controller box connector, the white wire can be moved. Refer to Step 2 under "FOR REPLACEMENT".

OEM Installation

The effectiveness of the ozone generator is dependent on the design delivery system per each manufacturer. It is the responsibility of the installer to follow the installation procedures set forth by the manufacturer. Failure to do so will void the warranty. Diagram 2 shows the basic layout recommended for the installation of Balboa's Ozone Generator.

1. Turn off all power.
2. Loop the hose into a "Hartford Loop" and have the upper part of the loops positioned above the water line level as shown. Failure to do so could result in water intrusion, which is not covered by the warranty. Attach the hose to the ozone injector fitting on the spa plumbing. Install the check valve so that the arrow points in the direction of air flow from the generator to the ozone injector (Diagram 2).

Note: If you do not properly install the check valve, the air flow will be blocked from going into the spa/pool and will not perform the ozonation process.

3. Power up the system and briefly run the filtration pump. Place your finger over the end of the hose near the check valve. You should feel a slight suction. If not, check for hose kinks, hose obstructions, and that the check valve is in the proper direction. When suction is obtained, attach the hose from the generator to the barbed output of the ozone generator.
4. Turn off the control system and hook the power cable to the control system marked for Ozone. (Follow the system's wiring diagram for the proper location.)
5. Turn the system power back on and run the pump. Confirm that the light in the Ozone window is ON.

FOR REPLACEMENT (System with AMP connector on the outside of the box)

1. Follow the above steps (1-4).
2. Uncover the controller box. Match the wires' output of the ozone AMP connector mark on the outside of the box with the AMP connector provided with the ozone generator. Refer to Diagram 3.
3. Insert the wire. You will feel it "click" into position when it is seated. A slight tug on the wire is all that's needed to be sure that the terminal is seated.

4. Mate the AMP connector and power up the spa. Make sure that you are in filtration cycle and confirm that the light on the ozone generator window is on.

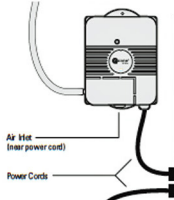


Diagram 1

Both diagrams, Diagrams 1 & 2, show that the ozone generators must be mounted with their inlets facing down. As shown (right), the chip generator outlet will be pointing to the left once installed.

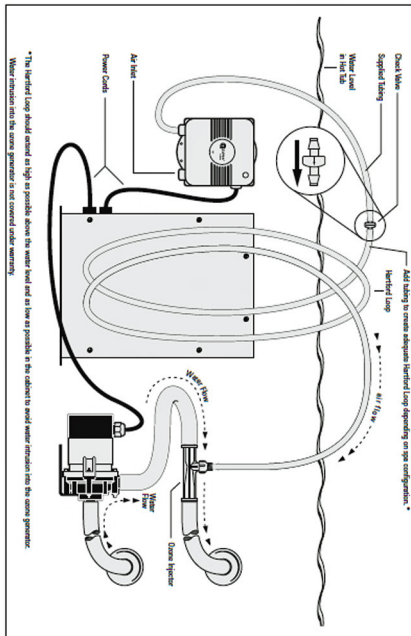


Diagram 2



LiquaLED Controllers

Controls colors, color-changing and sequencing via built-in software program



- Patent Pending control technology
- Compatible with all LiquaLED Cluster Lights, Bullet Lights and Accent Lights
- UL Approved - File Number #E242370
- Serviceable fused input for safety
- Moisture resistant electronics
- Easy to mount anywhere in spa's equipment area Full Spectrum Color Control

LiquaLED Control 100

- Controls and synchronizes all LEDs
- Controls up to 100 points of light plus one cluster
- Controlled by spa pack
- Powered by spa's stereo power supply or external SloanLED power supply
- Replaces large fiber optic systems

LiquaLED Control 40

- Controls up to 40 points of light plus one cluster
- Controlled by spa pack
- No external power supply required
- Cost effective control device

Item Description	LiquaLED Controllers	
	Control 100	Control 40
Part Number	701712-DLO	701678-DLO
Max Points of Lights (not including clusters)	100	40
Required Input Voltage - AC	12 V AC from Spa Pack	
Required Input Voltage - DC	External 12 V DC Supply	No External DC Supply Required
Typical Max Output Current / Power	2 Amps / 24 Watts	1 Amp / 12 Watts
Controller Dimensions	3.25" x 2.75" x .75"	3.25" x 2.75" x .75"
On/Off Control	Spa pack light on/off switch on top-side control panel	





UltraBRITE-Mini Standard Integrated LED Cluster Lamp

Bring high-end features and quality to entry-level spas



UltraBRITE-Mini
with lens

- Fully Integrated Solution – No separate controller required
- High-brightness LED cluster
- Reliable moisture-resistant electronic coatings
- On-board selectable color-controller
 - Color Wheel
 - Magenta
 - Green
 - White
 - Blue
 - Red
 - Cyan
 - Yellow
 - White Strobe
- Two physical packaging configurations:



Bi-Pin Connector Style

- Bi-Pin (-P) used for simple incandescent replacement / retrofitting into standard bulb socket



Bayonet Style Mounting

- Bayonet-Style (-SA) installs into standard lens bases (from 2" to 5" in diameter). Includes adapter cable to allow connection via either 1/4" QC terminal or 2-prong MLX plug

Item Description	UltraBRITE-Mini LED Light
Part Numbers	701861-9-P (bi-pin) 701861-9-SA (bayonet)
High-Brightness LEDs per Cluster	9 - 5mm LEDs
Input Voltage	12V AC
Typical Maximum Current	200 mA
Diameter of PCB	1.3"
Fits Lens Sizes (Approximate)	~ 2.0" to 5.0"
Fixture depth	1.75"



www.SloanLED.com · info@SloanLED.com

Toll-Free 888.747.4LED · 805.676.3200 · Fax 805.676.3206

SPA WATER MAINTENANCE - START-UP

1. Read the spa owners manual first.
2. Clean the surface with a spa general purpose cleaner or wipe down with a clean wet towel.
3. Begin filling the spa with fresh water. If possible, do not use softened water.
4. When the spa has 2 to 4 inches of water on the bottom, add the recommended amount of a sequestering chemical for that size spa. See the chemical bottle for correct amounts.
5. When the spa is full, run the pump on high speed for 30 minutes without air controls open. This will give the sequestering chemical time to mix well with the water. Allow sequestering chemical 12-24 hours to properly filter in the water before proceeding with any further steps.
6. Using test strips or a test kit, test for total alkalinity, and adjust if necessary to between 80 to 150 ppm using the pH / alkalinity increaser or decreaser 1oz. at a time. Wait 15 minutes, retest, and adjust if necessary. The pump should be running on high speed during this time without air controls open.
7. Using test strips or a test kit, test for pH, and adjust if necessary to within the 7.2 and 7.8 range using the pH / alkalinity increaser or decreaser 1/2oz. at a time. Wait 15 minutes, retest, and adjust if necessary. The pump should be running on high speed during this time, without air controls open.
8. Add the sanitizer of choice, following label directions. If chlorine is used, broadcast the recommended amount across the surface of the water, with the pump running on high speed. Wait 15 minutes, retest, and adjust if necessary to a total chlorine reading of 1 to 3 ppm. If bromine is used, add bromine tablets to the bromine feeder following label directions. With the pump running on high speed, add 2oz. of sodium bromide, and shock the spa with 2oz. of non chlorine shock. It may take several days adjusting the bromine feeder to obtain a total bromine reading of 3 to 5 ppm. A bromine reading may not be obtained on the first day.
9. If any foam develops, add a defoamer at the base of the problem area. Use only enough defoamer to get rid of the foam. This is usually one or two drops Do not pour large amounts of defoamer into water.
10. Wait two days, and begin a three day a week maintenance program.

WATER CHEMISTRY TERMS YOU SHOULD KNOW

Before jumping into the Spa Water Maintenance, here are some terms to help you.

1. **Parts per million, or ppm:** This is a form of measurement used in most pool or spa chemical readings. Best described as any one million like items of equal size and make up, next to one unlike item, but of equal size. This would be one part per million.
2. **Average size spa:** What is it? The national spa and pool institute (NSPI) states; 350 to 400 U.S. gallons is average. As a general rule, chemical dosages are the same for any spa between 100 and 500 U.S. gallons. Spas over 500 U.S. gallons the dosage would be double. Under 100 U.S. gallons would be on a case by case basis.
3. **Total Alkalinity:** This is a measurement of the ability of the water to resist changes in pH. Put another way, it is the water's ability to maintain proper pH. Total alkalinity is measured in parts per million from 0 to 400 plus, with 80 to 150 ppm being the best range for spas. With low alkalinity, the pH will flip, or change back and forth, and be hard to control. With high alkalinity it becomes extremely difficult to change the pH.
4. **pH or potential hydrogen:** This is a measurement of the active acidity in the water, or it is the measurement of the concentration of active hydrogen ions in the water. The greater the concentration of active hydrogen ions, the lower the pH. pH is not measured in parts per million, but on a scale from 0 to 14, with 7 being the neutral. In spas when ever possible, a measurement between 7.2 and 7.8 is best. Whenever possible, it should be between 7.4 and 7.6. With low pH, the results can be corroded metals, etched and stained plaster stained fiberglass or acrylic, eye / skin irritation, rapid chlorine or bromine loss, and total alkalinity destruction. With high pH, the results can be cloudy water, eye / skin irritation, scale formation and poor chlorine or bromine efficiency.
5. **Shocking:** This is when you add either extra chlorine (superchlorinate) by raising the chlorine level above 8 ppm, or add a non-chlorine shock (potassium monopersulfate or potassium monopersulfate) to burn off the chloramines or bromamines. A non-chlorine shock acts by releasing oxygen in the water, which serves the same function as chlorine. The advantage to using non-chlorine shock, is you can enter the water within 15 minutes after shocking. Using chlorine, you must wait until the total chlorine reading is below 5 ppm. One thing to remember, a non-chlorine shock will not kill bacteria or disinfect.
6. **Sequestering:** This can be defined as the ability to form a chemical complex which remains in solution, despite the presence of a precipitating agent (i.e. calcium and metals). Common names for sequestering chemicals are; minquest, stain and scale control, metal-x, spa defender, spa metal gone, (etc.).
7. **Filtration:** Filters are necessary to remove particles of dust, dirt, algae, etc. that are continuously entering the water. If the spa is not operated long enough each day for the filter to do a proper job, this puts a burden on the chemicals, causing extra expense. Filtration time will depend on the spa size, pump and filter size, and of course, bather load. A spare cartridge should be kept on hand to make it easy to frequently clean the cartridge without the need for a long shut down. This will also allow the cartridge to dry out between usages, which will increase the cartridge life span as much as twice. Replace the cartridge when the pleats begin to deteriorate. Cartridge cleaning should be done a minimum of once a month. More often with a heavy bather load.

WATER CHEMISTRY TERMS YOU SHOULD KNOW

Before jumping into the Spa Water Maintenance, here are some terms to help you.

8. **Sanitizers:** This is what kills the germs and bacteria that enter the water from the environment and the human body.
- A. Chlorine
1. Only one type is good for spa use: Sodium dichlor which is a granule, fast dissolving, and pH neutral
 2. Chlorine is an immediate sanitizer.
- B. Bromine (Note: Bromine use is not recommended with Eco Pur filters.)
1. Two types of tablets.
 - a. Hydrotech
 - b. Lonza
 2. Bromine is a slow dissolve chemical and may take a few days to develop a reserve or reading in the water.
9. **Total dissolved solids (TDS):** Materials that have been dissolved by the water. i.e. Like what happens when you put sugar in coffee or tea.
10. **Useful life of water (in days):** Water should be drained at least once every 180 days. Useful life may vary by usage and bather load.
11. **Defoamer:** Foaming may be caused by body oils, cosmetics, lotions, surface cleaners, high pH or algaecides as well as other organic materials. Low levels of calcium or sanitizer can also cause foaming. Also, double rinse your bathing suits as they will hold residual soap after being washed.
12. **Calcium hardness:** Water that is too hard (over 250 ppm) can promote scale formation in components and on spa surface. Water that is too low (below 180 ppm) may also shorten the life of metal components on the spa.
- NOTE:** Always leave spa cover open for 15 minutes after adding chemicals to prevent the off gas from damaging your spa cover, spa pillows and other critical parts.

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 - a. Hydrotech
 - b. Lonza
 2. Bromine is a slow dissolve chemical and may take a few days to develop a reserve or reading in the water.
 9. **Total dissolved solids (TDS):** Materials that have been dissolved by the water. i.e. Like what happens when you put sugar in coffee or tea.
 10. **Useful life of water (in days):** Water should be drained at least once every 180 days. Useful life may vary by usage and bather load.
 11. **Defoamer:** Foaming may be caused by body oils, cosmetics, lotions, surface cleaners, high pH or algaecides as well as other organic materials. Low levels of calcium or sanitizer can also cause foaming. Also, double rinse your bathing suits as they will hold residual soap after being washed.
 12. **Calcium hardness:** Water that is too hard (over 250 ppm) can promote scale formation in components and on spa surface. Water that is too low (below 180 ppm) may also shorten the life of metal components on the spa.
- NOTE:** Always leave spa cover open for 15 minutes after adding chemicals to prevent the off gas from damaging your spa cover, spa pillows and other critical parts.

SPA WATER MAINTENANCE TROUBLE-SHOOTING GUIDE

Problem	Possible Causes	How To Fix It
Chlorine / Bromine Odor	<ul style="list-style-type: none">Excessive Chlorine or bromine levelLow pH	<ul style="list-style-type: none">Shock water with non-chlorine shock treatmentAdjust pH if necessary
Water Odor	<ul style="list-style-type: none">Low levels of sanitizerpH out of rangeBacteria or algae growth	<ul style="list-style-type: none">Shock water with non-chlorine shock treatment or adjust sanitizer levelsAdjust pH level if necessaryAdjust sanitizer if necessary
Cloudy Water	<ul style="list-style-type: none">Dirty filters or inadequate filtrationWater chemistry not balancedSuspended particles or organic materialsOld water	<ul style="list-style-type: none">Clean filters and adjust filtrationAdjust chemistry levelsAdd spa clarifier (see dealer)Change spa water
Scum Ring Around Spa	<ul style="list-style-type: none">Build up of oils, dirt and organic elements	<ul style="list-style-type: none">Wipe off with a clean towel
Eye / Skin Irritation	<ul style="list-style-type: none">Unsanitary waterFree chlorine level above 5 ppmPoor sanitizer / pH levels	<ul style="list-style-type: none">Shock spa with non-chlorine shockAllow level to drop below 5 ppmAdjust according to spa test strip results
Foaming	<ul style="list-style-type: none">High levels of body oils, lotions, soap, etc.	<ul style="list-style-type: none">Add small amount of defoamer

RECOMMENDED LEVELS OF CHEMICAL

Chlorine 1.0 - 3.0 ppm
pH 7.2 - 7.8
Total Alkalinity 80 - 150 ppm
Calcium Hardness 180 - 250 ppm

WHY ARE CHEMICALS IMPORTANT IN A SPA

1. Evaporation:

As water evaporates, only pure water evaporates, leaving the salts, minerals, metals, and any unused chemicals behind. Adding water adds more salts, minerals, and metals. In time, the water can become saturated with these dissolved solids and can cause stains or scale to form on the walls of the spa or a scale build up inside the equipment. Colored or cloudy water, and possible corrosion of plumbing and fittings may also occur.

2. Heat:

Heat causes evaporation to happen faster. Heat also causes certain minerals and metals to precipitate out of solution.

3. Air:

Dust and airborne dirt particles are introduced into the spa.

4. Environment:

The environment surrounding the spa is also a consideration. Watch for pollen, grass, sand, dirt, lawn fertilizer, dust storms, insects, dogs, cats, etc.

5. Consider the human next:

In a heated spa, the average adult sweats 3 pints per hour. This person also brings in the spa surface dirt, soap, body oils, deodorant, hair spray, hand and body lotion, perfume and cologne, make up, lipstick, and suntan lotion. To this you can add spit, urine, bacteria and virus germs from open sores or certain body parts. To this let's add spilled drinks, cigarette ash, and various play things. Now multiply this times 4 or 6 people in an average 375 gallon spa and then try to use the water for a few months!

Remember:

The maintenance routines set forth in this manual may need to be adjusted depending on how much the spa is being used.

MAINTENANCE RECOMMENDATIONS

Your spa requires periodic draining and cleaning to ensure a safe, healthy environment. It is recommended that you clean your spa at least every 180 days. Heavy bather load will require cleaning it more often.

TO DRAIN YOUR SPA

- See page 13.

TO CLEAN YOUR SPA SURFACE

- With a soft cloth, wipe down the spa surface with a non-abrasive spa surface cleaner that may be purchased through your local spa dealer. Do not use paper towels. Be sure to rinse residue from spa surface.
- If your spa has developed an oily or chalky residue at the waterline it may require special treatment. Consult your dealer.

TO REFILL YOUR SPA

- Be sure to close the drain valve.
- Fill the spa with water. Be sure water level is above skimmer opening to the minimum safe water level label.
- Refer to your spas corresponding start-up section with any questions.

TO CLEAN YOUR FILTER ELEMENTS (also reference page 73)

The filter in your spa is one of the most important components of your spa. It not only is essential for clean water, but also for extending the life of the spa equipment. Your filter elements must be cleaned regularly (once a month on average) with normal spa use. With heavy use, they will need to be cleaned more often.

- Turn spa off. Never have the spa running when removing your filters as debris can be pulled through into the equipment causing unwarranted damage.
- Remove filter element(s).
- With a garden hose, spray each element under pressure. Periodically, the elements need to be soaked in a filter cleaner compound. Check with your dealer for details on cleaning and/or filter replacement recommendations.
- Replace filter elements.
- Be sure water level is adequate.
- Turn spa on.
- Only clean the ECO PUR filter element with water, do not use chemical cleaners.

CARE OF YOUR SPA PILLOWS

- Your spa pillows need to be rinsed periodically to remove any chemical residue. This should help to eliminate pillows becoming stiff and discolored.
- If spa is not to be used for a period of time, pillows should be removed. Pillow life will be extended.
- Always leave the cover open for 15 minutes in order to prevent off gas from damaging your spa pillows, cover and other critical parts. Signs of off gas damage include but are not limited to pillows peeling and bubbling, cover failing prematurely, plastics failing, etc.

WINTERIZING YOUR SPA

Many people find they enjoy using their spa more in the winter than any other time. Your spa is designed to be used year round in any type of climate.

*However, if you decide you don't want to use your spa in the winter, you must drain it and follow the winterizing steps listed below:

1. Drain your spa completely using the drain valve (see "To Drain Your Spa") or use an inexpensive submersible pump that you can buy from your dealer or your local hardware store.
2. Use a shop vac to get all standing water out of your unit.
3. Remove access panels from equipment area.
4. Loosen all pump unions
5. Remove winterizing plug from the face of the pump(s).
6. Using your shop vac in a blowing mode, insert the hose into the nozzle of each jet and blow the trapped water from the lines into the interior of the spa.
7. After this is completed, use the shop vac to remove any standing water in the spa and in the equipment area.
8. Clean the spa with a soft cloth and a non-abrasive spa surface cleaner.
9. Replace access panels.
10. Cover spa to prevent water from entering the spa.

**Disclaimer: NESPA TILED SPAS does not recommend winterizing your spa. If you choose to do so, any damage that may result is not covered under the spa warranty.*

NESPA ENTERPRISES, Inc. LIMITED WARRANTY

This LIMITED WARRANTY covering NESPA products is extended to the ORIGINAL PURCHASER-USER BY NESPA ENTERPRISES Inc.(NESPA), 2800 Richter Ave. Unit C California 95966.

NESPA products are thoroughly inspected and tested prior to factory shipment. NESPA warrants to the ORIGINAL PURCHASER-USER that NESPA Spas and Swim Spas will be free of defect in workmanship, accessories and parts, provided said accessories and parts were manufactured by NESPA. NESPA, under this LIMITED WARRANTY, warrants only that its Spas and Swim Spas shall be structurally sound, shall retain their shape, and shall retain water for the warranty period. NESPA warrants the adhesion of tile to fiberglass for a period of three (3) years and structural soundness for ten (10) years. NESPA warrants epoxy grout adhesion for a period of three years. If any such defects appear and are reported within the warranty period, NESPA shall repair or replace such defective parts without charge if an inspection proves the claim.

The provisions of the LIMITED WARRANTY shall not apply to tile cracked, split, chipped or damaged after the product has left the factory, nor damage to tile caused by freezing nor to damage, defect, malfunction or failure to conform with the above warranty provisions where the damage, defect, malfunction or failure to conform was caused during shipment or by distributor or by unreasonable use by ORIGINAL PURCHASER-USER including improper water balance and improper sand pack or support.

This LIMITED WARRANTY shall not apply to any plumbing, equipment, or installation of spas and Swim Spas and shall not apply to any alterations made to or upon NESPA products except alterations made by NESPA employees or NESPA authorized representatives.

This LIMITED WARRANTY is expressly in lieu of all other warranties expressed or implied including the warranties of merchantability and fitness for use and all other obligations or liabilities on NESPA'S part, and NESPA neither assumes nor authorizes any other person to assume for NESPA any other liability in connection with the sale of this NESPA product. This LIMITED WARRANTY shall not apply to this NESPA product or any part thereof which has been subject to accident, negligence, alteration, abuse or misuse. NESPA makes no warranty whatsoever with respect to accessories or parts not manufactured by NESPA.

The term "ORIGINAL PURCHASER-USER" as used in this LIMITED WARRANTY shall be deemed to mean that person for whom the NESPA product is originally installed.

The LIMITED WARRANTY provided herein and the obligations and liabilities of NESPA hereunder are exclusive and are in lieu of, and buyer and original PURCHASE-USER hereby waive all other remedies, warranties, guarantees or liabilities, expressed or implied, arising by law or otherwise (including without limitation and obligations of NESPA with respect to fitness, merchantability, and consequential damages) or whether or not occasioned by NESPA'S negligence.

This LIMITED WARRANTY shall not be extended, altered or varied except by a written instrument signed by NESPA and original PURCHASER-USER.