

IMPORTANT SAFETY INSTRUCTIONS
READ ENTIRE MANUAL BEFORE INSTALLING SPA.
PLEASE SAVE THIS MANUAL.



OWNER S MANUAL

DM INDUSTRIES, LTD.
2320 N.W. 147th Street Miami, Florida 33054

OWNER S MANUAL

OWNER'S RECORD

DATE PURCHASED: _____

DATE INSTALLED: _____

DEALER: _____

ADDRESS: _____

TELEPHONE: _____

SERIAL #: _____

MODEL #: _____

TABLE OF CONTENTS

GENERAL INFORMATION

- Important Safety Instructions 1
- Manufacturer's Do's and Don'ts 2

SET UP AND INSTALLATION

- Set Up and Installation Instructions 2
- Cover installation 3

JET OPERATION

- Three Way Power Diverter Valve 4
- Turbo Massage Jet 4
- Air Control 4
- Directional and Rotational Massage Jet . . 5
- Mini Directional Jet/Mini Rotational Jet . . 5

SAFETY FEATURES

- A. Freeze Protection 6
- B. Flow Protection 6
- C. Overheat Protection 6

SPA MAINTENANCE

- Filter Maintenance 7
- To clean filter 7
- Draining Your Spa 7
- Winterizing Your Spa 8
- Excel Plus Cabinet 8
- Cover Maintenance 8

- Care Of Acrylic Surface 8
- Spa Light Colored Lens Removal 8
- Spa Light Bulb Replacement 8
- Diverter Valve Cleaning 8

WATER QUALITY & MAINTENANCE

- Sanitizing 9
- pH Control 9
- Important Maintenance Procedures . . . 10
- Balancing Spa Water 11-13
- Water Maintenance Do's and Don'ts . . . 14
- Water Troubleshooting 15-16

DIAGNOSTICS & TROUBLESHOOTING

- Diagnostic Messages 17

MAINTENANCE LOG 18-20

IMPORTANT SAFETY INSTRUCTIONS

WHEN INSTALLING AND USING THIS ELECTRICAL EQUIPMENT, BASIC SAFETY PRECAUTIONS SHOULD ALWAYS BE FOLLOWED, INCLUDING THE FOLLOWING:

1. READ AND FOLLOW ALL INSTRUCTIONS.
2. WARNING - To reduce the risk of injury, Do not permit children to use this product unless they are closely supervised at all times.
3. DANGER - Risk of Accidental Drowning. Extreme caution must be exercised to prevent unauthorized access by children. To avoid accidents, ensure that children cannot use this spa unless they are supervised at all times.
4. WARNING - Ground Fault Circuit Interrupter (GFCI) Protection.

All spas must be GFCI protected. If your spa is being permanently connected (hard wired) to a 110V or 220V circuit, the installation must be done in accordance with local and national electrical codes and must be performed by a licensed electrician. A GFCI must be installed in line. If your spa will operate on 110V only, an optional GFCI protected cord available from your dealer can be used to connect the spa to a 110V 15A grounded outlet. If this outlet circuit also serves other appliances, it may cause the breaker in the main house panel to trip. If this occurs, you may need to upgrade your circuit to 20 Amps or to add a dedicated circuit. In either case, please consult your licensed electrician.

DANGER – Risk of Injury, spas with GFCI protected Cord. Replace damaged cord immediately. Do not bury the cord. Do not connect the GFCI protected cord to a grounded, grounding type receptacle only.

WARNING – GFCI must be tested before each use. Prior to using the spa, push the test button. The unit should stop operating. Push the reset button and the unit should now operate normally. If the interrupter fails to operate in this manner, there is ground current flowing indicating the possibility of an electrical shock. Disconnect the spa until the fault has been identified and corrected.
5. DANGER - Risk of injury. The filter in this spa is sized to match the specific water flow created by the pump. Should the need arise to replace the filter or the pump, be sure that the flow rates are compatible. Never operate the spa if the filter is broken or missing. Never replace a filter with one rated less than the flow rate on the original filter.
6. DANGER – Risk of Injury
Do not remove suction fittings. The suction fittings on 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. 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.
7. DANGER - Risk of electrical shock:
A Ground terminal (pressure wire connector) is provided on the control box inside the unit to permit connection of a minimum No. 8 AWG (8.2mm²) solid copper bonding conductor between this point and any metal equipment, metal water pipe, metal enclosure of electrical equipment, or conduit within five feet (1.5m) of the unit.
8. DANGER - Risk of Electric Shock. Install the spa at least 5 feet (1.5 m) from all metal surfaces. A spa may be installed within 5 feet of metal surfaces if each metal surface is permanently connected by a minimum No. 8 AWG (8.4) solid copper conductor to the wire connector on the control box which is provided for this purpose.
9. DANGER - Risk of Electric Shock. Do not permit any electric appliance, such as a light, telephone, radio, or television, within 5 feet (1.5 m) of a spa.
10. WARNING - To reduce the risk of injury:
 - A. 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.
 - B. Since excessive water temperatures have a high potential for causing fetal damage during the early months of pregnancy, pregnant or possibly pregnant women should limit spa water temperatures to 38° C (100° F).
 - C. Before entering a spa the user should measure the water temperature with an accurate thermometer since the tolerance of water temperature-regulating devices varies.
 - D. The use of alcohol, drugs, or medication before or during spa use may lead to unconsciousness with the possibility of drowning.
 - E. Persons suffering from obesity or with a medical history of heart disease, low or high blood pressure, circulatory system problems, or diabetes should consult a physician before using a spa.
 - F. 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.
11. WARNING - Prolonged immersion in water that is warmer than normal body temperature can result in a dangerous condition known as: HYPERTHERMIA. The causes, symptoms, and effects of hyperthermia may be described as follows: Hyperthermia occurs when the internal temperature of the body reaches a level several degrees above the normal body temperature of 98.6 degrees F. The symptoms of hyperthermia include dizziness, fainting, drowsiness, lethargy, and an increase in the internal temperature of the body. The effects of hyperthermia include: (1) unawareness of impending hazard, (2) failure to perceive heat, (3) failure to recognize the need to exit the spa, (4) physical inability to exit the spa, (5) fetal damage in pregnant women, and (6) unconsciousness resulting in a danger of drowning.
12. WARNING
 - The use of alcohol, drugs, or medication can greatly increase the risk of fatal hyperthermia in hot tubs and spas.
 - Persons taking medications which induce drowsiness such as tranquilizers, antihistamines or anticoagulants should not use the spa.
 - Pregnant women and persons with a medical history of heart disease, circulatory problems, diabetes or high blood pressure should consult their physician before using the spa.
 - Children are especially sensitive to hot water. At no time should children have unsupervised access to the spa. The use of elevated decking may encourage children to climb onto the thermal cover — IT IS NOT DESIGNED AS A SAFETY OR CHILD RESISTANT COVER! The Spa comes with a thermal cover which is provided with locking straps. INSTALL the locks for your child's safety.

MANUFACTURER'S DO'S AND DON'TS

Reading and understanding these warnings will allow you to reduce the risk of causing inadvertent damage to your spa, your surroundings, or yourself. Read these warnings carefully.

- DO Make sure the spa is connected to a Ground Fault Circuit Interrupter (GFCI) . Test the GFCI before each use.
- DO Test the water with your hand before entering the spa to be sure it is comfortable.
- DO Remember that wet surfaces can be slippery. Take care when entering and existing the spa. Only enter by way of the step(s) in the spa. Do not step on edges or filter lids.
- DO Keep the thermal cover on the spa when it is not in use, empty or full.
- DO Maintain proper water pH (7.4-7.6) and clean filter cartridge weekly. Refer to Water Maintenance section.
- DO Take steps to prevent the intrusion of sand and dirt into the spa.
- DO Maintain water level to 1" above the highest jets. The jets can spray water out of the spa if the water level becomes too low.
- DO Shut off circuit breaker to the spa before draining the spa, while it is empty and while filling it.
- DO Place only on surfaces that can withstand the floor loading requirements of your tub. If you do not know the rating of your floor, consult an architect or engineer before filling.
- DO Install the spa only on floors or areas that can withstand repeated exposure to water (tile, brick, etc.)
- DO NOT Store chemicals in the spa's equipment compartment.
- DO NOT Open the electrical control box. They are no user serviceable parts inside.
- DO NOT Operate the spa without a GFCI located in line for permanently connected spas or at the end of the power cord on 110V units. The GFCI shuts off power in the event of an electrical short.
- DO NOT Use an extension cord on 110V units to connect the spa to the power source. An extension cord will cause a voltage drop which may cause damage to the equipment.

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

SET UP AND INSTALLATION INSTRUCTIONS

SITE SELECTION

Your spa is completely self-contained. It can be set up on a patio, deck, or indoor with special consideration.

Structure: The spa should always be placed on a structurally strong, relatively smooth and level surface. Concrete, bricks, stepping stone or wood deck are acceptable permanent surfaces. The majority of the weight of the spa is placed under the foot well area of the spa. This area must be firmly supported at all times.

Drainage: Drainage of water away from the spa electrical compartment should be allowed. Do not place the spa in an area where the water will "puddle" around it. A self draining surface sloped 1 inch per 10 feet would be ideal.

LOCAL CODES:

There may be certain restrictions and/ or requirements that are particular to your locality.

Delivery Passageway: Doors, halls, stairs, etc. may pose obstructions to deliver the spa. Choose its intended site accordingly.

Indoor installation

Please give special consideration to the following issues when installing your spa indoors.

1. Install your spa on water resistant, non-slip floor, preferably with a drain to remove the water that is

splashed from the spa. Do not install on carpet or other material that will be damaged by moisture.

2. Take into consideration the room humidity which will exist due to high temperatures. Providing natural or forced ventilation in the room will help maintain comfort and minimize moisture damage to the surrounding environment.
3. Indoor second story above finished living space should be avoided due to the possibility of water and humidity damage.
4. Allow full access to the spa equipment for service.

Outdoor Installation

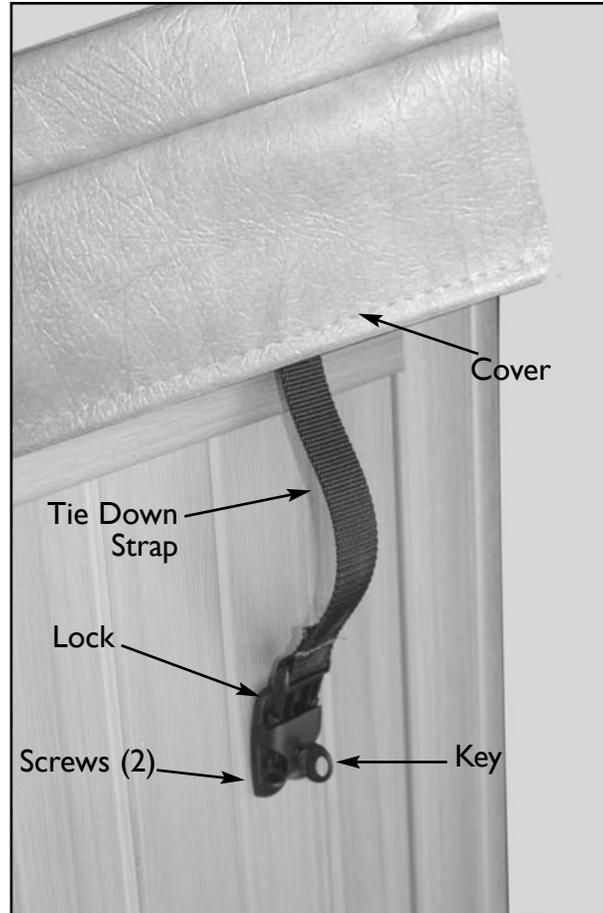
Please take into account the following when considering outdoor installation.

1. Local Building Codes.
2. Provide a smooth surface (tile, concrete, wood, brick or sand).
3. Place your spa away from areas where debris and dirt may be tracked into the spa.
4. Consider privacy and wind shielding. A sheltered environment can result in lower operating and maintenance costs.
5. It is recommended that the spa be placed in a location where it can be easily supervised when in use by children.

SAVE THESE INSTRUCTIONS



COVER INSTALLATION



INSTALLING THE SPA COVER

1. Position the cover squarely over the spa.
2. Position the locks for the tie-downs on the sides of the spa. You should allow approximately 1/2" to 3/4" slack in the straps for ease of insertion into the locks and to allow for material shrinkage during temperature changes.
3. Using the screws provided, attach the locks and insert the cover tie-down straps. Utilizing the cover anytime the spa is not in use will reduce heat loss and thereby reduce the amount of running time required to make up that loss by the heating system.

Keep cover fastened down at all times when not in use.

DANGER - RISK OF INJURY

To reduce the risk of potential injury:

1. Never leave a spa uncovered or unattended.
2. Never leave a spa cover unlocked.
3. Do not stand, sit, or lie on the cover.

ALWAYS REMOVE SNOW FROM THE COVER. THE COVER HAS NOT BEEN DESIGNED TO SUSPEND THE WEIGHT OF WET SNOW.

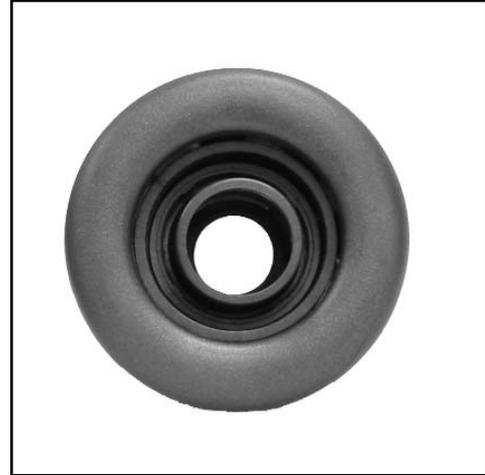
JET OPERATION

Your spa is designed with a unique jet system to allow you to select a wide variety of massage patterns. The following is a description of the various types of jets and their operation you may use to tailor your spa to your specific massage needs.



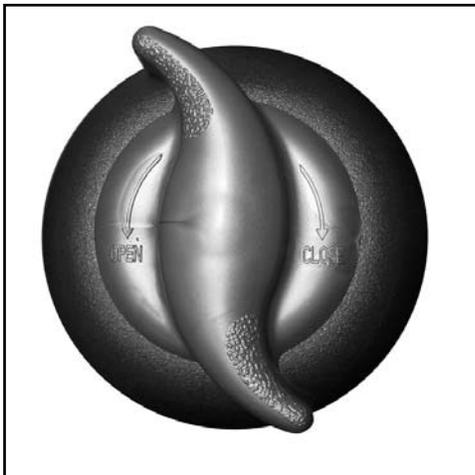
A) THREE WAY POWER DIVERTER VALVE

The Power Diverter Valve allows water to be diverted to a zone of jets or the Turbo jet exclusively, or to both combined. Turning the diverter to the right or the left will divert all the water to a bank of jets or the Turbo jet for maximum output. When left in the center, water will be flowing through both.



B) TURBO MASSAGE JET

The Turbo massage therapy is great for working out those hard-to-relieve muscle knots and to create swirling whirlpool effect in the spa. The Turbo Massage jet pressure can be adjusted by rotating the Power Diverter Valve, or by adjusting Air Control towards the center.

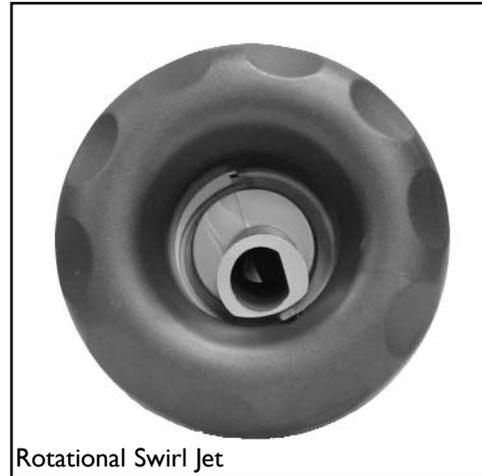


C) AIR CONTROL

The Air Controls are used to introduce air into the water jet stream. They allow the user to increase (open) jet pressure or decrease (close) jet pressure as desired.



Directional Quad Stream Jet



Rotational Swirl Jet

D) DIRECTIONAL AND ROTATIONAL MASSAGE JETS

When the pump is on and the 3-way diverter valve is directed to the bank of jets, the Directional Quad jets and Rotational Therapy jets will be operational. The nozzle of the Directional Quad jets can be adjusted to direct the flow to specific parts of your body. The Rotational jets provide a “swirling” type therapy. The water pressure can be adjusted in both jets by rotating the outer rim of the jet clockwise for minimum pressure and counter clockwise for maximum pressure. Water pressure can also be varied by opening or closing the air control.

For cleaning purposes, these jet faces can be removed by depressing locking tab and pulling away from jet body. Re-install it by pushing the face back in place.



Mini Directional Massage Jet



Tension Ease Jet

E) MINI DIRECTIONAL MASSAGE JET AND MINI ROTATIONAL JET.

These jets are used for back, neck and shoulder massage. They deliver a firm pinpoint jet stream of massaging action that are directed to specific areas of the neck or shoulders. They can be pressure controlled by rotating the jet face or by opening and closing the air control valves.

For cleaning purposes, these jet faces can be removed by grabbing outer face and pulling away from jet body. Re-install it by pushing the face back in place.

SAFETY FEATURES

A. Freeze Protection

If the temperature in the spa plumbing falls below 50 degrees Fahrenheit (10 degrees celsius), the water pump will turn on low speed and run for 30 seconds. After 30 seconds, all hi-speed pumps will turn on after 60 seconds if flow is adequate, the heater will turn on and raise the temperature 10 Degrees. The top side control will display the message "ICE" to indicate potential freeze conditions.

B. Flow Protection

If the flow of water through the heater is insufficient, the spa controller will automatically turn off the heater to prevent overheating. The display will show "FLO", indicating a flow restriction caused by a clogged filter or pump impeller, a malfunction of the temperature sensors or a defective pump motor. Refer to the Trouble Shooting Chart. If you cannot pinpoint the cause, Call Your Dealer for technical assistance.

C. Overheat Protection.

If a malfunction occurs and the spa water temperature reaches 112F, the pump and heater will turn off. **DO NOT ENTER THE WATER.** Remove the cover and allow the water temperature to cool down to 104 F. Reset the system by running selftest. The pump and heater will start normal operation. If this happens a second time in a row, **TURN THE POWER TO THE SPA OFF AND CALL YOUR DEALER FOR ASSISTANCE.**

If there is an overheat condition in the spa heater, the display will show the message "HILI". **DO NOT ENTER THE WATER.** Remove the cover and allow the water to cool down to 104F. Then reset the system by holding down the "UP" button for 5 seconds. If the "HILI" message returns, **TURN THE POWER TO THE SPA OFF AND CALL YOUR DEALER FOR ASSISTANCE.**

SPA MAINTENANCE

Your spa is manufactured with the highest quality and most durable materials available. A spa care and maintenance program is recommended to increase your comfort, maintain the spa's reliability, and protect your investment.

FILTER MAINTENANCE

Your Spa is designed with the most efficient top loading filtration system in the industry. Filter maintenance is the most critical factor in keeping your spa water clean.

TO CLEAN THE FILTER

(NOTE: Never run the spa without a filter installed)
Remove the skimmer basket and the cartridge. Spray it with a garden hose. It will be necessary to rotate the cartridge while spraying so as to thoroughly remove the debris lodged between the filter pleats.

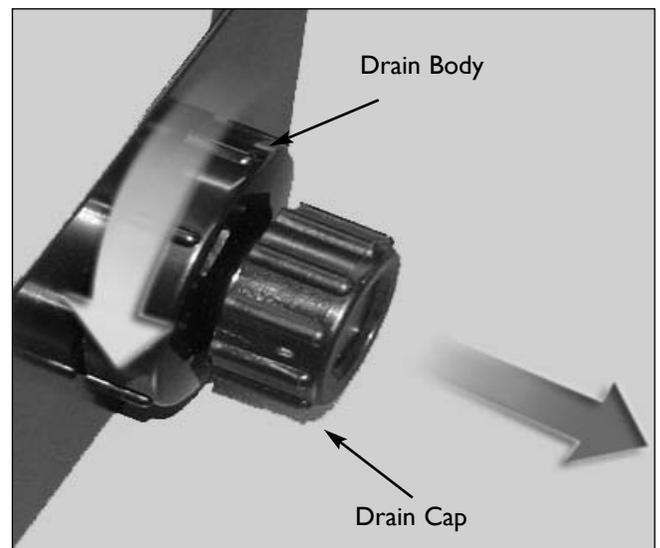
After allowing to dry, inspect the cartridge for calcium deposit (scaling) or an oil film. Rapid mineral build-up from hard water, or oil build-up from the use of oil-based water scent or body oil may coat the filter cartridge. A filter cleaner to soak the cartridge is available from your local Spa dealer and should be used as part of your spa maintenance. Use a rag to remove any debris at the bottom of the filter housing. Replace the cartridge in the filter housing. We recommend the use of a spare filter. This way one can be soaking and cleaning while you continue to enjoy the use of your spa.

DRAINING YOUR SPA

Detergent residues from bathing suits as well as soap film from your body may gradually accumulate in the water. Foam inhibitors will suppress the foam but will not remove the soap from the water. Eventually, the soap build-up in the water will concentrate enough to leave an unclean feeling on the user's skin, causing sudsing and make the water impossible to clarify. Depending on the amount of soap input, the spa water should last between two and three months.

TO DRAIN YOUR SPA

Turn the power off at the GFCI breaker. To locate drain look at the front base of the spa. Once located remove cap by turning it counterclockwise. Attach a garden hose to the bib that is located directly behind the cap, once removed. Route the outlet of the hose to an appropriate draining area. Twist body then pull. The spa will empty by gravity. Siphon or scoop out the balance of the water.



IMPORTANT: Spa water with a high sanitizer level may harm plants and grass. If you are draining your spa for the winter, be sure to fully drain water from the pipe by disconnecting the two unions at the gate valves found by each of the two speed pumps and the two unions found by the circulation pump. Drain the water pumps by removing the pump plug. Then reinstall the pump plugs. Remove the filter and clean as required. Inspect the spa shell and clean as required.

Refill the spa **BEFORE** restoring power to it.

SPA MAINTENANCE

WINTERIZING YOUR SPA

Your Vita Spa has been designed and engineered for year-round use in any climate. If the spa will not be used for prolonged periods of time, contact your local authorized service station to properly drain and protect your spa.

EXCEL-PLUS CABINET MAINTENANCE

The exterior of your Vita Spa cabinet is made from a newly formulated high strength material that is factory stained and sealed. Depending on the location and exposure of the spa to nature's elements, it is recommended that you clean the cabinet once or twice a year with warm water and a mild soap.

COVER MAINTENANCE

Your cover is manufactured from a durable marine grade, UV resistant material. Even so, monthly cleaning and periodic conditioning is recommended to maintain its beauty. To clean and condition the vinyl cover: Lightly spray the cover with a garden hose to rinse it and remove the debris. Using a large sponge or soft cloth and a mild soap solution (1 teaspoon dish washing liquid with 2 gallons of water), scrub lightly in circular motion. Then rinse it thoroughly with plenty of water. Condition the vinyl after cleaning by applying a thin film of vinyl conditioner. **NOTE:** To remove tree saps, use lighter fluid (not charcoal lighter but the kind used in cigarette lighters). Use sparingly and rinse with mild soap solution afterwards. Wipe dry.

CARE OF ACRYLIC SURFACE

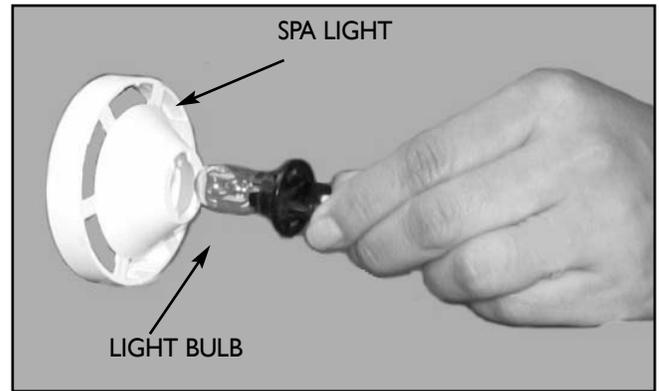
To maintain the surface of your spa, simply clean with a soft damp cloth (a mild detergent is okay) or with any glass cleaner. **DO NOT** clean the surface with any type of abrasive as it will dull the surface and natural luster of the acrylic. **DO NOT** use any type of oil based solvent. Such products can be very harmful to the surface of the spa and will void the surface warranty of the spa.

SPA LIGHT COLORED LENS REMOVAL

In your owners packet you will find colored lenses for your spa light. They can easily be installed or removed by placing them over the spa light and gently pushing on the outer edges to install and pulling along the edges to remove.

LIGHT BULB REPLACEMENT

1. Turn off the power to the spa.
2. Remove the front panel of the spa.
3. Locate the spa light.
4. Turn the bulb counter - clockwise 1/4 turn to remove from its socket
5. The replacement bulb is locked into place by turning it clockwise 1/4 turn.
6. Close up the cabinet and turn the power back on.
7. Check the Top Side display and adjust the time.



DIVERTER VALVE

Over a period of time sand or grit may intrude into your spa. The diverter valves may become difficult to turn. It is important that the debris be removed as soon as possible to avoid damage to the valve.

1. Turn off the power to the spa.
2. Remove the diverter handle by pulling upward and gently rocking it.
3. Grasp the collar and turn it counter-clockwise.
4. Lift the valve up.
5. Wipe the valve body and interior walls of the valve with a soft cloth.
6. Inspect the valve and valve walls for any grooves caused by the debris.
7. Using a fine grit sandpaper, smooth down any deep furrows.
8. Wipe the valve and wall down with a damp cloth and remove any debris left behind.
9. Lubricate the valve body with a waterproof lubricant.
10. Reassemble the valve and restore the power to the spa.
11. Check the Top Side display and adjust for time.

WATER QUALITY AND MAINTENANCE

GENERAL GUIDELINES FOR WATER QUALITY MAINTENANCE

Maintaining water quality within specific limits will enhance your enjoyment and prolong the life of the spa. Safe, comfortable and clean spa water is a fairly simple task to achieve, but it does require attention because of the numerous factors that can alter it. There is no one formula to be followed because of the variables, i.e. quality of the water used to fill the spa, water temperature, user load, etc. For specific guidelines for water quality maintenance, consult your local Spa dealer who can assist you to develop a program based on your specific needs. Disregard for water maintenance will result in poor soaking conditions, damage your spa investment, and possibly void your warranty.

SPA WATER MAINTENANCE CONSISTS OF THREE SEPARATE, EASILY DEVELOPED PROGRAMS:

Sanitizing and maintaining a safe level of sanitizer in the spa water. Balancing the pH and maintaining the recommended mineral content level. Achieving and maintaining water clarity.

SANITIZING

To destroy bacteria and organic compounds in the spa water, a sanitizer must be used regularly. The use of ozone as an oxidizer has proven to be an effective method to help maintain water cleanliness, but a residual chemical sanitizer such as bromine, the most common sanitizer used in spas, must be used in conjunction with ozone. Do not drop bromine tablets directly in the spa. The use of a floater is required to dispense safely and properly the right amount of bromine in the spa water. A bromine residual of 2 to 3 PPM is generally considered desirable. A two-part bromine system or granular chlorine (Dichlor) are also acceptable sanitizers.

pH CONTROL

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

IMPORTANT: NEVER USE CHLORINE TABLETS (TRICHLOR) IN YOUR SPA.

This chemical can have an extremely corrosive effect on certain materials in the spa. Also, the use of liquids, chlorine or acid, are not recommended. Damage caused by use of any chemical, is not covered under the spa warranty.

IMPORTANT WATER MAINTENANCE PROCEDURES

DAILY

3 days a week

Check water level. Keep water above bottom of skimmer door and a minimum of 1" above highest jet.
Check and adjust chlorine level to 1.0 to 3.0 ppm if chlorine is used as sanitizer. If bromine is used, check weekly. If Sparkle Clear is used, check weekly.

WEEKLY

Once a week

Test the spa water using 3-way water test strips
Adjust pH and total alkalinity. pH: 7.4 to 7.6 (ideal 7.6).
Total Alkalinity: 80 to 120 ppm
Maintain 1.0 to 3.0 ppm bromine or free chlorine.
Add 1 ounce of additive, such as "Spa Defender," to prevent calcium build-up.
Calcium hardness: 120 to 250 ppm.
Spray filter element to remove loose particles.

MONTHLY

Four to six weeks

Test GFCI for proper operation.

Inspect and clean the spa filter cartridge. It is important to maintain your spa filter cartridge and keep it clean and free of particles which can restrict water flow. If the filter is not cleaned on a regular basis, the filter may clog and restrict water flow, which causes improper filtration and poor jet performance. See "Filter Cleaning" instructions.

Two to three months

Drain your spa. Follow the procedures outlined in "Draining Your Spa" and clean it following the procedures on page 8. When refilling your spa, be sure to follow the procedures outlined in "Balancing Your Spa Water" on the next page.

WATER MAINTENANCE

BALANCING THE SPA WATER

Water treatment is an important factor in the enjoyment of your spa. Proper water sanitation is essential to your health as well as permitting years of trouble-free use of your spa. The most common water chemistry problems that can damage your spa are:

1. Improper pH maintenance. pH balance is critical to proper water maintenance. Too low of a pH level will result in corrosion of the spa's components.
2. Not pre-dissolving chemicals before adding to the water.
3. Use of improper chemicals.
4. Over chlorinization. Sodium dichlor is the recommended type of sanitizer. Sodium dichlor dissolves easily and has a neutral pH, which minimizes the effect that the addition of a sanitizer has on a pH balance. Trichlor compounds are not recommended because they have a very low pH, and are very potent and difficult to dissolve.

BALANCING YOUR SPA WATER

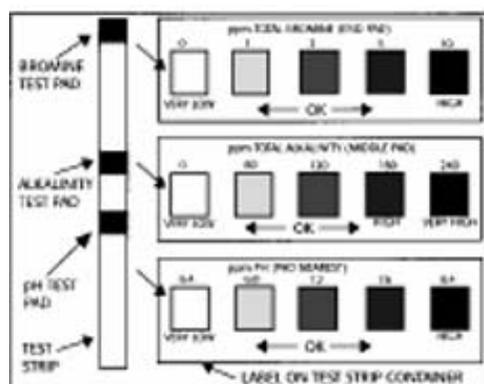
The instructions below will assist you with balancing the spa water for the first time. You will need the following items to balance your spa water.

1. "3-WAY TEST STRIPS"
2. "PH-UP" and "PH-DOWN" for pH control.
3. "MINERAL SURFACE PROTECTOR" for Calcium and Scale control.
4. "METAL INHIBITOR" for breakdown of mineral deposits.
5. "POTASSIUM PEROXY MONOSULFATE" for shock treatment.
6. "BROMINE" or "CHLORINE" for sanitizing the spa water.

BALANCING THE SPA WATER

Please read “WATER MAINTENANCE” then follow these easy steps:

1. Fill your spa until the water level is 1 inch above the highest jet. It is NOT advisable to use softened water in your spa, as may become corrosive.
2. Add a 1/2 pint of Spa Metal Inhibitor to prevent iron or copper deposits from staining the finish of your spa. If your water is known to contain high concentrations of these metals it may be necessary to add an additional quantity of Spa Metal Inhibitor.
3. Use a 3-Way Spa Water Test Strip or test kit to measure the pH and Alkalinity of your water. The following instructions utilize test strips for testing. Immerse the test strip in the spa water, following



the instructions on the test strip container label. Compare the strip to the label to determine the condition of the spa water.

4. If the Alkalinity is not within the acceptable range (80 to 120 ppm) it should be adjusted first. If it is low, raise the alkalinity by adding PH-UP 1 oz. at a time, retesting until the alkalinity reaches 120 ppm. If the alkalinity is high, it should be lowered by using PH-DOWN 1 oz. at a time.
5. After the alkalinity is properly adjusted, the pH is next. If the pH is above 7.8, use PH-DOWN (1 oz. at a time) to lower it to the acceptable range. It is extremely important to NEVER allow the pH of your spa water to be under 7.0, as this can severely damage your equipment and will void the warranty.
6. Add Sanitizer, either chlorine or bromine. For Chlorine: Follow the directions on the bottle. Chlorine dissolves rapidly; you should get a reading on the test strip within minutes of application. For Bromine: Follow the directions on your floating brominator. It is necessary to add sodium bromine only when the spa is being filled. Bromine tablets erode slowly, and it may take several hours before you will get a reading on the test strip. It may be necessary to adjust the floating brominator.
7. To properly maintain the chemical balance of your spa, follow the 3 day a week program outlined on page 13.

BALANCING THE SPA WATER

3 DAY A WEEK SPA CARE PROGRAM

MONDAY

1. TEST THE WATER USING "3-WAY SPA WATER TEST STRIPS".
2. Adjust pH and total alkalinity - Refer to pH and total alkalinity on label of "PH-UP" and "PH-DOWN".
3. Maintain 1.0 to 3.0 ppm Bromine or free Chlorine.
4. Add 1 ounce of "METAL SURFACE PROTECTOR" to prevent calcium build up.
5. Shock treat with 2 ounces of "POTASSIUM PEROXY MONOSULFATE", a nonchlorine shock, every week as needed.

WEDNESDAY

1. Nothing required if Bromine is used as sanitizer. Check and adjust Chlorine level if Chlorine is used.

FRIDAY

1. Nothing required if Bromine is used as sanitizer. Check and adjust Chlorine level if Chlorine is used.

NOTE: The above table is an example only. Actual spa usage will determine the amount of chemicals required to maintain proper chemical balance.

ALKALINITY

VERY LOW	0	ADD SODIUM BICARBONATE TO INCREASE
	80	
ACCEPTABLE ZONE		IDEAL
	120	
HIGH	180	ADD SODIUM BISULFATE TO DECREASE
VERY HIGH	240	

pH LEVEL

TOO ALKALINE	8.4	ADD pH DECREASER TO LOWER pH
	8.2	
SCALING ZONE		
	7.8	
COMFORT ZONE	7.6	
	7.4	IDEAL
	7.2	
TOO ACIDIC	7.0	
	6.8	ADD pH INCREASER TO RAISE pH
CORROSIVE ZONE		

SANITIZER LEVEL

ppm	DO NOT USE SPA UNTIL TEST KIT READING IS BELOW 5.0 ppm
5.0-	
4.0-	RECOMMENDED LEVEL
3.0-	SAFE
2.0-	
1.0-	DO NOT USE SPA
0-	ADD SANITIZER TO REACH RECOMMENDED LEVEL

WATER MAINTENANCE DO'S AND DON'TS

DO Add all chemicals slowly with the hydro jets operating in high speed.

DO Use care when handling chemicals.

DO Store granulated chlorine in a cool, dry place to maintain the chlorine's freshness. Granulated chlorine will degrade if stored improperly or for a long period of time. Do not store in sunlight.

DO Maintain total alkalinity level within the recommended range of 80 to 120 ppm. The calcium hardness level should be maintained in the 120 to 250 ppm range.

DO Maintain the pH level within the recommended range of 7.4 to 7.6.

DO Maintain proper chemical balance to reduce the risk of catching or spreading infection.

DO Use granulated chlorine/bromine produced specifically for portable spas.

DO NOT Use swimming pool chemicals in your spa.

DO NOT Use household bleach (liquid sodium hypochlorine).

DO NOT Use swimming pool (muriatic) acid to lower pH. Many swimming pool water care products can cause damage to spa and equipment.

DO NOT Allow anyone to be in the spa while chemicals are being added or dissolving.

DO NOT Use incorrect products such as Trichlor, which has a very low pH (2.6), dissolves very slowly, is highly concentrated, and was designed for concrete or plaster swimming pools. It will cause damage to your spa!

CHEMICAL SAFETY INSTRUCTIONS

When using chemicals, read labels carefully and follow directions precisely. Though chemicals protect you and your spa when used correctly, they may be hazardous in a concentrated form. Observe these guidelines:

DO Accurately measure and use the exact quantities specified, never more.

DO Handle all containers with care. Store in a cool, dry, well ventilated place.

DO Keep chemical containers closed at all times when not in use. Replace caps on proper containers.

DO Allow only a responsible person to handle spa chemicals. Keep them out of the reach of children.

DO Follow the emergency advice on the product label in case of accidental contact, or if the chemical is swallowed. Call a doctor or local Poison Control Center. If a doctor is needed, take the product container along so that the substance can be identified.

DO NOT Inhale fumes or let chemicals come in contact with your eyes, nose or mouth. Wash your hands after use.

DO NOT Let chemicals get on surrounding surfaces or landscaping. Don't use a vacuum cleaner to clean up chemical spills.

DO NOT Smoke around chemicals. Fumes may be highly flammable.

SPA WATER TROUBLESHOOTING

SYMPTOM	PROBABLE CAUSE	SOLUTIONS
Cloudy Water	Inadequate filtration/dirty filter	Clean filter with a filter cleaner or degreaser.
	Excessive oils/organic matter	Shock the spa with "POTASSIUM PEROXY MONOSULFATE".
	Improper sanitation	Increase sanitizer to recommended level.
	High pH and/or high alkalinity	Adjust pH; add "PH-DOWN".
	Suspended particles/organic matter	Use clarifier
	Overused or old water	Drain the spa, clean and refill.
Water Odor	Excessive Organics. Too many chloramines bromamines - insufficient free available chlorine	Shock the spa with "POTASSIUM PEROXY MONOSULFATE".
	Improper sanitation	Increase sanitizer level to recommended level.
	Low pH	Raise pH with "PH-UP".
Chlorine Odor	Too many chloramines-insufficient free available chlorine	Shock the spa with "POTASSIUM PEROXY MONOSULFATE".
	Low pH	Adjust pH; raise pH with "PH-UP"
Musty Odor	Bacterial or algae growth	Shock the spa. If problem is visible, draining and cleaning may be required.
Foaming	Buildup of body oils, lotion and chemicals resulting in soap or detergent	Add defoamer, or drain and refill.
	Overused or old water	Drain and refill.
	Excessive organics	Shock with "POTASSIUM PEROXY MONOSULFATE".
Organic Buildup/ Scum Ring Around The Tub	Body oils and dirt	Wipe off scum with a clean rag or use mild detergent. If needed, drain, refill spa, and adjust water.
	Inadequate filtration	Clean filter with a filter cleaner or degreaser.

SPA WATER TROUBLESHOOTING

SYMPTOM	PROBABLE CAUSE	SOLUTIONS
Algae	High pH	Shock with "POTASSIUM PEROXY MONOSULFATE", adjust pH.
	Low free chlorine/bromine	Shock with "POTASSIUM PEROXY MONOSULFATE", maintain sanitizer at recommended level.
Eye Irritation	Low pH	Raise pH with "PH-UP".
	Insufficient free available chlorine/bromine	Shock with "POTASSIUM PEROXY MONOSULFATE."
Skin Irritation/Rash	Unsanitary/polluted water.	Maintain recommended sanitizer residual at all times; super-chlorinate.
	Chlorine/bromine level too high (above 5ppm FAC).	Allow chlorine/bromine level to drop below 5 ppm before using spa.
Stains	pH or total alkalinity too low.	Adjust pH and total alkalinity; use sequestering agent; drain and clean with appropriate product.
Scale	High iron or copper in water source.	Use sequestering agent for metals; adjust water
	Too much calcium dissolved in water pH	Adjust total alkalinity and pH levels by adding the appropriate sodium bisulfate product; with concentrated scale deposits, drain the spa, clean the liner (as outlined in Liner Clean Up), refill the spa and balance the water.

DIAGNOSTIC & TROUBLESHOOTING

Resetting Your Spa

Like your PC at home, your spa electronics could get corrupted by electrical surges and operate improperly. If your spa system is not operating properly or shows any of the following messages, please reset it before calling for service to see if the malfunction disappears.

SYMPTOM	MEANING	ACTION
Spa Inoperative	Power failure outside of spa.	Check power source Breaker and GFCI; Reset breaker/GFCI. Call Electrician if it will not start.
MESSAGE		
FLO	Lack of water flow through Heater.	Remove filter and check for debris in filter and filter adapter. If "FLO" remains see priming the pump.
HILI	HILI message appears if the high-limit sensor detects 118F at the spa heater. DO NOT ENTER THE WATER.	Remove the spa cover and let the water temperature cool down to 104F. If your spa reaches 118F again, contact your dealer for service.
ICE	Water in plumbing below 50 F Call for service if spa fails to come on.	No action required. Pump will come on to circulate water and then heater. Heater will stay on until water reaches 60 F or set temperature.
LS	Water temperature sensor	Reset spa. If message comes back, call for service.
SS	Heater temperature sensor	Reset spa. If message comes back, call for service.
CS	Current Sensor	Current sensor Inoperable. Check that it's connected to the board.
CP	Circulation pump may be faulty	Check that circulation pump is plugged in, If message comes back, call for service
BLO	Blower error	Check fuse and then verify that the blower is plugged in, If message comes back, call for service
HC	Heater Error	Replace Heater
P1 or P2 or P3	Pump 1 or Pump 2 or Pump 3 Error	Check plug for pump 1 or pump 2. Possible loose connection.
F1 or F2 or F3 or F4	Blower fuse and pump fuses	Replace fuse 1 or fuse 2 or fuse 3 or fuse 4
REL	Open or shorted relay	Call for service.



DM Industries, Ltd.
MIAMI FLORIDA

DM Industries, Ltd.,
2320 Northwest 147th Street, Miami, Florida 33054
Email: customer care@dindustries.com and techhelp@dindustries.com