



CORDA SOLAR

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Here are the instructions for starting up/shutting down your system for the season as well as some system operating tips.

How Solar Pool Heating Works

Using your existing pool pump, pool water is directed through a series of valves to your solar collectors. Pool water enters the solar collectors at the bottom and rises to the top through the individual tubes of the collector. As the water rises through the collector, it is heated by the sun's radiant energy.

The water is then returned to the pool to repeat the cycle until your pool has been warmed by the sun. In general, it takes 3-7 days of consistent warm, sunny weather for the pool to warm to a desired seasonal solar heated temperature. On average, when the solar is on, you can expect the pool temperature to increase approximately one degree F per hour. The warmer the air temperature, the faster the pool will heat up, and conversely, the cooler the air, the slower the pool heats. If the air temperature is cooler than the pool water, the solar will not come on. So, for example, if the outside air temperature is 60 degrees, your pool is 75 degrees and your desired pool temperature is 85 degrees, the solar will not turn on.

Your Jandy Controller

Your Jandy controller operates the solar similarly to how your home air conditioning thermostat works. You set in a desired temperature and the controller looks to see if your pool needs to be heated. The Jandy controller compares the air temperature near your solar collector panels with the swimming pool water temperature, and activates a valve actuator to divert water to the solar panels whenever the temperature near the panels is warmer than the pool water temperature—and the pool water temperature is less than the desired temperature. The controller stops the actuator when the pool water reaches your desired temperature, or whenever the air temperature at the solar collector panels is less than the pool water temperature. This feature maximizes the amount of energy collected, keeps the pool from overheating in the summer, and reduces the chance of bacteria growth.

For normal operation set the solar to Enable and adjust the temperature setting. Your Jandy pool controller activates the actuator when it detects a five-degree difference between the solar and pool water temperature sensors, and the pool water is below the desired temperature. The actuator closes when the temperature difference falls to 1-2 degrees, or the pool water reaches the desired temperature.

System Operation and Maintenance

Starting Up Your System

1. Systems should not be started up in the spring until the risk of frost is over. In our area, that normally means sometime in April.
2. If installed, close any manual drain valves (hose bibs) associated with the system. The drain valves may be located on the low point of the solar array on the roof or close to the ground (eye level drain). Conversely, where systems gravity drain, no drain valves are installed.
3. If applicable, open the ball valves associated with the solar pool heating system (located by the pool equipment) 90 degrees so that the handles are parallel to the PVC pipe. The ball valves are usually red or blue-handled.
4. Enable the solar at the Jandy controller. For instructions on how to program both the Jandy PDA, Jandy All Button controller and the Jandy One Touch controller, see the last three pages of this paper.
5. Adjust the desired pool temperature setting on the Jandy controller.
6. Ensure the clock on the Jandy controller reflects the correct time of day. If it needs to be adjusted, go to Clock in the **Settings** Menu. Make daylight savings adjustments as needed.
7. Set your filter pump time clock to turn on at the same time that the sun directly hits the solar panels in the morning (normally ~noon) and to turn off when the sun stops hitting the panels (~6:00 PM).

Do's and Don'ts

1. Do turn the solar system off prior to backwashing the filter, if you have a sand or DE filter that requires backwashing. Do not turn the solar back on until the filter system has run for at least 20 minutes after backwashing has been completed.
2. Do turn the solar system off while manually vacuuming the pool.
3. Do not walk on the solar panels if possible. If you need to walk on them, avoid walking at the ends of the panels within 12-18 inches of the headers.
4. In areas subject to freezing, the solar system **MUST** be shut off and drained during freezing periods to protect all components of the solar system. See "Winterizing Your System".
5. Your solar pool heating system requires little maintenance. However, to obtain the best possible system performance, we recommend to:
 - Keep the panels free of dust and debris by simply turning a hose on them occasionally.
 - Inspect the system once a year to check roof attachments, plumbing and electrical connections and valve operation. Corda Solar offers this service for a fee or some pool owners may prefer to perform the inspection themselves.
 - When appropriate, prune back trees or other vegetation that may, over time, have grown to block sunlight from hitting the panels.

Winterizing Your System

Take these steps to winterize your solar pool heating system and protect your solar collectors if you expect freezing weather or if you will be away from home during the cold weather season:

1. Disable/turn off the solar at the Jandy controller. See instructions, last two pages.

2. Wait 10-15 minutes to ensure that the system is gravity-drained.
3. If applicable, close the ball valves associated with the solar pool heating system (located by the pool equipment) 90 degrees so that the handles are perpendicular to the PVC pipe.
4. If applicable, open the drain valve to drain any remaining water from the panels. You can hook up an air compressor to the hose bib to blow out any water from the panels if there is any doubt that they are not completely drained.
5. Leave the system like this until the freeze conditions are over. Then reverse the above steps.

You can do this work yourself or we can do it for you. If you prefer us to perform the service, we charge for the service. We shut the system down in the fall and in the spring, in addition to starting up your system, we perform an inspection of the entire system. Think of it as preventative maintenance. We check all the panels, couplers, piping and wiring. We ensure all clamps are properly secured. We turn the system on and ensure it is operating properly.

Troubleshooting

If your pool is not getting warm enough in sunny conditions:

- The filter, skimmer or pump basket may be dirty or clogged – check flow strength at pool outlets
- The time clock for the main filtration pump may not be set for best sunshine times of the day
- Your desired pool temperature on the Jandy controller may be set too low
- The solar valves may be closed – check water routing to ensure water is able to flow to the solar panels
- The solar actuator may be inoperative or the toggle switch on the actuator may be in the wrong position
 - Call Corda Solar for assistance if the actuator does not rotate when the solar turns on and off.
- Early/late season months may require a thermal blanket to prevent night-time heat loss
- Additional collectors may be necessary

Note: In general, it takes 3-7 days of consistent sunny weather for the pool to warm to a desired seasonal solar heated temperature

Constant bubble in pool when solar is on

Note: Every time the solar system turns on, the pump purges all the air from the system producing a large amount of bubbles, which should completely subside within 2-4 minutes. However, if you see a constant stream of bubbles throughout the day, this indicates a problem not necessarily related to your solar system. One potential reason may be not enough water flow to the solar collectors.

Insufficient flow through the panels will draw air into the system through the vacuum breaker, as the water falls from the panels quicker than the water being pumped to the roof. This can be due to a:

- Dirty filter
- Clogged skimmer basket and/or
- Clogged pump basket

By the way, if your solar collectors are indeed starved for water flow, they are very likely not delivering much heat to your pool (and while it may seem contrary to common sense, water coming out of the pool return line outlets in this situation will actually feel very warm to the touch).

Filter Pressure is Too High or Too Low

Check the filter pressure with the solar off and again with the solar on. It is common for the filter pressure to raise 8-10 PSI when pumping water to the panels.

- If the pressure is high (30 pounds or more) and does not increase with the solar on, this indicates that the filter needs cleaning
- If the filter pressure is abnormally low (10 pounds or less) and does not rise when the solar is activated, check the pool skimmer and pump basket for debris. If there are no restrictions, your booster pump may be weak and need to be replaced.
- If the filter pressure is normal with the solar off and increases 15 pounds or more with the solar activated, this indicates that the solar panels may be clogged with debris due to a break in the filter grid. If so, have your filter dismantled and repaired. Then call Corda Solar for servicing a clogged system.

Thanks,

Gary Corda
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Jandy PDA Programming

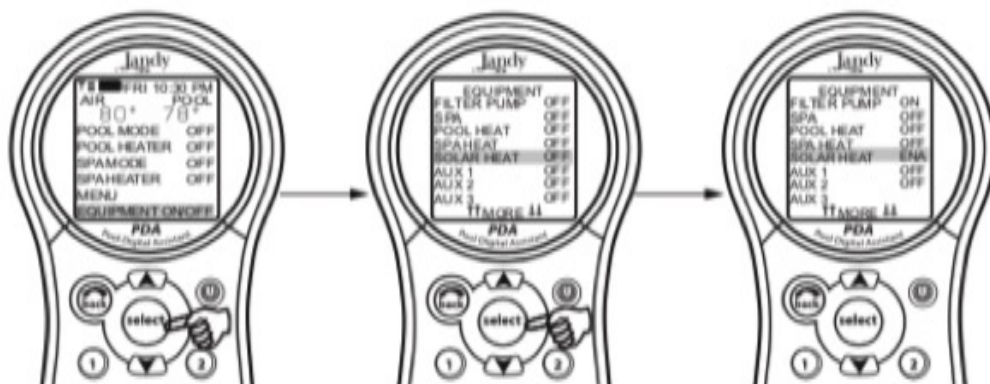
Solar Heat

The SOLAR HEAT selection controls solar heating. A solar heating system and optional solar sensor are required for SOLAR HEAT selection to operate and must be part of the normal circulation system.

To use Solar Heat

Highlight SOLAR HEAT and press SELECT. Use the SELECT button to turn SOLAR HEAT on or off.

For solar heating to take place, the SOLAR HEAT (in EQUIPMENT ON/OFF) must be enabled, also the filter pump must be on. Solar temperature must be at least 5° F above the water temperature and the water must be cooler than the thermostat setting.



AquaLink

All Button



1. REVIEW PUMP PROGRAM AND TEMP SETTINGS

How to review items:

1. Press the MENU button. Use the FORWARD and BACK buttons to move to the REVIEW Menu and press ENTER. The AquaLink RS display will read PROGRAMS <- ->*.
2. Advance through the list of items to review. Choose PROGRAMS if you want to review programming, TEMP SET if you want to review the temperature settings for the pool and spa,

2. CANCEL FILTER PUMP PROGRAM (IF NOT FROM 10AM TO 5PM).

How to cancel a program:

1. Press the CANCEL button. Use the FORWARD and BACK buttons to advance to PROGRAMS <- ->* and press ENTER. The AquaLink RS display will read SELECT DEVICE TO BE CANCELED.
2. Press the equipment button for which you want a program to be canceled, and press ENTER.
3. If there is only one program, press ENTER. The program will be canceled.
4. If there is more than one program, the AquaLink RS display will tell you how many programs there are (for example, if there are three programs, the AquaLink RS display will read 3 PROGRAMS EXIST).
5. The AquaLink RS display will read CANCEL ALL <- ->* . Use the FORWARD and BACK arrow buttons to toggle between CANCEL ALL, and CANCEL SOME. Press ENTER when the selection you want is displayed.

3. SET PUMP PROGRAM (10AM TO 5PM)AND TEMP SETTINGS (85°+)

How to set automatic on and off times:

1. Press the MENU button. Use the FORWARD and BACK buttons to advance to the PROGRAM Menu and press ENTER. The AquaLink RS display will read SELECT EQUIPMENT TO PROGRAM.
2. Press the button of the equipment you want to program (e.g., FILTER PUMP).
3. You are now in a menu of choices. You may choose ON ALL DAYS, ON WEEKDAYS, ON WEEKENDS, or you may choose a specific day of the week. Use the FORWARD and BACK arrow keys to move to the choice you want, then press ENTER.
4. The display now reads ON HR 1 PM <- ->*. Use the FORWARD and BACK arrow keys to move to the hour that you want the equipment to turn on, and press ENTER when that hour is displayed.
5. Repeat this process to set the ON MINUTE, OFF HOUR, and OFF MINUTE. When you are finished, the AquaLink RS Display will review a summary of your program(s).

4. PUSH SOLAR BUTTON

* A COMMON 10K SENSOR WILL WORK FINE

AquaLink RS One Touch



1. ENABLE SOLAR

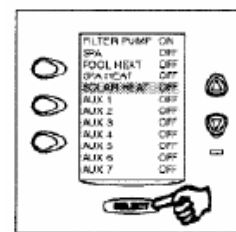
How to use Equipment On/Off:

Highlight EQUIPMENT ON/OFF and press SELECT. To highlight an item, use the UP/DOWN arrow keys. Use the SELECT button to turn the equipment on or off. Return to the main menu by using the BACK button, or use the UP/DOWN arrow keys to highlight another device.

How to use Solar Heat:

Highlight SOLAR HEAT and press SELECT. Use the SELECT button to turn SOLAR HEAT on or off.

If a solar sensor is not installed, EXTRA AUX replaces SOLAR HEAT and may be used to control an auxiliary (see "Auxiliary Equipment" to turn on or off EXTRAUX).



2. SET POOL TEMP. TO 85° OR HIGHER

How to set pool/spa temperatures:

Highlight MENU/HELP and press SELECT, highlight SET TEMP and press SELECT. Inside the SET TEMP menu, use the UP/DOWN arrow keys to highlight either POOL (TEMP1) or SPA (TEMP2) and press SELECT. Use the UP/DOWN arrow keys to increase or decrease the temperature and press SELECT to apply.

3. PROGRAM FILTER PUMP FROM 10AM TO 5PM

How to set automatic on and off times:

Highlight MENU/HELP and press SELECT, highlight PROGRAM and press SELECT. While in the PROGRAM menu, highlight the piece of equipment and press SELECT, highlight ADD PROGRAM and press SELECT, enter the ON/OFF times and the day(s) by using the UP/DOWN arrow buttons to set values and the SELECT button to continue. When the days have been selected, the screen will change to show the piece of equipment selected, number of programs, on/off times, day(s) selected, a prompt to PAGE UP and PAGE DOWN to scroll between programs (if more than one), and the chance to add, delete, or change any of the settings to a program. Use the BACK button to go to the previous screen.

*** A COMMON 10K SENSOR WILL WORK FINE**

