

Sentry™

800



**Sundance®
Spas**

INSTALLATION &
OWNER'S MANUAL

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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").

Your Sundance spa is designed to accept the SunZone Water Purification System. Use of any other ozone system will invalidate the spa's warranty.

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 (8.4 mm²) copper wire to any metal ladders, water pipes, or other metal within five feet (1.52 m) of the spa.
6. **DANGER** — **RISK OF ELECTRICAL SHOCK,** Install at least five feet (1.52 m) 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 70-1984, 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 possibly 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 $\pm 3^{\circ}$ 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 the spa 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 the spa 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. 1.3, ITEM 3) 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 these spa, check with the local building department to insure installation conforms to local building codes.

DOOR INTERLOCK

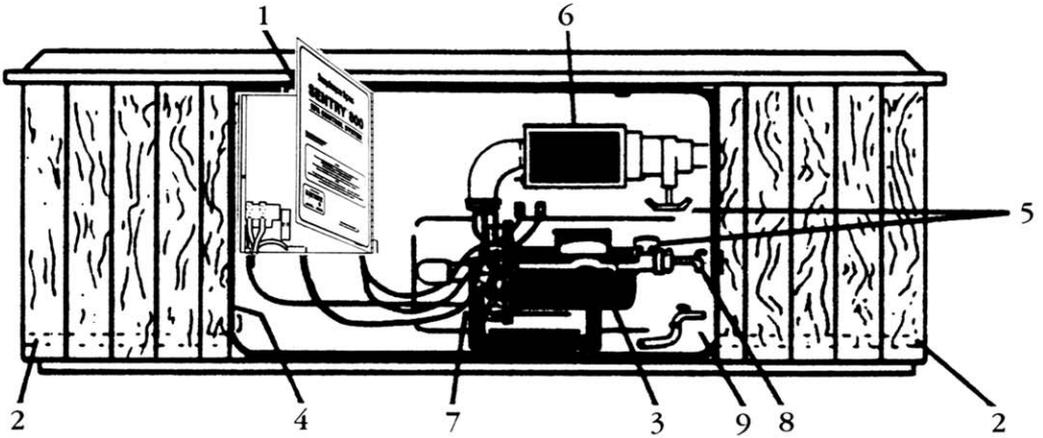
Your Sundance spa contains a door interlock on each door to shut down the power supply to the high voltage electrical components when the door is opened.

NOTE: Polarity indicator lights and low voltage circuitry will continue to function when the door is opened.

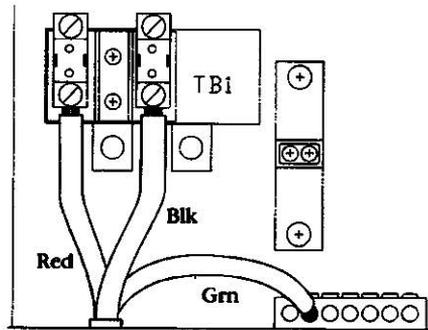
POLARITY INDICATOR LIGHTS

The polarity indicator lights allow for a visual inspection of your electrical installation. On the control box, located behind the equipment door, are two neon lights that are used to identify proper electrical hook up. (See ILL. 1.3 ITEM 2). The light on the left indicates ground circuit, the light on the right indicates the polarity of the line/load circuit. Check to see that both lights are brightly ON before operating the spa. Should either or both lights flicker, dim, or fail to come on when spa is energized, the spa is not properly installed. This condition must be corrected before the spa can be used.

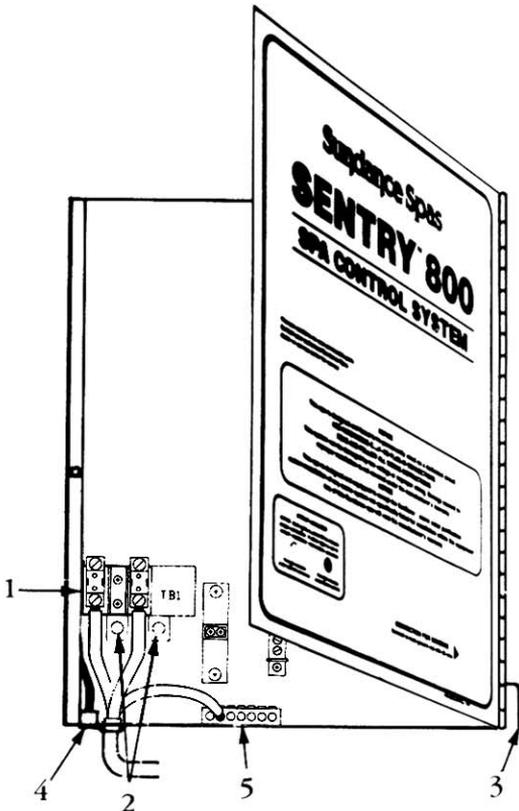
ILL. No. 1.1.
Equipment Bay



- | | |
|-------------------------------|---------------------|
| 1. Sentry Control Box | 6. Heater |
| 2. Power Supply Conduit Tubes | 7. Pump Drain |
| 3. Pump | 8. Filter Bay Drain |
| 4. Blower Vent | 9. Spa Drain Hose |
| 5. Flow Valves | |



ILL. No. 1.2
Terminal Strip (240V)



ILL. No. 1.3
Sentry Control Box

1. Terminal Strip
2. Polarity Indicator Lights
3. Bonding Lug
4. Receptacle for Optional Ozone Purification System
5. Grounding Terminal

Electrical Installation Instructions for Sundance 800 Series Spas

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.

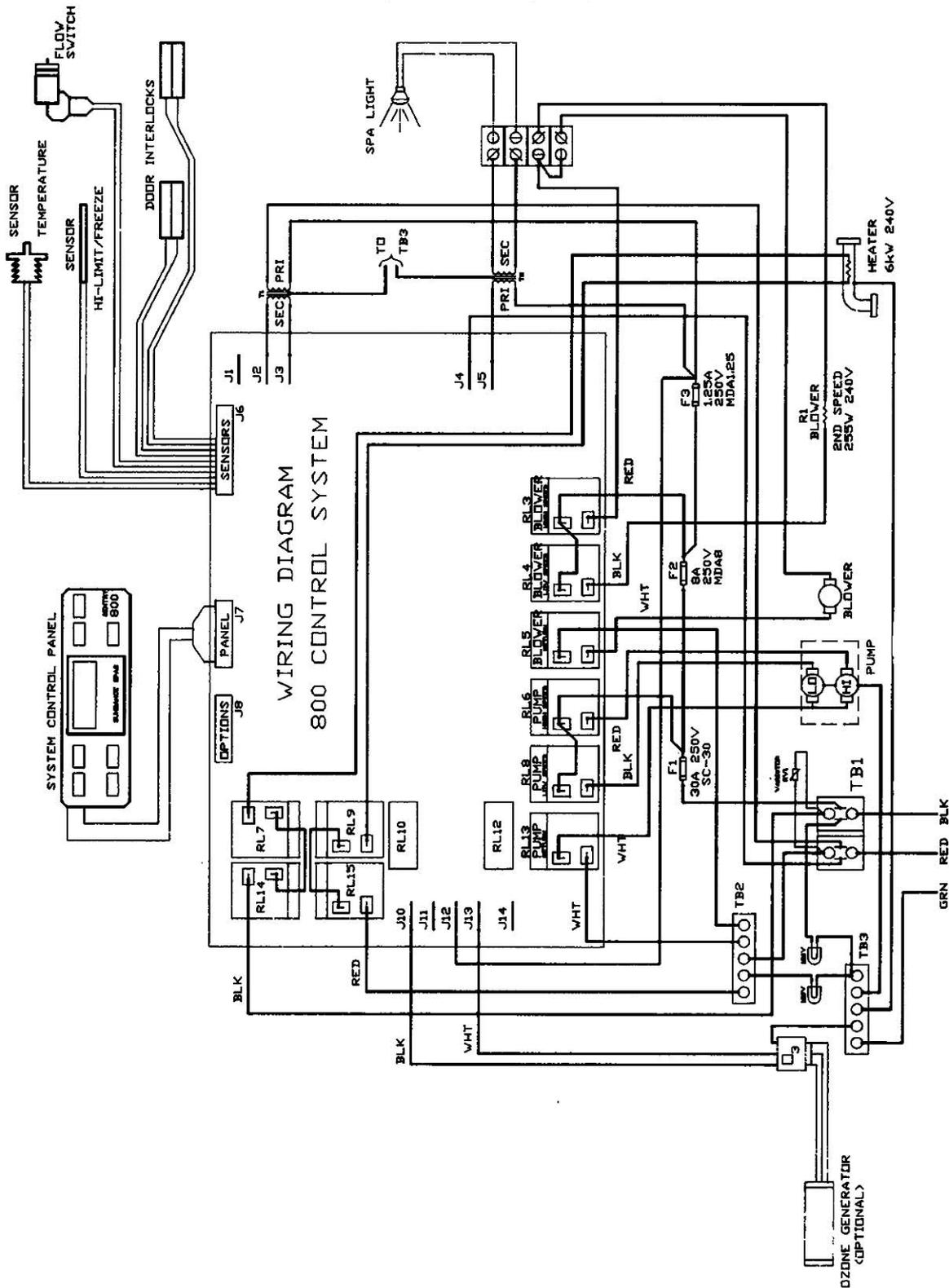
1. This spa must be permanently connected (hard-wired) to the power supply. **No plug-in connections or extension cords are to be used in conjunction with the operation of this spa.** Supplying power to the spa which is not in accordance with these instructions will void both the independent testing 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).
 - We recommend type THHN wire.
 - Wire size must be appropriate for the distance of the wire run per NEC.
 - All wiring must be copper to ensure proper connections. Do not use aluminum wire.
 - When using wire larger than #6, add a 'J' box near the spa and reduce to short lengths of #8 wire to connect to the spa.
4. To gain access to the spa's power terminal strip, unlock and slide open the left door of the spa's equipment bay. Then open the door to the control box. (ILL. 1.1, ITEM 1).
5. Feed cable through the power supply conduit tubes provided (ILL. 1.1, Item 2) and install cable through connector.
6. 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.
7. To provide an extra measure of safety, we recommend that a separate #8 solid copper ground wire be connected between the spa current collectors (grounding lug on the right side of the control box) and a local UL-recognized ground rod fully driven into the ground.

8. At this point you should be ready to check for proper polarity. Leaving one of the equipment bay doors open to prevent the pump from coming on, turn on the breaker to the spa circuit. Both indicator lights on the Sentry control box should come on brightly (ILL. 1.3, ITEM 2). The upper light indicates the ground circuit and the lower light indicates the line/load circuit. Both lights must be brightly lit to ensure that the electrical safety systems will function. If neither light is on, check to see that power is being supplied to the system. If the lights still fail to light, or if only one lights, there is an error in the electrical supply. Disconnect power immediately and correct the problem.

ILL. No. 2
POWER SUPPLY REQUIREMENTS

	<u>240V/50A</u>
Circuit Breaker	50A dual pole
Number of Wires	3
Current draw (amps)	40

ILL. No. 3 Sentry™ 800 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 and fill with water from a garden hose. As the spa is filling, check the plumbing connections inside the equipment bay to see that there are no leaks. Occasionally, it may be necessary to tighten one of these fittings as they can loosen during shipping. Continue to fill the spa until the water level is mid-way in the skimmer opening and above all jets.

NOTE: Never fill with water exclusively 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 POWER

Initiate power to your spa by turning on the household circuit breaker installed for the spa. *Be certain that the equipment bay doors are fully closed.*

3. INITIATE WATER CIRCULATION

Press the **JETS** sensor pad to activate the pump. Within a few seconds, you should be able to feel water flow through one or more of the jet systems (depending on the positioning of the diverter valves).

If this is not the case, check the two flow valves in the equipment bay (See ILL. 1.1 ITEM 5) to be sure that they are open. If the water is still not circulating, press the **JETS** sensor pad again to activate the high speed pump. Once the water is flowing from the jets, press the sensor twice to cycle the pump back to low speed.

4. ADD START-UP CHEMICALS

Add the recommended start-up chemicals. Carefully follow the directions supplied to you by your dealer. If you have any questions, contact your dealer for clarification. General water quality maintenance guidelines are given beginning on page 24.

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 pressed 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.

NOTE: The maximum temperature for which the spa can be set is 104° F., and the minimum is 80° F.

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: Setting the thermostat at maximum will not accelerate the heating process. This will only result in a higher ultimate temperature.

6. SET SPA TO HEAT

Press the **MODE** sensor pad until the “STD” indicator lights just above the Sundance Spas Logo on the command center.

NOTE: For further discussion of the standard and economy modes, see page 19.

IMPORTANT: Keeping the insulating spa 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 5 to 6 degrees per hour in larger spas and approximately 10 to 12 degrees per hour in smaller spas.

Operating Instructions

Your 800 Series Sundance spa has a touch sensitive control panel, diverter 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.

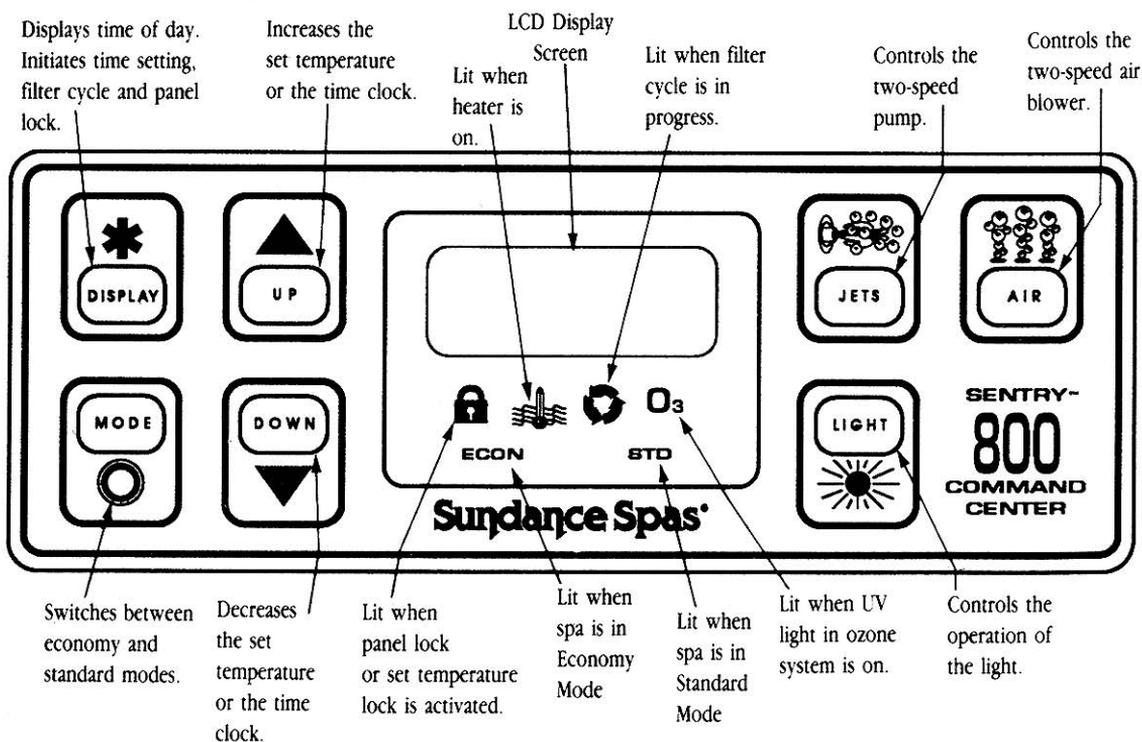
LIGHT

The **LIGHT** sensor pad activates the underwater light when touched. The light symbol below the sensor pad will also illuminate. 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. It maybe necessary to insert a small screwdriver in the slot on the side of the lens to remove it.

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

**ILL. No. 4.1
COMMAND CENTER**



JETS

The **JETS** sensor pad controls the water pump which powers the three types of jets. Pressing this sensor pad cycles the pump from off, to low speed, to high speed, and back to off. The jets symbol above the sensor lights whenever the pump is turned on manually, in either low or high speed. An electronic timer automatically turns the pump off twenty minutes after it is manually turned on.

You will notice that, occasionally, when you touch the sensor pad to turn off the high speed of the pump, it continues to operate on low speed even through the jets symbol light has gone out. This is normal if the spa is in the "STANDARD" mode and the thermostat is calling for heat or if a filter cycle is in process.

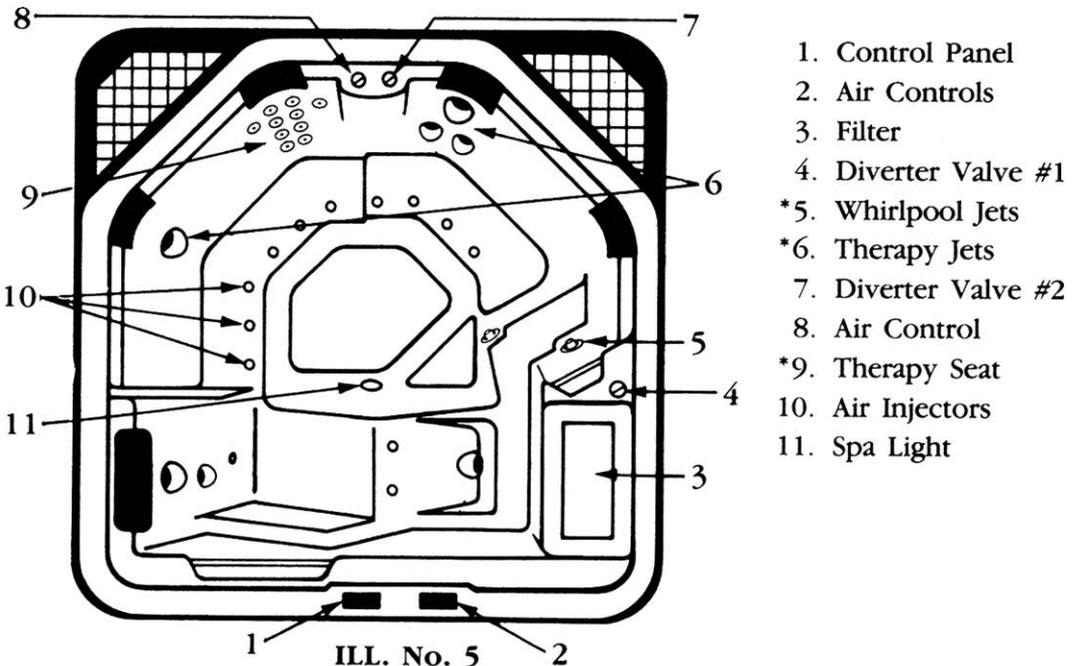
SELECTING THE DESIRED MASSAGE ACTION

Your Sundance spa is uniquely equipped to allow you to select from a wide variety of types of massages. Using the diverter valves as described below, you can direct the water flow to any one of three* different jet systems or any combination of these systems. Using the appropriate air control, you can "fine tune" the massage action to suit your needs.

Diverter Valves—

Valve #1, near the filter area, is used to divert the water flow to the Whirlpool Jet(s) to valve #2 or both (except Gemini, see page 16), Valve #2, near the Therapy Seat, diverts the water to the Therapy Jets, the Therapy Seat or both. Illustration No. 6 describes the various combinations of valve settings as well as the effects of these settings.

NOTE: FOR EASE OF OPERATION, ALWAYS CYCLE THE PUMP OFF OF HIGH SPEED BEFORE ATTEMPTING TO ROTATE A DIVERTER VALVE.



ILL. No. 5
Top View — Spa

1. Control Panel
2. Air Controls
3. Filter
4. Diverter Valve #1
- *5. Whirlpool Jets
- *6. Therapy Jets
7. Diverter Valve #2
8. Air Control
- *9. Therapy Seat
10. Air Injectors
11. Spa Light

Air Controls

Each of the three jet systems has its own air control (ILL. 5, Item 2 and 8). 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 the air flow. These controls should be closed when the spa is not in use to minimize heat loss during filter cycles.

ILL. No. 6
EFFECTS OF VARIOUS DIVERTER VALVE POSITIONS

Valve Position		Jet System Power		
Valve #1	Valve #2	Therapy Seat	Therapy Jet	Whirlpool
Combo 1	Combo 2	Low*	Low*	Low*
Combo 1	Therapy Seat	Med.	————	Med.
Combo 1	Therapy Jets	————	Med.	Med.
Whirlpool	(Any)	————	————	High
Jets	Combo 2	Med.	Med.	————
Jets	Therapy Seat	High	————	————
Jets	Therapy Jets	————	High	————

*It is not intended or expected that the spa will ever be used with both valves in the “Combo” position because of the resulting low jet pressure. However, it is necessary to include this position on each of the two valves so that all of the other combinations are possible.

GEMINI — A Special Case

Because of the smaller size of the Gemini model, it does not include a Whirlpool Jet and has only one diverter valve. This valve allows the user to divert the water flow to the six Therapy Jets, to the Therapy Seat or to both.

“SUNSTORM” ROTATING JETS

Any of the Therapy Jets in a Sundance spa can easily be converted to a “rotating” jet which continuously moves the jetstream in a circular motion. The “Sunstorm” rotating jet assembly, available from your Authorized Sundance Spas Dealer, simply replaces the nozzle in the therapy jet. No tools are required for this conversion. You may use as many of these as you like, or you can move one Sunstorm assembly from one jet to another.

AIR

When the **AIR** sensor pad is pressed, the air blower forces air through the air injectors located in the seats. When it is pressed a second time, the power of the air blower is reduced by one-third and a heating element warms the air on its way to the injectors. (NOTE: This air will probably still “feel” cool to your skin due to the effects of evaporation.) The bubbles symbol above the sensor pad lights up 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 15 seconds at the start of each filter cycle. This clears the lines of the air injector system to help insure that all water is exposed to sanitizer.

Programming Instructions

ADJUSTING THE TIME OF DAY

The Sentry 800™ system remembers the time of day even in the event of a prolonged power outage. However, because it suspends time while you perform certain programming functions, it may occasionally be necessary to re-set the time of day.

To accomplish this, press **DISPLAY, MODE** and **DISPLAY** within three seconds. A number representing the hour will be displayed, followed by [*A*] or [*P*] indicating a.m. or p.m. The hour will advance or decrease each time the **UP** or **DOWN** sensor pad is pressed. Then, press **DISPLAY** again to display the minutes. Adjust the minutes as necessary. Press **MODE** to “save” any changes entered.

FILTER CYCLES

Proper filtration is an important key to maintaining the clarity of your spa’s water. The Slipstream™ filter system is designed for unsurpassed effectiveness at removing debris and suspensions from the water anytime the water is circulating. As a rule of thumb, your spa should filter for approximately four hours per day (more for heavy use). The filter cycle symbol (See ILL. 4.1) will light anytime a filter cycle is in progress.

NOTE: After long filter cycles, 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.

AVAILABLE FILTER CYCLE PROGRAMS

There are three different automatic filter cycle programs available with the Sentry 800™ system. Whichever of the automatic programs is in your system, you can easily change the start time, cycle length and heater status for any of the cycles by following the procedures described in the next section. To completely delete a filter cycle, simply enter zero in steps 6 and 7.

Program #1: Standard Program

Two daily “Heater On” filter cycles of two hours each, starting at 4:00 a.m. and 6:00 p.m.

Program #2: Ozone Program

For maximum effectiveness of ozone water purification systems. Four daily “Heater On” filter cycles of one hour each. Cycle start times: 1:00 a.m., 5:00 a.m., 11:00 a.m. and 6:00 p.m.

Program #3: Weekend Program

For the convenience of the weekend user.
Monday through Thursday: Two daily “Heater Off” filter cycles of one hour each.
Cycle start times: 5:00 a.m. and 6:00 p.m.

Friday-Sunday: Two daily "Heater On" filter cycles of two hours each.
Cycle start times: 4:00 a.m. and 6:00 p.m.

Your dealer has selected the program which he believes best suits your needs. If your needs change, your dealer can modify the hardware to select a different program for you.

CHANGING THE FILTER CYCLES

It is possible to change three separate aspects of each filter cycle. You may change (1) the time of day at which each cycle begins, (2) the duration of each and (3) you may elect whether or not you want the heater to operate during the cycle. With experience, you will determine the ideal operation for your needs.

For example, if you establish a pattern of regularly using your spa around the same time of day or night, you will probably find it desirable to program a filter cycle so that your normal use time falls in the middle of a filter cycle. In this way, you are assured that the spa is properly heated when you are ready to use it and that it is adequately filtered after use.

In this example, let's assume you generally use your spa for about thirty (30) minutes around nine o'clock each night. You might, then, set a "HEATER ON" filter cycle to operate each night from around 8:30 p.m. to 10:30 p.m.

An added benefit to this timing of the filter cycle is that your spa's sanitation level, from the bromine in the Brominator™ or the ozone from the optional Sunzone™ system, is at its highest operating level when it is needed most.

Follow these simple procedures to modify the filter cycle programming:

To enter into the filter cycle programming function, it is necessary to go through the time setting function:

Step 1. Within three seconds, press **DISPLAY, MODE** then **DISPLAY** again.

Step 2. Press **DISPLAY** twice more.

The LCD display will read [**F 1**] indicating that you are in the programming function for filter cycle #1. (The system will hold in this state for 30 seconds. If no input is received, it will return to normal functioning and display the actual water temperature.)

NOTE: At any point, you may simply press **MODE** to exit the filter cycle programming function and "SAVE" any changes made. (Pressing **JETS** serves as an "ESCAPE" by returning the panel to normal display **WITHOUT** saving changes made.)

Step 3. Press **DISPLAY**. A number indicating the hour of this cycle's starting time will appear on the screen (followed by [**A**] or [**P**] indicating a.m. or p.m.). The hour will advance or decrease each time the **UP** or **DOWN** sensor is pressed.

Step 4. Press **DISPLAY**. A number indicating the minutes of this cycle's starting time will appear on the screen. You have the option of starting the cycle either on the hour or the half hour. Pressing either the **UP** or **DOWN** sensor will change the minutes setting.

Step 5. Press **DISPLAY**. The number displayed indicates the duration for which the filter cycle is programmed to operate. Modify by pressing **UP** or **DOWN**. (Duration must be programmed in increments of 30 minutes.)

Step 6. Press **DISPLAY**. Either [*On*] or [*OFF*] will appear on the screen, indicating the status of the heater set function. Press **UP** to allow the heater to be able to operate as called for by the thermostat or **DOWN** to keep the heater off during this filter cycle.

Step 7. Press **DISPLAY**. This brings you to the programming function for the next filter cycle. The LCD screen will display [*F*], followed by a number indicating which filter cycle programming function you are entering. To modify this cycle, follow the instructions above beginning with Step 3.

When you have reached the end of the filter programming functions, the LCD screen will read [*End*].

IMPORTANT: To “save” any filter cycle modifications you have made, you *must* press **MODE** within 30 seconds of your last entry. Pressing any other sensor or failing to press **MODE** within 30 seconds acts as an “escape” and returns the system to the settings which existed before you entered into this programming sequence.

CHOOSING THE “STANDARD” OR “ECONOMY” MODE

Pressing the **MODE** sensor pad switches your spa between the “STANDARD” (STD) and “ECONOMY” (ECON) operating modes. The mode currently selected is displayed immediately above the Sundance Spa's Logo on the command center. 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 low speed pump and 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, both the pump and heater will turn off.

In addition, when in the “standard” mode, the filter cycles will operate the low speed pump as programmed to give your spa the required 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.
3. Anytime you desire temperature maintenance while using the spa (unless it is during a “heater on” filter cycle).

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

Economy Mode

In the “economy” mode, your spa will turn on automatically *only* during the filter cycles. 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.

PANEL LOCK

To help prevent unauthorized use of your spa, the Sentry 800 incorporates a unique 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 three seconds. The LED lock indicator will appear below 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 three seconds. The LED lock indicator will disappear. All sensor pads are now active.

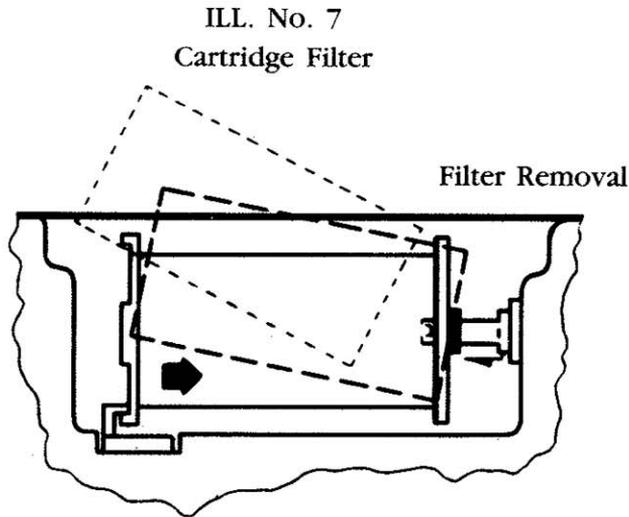
TEMPERATURE SETTING LOCK

To electronically lock the temperature setting, first enter the “set temperature” mode by pressing either the **UP** or **DOWN** sensor. Then, within three 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 and accessory products you will need to accomplish this.



CLEANING THE FILTER

Your Sundance spa is equipped with a cartridge filter located in the skimmer/filter well (See ILL. 5, ITEM 2) 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 on its surface.

It is necessary to remove the filter and clean the cartridge surface, generally every four to eight weeks, depending on usage and water quality. This is done by 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 only to hold the filter in place and is not 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 Sundance filter cleaning bag, 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

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

One method of draining your spa is by natural siphon. First, slide open one of the equipment doors to discontinue power to the spa so that none of the automatic functions will come on during this process. Second, place the outlet end of an ordinary garden hose in the bottom of the spa. Third, connect the other end to an outside faucet and turn on the faucet to fill the hose with water. Next, shut off the faucet, disconnect the hose and place this end of the hose in the area to which you want the water to drain, making sure it is lower than the bottom of the spa. Repeat this process with as many hoses as you like in order to speed the draining of the spa.

There is also a spa drain hose within the equipment bay which can be used. (See ILL. 1, ITEM 8). To use, rise the end of the hose above the water level, remove cap and connect a garden hose. Be sure to disconnect the garden hose and replace the cap before refilling.

After refilling, 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 cleansers or cleansers 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.

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.

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 optional 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.

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. If this is not practical in your situation, damage can be minimized or avoided by taking the following steps. Follow the directions on page 22 for draining the spa. Then, as the water level drops below the seats, turn on the air blower momentarily to evacuate the injector lines. Open the filter compartment drain to allow all the water to run out of it. Finally, when the entire spa is drained, remove the black bolt-type plug located at the bottom of the left side of the pump (See ILL. 1.1, ITEM 7).

NOTE: When this plug is removed, approximately one quart of water will escape. Be prepared with a shallow pan to catch this water so as not to allow it to remain in the equipment bay.

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.

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 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 acid. 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.

OPTIONAL SUNZONE WATER PURIFICATION SYSTEM

If you have elected to have your spa equipped with the optional Sunzone ozone water purification system you will find that your water stays fresh and clear with significantly less usage of chemical sanitizers. You will also probably be able to go longer between complete spa drainings.

Another thing you will notice is that the O₃ indicator lights during filter cycles to show that the Sunzone's UV light is operating. However, to prevent users from breathing concentrations of Ozone, the Sentry 800 system automatically turns off the Sunzone if **JETS** or **AIR** is pressed during a filter cycle. The Sunzone is re-activated for the remainder of the filter cycle five minutes after the air blower and high-speed pump are turned off.

Read and follow the instructions included with your Sunzone ozone water purification system to determine how to adjust your chemical usage and filter cycles.

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 improve the feel or smell of the water.

Your Authorized Sundance Dealer can advise you on the use of these additives.

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 trouble-shooting. Following is a listing of all the possible messages along with their meaning:

MESSAGE

MEANING

ILOC

INTERLOCK (Spa is deactivated).

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)

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.

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.

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 (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 SENSOR (Spa is deactivated)

The main sensor is non-functional. This also must be repaired by a dealer or 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)	<p>Check control panel display.</p> <ol style="list-style-type: none">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:<ol style="list-style-type: none">a. Check the polarity lights (see ILL. 1.3, Item 2) and refer to page 7.b. Check the household circuit breaker.c. Check for proper power connection.d. Check voltage for full 240V.e. Contact your dealer or service organization.
PUMP DOES NOT OPERATE BUT BLOWER AND LIGHT DO OPERATE.	<p>Depress “Jets” sensor.</p> <ol style="list-style-type: none">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:<ol style="list-style-type: none">a. Check to be certain flow valves are open (see ILL. 1.1, Item 5).b. Pump may not be properly primed. Follow the instructions in the section headed “Initiate Water Circulation” on page 12.c. Contact dealer or service organization.
POOR JET ACTION	<ol style="list-style-type: none">1. Make certain the pump is on high speed.2. Check position of diverter valve controls (see ILL. 6, 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).
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!

Sentry 800

The Ultimate Spa Controller

Displays time of day.
Initiates time setting,
filter cycle and panel
lock.

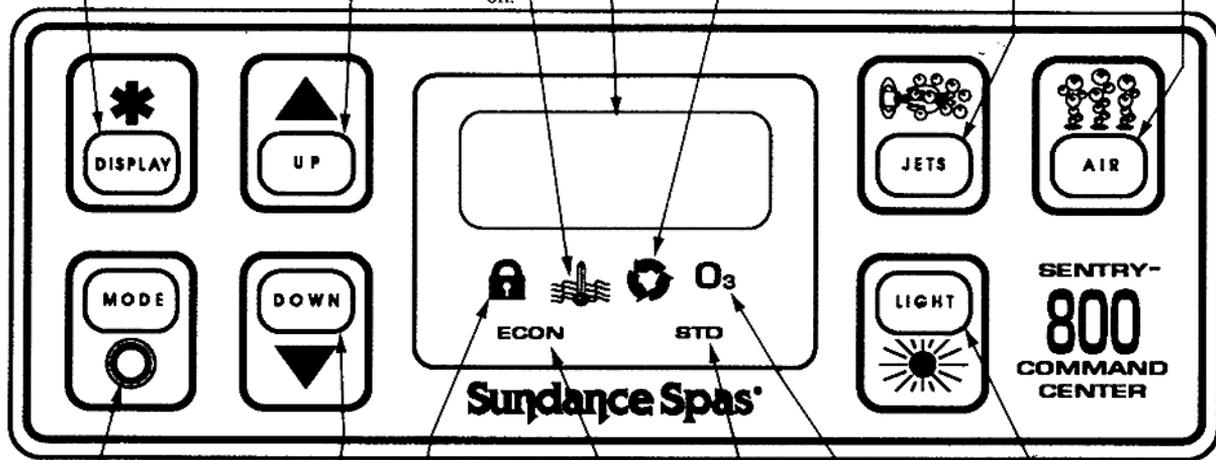
Increases the
set temperature
or the time clock.

LCD Display
Screen
Lit when
heater is
on.

Lit when filter
cycle is in
progress.

Controls the
two-speed
pump.

Controls the
two-speed air
blower.



Switches between
economy and
standard modes.

Decreases
the set
temperature
or the time
clock.

Lit when
panel lock
or set temperature
lock is activated.

Lit when
spa is in
Economy
Mode

Lit when
spa is in
Standard
Mode

Lit when UV
light in ozone
system is on.

Controls the
operation of
the light.