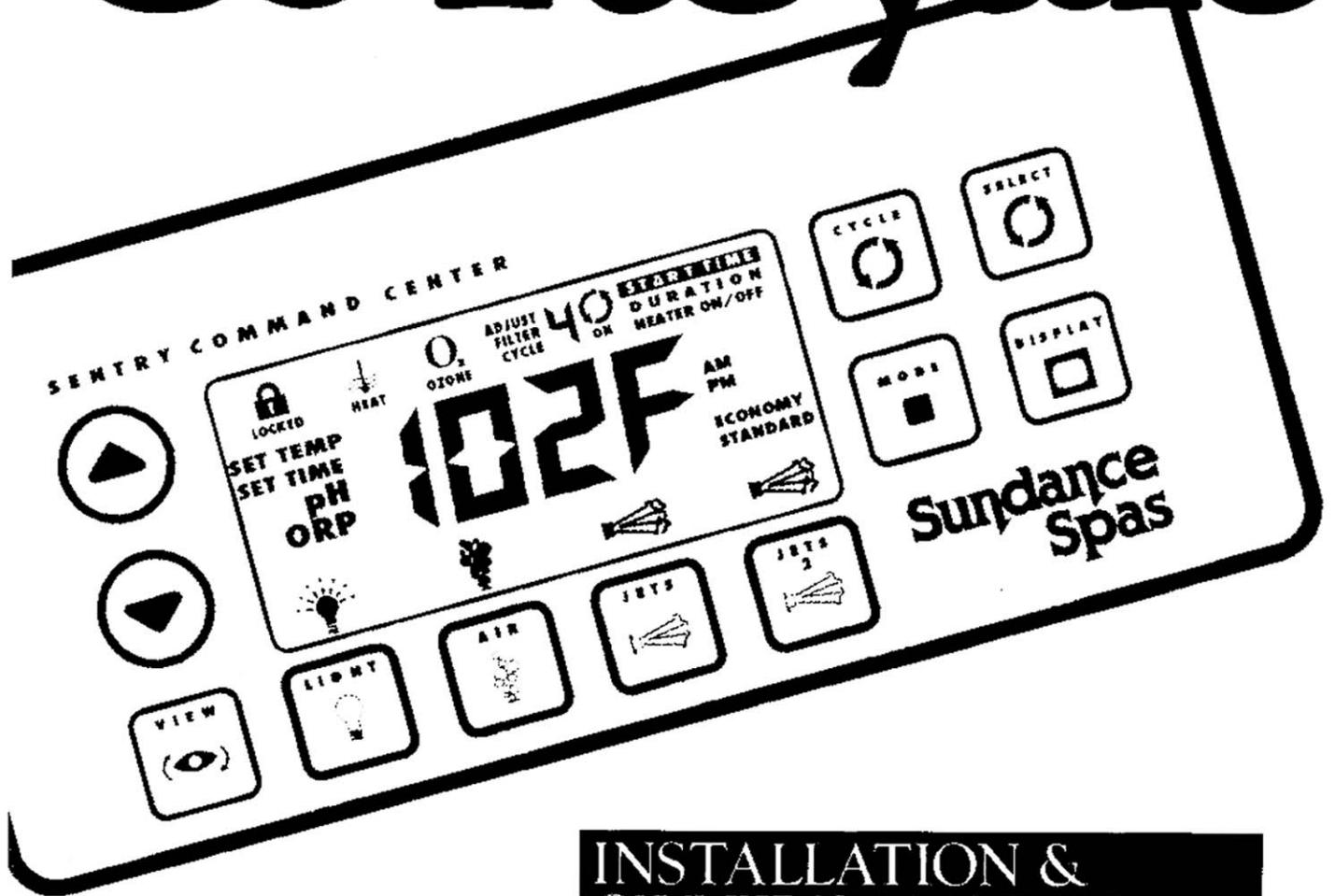


Maxxus & Royale



INSTALLATION &
OWNER'S MANUAL

**Sundance
Spas®**

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Important Spa Owner Information

Your Sundance spa is constructed of the highest standards and is capable of providing many years of trouble-free use. However, because heat retentive materials are utilized to insulate the spa for efficient operation, an uncovered spa surface directly exposed to sunlight and high temperatures for an extended period is subject to permanent damage. Damage caused by exposing the spa to this abuse is not covered by warranty. We recommend that you always keep the spa full of water when it is exposed to direct sunlight and that you keep the Sundance insulating cover in place at all times when the spa is not in use. Read and carefully follow the requirements for your spa's support base (found in the section titled, "Locating Your Sundance Spa").

Sundance Spas constantly strives to offer the finest spas available, therefore modifications and enhancements may be made which affect the specifications, illustrations and/or instructions contained herein.

FCC Notice

This equipment has been tested and found to comply with the limits for a Class B Digital Device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures: 1) Rearrange or relocate the receiving antenna. 2) Increase the separation between the equipment and receiver. 3) Connect the equipment into an outlet on a circuit different from the circuit connected. 4) Consult the dealer or an experienced radio/TV technician for help. Changes or modifications not expressly approved by the party responsible for FCC compliance could void the user's authority to operate this equipment.

IMPORTANT SAFETY INSTRUCTIONS

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

1. **READ AND FOLLOW ALL INSTRUCTIONS BEFORE OPERATING THE SPA!**
2. **DANGER** – To reduce the risk of injury, do not permit children to use this product unless they are closely supervised at all times.
3. **WARNING – RISK OF CHILD DROWNING.** Extreme caution must be exercised to prevent unauthorized access by children. To avoid accidents, ensure that children cannot use a spa or hot tub unless they are supervised at all times.
4. **DANGER** – To reduce the risk of injury, do not remove the main drain suction grate or cover.
5. **DANGER** – A wire connector marked “ground” is provided within the power box (See Ill. 1.3). To reduce the risk of electric shock, connect this terminal or connector to the grounding terminal of your electrical service or supply panel with a continuous green insulating copper wire equivalent in size to the circuit conductors supplying this equipment, but no smaller than No. 8 AWG. In addition, a second wire connector is provided for bonding to local ground points. To reduce the risk of electrical shock, this connector should be bonded with a No. 8 AWG (8.4mm²) copper wire to any metal ladders, water pipes, or other metal within five feet (1.52m) of the spa.
6. **DANGER – RISK OF ELECTRICAL SHOCK.** Install at least five feet (1.52m) from all metal surfaces.

(A spa may be installed within five feet of metal surfaces, if in accordance with the National Electrical Code, ANSI/NFPA 70, EACH metal surface is permanently connected by a No. 8 AWG (8.4 mm²) copper conductor attached to the wire connector on the terminal box that is provided for this purpose.)

7. **CAUTION** - This spa must be hardwired to your household electrical service box only. Do not use an extension cord or any other disconnectable power cord. The use of an extension cord or a disconnectable power cord is highly dangerous and will void all warranties!

8. **INSTALLATION** – The spa must be installed in such a manner as to provide drainage of the compartment for electrical components.
9. **DANGER – RISK OF ELECTRIC SHOCK.** Do not permit any electric appliance such as a light, telephone, radio, or television within 5 feet (1.52 m) of the spa.
10. The water in a spa or hot tub should never exceed 40° C (104° F). Water temperatures between 38° C (100° F) and 40° C (104° F) are considered safe for a healthy adult. Lower water temperatures are recommended for extended use (exceeding 10 -15 minutes) and for young children.
11. Since excessive water temperatures have a high potential for causing fetal damage during the early months of pregnancy, pregnant or possible pregnant women should limit spa or hot tub water temperatures to 38° C (100° F).
12. Before entering a spa or hot tub the user should measure the water temperature with an accurate thermometer since the tolerance of water temperature-regulating devices may vary as much as ±3° C (5° F).
13. The use of alcohol, drugs, or medication before or during spa or hot tub use may lead to unconsciousness with the possibility of drowning.
14. 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 or hot tub.
15. Persons using medication should consult a physician before using a spa or hot tub since some medication may induce drowsiness while other medication may affect heart rate, blood pressure, and circulation.
16. The electrical supply for this product must include a suitably rated switch or circuit breaker to open all ungrounded supply conductors to comply with Section 422-20 of the National Electrical code, ANSI/NFPA 70-1987. The disconnecting means must be readily accessible to the spa's occupant but installed at least 5 feet (1.5 m) from spa water.
17. Always enter and exit slowly and cautiously. Wet surfaces will be slippery
18. Long exposures in the spa may result in nausea, dizziness or fainting. Observe a reasonable time limit, leave the spa, then shower, cool down, and if you wish, return for another brief stay.
19. Do not use the spa alone.
20. It is recommended that the following emergency telephone numbers be listed at the nearest telephone: physician, hospital, ambulance and police.

21. Excessive temperatures may cause hyperthermia. The symptoms and first aid information are as follows:

HEAT STROKE: The most susceptible people are the very young and elderly, alcoholics and most people under the influence of drugs, medication and alcohol.

SYMPTOMS: Hyperthermia causes loss of salt, sweating, ordinary dizziness, headache, dryness of mouth and nausea, faintness and/or unconsciousness, convulsions, flushed appearance of skin and rapid pulse and/or weak, shallow breathing.

TREATMENT: Place the victim on his back, head slightly elevated. Apply wet cloths or ice packs to the head, wrap the body in a sheet, pouring on a small amount of water. Follow with a cool shower or bath. Get medical attention as soon as possible.

22. **SAVE THESE INSTRUCTIONS!**

Locating Your Sundance Spa

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

We recommend a poured, reinforced concrete slab (minimum of 4 inches thick). Wood decking is also acceptable provided it is constructed so that it meets the requirements outlined above.

The spa must be installed in such a manner as to provide drainage away from the spa. Placing the spa in a depression without provisions for proper drainage could allow rain, overflow and other casual water to flood the equipment and create a wet condition in which it would sit.

For spas which will be recessed into a floor or deck, install so as to permit access to the equipment, either from above or below, for servicing. Make certain that there are no obstructions which would prevent removal of the cabinet side panels, especially on the side with the equipment bay doors.

In selecting the ideal *outdoor* location for your spa, we suggest that you take into consideration 1) the proximity to change area and shelter (especially in colder weather); 2) the pathway to and from your spa (this should be free of debris so that dirt and leaves are not easily tracked into the spa); 3) the closeness to trees and shrubbery (remember that leaves and birds could create extra work in keeping the spa clean); 4) a sheltered environment (less wind and weather exposure can result in lowered operation and maintenance costs); and 5) the overall enhancement of your environment. It is preferable not to place the spa under an unguttered roof overhang since run-off water will shorten the life expectancy of the spa cover.

For *indoor* installations, be certain to make provisions for proper ventilation. When the spa is in use, considerable amounts of moisture will escape. This can damage certain surfaces over time.

If you have any questions regarding the placement or installation of your spa consult your authorized Sundance Dealer.

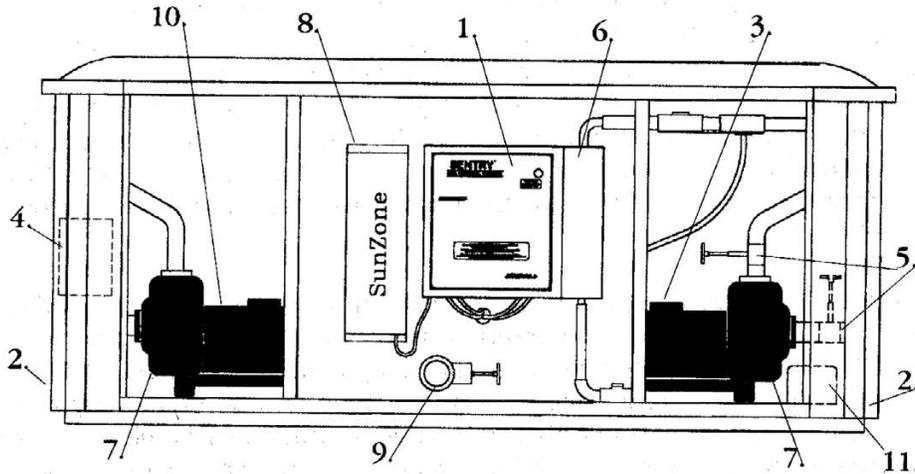
General Electrical Safety Instructions

Your new Sundance spa is equipped with the "state-of-the-art" Sentry equipment system. It contains the most advanced safety and self-protective equipment in the industry. Nonetheless, this spa must be installed properly to insure dependable usage. Please contact your dealer or local building department should you have any questions regarding your installation. In the event they are unable to answer your questions, direct your inquiries to Sundance Spas. Please refer to the back of this manual for our address and telephone number.

Proper grounding is extremely important. Sundance spas are equipped with a current collector system. A pressure wire connector is provided on the surface of the control box, located inside the equipment door (See ILL. 2, ITEM 2) to permit connection of a bonding wire between this point and any ground metal equipment, metal water pipe or conduit within 5 feet of the spa, or copper clad grounding rod buried within 5 feet of the spa. Bonding wire must be at least No. 8 AWG (8.4 mm²) solid copper wire. This is a most important safety assurance feature.

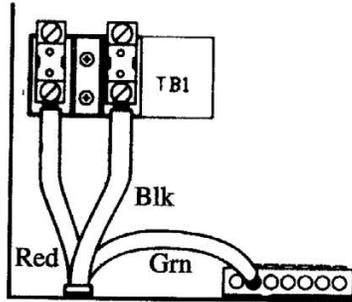
Before installing this spa, check with the local building department to insure installation conforms to local building codes.

ILL. No. 1.1
Equipment Bay

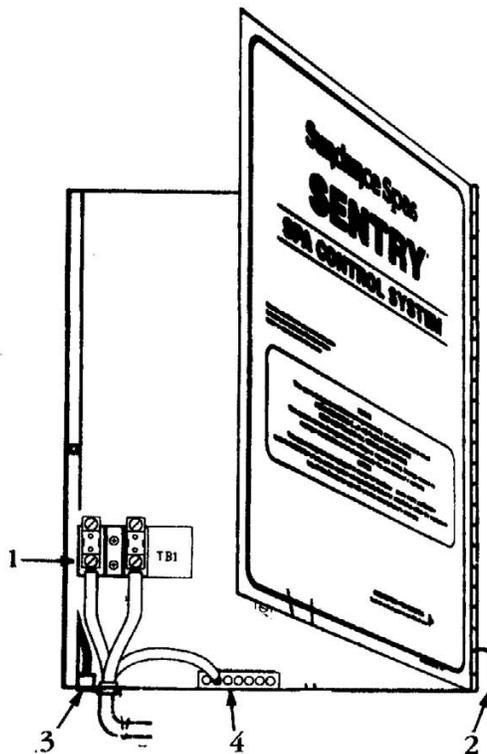


- | | |
|------------------------|----------------------|
| 1. Sentry Control Box | 7. Pump Drain |
| 2. Power Supply Inlets | 8. Ozone Generator |
| 3. Pump | 9. Spa Drain |
| 4. Air Blower | 10. Pump #2 |
| 5. Flow Valves | 11. Circulation Pump |
| 6. Heater | |

(Location of components may vary by model.)



ILL. No. 1.2
Terminal Strip (240V)



ILL. No. 1.3
Sentry Control Box

1. Terminal Strip
2. Bonding Lug
3. Receptacle for Ozone Purification System
4. Grounding Terminal

Electrical Installation Instructions

IMPORTANT NOTICE: The electrical wiring of this spa must meet the requirements of the National Electrical Code (NEC) and any applicable state or local codes. The electrical circuit must be installed by a qualified electrician and approved by a local building/electrical inspection authority.

1. This spa must be permanently connected (hard-wired) to the power supply. **No plug-in connections or extension cords are to be used in conjunction with the operation of this spa.** Supplying power to the spa which is not in accordance with these instructions will void both the independent testing agency listing and the manufacturer's warranty.
2. The power supplied to this spa *must* be a *dedicated* circuit with no other appliances or lights sharing the power provided by the circuit.
3. To determine the current, voltage and wire size required for the spa and configuration to be connected, refer to the power supply chart (ILL. No. 2).
 - Wire size must be appropriate for the distance of the wire run per NEC.
 - We recommend type THHN wire.
 - All wiring must be copper to ensure proper connections. Do not use aluminum wire.
 - When using wire larger than #6, add a junction box near the spa and reduce to short lengths of #8 wire to connect to the spa.
4. The electrical supply for this product must include a suitably rated switch or circuit breaker to open all ungrounded supply conductors to comply with Section 422-20 of the National Electrical Code, ANSI/NFPA 70. The disconnecting means must be readily accessible to the spa's occupant but installed at least 5 feet (1.5m) from spa water.
5. The electrical circuit supplied for the spa must include a suitable ground fault circuit interruptor (GFCI) as required by NEC Article 680-42.
6. To gain access to the spa's power terminal strip, remove the four screws securing the center cabinet panel on the side of the spa under the controls. Then open the door to the control box (Ill. 1.1, Item 1).
7. Select the power supply inlet you want to use (Ill.1.1, item 2) and remove the short cabinet panel from the front of the spa to allow you to feed the cable through the control box. Install the cable with connector through the large opening provided in the bottom of the control box.
8. Connect wires, color to color, on terminal strips TB1 and TB3 (Ill. 1.2). **TIGHTEN SECURELY!** All wires must be hooked up or damage could result.
9. Close the control box door and reinstall the cabinet side panels.

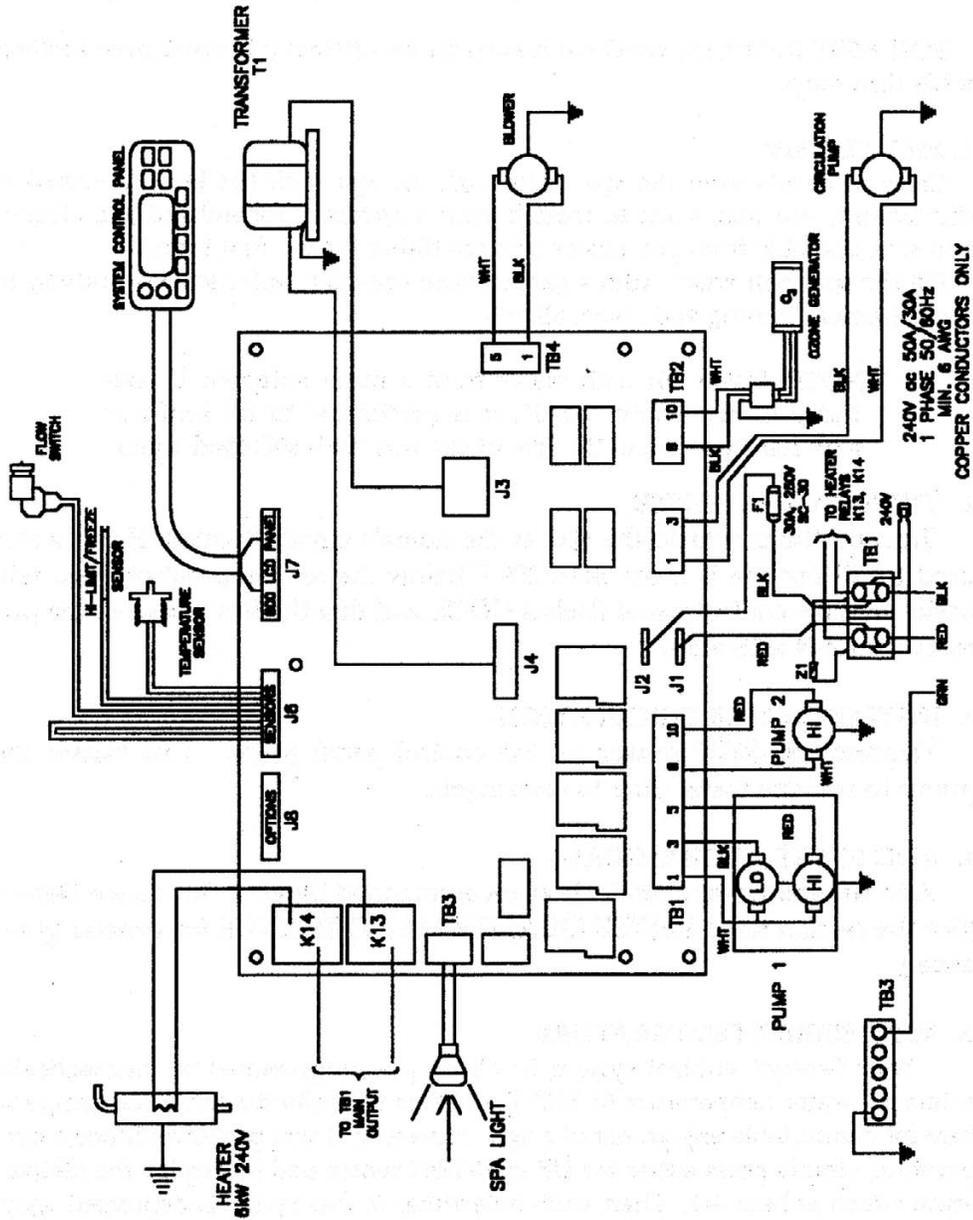
ILL. No. 2
POWER SUPPLY REQUIREMENTS

240 V/50A*

Circuit Breaker	50 dual pole
Number of Wires	3
Current draw (amps)	40

*** NOTE:** If your household's electrical service does not have the full 50A, 240V power available for the spa, the spa may be connected to 30A, 240V service if a minor circuit board modification is performed by your dealer. In this configuration, the heater will yield the same rapid temperature increase as in 50A operation but will not operate at the same time as the high speed pump or air blower.

ILL. No. 3
Sentry Control System Wiring Diagram



Start Up Instructions

CONGRATULATIONS! You are now all set to get your new spa ready to use. Simply follow this step-by step procedure and, before long, you will be enjoying your first glorious experience in your Sundance spa.

FOR BEST RESULTS, read each step in its entirety before proceeding with that step.

1. FILL THE SPA

Clear all debris from the spa. (Although the spa shell has been polished at the factory, you may want to treat it with a specially formulated spa cleaner and wax available from you dealer prior to filling for the first time.)

Fill the spa with water from a garden hose until the water level is midway in the skimmer opening and above all jets.

NOTE: Never fill with water from a water softener. If your water is extremely "hard", it is preferable to fill half-way with hard water and the rest of the way with softened water.

2. TURN ON THE POWER

Turn on the power to the spa at the home's circuit breaker. If the water used to fill the spa is more than 20° F below the set temperature, you will notice that the control panel flashes COOL and that the low speed of the primary pump is activated.

3. INITIATE WATER CIRCULATION

Depress the **JETS** sensor on the control panel twice. This causes the pump to activate water flow to certain jets.

4. ADD START-UP CHEMICALS

Add the spa water chemicals as recommended by your Sundance Dealer. (See the section titled WATER QUALITY MAINTENANCE for general guidance.)

5. SET DESIRED TEMPERATURE

Your Sentry™ control system has been pre-programmed to automatically achieve a water temperature of 100° F which is typically the preferred temperature for comfortable enjoyment of a spa. However, if you prefer a different temperature, simply press either the **UP** or **DOWN** sensor pad to display the temperature which has been set. Then, each time either of these pads is depressed again (within five seconds), the set temperature will increase or decrease depending on which pad is pressed. Continue pressing the appropriate pad until the desired set temperature has been reached.

After five seconds, the screen will automatically return to displaying the actual spa water temperature. Anytime you need to check the thermostat setting, simply press either **UP** or **DOWN**.

NOTE:

- The maximum temperature for which the spa can be set is 104° F., and the minimum is 80° F.
- Setting the thermostat at maximum will not accelerate the heating process. This will only result in a higher ultimate temperature.
- The set temperature can be locked to prevent inadvertent or unauthorized adjustment. (See page 22.)

6. SET SPA TO HEAT

Press the **JETS** sensor to return the pump to low speed operation. Press the **MODE** sensor until the "STANDARD" indicator appears on the right side of the screen. In this setting, the heater will operate until the set temperature is achieved. (For further discussion of the standard and economy modes, see page 20.)

7. PLACE COVER ON SPA

Keeping the insulating cover in place anytime the spa is not in use will reduce the time required for heating, thereby minimizing operating costs.

The time required for initial heat-up will vary depending on the temperature of the water used to fill the spa and the size of your spa. The temperature will rise approximately 4 to 6 degrees per hour in larger spas and approximately 8 to 10 degrees per hour in smaller spas.

DANGER. RISK OF INJURY. Always check water temperature carefully before entering spa.

Operating Instructions

Your Sundance spa has a touch-sensitive control panel, Massage Selector valves and air control knobs located on the top lip of the spa (See ILL. 5). These controls let you operate many of the special functions of your Sundance spa. By familiarizing yourself with the following information, you will be able to gain the full benefit afforded by the various functions of your spa.

VIEW

Pressing the sensor pad labeled **VIEW** inverts the main four-digit display on the Command Center's LCD screen to allow easy reading from either inside or outside the spa.

LIGHT

The **LIGHT** sensor pad activates both the underwater light and the light symbol on the LCD screen when touched. To reduce the brightness of the light, touch the sensor pad again. A third touch will result in an even lower level of illumination. A fourth touch turns the light off. If left on, the light will automatically turn off after one hour.

There are two color lenses included with your spa which may be placed over the light lens inside the spa. To remove a lens, simply rotate it counter clockwise and pull.

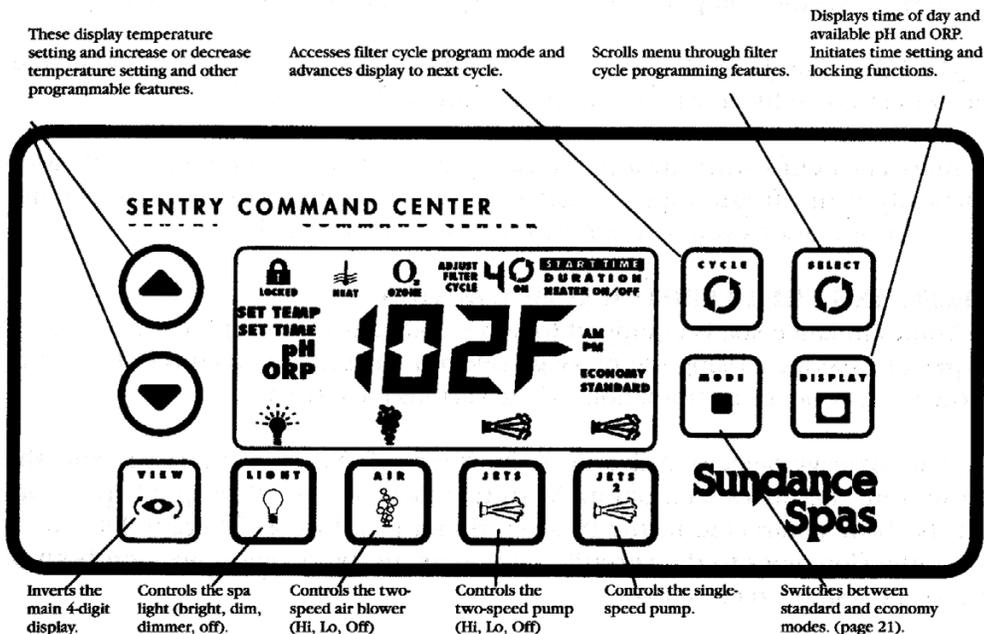
CAUTION: Do not allow a colored light lens which is not in use to rest on the surface of a Centrex-surfaced spa, as permanent staining can result.

AIR INJECTION

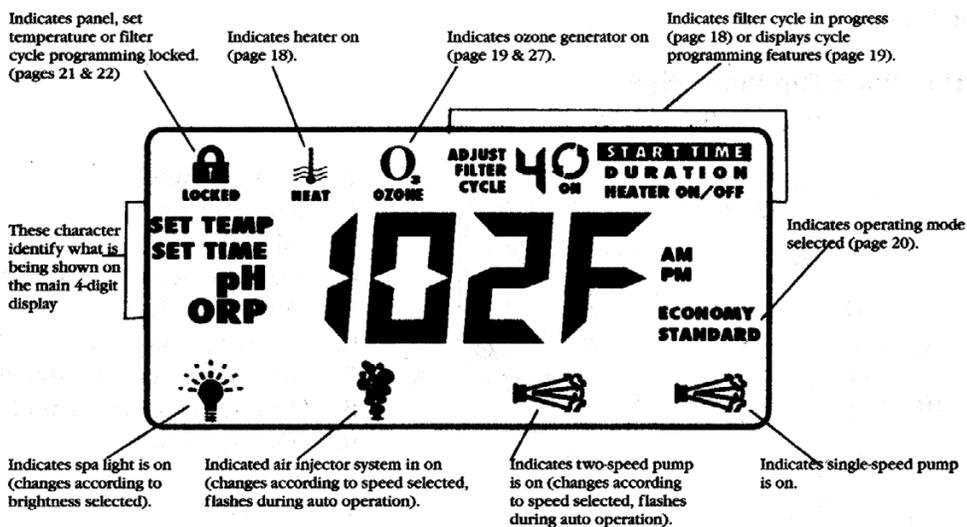
When the **AIR** sensor pad is pressed, the air blower forces air through the injectors located in the seats and footwell. When it is pressed a second time, the power of the air blower is reduced by one-third. The bubbles symbol above the sensor pad appears whenever the air blower is on. An electronic timer automatically turns the air blower off 20 minutes after it was turned on.

The air blower automatically activates for 30 seconds at the start of each filter cycle. This clears the lines of the air injector system to help ensure that all water is exposed to sanitizer.

ILL. No. 4.1 COMMAND CENTER



ILL. No. 4.2 LCD SCREEN



JETS

The sensor pads labeled **JETS** control the dual-speed pump. Pressing these sensors cycles the pump from off, to low speed, to high speed, and back to off.

JETS 2 – The **JETS 2** sensors control the single-speed pump. (NOTE: The heater cannot activate when both pumps are on high speed.)

Auto Turn Off– Anytime a pump has been manually turned on, it will automatically turn off after approximately 20 minutes. If at this time you desire more jet operations you may simply turn the pump(s) back on.

SELECTING THE DESIRED MASSAGE ACTION

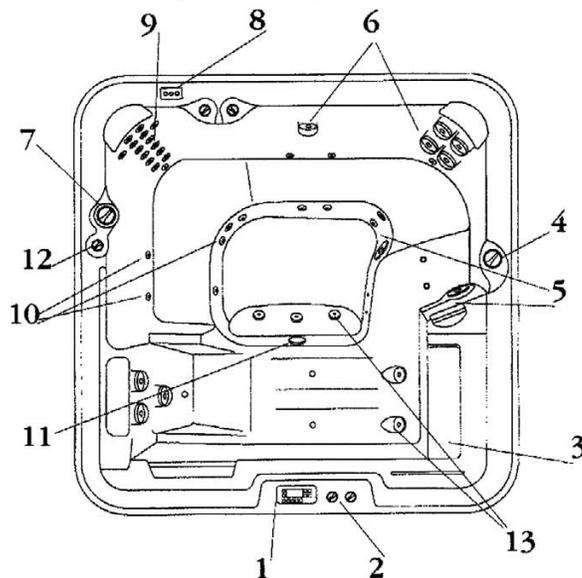
Your Sundance spa is equipped to allow you to select from a wide variety of types of massages. Using the massage selector valves, you can direct the water flow to any one, or combination, of the various jet systems.

The Massage Selector Valve near the filter (Ill. No. 5, item 4) controls the flow from the dual-speed pump. With this valve in the “Whirlpool” position, all the flow is directed to the two whirlpool jets. In the “Therapy Jets” position, the flow goes to the versatile Intelli-Jets. In the “Combo position both of these jet systems receive flow.

The Massage Selector valve near the therapy seat (Ill. No. 5, item 7) controls the flow from the single-speed pump. With this valve in the “Therapy Seat” position, all the flow is directed to the 14 jets in the therapy seat. In the “Vertical Jets” position, the flow goes to the foot jets and the calf jets. In the “combo” position, both jet systems are powered.

If the flow from any jet system is too powerful, you can reduce the power by rotation the Massage Selector valve toward “Combo” until the desired power is achieved.

ILL. No. 5 Top View—Spa



1. Control Panel
2. Air Controls
3. Filter
4. Massage Selector Valve #1
5. Whirlpool Jets
6. Therapy Jets (Intelli-Jets)
7. Massage Selector Valve #2
8. Auxiliary Control Panel
9. Therapy Seat
10. Air Injectors
11. Spa Light
12. Fragrance Dispenser
13. Vertical Jets

ADJUSTING THE INTELLI-JETS

With the nozzles of the Intelli-Jets positioned straight ahead, the jet stream will be stationary. Pushing a nozzle to one side or the other causes the jet nozzle to rotate, moving the jet stream in a circular pattern. The speed of the rotation can be adjusted by grasping the base of the nozzle and rotating the tip - with the thickest part of the nozzle wall toward the outside, the rotation is slowest; with the thinnest part of the nozzle toward the outside, the rotation is fastest.

AIR CONTROLS

Each jet system has its own air control. These controls allow you to regulate the amount of air which is mixed with the water entering through the jets. Clockwise rotation adds more air and counter-clockwise rotation reduces air flow. To minimize heat loss, these controls should be closed when the spa is not in use.

FRAGRANCE DISPENSER

On the lip of your spa is a screw-off cap labeled "SunScents Dispenser" (ILL. 5, item 12). It is designed to contain packages of a specially made fragrance available from your Sundance dealer. The fragrance is carried into the spa water by the air coming through the injector system when the air blower is on.

IMPORTANT: Do not use this dispenser for any other type of fragrance. Always make certain that the dispenser cap is securely in place before operating the spa's air blower.

—Automatic Filtration, Sanitization and Pre-Heating—

CIRCULATION PUMP AND OZONE INJECTION

Your spa is equipped with a small circulation pump which provides constant low-speed filtration. However, because the operation of this pump induces heat into the water, the control system prevents overheating the spa water by automatically turning the pump off if the water temperature reaches two degrees above the set temperature. When the water temperature drops to the set temperature, the circulation pump is once again activated.

When the circulation pump is on ozone, produced by the SunZone ozone generator, is mixed with the water. This ozone injection supplements chemical sanitizers to kill bacteria, oxidize organics and control minerals in the water. (See pages 26 & 27 for more information.)

When the ozone generator is operating, the O₃ indicator appears on the control panel's LCD screen. If either the "JETS" or "AIR" sensor is pressed, except during filter cycles, the control system "assumes" that someone is using the spa and deactivates the ozone generator for a predetermined period to minimize user exposure to ozone.

AUTOMATIC FILTRATION/PRE-HEATING CYCLES

In addition to the filtration the water receives while the circulation pump is operating, your spa's control system activates automatic filter cycles, during which the low speed of the spa's primary jet pump turns on to move water through the filter. This increased water movement also provides important skimming action to remove debris and suspensions from the water's surface, minimizing the "bathtub ring" effect.

When an automatic filter cycle activates, the LCD screen displays the following message:

**FILTER
CYCLE ON**

The symbol for low-speed pump operation also flashes to indicate automatic operation. (Note: If the **JETS** sensor is pressed during a filtration cycle, this symbol stops flashing to indicate "manual" low-speed operation.)

Air Injection System Blow Out

For 30 seconds at the beginning of each filter cycle, the air blower automatically activates to put into circulation any water that may have entered the air injector lines. This helps ensure that *all* of the spa water is properly filtered and sanitized. During this time, the bubbles symbol flashes on the LCD screen to indicate automatic operation.

NOTE: After a long filter cycle, you may notice that the water temperature is greater than the temperature setting. This can happen in such a well insulated spa because, even though the heater turns off as intended, the transference of heat from the pump continues to add warmth to the water.

Pre-Set Filter Cycles

Your spa comes with four 15 minute “heater on” filter cycles already programmed in, beginning at 6:00 a.m., noon, 6:00 p.m. and midnight. You can easily change the start time, the cycle length and/or heater status for any of these cycles to suit your individual needs by following the steps in the next section.

(Note: If your situation limits your spa use to weekends only, ask your dealer about a special program which heats your spa only on weekends while keeping it filtered during the week.)

Pre-Heating

During a filter cycle, unless the system is programmed for “Heater Off” operation (see below), both the heater and the LCD heater symbol turn on if the actual water temperature is lower than the set temperature. Both the heater and the symbol turn off when the set temperature is reached.

Programming Instructions

ADJUSTING THE TIME OF DAY

The Sentry control system remembers the time of day even in the event of a prolonged power outage. However, it may occasionally be necessary to re-set the time of day. For example: if you are not in the Pacific Time Zone you will want to reset the time for your own time zone. (The system will automatically adjust to and from daylight savings time.)

To accomplish this, press **DISPLAY, MODE** and **DISPLAY** within five seconds each. A number representing the hour will be displayed, followed by **AM** or **PM**. The hour will advance or decrease each time the **UP** or **DOWN** sensor pad is pressed within five seconds. Then, press **DISPLAY** again to display the minutes. Adjust the minutes as necessary by pressing the **UP** or **DOWN** sensor. After 5 seconds, the display will return to normal.

CHANGING THE FILTER CYCLES

The Sentry Control System allows you to easily adjust three separate aspects of each of the filtration cycles (1) the time of day at which each cycle begins, (2) the duration of each cycle and (3) whether or not the heater is allowed to operate during each cycle

To make adjustments first press the sensor labeled **CYCLE** to enter the filter cycle programming mode. The LCD screen will display the following in the upper right corner:

**ADJUST
FILTER
CYCLE**

START TIME

This means the System is ready to accept your changes to the start time for filter cycle number one. Simultaneously, the large four-digit display in the center of the screen displays the currently programmed start time for that filtration cycle.

At this point, you have four options. You may:

(1) Press the **UP** or **DOWN** arrows to adjust the start time in increments of 15 minutes.

(2) Press the **CYCLE** sensor to progress to adjusting each subsequent filter cycle. With each press, the currently programmed status will be shown in the large four digit display. To adjust any of the programming, simply press the **UP** or **DOWN** arrow.

(3) Press the **SELECT** sensor to move down the menu from Start Time to Duration, then to Heater On/Off. With each press, the currently programmed status will be shown in large four digit display. To adjust any of the programming, simply press the **UP** or **DOWN** arrow.

(4) Press **DISPLAY** to make the filter cycle programming characters disappear from the screen and the main display return to showing the water temperature. If no sensor is pressed within 30 seconds, the screen automatically returns to normal display.

At any time, you may check the programming of any aspect of any filter cycle by first pressing **CYCLE** then moving through the menu by pressing either **CYCLE** or **SELECT**. The programming is changed only by pressing the **UP** or **DOWN** sensor during this process.

LOCKING THE FILTER CYCLES

You may keep the filter cycle programs from being inadvertently altered by electronically “locking” them. To accomplish this, simply press **CYCLE** then, within 30 seconds, press **DISPLAY, MODE** and **UP**, within five seconds each. The lock symbol will appear on the screen. In this state, the status of the cycle programming may be checked, but may not be altered.

To unlock the filter cycle programming to make changes, simply press **DISPLAY, MODE** and **DOWN** within five seconds each.

CHOOSING THE “STANDARD” OR “ECONOMY” MODE

Pressing the **MODE** sensor pad switches your spa between the “STANDARD” and “ECONOMY” operating modes. The mode currently selected is displayed on the right side of the LCD screen. By selecting the appropriate operating mode, you can ensure that your spa will be ready to use when you want it with the lowest possible energy consumption.

Standard Mode

In the “standard” mode, the spa water temperature will always be held at the set temperature. The heater will turn on as needed to maintain the spa water temperature within one degree of the temperature you have set with the temperature control. When the desired temperature has been achieved, the heater will turn off.

In addition, when in the “standard” mode, the filter cycles will operate the low speed pump as programmed to provide skimming action and additional filtration.

In summary, we suggest you use the “standard” mode in the following situations:

1. Upon initial fill-up to bring the water up to the desired temperature.
2. Anytime you desire a temperature rise prior to the next “heater on” filter cycle.

At all other times, it is advisable to use the “economy” mode.

Economy Mode

In the “economy” mode, the heater will turn on *only* during the filter cycle. During these cycles, the heater will operate *only* if programmed to be on during a particular filter cycle *and* the actual water temperature is lower than the set desired temperature.

Because of the exceptionally high heat retention capabilities of your Sundance spa, you will find that the “economy mode is more than adequate for normal day-to-day operation.

NOTE: The control system is programmed to “assume” that you want it to maintain the set temperature while you are using the spa. Therefore, if the jets are turned on manually while the spa is set for the economy mode, the heater will activate as needed to maintain the set temperature.

PANEL LOCK

To help prevent unauthorized use of your spa, the Sentry controls incorporate an electronic panel locking system which disables the controls on the panel.

To Lock The Panel:

Press the **DISPLAY, MODE,** and **UP** sensor pads, in order, within five seconds. The “lock” symbol will appear on the LCD screen.

All the pads are now deactivated except the “display” pad which is used to initiate the unlock sequence. All automatic spa functions will operate normally. Only the functions typically operated when the spa is in use are affected.

To Unlock The Panel:

Press the **DISPLAY, MODE,** and **DOWN** sensor pads, in order, within five seconds. The “lock” symbol will disappear. All sensor pads are now active.

TEMPERATURE SETTING LOCK

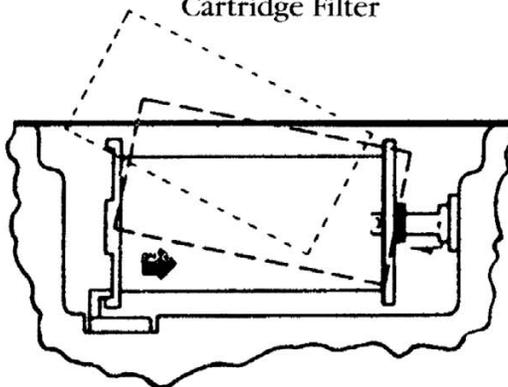
To electronically lock the temperature setting, first enter the "temperature setting" mode by pressing either the **UP** or **DOWN** sensor. Then, within five seconds, press the three sensors described under "Panel Lock" above. This will prevent the temperature setting from being changed by unauthorized persons but all other sensors will remain active.

To unlock the temperature setting so that it can be adjusted, simply follow the instructions above under "**To Unlock the Panel.**"

Spa Maintenance

Proper and regular maintenance of your spa will help it retain its beauty and performance. Your authorized Sundance Dealer can supply you with all the information, supplies and accessory products you will need to accomplish this.

ILL. No. 7
Cartridge Filter



CLEANING THE FILTER

Your Sundance spa is equipped with a cartridge filter located in the skimmer/filter well (See ILL. 5, ITEM 3) near the top edge of the spa for easy removal and cleaning. Filtering is accomplished by causing water to flow through the polyester mesh of the filter, and as water flows through the filter, suspended particles become trapped in its surface.

It is necessary to remove the filter and clean the cartridge surface, generally every two to four months, depending on usage and water quality. This is done by removing the filter lid, loosening the large retainer nut on the pipe at the base of the filter and rotating the cartridge gently. When the cartridge pops loose (up), slide the cartridge off the filter pipe.

Cleaning is accomplished by washing all the entrapped dirt from the filter with a garden hose with a high pressure nozzle.

NOTE: When replacing the filter cartridge, rotate the retainer nut around the pipe until it touches the base of the cartridge. **DO NOT OVERTIGHTEN!** This retainer nut is intended to act as a positive seal.

Occasionally, the cartridge will need a better cleaning to remove oils and grime from its surface. For this we suggest you remove the cartridge, clean with a high-pressure nozzle, then place the cartridge in a plastic container, soaking the cartridge three to six hours or overnight in a solution of specially formulated cartridge filter cleaner, available from your Sundance Dealer.

The average life expectancy of a Sundance filter cartridge is approximately two years with proper care and water quality maintenance. A replacement cartridge may be purchased from your Sundance Dealer.

DRAINING & REFILLING

About every 3 to 6 months, you will want to replace the spa's water. The frequency depends on a number of variables including the amount of use, attention paid to water quality maintenance, etc. You will know it is time for a change when you cannot control sudsing and/or you can longer get the normal feel or sparkle to the water even though the key water balance measurements are all with the proper parameters.

CAUTION: There are certain precautions to keep in mind when draining you spa. If it is extremely cold, and the spa is outdoors, freezing could occur in the lines or the equipment (see "WINTERIZING", page 25). On the other hand, if it is hot outdoors, do not leave the spa's surface exposed to direct sunlight for long periods.

To drain your spa using the drain port provided, **first, turn off the power to the spa at the circuit breaker.** Then open the cabinet's hinged access panel. The drain port is secured to the base inside the door and features a white "T" handle (see Ill. 1.1, item 7). You may use either a garden hose or, for faster draining, a special, large-diameter drain hose is available from your Sundance dealer.

Next, remove the threaded plug from the end of the drain port. If you intend to use a garden hose, install the threaded fitting provided with your spa. After installing the hose, rotate the "T" handle counterclockwise 1/4 turn and pull outward, away from the pipe to allow the water to drain from the spa.

After draining, always remember to close the "T" handle valve and reinstall the threaded plug (to prevent water from seeping past the valve) prior to refilling. After refilling, turn on power to the spa and follow the steps listed under "Start Up Instructions".

CLEANING THE INTERIOR OF THE SPA

To preserve the sheen of your spa's surface, it is crucial that you avoid using abrasive cleaners or cleaners which have adverse chemical effect on the surface. If you are not certain as to the suitability of a particular cleanser, consult your authorized Sundance Dealer.

Regardless of the cleanser used, use extreme care to assure that no soap residue is left on the surface. This could cause severe sudsing when the spa is refilled.

Your Sundance Dealer offers a specially formulated surface sealant which aids in cleaning the spa surface and adds a protective coating to enhance the luster of the surface. This product should also be occasionally applied to the stainless steel grab rails and accents in the spa to help preserve their appearance.

PILLOW CARE

Remove and clean the headrest pillows regularly with soapy water using a cloth or soft-bristle brush. To maintain water resistance and luster, apply a quality vinyl conditioner once a month.

Always remove the pillows when adding chemical shock treatment to the spa water. The pillows can be returned to the spa when the sanitizer reading drops below 5 ppm.

IMPORTANT: When removing pillows equipped with suction cups, always slide them upwards until the suction cups release from the spa's surface. Never pull the pillows straight out from the spa as this will likely cause the suction cups to permanently separate from the pillow. Pillows on spas with textured surfaces are equipped with ball-and-socket type connectors. To remove these from the spa, gently pull the pillow straight out from the spa.

(Pillow damage or deterioration caused by improper care is not covered by the spa's warranty.)

MAINTAINING THE WOOD CABINET

With time and exposure to the elements, the wood on your spa will tend to lose its new appearance. Protecting or reviving the wood surfaces is a fairly simple process.

Light sanding with fine-grit sandpaper will help smooth any roughness and regular applications of a penetrating wood preservative will enhance and protect the richness of the wood. A specially formulated wood stain available from your Sundance dealer is ideal for this.

NOTE: Do not apply varnish, shellac or other surface sealants to the wood. These tend to react with the chemicals in the wood and the UV rays of the sun, causing yellowing, flaking and peeling.

MAINTAINING THE COVER

Using the Sundance insulating spa cover anytime the spa is not in use will significantly reduce your operating costs, heat-up time and maintenance requirements. To prolong the life of the cover, handle it with care and clean it regularly using mild soap and water. Periodic treatments with a special conditioner developed for Sundance spa covers will help protect against deterioration caused by U.V. rays from the sun. Never allow anyone to stand or sit on the cover, and avoid dragging it across rough surfaces.

WINTERIZING

Your Sundance spa is designed to automatically protect itself against freezing when operating properly. During periods of severe freezing temperatures, you should check periodically to be certain that the electrical supply to the spa has not been interrupted. In extreme, bitter cold weather (less than -20° F.) program the filter cycles for 24-hour operation to protect the spa (i.e. four consecutive six-hour cycles.)

If you do not intend to use your spa, or if there is a prolonged power outage, during periods of severe freezing temperatures, it is important that all water be removed from the spa and equipment to protect against damage from freezing.

For expert winterization of your spa, contact your authorized Sundance Dealer. In emergency situations, damage can be minimized by taking the following steps:

1. Follow the directions on page 23 for draining the spa.
2. As the water level drops below the seats, use whatever means necessary to get the water out of the recessed seating areas and into the footwell.
3. When the water level ceases to drop, use whatever means available to remove any remaining water from the footwell.
4. Turn the power to the spa back on briefly and press the AIR sensor to activate the air blower. This will evacuate the water from the air injector lines. (Note: Stand back to avoid the misty spray.)
5. Turn off power to the spa.
6. Remove the equipment-side cabinet panels and locate the drain plugs in the front of the pumps (see Ill. 1.1, item 7). Remove these plugs to allow the water to drain out of the pumps and heater. (Note: Approximately one to two gallons will be released during this procedure. Use a wet/dry vacuum or other means to keep this from flooding the equipment compartment.) Replace the drain plugs.
7. Loosen the hose clamp at the bottom of the heater (Ill. 1.1, item 6) and pull this hose off of the heater fitting (twist the hose back and forth while pulling downward). Tip the hose down and allow to drain.
8. Re-install the cabinet side panels and cover the spa so that no casual moisture can enter the spa.

Consult your Authorized Sundance Dealer if you have any questions regarding winter use or winterizing.

RE-STARTING YOUR SPA IN COLD WEATHER

If you want to start up your spa after it has sat empty for a time in freezing temperatures, be aware that the water remaining in certain sections of the piping may still be frozen. This situation will block water flow preventing the spa from operating properly and possibly damaging the equipment. We recommend you consult your dealer for guidance before attempting to re-start your spa under these conditions

Water Quality Maintenance

Maintaining the quality of the water within specified limits will serve to enhance your enjoyment and prolong the life of the spa's equipment. It is a fairly simple task, but it requires regular attention because the water chemistry involved is a balance of several factors. There is no simple formula, and there is no avoiding it. A careless attitude in regard to water maintenance will result in poor and potentially unhealthful conditions for soaking and even damage to your spa investment. For specific guidance on maintaining water quality, consult your Authorized Sundance Dealer who can recommend appropriate chemical products for sanitizing and maintaining your spa.

CAUTION: Never store spa chemicals inside the spa's equipment bay.

pH CONTROL

pH is a measure of relative acidity or alkalinity of water and is measured on a scale of 0 to 14. The midpoint of 7 is said to be neutral, above- which is alkaline and below which is acidic. In spa water, IT IS VERY IMPORTANT TO MAINTAIN a slightly alkaline condition of 7.2 to 7.8. Problems become proportionately severe when this range is exceeded or diminished. A low pH will be corrosive to metals in the spa equipment. A high pH will cause minerals to deposit on the interior surface (scaling). In addition, the ability of the sanitation agents to keep the spa clean is severely affected as the pH moves beyond the ideal range. That is why almost all spa water test kits contain a measure for pH as well as sanitizer.

SANITIZING

To destroy bacteria and organic compounds in the spa water, a sanitizer must be used regularly. Your Sundance Spa is equipped with The Brominator™, a special compartment built into the floating skimmer gate to hold bromine tablets. By regulating the number of bromine tablets in The Brominator™ and the length of the filtration cycles, you can control the amount of bromine which is actively working in your 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.

IMPORTANT: Do not use chlorine tablets ("Trichlor) in your spa. This chemical can have an extremely corrosive effect on certain materials in the spa. Damage caused by use of this chemical, or improper use of any chemicals, is not covered under the spa's warranty.

OTHER ADDITIVES

Many other additives are available for your spa. Some are necessary to compensate for out-of-balance water, some aid in cosmetic water treatment and others simply alter the feel or smell of the water. Your Authorized Sundance Dealer can advise you on the use of these additives.

SUNZONE™ WATER PURIFICATION SYSTEM

The Sunzone Ozone Water Purification System is designed to work *in conjunction with* chemical sanitizers to keep your spa water clearer and fresher, allowing for longer intervals between drainings.

The Sunzone ozone system works by converting oxygen to ozone as air passes through an enclosed chamber located in the equipment compartment of your spa. When this powerful oxidizer is mixed with the spa water, bacteria and contaminants are destroyed and organic compounds are reduced to their lowest elements for removal by the filtration system.

Although your Sunzone ozone system will substantially reduce the need for chemical sanitizers, it is recommended that either bromine or granular chlorine be used to provide additional germ-killing action when the ozone system is not in operation. In addition, it is important that the chemical balance be maintained within the proper parameters for the ozone to provide maximum effectiveness. For more detailed information about proper use of chemicals, consult your Authorized Sundance Spas Dealer.

OPTIONAL CHECKMATES™ WATER QUALITY MONITOR

A dealer-installed option available for your spa allows you to see the pH and the sanitizing capabilities (ORP) of the water at the touch of a button. The Check Mates Water Quality Monitor accurately displays these values on the spa's LCD screen eliminating the need for cumbersome test kits or imprecise test strips.

Troubleshooting

DISPLAY MESSAGES

There are a number of unique functions designed into your Sundance spa to protect it from damage and/or to aid in troubleshooting. Following is a listing of all the possible messages along with their meanings:

MESSAGE

MEANING

ILDC

INTERLOCK (Spa is deactivated).

If your spa is equipped with door interlocks, this message means that the spa's equipment doors are not properly closed. Doors must be closed for any of the spa's functions to operate.

OH

OVERHEAT PROTECTION (Heater is deactivated, air blower may activate)

Spa water temperature is above acceptable limits. Do NOT ENTER THE WATER. Excessively long filter cycles can cause the water to overheat. If you suspect that this is the case, remove the spa's cover and allow spa to cool down. (Activating the air blower will speed this process.) When the water temperature drops below 104 degrees, press the **MODE** sensor to enable the heater. If this does not correct the problem, contact your dealer or service organization.

COOL

If the spa water is more than 20 degrees F cooler than the temperature set point, the low speed of the two-speed pump and the heater will automatically activate to provide freeze protection. The spa will stay in this mode until the water temperature reaches 15 degrees below the set temperature. No corrective action is necessary.

FLO*

FLOW SWITCH (Heater is deactivated. Pump may also be deactivated).

Proper flow of water is inhibited or a pressure switch has malfunctioned. Check flow valves in equipment bay. Check for proper water level. Check for clogged filter. Contact your dealer or service organization.

***NOTE:** THIS MESSAGE CAN ALSO APPEAR IF THE PUMP HAS NOT REGAINED PRIME AFTER THE SPA HAS BEEN DRAINED AND REFILLED. IF YOU SUSPECT THAT THIS IS THE CASE, SEE THE INSTRUCTIONS ON PAGE 12 UNDER 'INITIATE WATER CIRCULATION'.

Hold

Panel sensors have been pressed too many times in a short period of time. Because this could cause excessive wear on equipment components, panel sensors are temporarily deactivated. Panel sensors will automatically re-activate if no sensor is pressed for 30 seconds.

HOT

Circuit board temperature has exceeded acceptable limit. Air blower will activate and operate until circuit board temperature drops below acceptable limit. If condition persists, provide shade for the equipment side of the spa.

ICE

FREEZE PROTECTION

A potential freeze condition has been detected. No action is required. Low speed pump will operate until the spa is out of danger. In extreme cases, the heater will also activate.

PnL

Communication between the control panel and the circuit board is faulty. Contact your dealer or service organization.

"WATCHDOG" (Spa is deactivated.)

A problem has been detected which could cause damage to the spa or its components. Contact your dealer or service organization.

Sn1

OPEN SENSOR (heater disabled) OR
SHORT SENSOR (spa is deactivated)

The high-limit temperature sensor is non-functional. This must be repaired only by a dealer or qualified service organization.

Sn3

OPEN OR SHORT SENSOR (heater disabled)

The main sensor is non-functional. This must be repaired only by a dealer or qualified service organization.

TROUBLESHOOTING PROCEDURES

Your Sundance spa is the result of many years of careful engineering and a quality first commitment of Sundance personnel. We find that many "problems" are the result of either a misunderstanding of how the spa operates or improper installation.

In the unlikely event your spa is not working the way you believe it should, please first review all the installation and operating instructions in this manual and check the message on the panel display; second, if you are still not satisfied it is working properly, please follow the appropriate troubleshooting instructions.

PROBLEM PROCEDURE

NONE OF THE COMPONENTS OPERATE (i.e. pump, blower, light)

Check control panel display.

1. If there are letters or symbols displayed on the LCD screen, refer to the previous section to determine meaning and action required.
2. If nothing appears on the LCD screen:
 - a. Check the household circuit breaker.
 - b. Check for proper power connection.
 - c. Check voltage for full 240V.
 - d. Contact your dealer or service organization.

PUMP DOES NOT OPERATE BUT BLOWER AND LIGHT DO OPERATE.

Depress "Jets" sensor.

1. If no sound is detected or if a "buzzing" sound is detected, turn off power to the spa and contact your dealer or service center.
2. If motor operates but no water flows to jets:
 - a. Check to be certain flow valves are open (see ILL. 1.1, Item 5).
 - b. Pump may not be properly primed. Follow the instruction in the section headed "Initiate Water Circulation" on page 12.
 - c. Contact dealer or service organization.

POOR JET ACTION

1. Make certain the pump is on high speed.
2. Check position of diverter valve controls (see ILL. 5, page 16).
3. Open air control for the jet system selected.
4. Check for adequate water level.
5. Check for dirty filter.

PROBLEM**PROCEDURE**

WATER IS TOO HOT.

1. Reduce thermostat setting.
2. Reduce filtration cycle length. (Even without heater on, water temperature can increase from prolonged pump operation.)

NO HEAT

1. Check thermostat setting.
2. Check the operating mode. In the "Economy" mode, the spa will heat only during a "heater on" filter cycle (see page 19). Program longer cycle durations or change to "standard" mode.
3. If outside air is cold, keep cover in place while heating.
4. If "heater on (LED) indicator is lit (see ILL. 4.1), but no temperature rise is experienced after a reasonable period of time, contact your dealer or service organization.

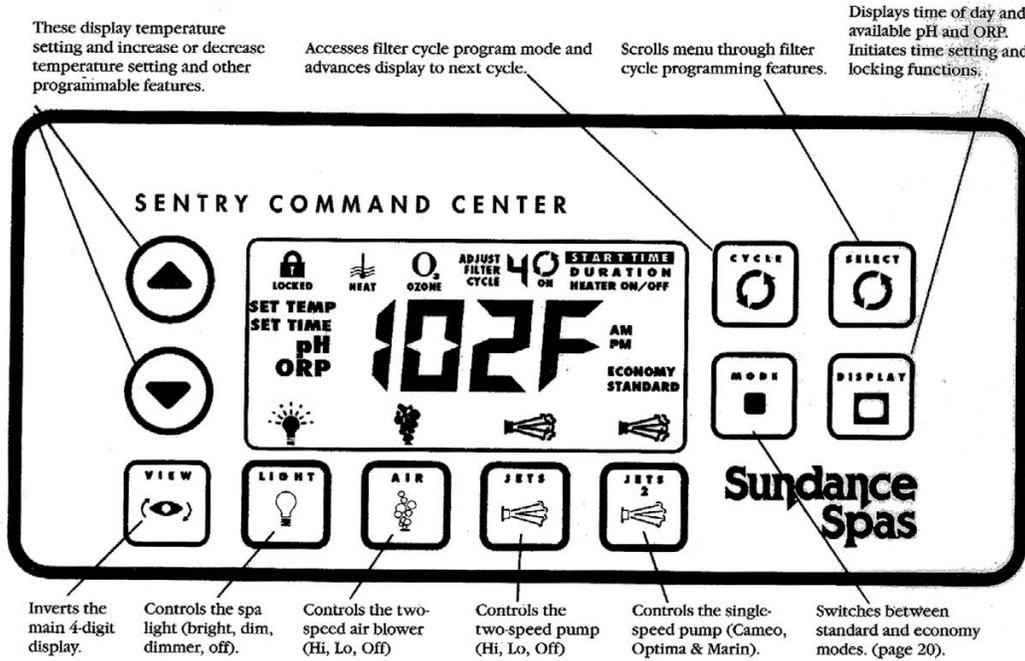
Your authorized Sundance dealer is a trained service repair center. Should checking the above steps fail to correct the problem, please call your dealer so that he may arrange service.

Your Sundance Dealer's phone number: _____

Sundance builds the best spas in the industry. Nonetheless, we are always striving to improve the quality and features of our products. Your input as a Sundance Spa owner is a cherished part of this process. If you have any comments or suggestions, or if you wish to be informed on any new products for your spa, please write to us.

CONGRATULATIONS on your good taste and welcome to the happiest and most relaxed family in the world!

The Ultimate Spa Controller



Sundance Spas, Inc.

14525 Monte Vista Ave, Chino, CA 91710/U.S.A.,

Phone: (909) 606-7733, Fax: (909) 606-0195

Website: <http://www.sundancespas.com>