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HYDRPOOL
spas • bassins de nage sur place



HYDRPOOL système de brome à l'eau salée Guide du propriétaire





HYDROPOOL salt water bromine system

Owner's Manual



HYDROPOOL
hot tubs • swim spas

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REV 1-SWIM SPAS

THIS OWNERS MANUAL PERTAINS TO THE HYDROPOOL SALT WATER BROMINE SYSTEM ONLY

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IMPORTANT: Before adding water to your spa – please ensure that you have had your source water supply (the water that will be used to fill your spa) tested by your Hydropool dealer

CUSTOMER ASSISTANCE

For assistance with specific water quality issues: please contact your local Hydropool Retailer
For technical information on the Hydropool Salt Water Bromine System: please contact Hydropool Industries

All statements, technical information and recommendations in this Owners Manual, and in any product guides, manuals or related documents are believed to be reliable. However, the accuracy and completeness therefore are not intended to be nor should they be understood to be representations or warranties pertaining to the product(s) described.

The Hydropool Salt Water Bromine System has been designed to be used exclusively on residential spas in noncommercial applications. Hydropool Industries will not be responsible for any liabilities, product warranties and/or claims that may arise as a result of use of this system for commercial applications.

**IMPORTANT: PLEASE CONSULT MUNICIPALITY GUIDELINES
FOR DRAINING SALT WATER HOT TUBS & POOLS.**

IMPORTANT USER SAFETY PRECAUTIONS

Read and follow all instructions contained in this manual and on the equipment labels

WARNINGS



- 1 Children should NOT use a spa without alert adult supervision.
- 2 Children should not enter a spa where water temperature exceeds body temperature (37°C / 98.6°F).
- 3 Prolonged immersion in water temperatures in excess of 38°C (100°F) may be injurious to your health. We recommend establishing lower temperatures and shorter use periods for young children and/or those users potentially affected by hot temperatures. **Always confirm water temperature with an accurate thermometer before entering your swim spa.**
- 4 Do not allow children to submerge their head under water.
- 5 Do not use a spa unless all suction guards are installed to prevent body and hair entrapment. Do not sit in front of, or on top of the suction fittings or skimmer, as this will obstruct proper circulation and may result in personal injury.
- 6 Never operate the spa pumps at high speed with out having all suction and return lines open.
- 7 Always keep the hardcover installed and locked when the spa is not in use.
- 8 People using medications and/or having any adverse medical history should consult a physician before using a spa.
- 9 People with infectious diseases should not use a spa.
- 10 Exercise caution when entering or exiting a spa. Where practical, install a safety grab bar or handrail. Turn off the jets before entering the spa to improve visibility of the steps or flat entry area.
- 11 To avoid unconsciousness and possible drowning, do not use drugs or alcohol before or during the use of a spa.
- 12 Pregnant woman should consult a physician before using a spa.
- 13 Do not use a spa immediately following strenuous exercise.
- 14 Do not permit or use electric appliances (such as a light, telephone, radio or television) within 1.5 m (5 ft) of this spa, unless such appliances are rated at 12VDC or less.
- 15 Test the GFCI (Ground Fault Circuit Interrupter) monthly.
- 16 Post emergency phone numbers for Police, Fire Dept., and Ambulance at the nearest phone.
- 17 Maintain water chemistry/balance in accordance with manufacturer's instruction
- 18 Electrical connections must be completed by a licensed electrical professional.

- 19 DO NOT ALLOW CHILDREN TO OPERATE THIS DEVICE.
- 20 Risk of Electric Shock: Connect only to an electrical circuit protected by a Ground Fault Circuit Interrupter (GFCI).
- 21 Replace damaged electrical cords or connections immediately.
- 22 No user serviceable parts! Should this device become inoperative, turn the output-setting dial to the OFF position and contact a qualified dealer service person immediately.

HYPERTHERMIA

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

The causes, symptoms and effects of hyperthermia may be described as follows:

Hyperthermia occurs when the internal temperature of the body reaches several degrees above the normal body temperature of 37°C (98.6°F). 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 the spa
- Physical inability to exit the spa
- Fetal damage in pregnant woman
- Unconsciousness resulting in the danger of drowning

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



WARNING
THE USE OF ALCOHOL, DRUGS OR MEDICATION CAN SIGNIFICANTLY INCREASE THE RISK OF FATAL HYPERTHERMIA.



WARNING
Operating the HydroPool Salt Water Bromine System without water flow through the electrode cell can cause a build-up of flammable gases, which can result in FIRE or EXPLOSION

SAVE THESE INSTRUCTIONS

TECHNICAL FEATURES

CONTROLLER

- Input: 240VAC – automatic voltage input selection
- Low 28 Watt power consumption; < 0.5 amp
- Nema Standard waterproof enclosure
- Up to 12 power level output settings to accommodate swim spas up to 8300 litres (~ 2200 US gallons)
- one touch bromine 'boost' feature doubles bromine production output (swim spas only)

ELECTRODES

- Maintenance free synthetic graphite electrodes
- Electrode automatic self-cleaning: polarity reversal significantly extends electrode life
- automatic voltage input selection

HOW IT WORKS

GLOSSARY OF COMMON WATER MAINTENANCE TERMS

- 1 CHLORINE** – in granular, liquid or puck/tablet form, is an oxidant and biocidal agent. It is very effective and fast acting. Recommended chlorine residual level is 3.0 to 5.0 ppm.
- 2 CHLORAMINES** – a compound formed when chlorine combines with nitrogen or ammonia present in the water. When allowed to go unchecked, it causes eye and skin irritation and is indicated by a strong chlorine odour.
- 3 ONE-PART BROMINE** – also available in puck/tablet form, is another type of oxidant/biocidal agent, and is introduced into the spa water via a brominator. Recommended bromine residual level is 3.0 to 5.0 ppm
- 4 TWO-PART BROMINE** – composed of a liquid or powder component introduced manually into the water on a weekly basis, and a granular component that is added daily or as the spa is used.
- 5 BROMAMINES** – are formed when bromine destroys nitrogen-bearing organic matter. Unlike chloramines, bromamines don't cause eye irritation, however, when allowed to go unchecked, will cause an objectionable odour.
- 6 SHOCK** – the practice of adding an oxidizing agent to water to destroy ammonia, nitrogenous and organic contaminants (chloramines and bromamines)
- 7 pH** – a logarithmic value expressing the relative acidity or basicity of a substance (such as water) as indicated by the hydrogen ion concentration. pH is expressed as a number on a scale of 0 to 14, where 0 is most acidic, 1 to 7 being acidic, 7 considered neutral, 7 to 14 being basic, and 14 being most basic. The ideal range for spa water is 7.4 to 7.6 ppm
- 8 pH INCREASER** – raises the pH level of the water.
- 9 pH DECREASER** – lowers the pH level of the water.
- 10 TOTAL ALKALINITY (TA)** – the amount of carbonate, bicarbonate and hydroxide compounds present in the water that determines the ability or capacity of the water to resist change in pH. Also known as the 'buffering' capacity.
- 11 ALKALINITY BOOSTER** – raises the alkalinity.
- 12 CALCIUM HARDNESS** – the calcium portion of the total alkalinity which represents 70 to 75% of total hardness. Calcium concentrations determine whether water is 'soft' – too little calcium, or 'hard' – too much calcium.
- 13 CALCIUM BOOSTER** – increases the calcium level.
- 14 TOTAL DISSOLVED SOLIDS (TDS)** – a measure of the total amount of dissolved matter in the water (calcium, carbonates, bicarbonates, magnesium, metallic compounds, etc.)
- 15 SEQUESTERANTS (STAIN AND SCALE CONTROLLERS)** – keeps dissolved metals and minerals in the water from attacking the spa shell and support equipment components.
- 16 DEFOAMER** – removes foam build-up from the water surface. At best, this is a temporary remedy, as excessive foam is merely a symptom of improper water balance (typically high organic residue and/or high pH).
- 17 CARTRIDGE FILTER CLEANER** – degreases and cleans cartridge filters.
- 18 OZONATOR** – generates Ozone (a gaseous molecule composed of 3 atoms of oxygen) and is injected into the water for the oxidation of contaminants.
- 19 TEST KIT** – used to monitor specific chemical residual or demands in the water. May be in the form of litmus strips or liquid drops.
- 20 PPM** – abbreviation for 'parts per million', the unit of measurement used in chemical testing which indicates the parts by weight in relation to one million parts by weight of water. Essentially identical to the term mg/L – milligrams per liter.

THE AFFECT OF SODIUM BROMIDE ON TDS LEVELS

The addition of 35% concentrate liquid sodium bromide at the recommended ratio of 1 liter per 250 liters (100 US gallons), will increase the TDS level by approximately 1700ppm, \pm 200 ppm. Therefore, the final 'normal' TDS level will be: (TDS reading from **CONDITIONING THE WATER FOR THE HYDROPOOL SALT WATER BROMINE SYSTEM -p.5**) + (approximately 1700) = 'normal' operating TDS level

For example, if the initial TDS reading is 300 ppm, after the addition of liquid sodium bromide at the recommended ratio, the final TDS level will now be 2000 ppm (300 + 1700).

Over time, the TDS level in the water will increase due to such contributors as residuals from other chemicals, TDS in 'top-up' water and other unfilterable material introduced in the course of normal spa use. Check the TDS level monthly to ensure that it is within the recommended range. Regardless of what your water testing facility suggests, with a HydroPool Salt Water Bromine System, draining your water is not required until the TDS level reaches 3500 ppm.

START-UP AND OPERATING INSTRUCTIONS

Before proceeding, ensure that the INCREASE/DECREASE dial on the HydroPool Salt Water Bromine System controller is in the OFF position. For filling and start-up details, refer to section FILLING, CHECKING AND STARTING YOUR SPA in the HydroPool Owners Manual supplied with your spa.

IMPORTANT: Before adding chemicals to the spa, ensure that the water is clean and clear. Do not add chemicals to the spa if the water is cloudy or if there is a lot of debris in the water. Always add chemicals to the water, never add water to chemicals. **DO NOT FILL SPA WITH WATER FROM A WATER SOFTENER AND ENSURE ALL OTHER CHEMICALS ARE PHOSPHATE FREE.**



Follow each step in order - do not skip a step!
Wait 15 minutes between each step!
Always add chemicals to water - never add water to chemicals!

CONDITIONING THE WATER FOR THE HYDROPOOL SALT WATER BROMINE SYSTEM

STEP 1

Ensure that the source water supply has been tested and balanced to within the following recommended parameters:

pH: 7.4 – 7.6
TA (Total Alkalinity): 80-120 ppm
Calcium Hardness: 100-200 ppm
TDS: 500 ppm or less (50-300 ppm ideal)

STEP 2 (SEE CHART ON PAGE 6)

Add 35% concentrate liquid sodium bromide* to the water per the recommended amount to establish a level of 1700 +/- 200 ppm. To ensure thorough mixing, pour contents of the bottle evenly over the surface of the water and operate pump 1 (P1) low speed for a minimum of 1 hour. This Salt Water System will perform optimally with a sodium bromide level between 1700 and 2000 ppm. Use the special sodium bromide test strips provided to verify level.

***IMPORTANT:** For spas equipped with a Salt Water bromine system, application instructions on container label do not apply. Follow instructions in this manual only.

STEP 3

This step is only required during the initial start-up. Depending on water volume, it may take up to 48 hours to establish a bromine residual (see STEP 4).

YOU MAY NOW USE YOUR SPA!

(But you still need to complete STEP 4)

STARTING THE SYSTEM AND DETERMINING THE OUTPUT SETTING

STEP 4

Turn the INCREASE/DECREASE dial on the HydroPool Salt Water Bromine System controller until the LED display shows '10' or '12'. Set daily filtration cycles for a minimum of 16 hours per day (ie. 2 x 8 hour filtration periods or equivalent). Detailed instructions on setting filtration cycles can be found in your HydroPool Owners Manual. The HydroPool Salt Water Bromine System only generates active bromine while pump 1 (P1) low-speed is operating. The display will indicate a '+' or '-' sign to the right of the output setting that will alternate every 4 to 6 minutes. This is a normal function of the electrodes maintenance process.

You will have determined your normal operating level when, after a period of normal swim spa use, you no longer have to adjust the filter cycles or the power setting on the controller to maintain the active bromine level between 3 and 5 ppm. Note that the appropriate output setting will depend on how often you use your swim spa. For example, a swim spa with a consistent higher-than-average user frequency or bather load will require a higher output setting and/or an increased filter cycle duration. This simply means that the HydroPool Salt Water Bromine System needs to generate more active bromine sanitizer to maintain the level between 3 and 5 ppm.

After 48 hours of normal operation, test the active bromine* sanitizer level using a standard test strip (this is NOT the same as the sodium bromide level). Keep the controller set to output level 10/12 unless the active bromine level in the water rises above 5 ppm. If the active bromine level exceeds 5 ppm, reduce the filter cycles from 16 hours/day to 14 hours/day (ie. 2 x 7 hour filtration periods) OR turn the INCREASE/DECREASE dial down one setting. Wait 24 hours and retest the active bromine sanitizer level. Adjusting the power by more than one setting at a time can result in a dramatic decrease in the active bromine level. Depending on how frequently you use your spa, it may take several days for the active bromine sanitizer level to stabilize.

SWIM SPAS ONLY

For occasional higher-than-average user frequency and bather load, some HydroPool Salt Water Bromine Systems are equipped with a bromine BOOST feature. Pressing the BOOST button on the controller increases the bromine production to twice the current bromine production output setting for the next accumulated 8 hours of operation. If P1 low-speed cycles OFF before the 8 hours has elapsed, BOOST mode will continue for the remaining duration of the 8 hours when P1 low-speed operation resumes. While the system is in BOOST mode, 'bSt' is indicated on the controller display. BOOST mode can be terminated at any time by pressing and holding the BOOST button until the display no longer indicates 'bSt'.

* sodium bromide is an inert salt, whereas bromine is the active sanitizer generated by the Salt Water system

MAINTAINING SODIUM BROMIDE IN YOUR WATER

It is important to maintain the appropriate level of sodium bromide in the water for proper and efficient active bromine production. During normal spa use, the water level will decrease for a couple of reasons – evaporation and 'water removal' (ie. splash out, exiting bathers etc.). Water evaporation will not reduce the amount of sodium bromide present in the water; however, water removal will result in the reduction of sodium bromide. Any time additional water must be added to your spa, re-check the sodium bromide level using special sodium bromide test strips available at your HydroPool retailer.

SERIES & MODEL	VOLUME		SODIUM BROMIDE SALT LITERS* REQUIRED
	LITERS	US GALS	
300-29	736	194	3
300-34	814	215	3
575-29	1155	305	5
575-36	1192	315	5
595-29	1096	289	4
595-36	1175	310	5
625	1302	344	5
675	1238	327	5
700	1720	454	7
725	1649	436	7
775	1607	425	6
800	1631	431	7
1038	2554	675	10
1400	6534	1726	26
1400ix	6670	1762	27
1700	8257	2181	33
1800fx	9233	2439	37

WHAT TO DO IF YOU HAVE LOW OR NO BROMINE READING

CHECK THE FOLLOWING:

Power to the Salt Water System controller

Verify that the digital display lights-up when pump 1 (P1) low speed is operating.

P1 low speed circulation

The HydroPool Salt Water Bromine System only generates active bromine sanitizer while pump 1 (P1) low speed is operating. A spa with higher-than-average user frequency and/or bather load will require an increased filter cycle duration.

Salt Water System controller output setting

Review STEP 4: STARTING THE SYSTEM AND DETERMINING THE OUTPUT SETTING -p.6

The amount of Sodium Bromide in your spa water

Review MAINTAINING SODIUM BROMIDE IN YOUR WATER -p.6

Proper water balance

Review Step 1: CONDITIONING THE WATER FOR THE HYDROPOOL SALT WATER BROMINE SYSTEM -p.5 to ensure that the water is within recommended water balance parameters.

Clean Cartridge filter

Ensure that you clean your cartridge filter regularly. **DO NOT USE A CARTRIDGE CLEANER THAT CONTAINS PHOSPHATES!**

Oxidize your spa water

Add oxidizer (Potassium Monopersulphate) to the water regularly to oxidize organic waste and reduce bromine demand as a regular part of proper routine water maintenance.

* IMPORTANT NOTE ABOUT TDS

In order for the HydroPool Salt Water Bromine System to operate efficiently and effectively, the TDS level in the fill water must be in the range of 0-500 ppm. In *most* cases, the municipal water supply will be within the recommended acceptable range. On the other hand, a non-municipal water source such as a well will tend to have a higher TDS level of 500 – 1200 ppm. If water from a high TDS source must be used, a carbon block pre-filter attached to the end of the garden hose during fill is highly recommended. A sequesterant (stain and scale remover) will also help to reduce TDS levels. **DO NOT FILL WITH WATER PROCESSED THROUGH A WATER SOFTENER.**

Phosphate Level

Phosphate is a water contaminant that promotes algae growth and inhibits bromine production. Phosphates are introduced into spa water through many possible common sources: the domestic water supply; fertilizers; hygiene products such as soaps, shampoos and detergents; some filter cartridge cleaners and sequestering agents; to name a few. The maximum acceptable level is 100 ppb, and can be determined using test strips specifically designed for testing phosphate levels. Treatment with PHOSfree phosphate remover followed by thoroughly cleaning the filter cartridge will typically remedy this problem.

NOT USING YOUR SPA FOR AN EXTENDED PERIOD

If your spa will not be used for an extended period, it may be necessary to lower the output level of the HydroPool Salt Water Bromine System to 1/2 of the normal setting to avoid an elevated bromine level in the water.

Refer to the WATER BALANCE TROUBLESHOOTING chart on p.8 for specific water quality issues

WATER BALANCE TROUBLESHOOTING

(issues NOT related to the HYDROPOOL SALT WATER BROMINE SYSTEM)

PROBLEM	POSSIBLE CAUSES	SOLUTIONS
Cloudy water	microscopic particles too small to filter out	Test and adjust all water balance elements and add flocculent* to cause the particles to combine together so they can be filtered out
	high Total Alkalinity	Test these water balance elements and adjust to specified parameters as indicated on p.5
	high pH levels	
	high Calcium Hardness	
Scale (white/grayish deposit)	high Calcium Hardness	Test calcium hardness level and treat with sequestering agent* or perform partial drain/refill.
Skin/eye irritation	improper pH and/or Total Alkalinity levels	Test water balance and make the appropriate adjustments.
Excessive foam	buildup of body oils or cosmetics	If no water line is present you can try using defoamer* to break up the contaminants and then a clarifier* to help filter them away. If a water line is present the spa may need to be drained and cleaned. Either way, the filter should be thoroughly cleaned by soaking over night in bleach. An oil absorbing sponge can help in preventing this in the future.
	Laundry detergent residual in swimwear	Prevent by running an extra rinse cycle on washing machine or re-rinse well by hand.
	excess organic contaminants	Some organic matter is prone to causing foamy water as it breaks down in the filter (maple leaves especially). Generally using defoamer* to break up the contaminants, then a clarifier* to help filter them away followed by thoroughly cleaning your filter will clear up the problem. It may however be necessary to drain and refill your spa if the foaming is quite excessive.
	low Calcium Hardness	Test calcium hardness and if necessary increase with calcium chloride*
Corrosion/etching	low Calcium Hardness and/or low Total Alkalinity	Test calcium hardness and if necessary increase with calcium Chloride*
Discoloured water (clear v. turbid water)	presence of metals in water (iron, copper, etc)	Treat with chelating* or sequestering agent*
Flashing dots on controller (hot tubs)	TDS levels becoming too high	Partially drain and refill tub. Top up sodium bromide level
Solid dots on controller (hot tubs)	TDS level is too high to function properly	100 % drain and refill tub
"TDS" appears on controller (swim spas)	TDS level is too high	Partially drain and refill swim spa.
"OE" appears on controller (swim spas)	Open element	Contact your retailer
"SE" appears on controller (swim spa)	Shorted element	Contact your retailer



NOTES / REMARQUES :