SSPA-1 & SSPA-MP SPA PACKS
SERVICE MANUAL

• by Gecko Electronics Inc. •

Visual step-by-step guide to easily identify & correct technical problems!

GECKO

Table of Contents

Topics covered in this manual are as follows:

In an attempt to make this manual as useful as possible, it has been presented in two formats. Problem-solving solutions are described with Troubleshooting Flow Charts and also with Step-by-Step Procedures.

The two formats together should provide an overall complete explanation, with flow charts providing an overview of specific problems, and step-by-step procedures giving more detailed information.

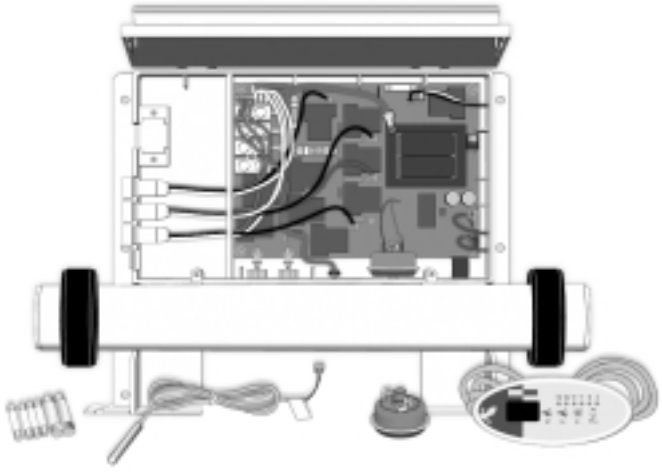
Tools & Parts

Tools, test equipment and components needed to carry out SSPA power spa pack service calls.

Required tools:

Pliers
Phillips & flat screwdrivers
11/32" nut driver
1/4" open end wrench
3/8" open end wrench
Jumper cable
Multimeter
GFCI tester & digital thermometer (optional)

Required pack parts:



Fuses
Regulation sensor
SSPA complete pack
Pressure Switch
Top side control (keypad)

Gecko Electronic Inc. sells Professionnal Repair Kits that include everything needed for SSPA power spa pack servicing. For more information, go to the last page of this manual.

Keypads

SSPA single- and dual-pump systems are available with a selection of keypads.

All the procedures and instructions described in the next pages are applicable to SSPA systems equipped with one of the following keypads. Please note that the TSC-9 model is used througout this manual to illustrate specific actions.

SSPA-MP (only)

TSC-35 Keypad (7" • 3 1/4")

SSPA

TSC-19 Keypad (7" • 3 1/4")

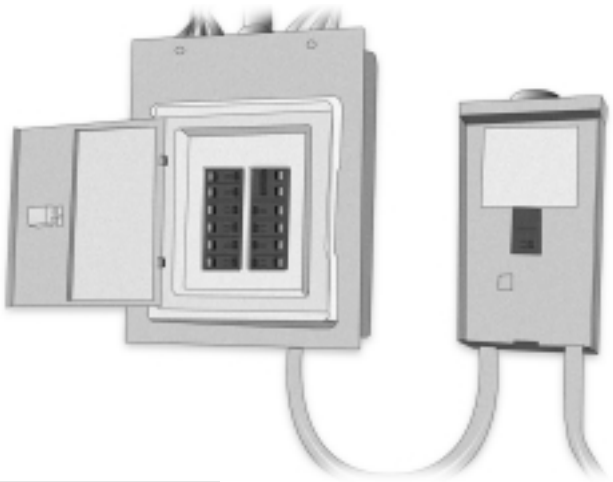
TSC-18 Keypad (5" • 2 1/2")

TSC-9 Keypad (2" • 4 1/2")

Electrical Wiring

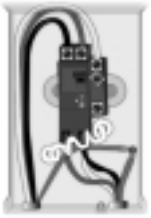
Correct wiring of the electrical service box, GFCI box and pack terminal bloc is essential.

1• Carry out a visual inspection to check for signs of miswiring.
Refer to supplied wiring diagrams.
Call an electrician if necessary.

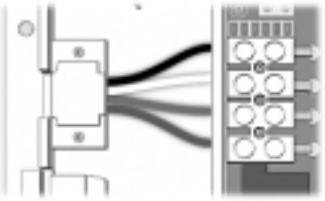


For 240 VAC systems:

Electrical Box

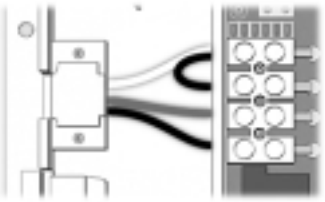


GFCI



Pack Terminal Block

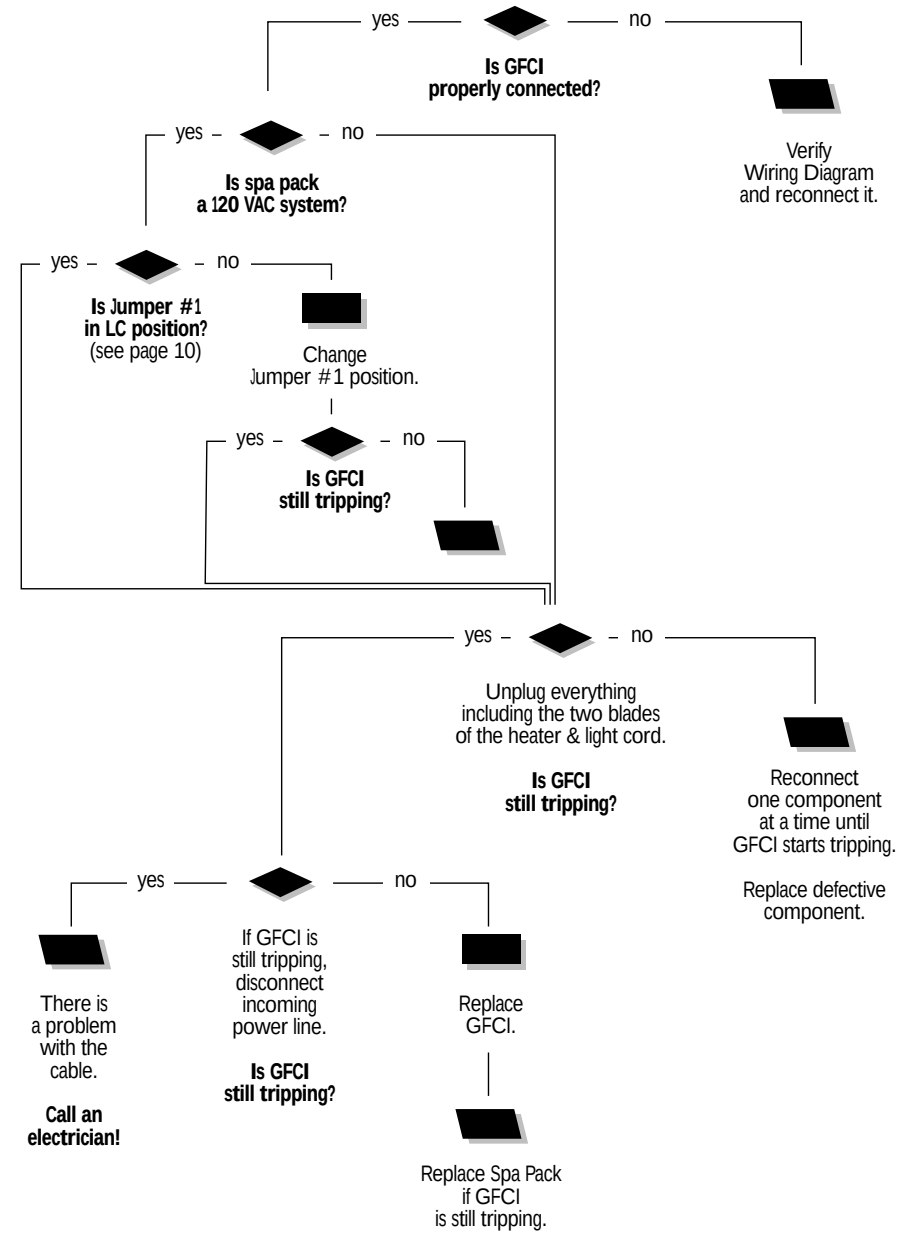
For 120 VAC systems:



Pack Terminal Block

GFCI Flow Chart

If GFCI trips, follow this Troubleshooting Flow Chart to identify the problem:



GFCI Trips!

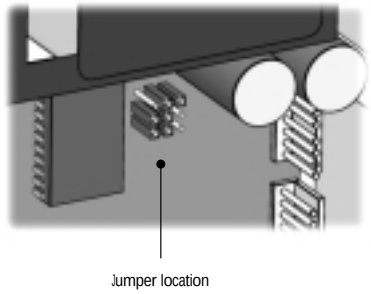
If all connections are made, but nothing seems to be working, you probably have a power supply problem. Carry out the following tests to identify and correct the problem:

Note that for new installations, GFCI trippings due to miswiring are common. If breaker is wired properly, GFCI trippings may occur when total amount of current drawn by spa exceeds breaker rating.

A current leak to ground will also cause GFCI to trip. If any of the components is faulty and a leak of more than 5mA occurs, GFCI will trip to prevent electrocution.

There are different GFCI models on the market. Note that illustrations are generic only.

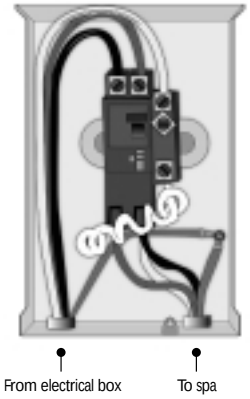
For 120 VAC systems:



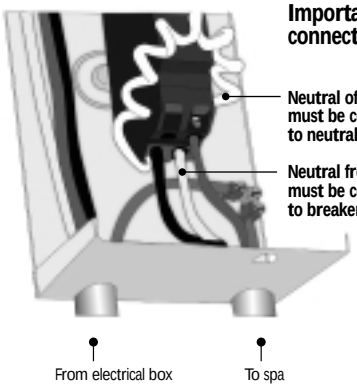
1• Verify if Jumper #1 is set in the LC position. If it is not, set Jumper #1 in the LC position.

Refer to page 10 for more information on jumpers.

For 240 VAC systems:



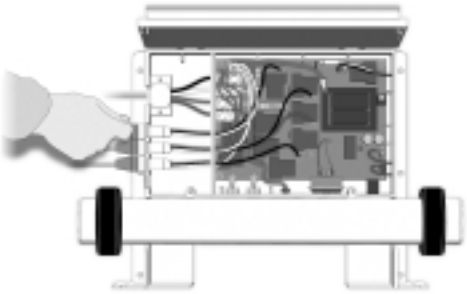
1• Verify if GFCI is properly connected.

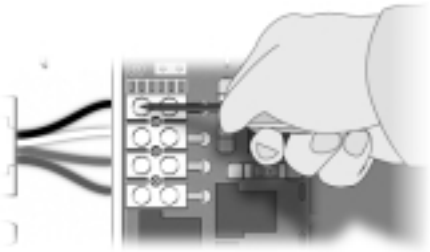


2• If it is not, verify GFCI wiring diagram and reconnect it.

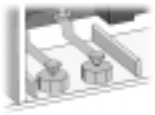
GFCI Trips!

If GFCI continues to trip even after having replaced the transformer, carry out the following tests to correct the problem:





1• If GFCI is properly connected, but still tripping, (or Jumper #1 is set in LC mode for 120 VAC systems), unplug all outputs including the two blades of the heater and light cord.



2• If GFCI still trips, replace Spa Pack.

If it stops tripping, reconnect one component at a time until GFCI starts tripping. Replace defective component.

3• If problem is not solved yet, disconnect incoming power lines.

If GFCI still trips, there must be a cable problem.

Call an electrician!

4• If GFCI stops tripping, replace GFCI.

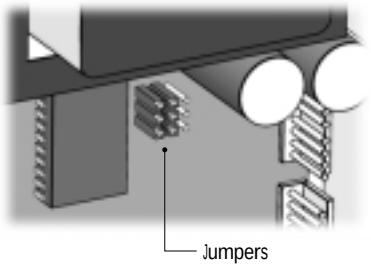
5• If GFCI trips again, replace Spa Pack.

Jumper Positions

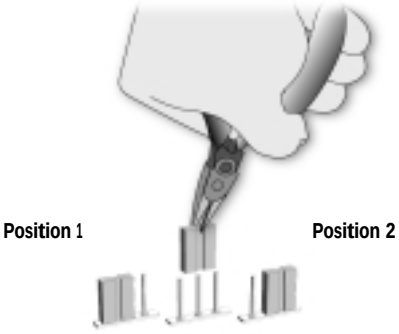
Certain SSPA spa pack parameters can be modified by changing the position of jumpers on the board.

To access jumpers, first remove SSPA power box cover.

In some cases, jumper functions may differ from the following. Please check wiring diagram on power pack box cover to verify specific functions for your pack.



1• Jumpers are located in the lower right section of the board.



2• To change a setting, simply pull cover off and replace in desired position.

Jumper 1: Current Limiting Option

Jumper 1 is used to limit amount of current drawn when the 2 pumps are on.

Position 1 (HC):	System turns heater off when the two pumps are on at high speed.
Position 2 (LC)*: ***Mandatory for 120 VAC systems**	System turns heater on when one pump is on at high speed. The "Heater" icon flashes on display indicating that more heat is requested, but heater is not allowed to start.

Jumper 2: Temperature Unit

Jumper 2 is used to select the temperature unit.

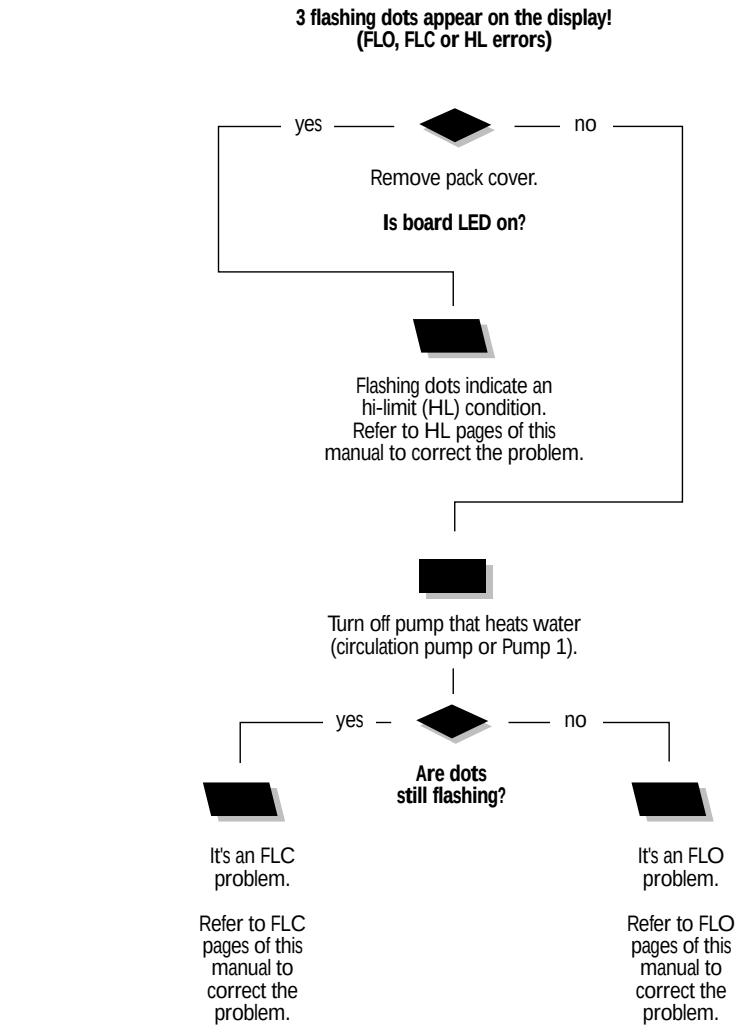
Position 1:	Temperature will be displayed in Fahrenheit degrees.
Position 2:	Temperature will be displayed in Celsius degrees.

Jumper 3: Pumps

Position 1:	Single-pump.
Position 2:	Dual-pump (or blower).

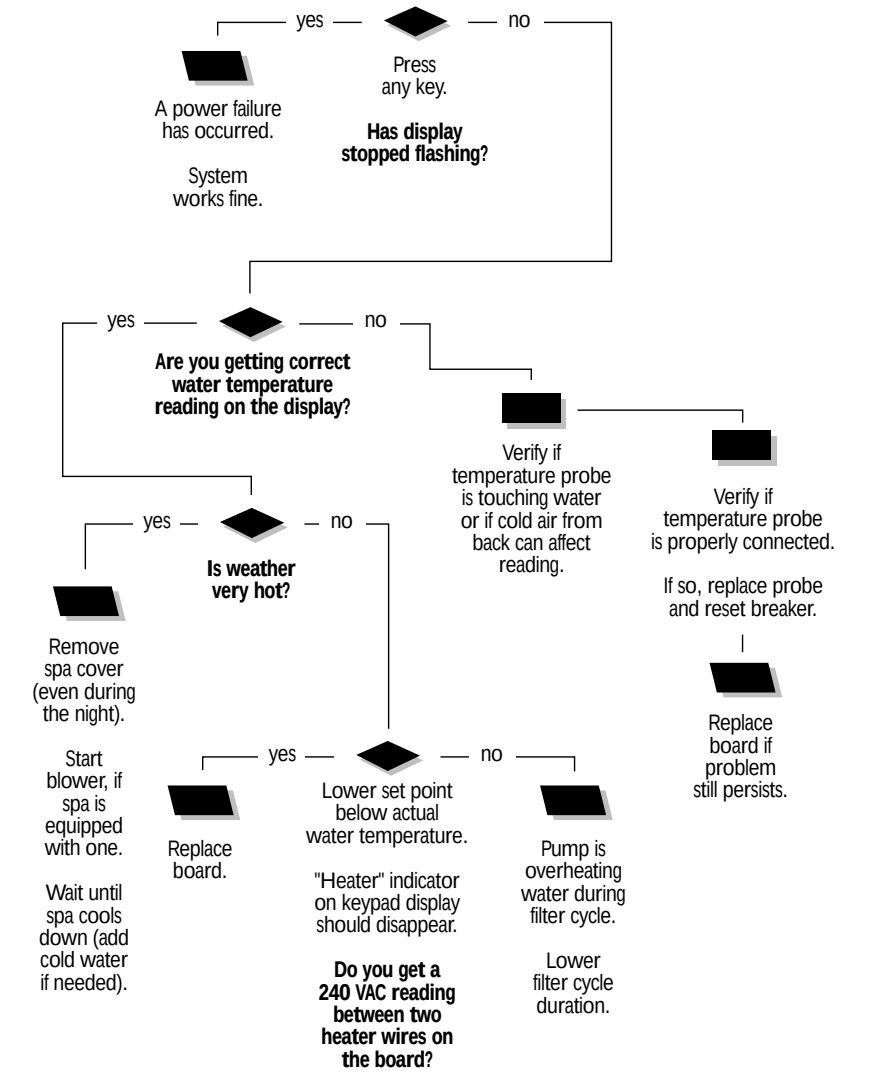
Flashing Dots Flow Chart

If 3 flashing dots appear on keypad display, follow Troubleshooting Flow Chart below to identify the problem:



Display Flashing Flow Chart

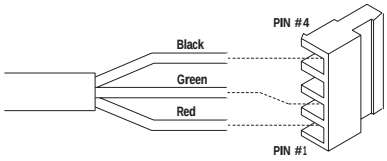
On SSPA-NE packs, if system detects temperature at 112°F or higher, the display will start flashing. Follow Troubleshooting Flow Chart below to identify the problem:



Wrong Temperature Flow Chart

On SSPA-NE packs, if system detects that temperature is not within normal limits, wrong temperature will be displayed. Follow Trouble-shooting Flow Chart below to identify the problem:

Make sure to use the right probe!
MSPA-1 probe does not work on an SSPA spa pack.
Probe wires should be in this order:



Press any key after each step to reset the system.

Check if regulation probe is properly connected.

Unplug probe connector and clean pins on the board (even a small coating of film may cause a bad connection). Reconnect the probe.

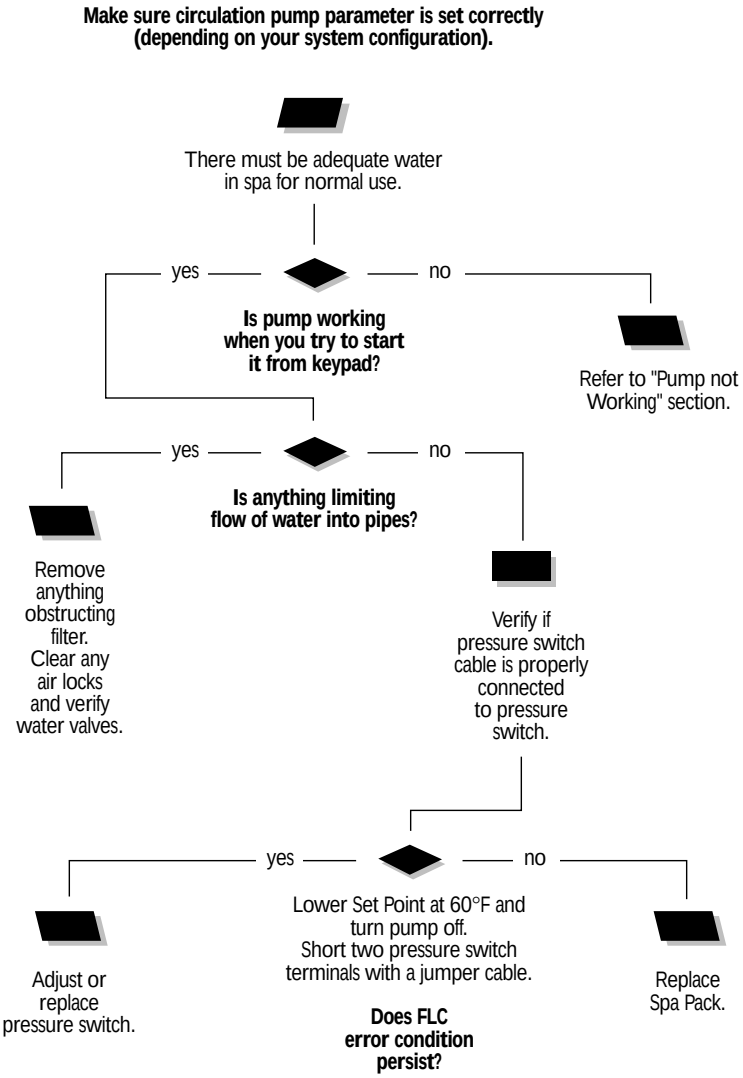
Replace probe with a spare and verify if problem is solved.

If it is, replace probe with spare.

Replace board if problem persists.

FLO Flow Chart

If FLO error condition occurs (problem with the pressure switch: pump is on but no water pressure detected), follow Troubleshooting Flow Chart below to identify the problem:



FLO Error Condition

An FLO error condition indicates a pressure switch problem. If system does not detect any pressure when pump is manually or automatically turned on, an FLO error condition will occur.

There must be enough water in the spa for normal operations. FLO error condition may occur if spa filter is dirty or if something restricts flow of water in piping.

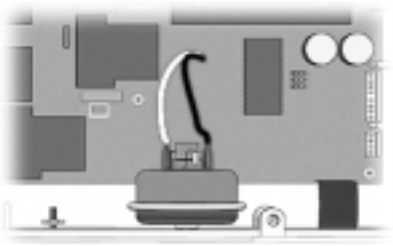
The heater will automatically shut down when an FLO error condition occurs.

Power may remain On when the following steps are carried out.

Make sure circ. pump parameter is set correctly (depending on your system configuration).

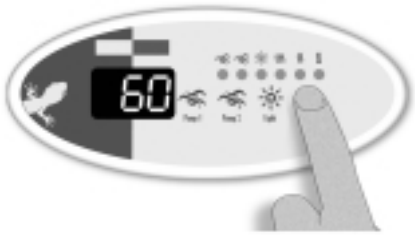
1• Verify if pump is working. If pump is not working right, refer to "Pump does not Work" section.

2• Clean filter and check for air blockages, closed trap valves or anything that could be restricting water flow.



3• Verify if pressure switch cable is properly connected to pressure switch.

FLO Error Condition



4• If problem has not been solved, lower Set Point at 60° by pressing on **Down** arrow key and turning pump off; then short two pressure switch terminals with jumper cable.

5• An FLC error condition should occur.

FLC error condition identifies pressure switch as source of problem.

Try readjust pressure switch. If this isn't possible, replace switch.

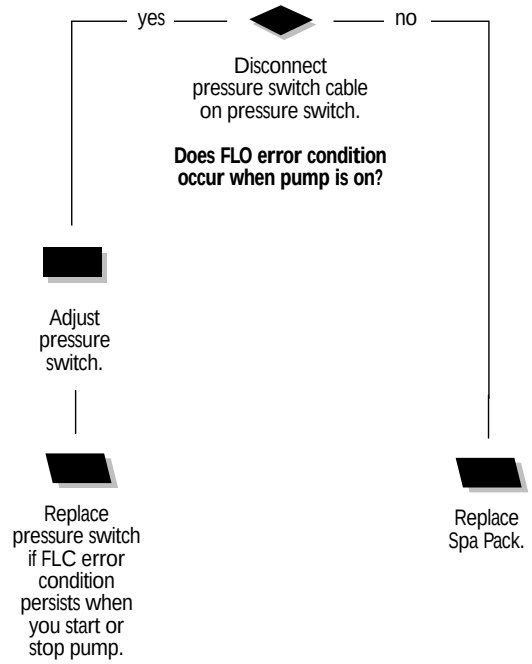
(Refer to "How to Adjust the Pressure Switch" section of this manual.)

6• If FLC error condition does not occur, problem may be either with switch cable or board.

Replace Spa Pack.

FLC Flow Chart

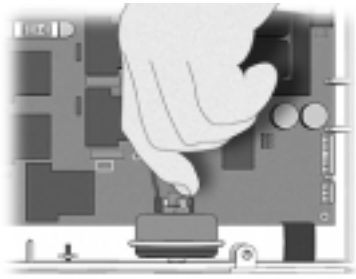
If FLC error condition occurs, follow Troubleshooting Flow Chart below to identify problem (usually pressure switch problem - pump is off but water pressure is detected):



FLC Error Condition

An FLC error condition indicates a pressure switch problem. If system detects any pressure when pump is off, an FLC error condition will occur.

Power may remain On when the following steps are carried out.



1• Disconnect pressure switch cable on pressure switch.

   If FLO error condition occurs when pump is started, adjust pressure switch or replace it.

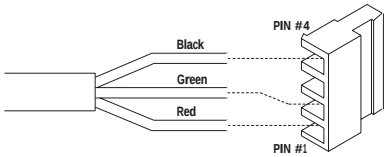
   (Refer to "How to Adjust the Pressure Switch" section of this manual.)

2• Replace Spa Pack if FLO error condition does not occur.

Prr Flow Chart

If Prr error condition occurs (potential regulation sensor problem), follow Troubleshooting Flow Chart below to identify the problem:

Make sure to use the right probe!
MSPA-1 probe does not work on an SSPA spa pack.
Probe wires should be in this order:



Press any key after each step to reset the system.

Note that water temperature must be over 35˚F to operate spa.

Check if regulation probe is properly connected.

Unplug probe connector and clean pins on the board (even a small coating of film may cause a bad connection). Reconnect the probe.

Replace probe with a spare and verify if problem is solved.

If it is, replace probe with spare.

Replace Spa Pack if problem persists.

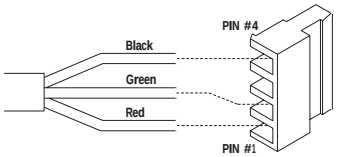
Prr Error Condition

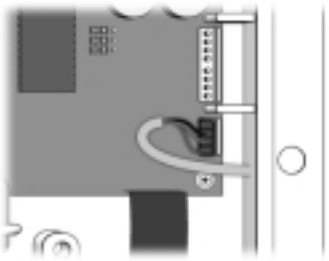
The Prr error condition indicates a problem with regulation sensor. The system is constantly verifying if temperature probe reading is within normal limits.

Note that water temperature must be over 35°F in order to carry out the following steps.
Press any key after each step to reset the system.
Power may remain On.

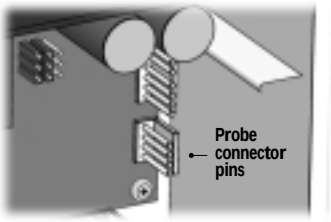
Note: *Make sure to use the right probe! MSPA-1 probe does not work on a SSPA spa pack.*

Probe wires should be in this order:





1• Verify if regulation probe is properly connected.



2• Disconnect probe connector and clean probe connector pins. Even a small coating of film may cause a bad connection.

3• Reconnect probe.

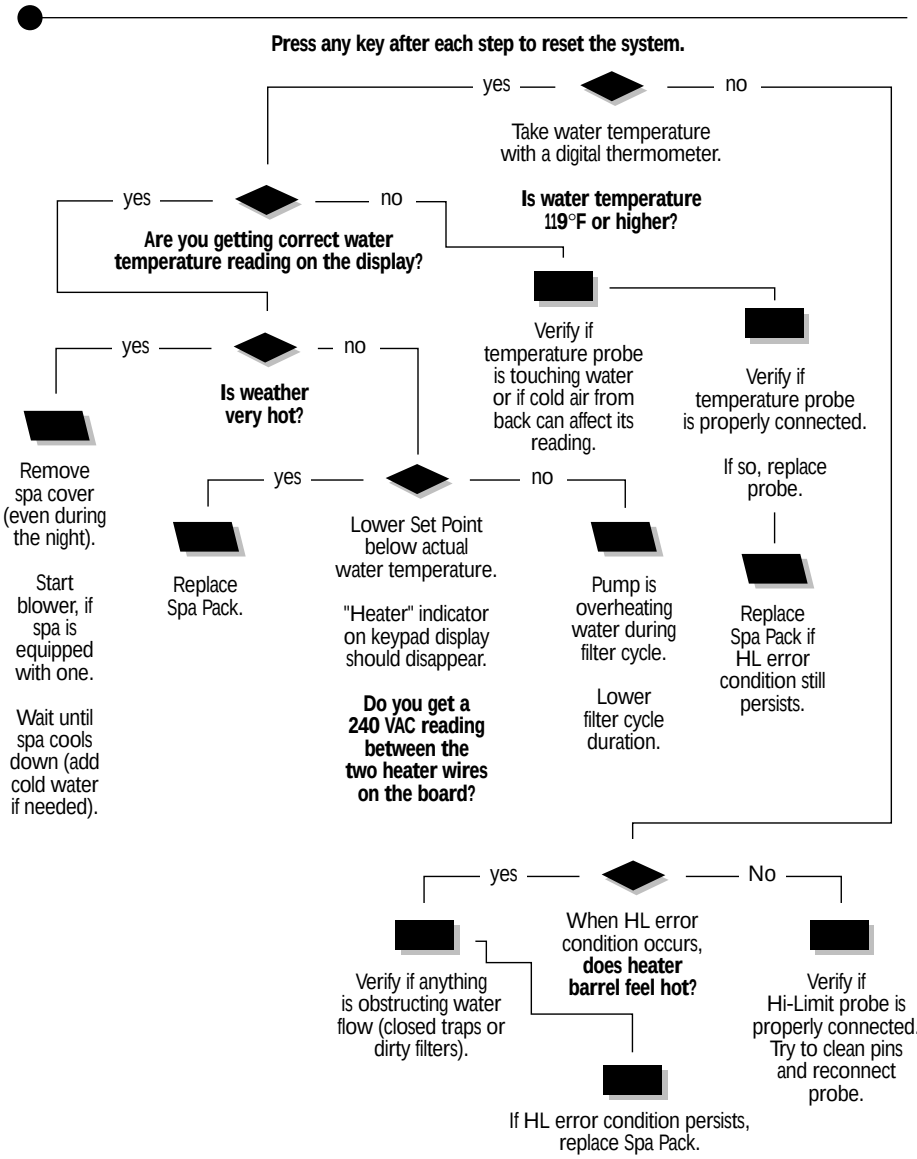
If Prr error condition still persists, replace probe with a spare and place probe head directly in spa water.

If problem is solved, replace probe.

4• Replace Spa Pack if problem persists.

HL Flow Chart

If HL error condition occurs (potential hi-limit probe problem), follow Troubleshooting Flow Chart below to identify the problem:



HL Error Condition

The HL error condition is related to the Hi-Limit sensor.

Steady message: Means system has shut down heater because water temperature at the heater has reached 119ºF.
Blinking message: Means except for the Smart Winter Mode, system has shut down because water temp. in the spa has reached 112ºF.

Press any key between each step to reset the system.
Power may remain On.

1• Take water temperature with digital thermometer.

2• **If reading is below 119°F:**

a- Check if heater barrel feels hot.

If it's hot, verify if anything is obstructing water flow (closed valves or dirty filter).

b- If HL error condition persists, replace Spa Pack.

3• **If reading is 119°F or higher:**

Proceed to following page if keypad display shows correct temperature.

Proceed to page 22 if keypad doesn't show correct temperature.

HL Error Condition

If digital thermometer water temperature reading is 119°F or higher and keypad display indicates correct temperature, carry out the following tests.

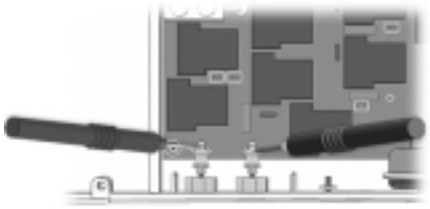
If weather is very hot:

1• Remove spa cover (even during the night). Start blower if spa is equipped with one. Wait until spa cools down (add cold water if necessary).

If hot weather is not a factor:

2• Lower Set Point below current water temperature.

The "Heater" indicator should disappear from keypad display.



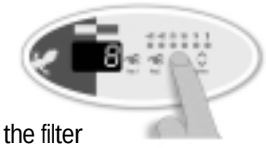
3• Remove plastic cover. With a voltmeter, read voltage between the two heater wires on the board.

4• **If you do not read 240 VAC,** pump may be overheating water during filter cycle.

Shorten filter cycle duration.

To shorten filter cycle duration:

5• Press and hold **Light** key for 5 seconds. Display will show a value that represents the filter cycle duration in hours.



Use **Down** arrow key to lower the number of hours.
0 = no filtration
12 = continuous filtration

When the desired setting is displayed, press **Light** key again. The filter cycle will start immediately.

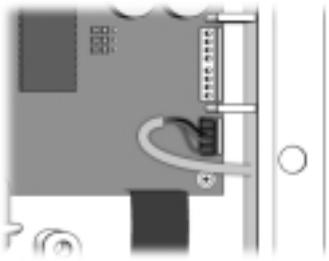
6• **If you do read 240 VAC,** replace Spa Pack.

HL Error Condition

If digital thermometer water temperature reading is 119°F or higher and keypad display isn't showing correct temperature, carry out the following tests.

1• Verify if temperature probe is in contact with water and if cold air from the back could be affecting readings.

Use foam to isolate probe from cold air if that is the problem.



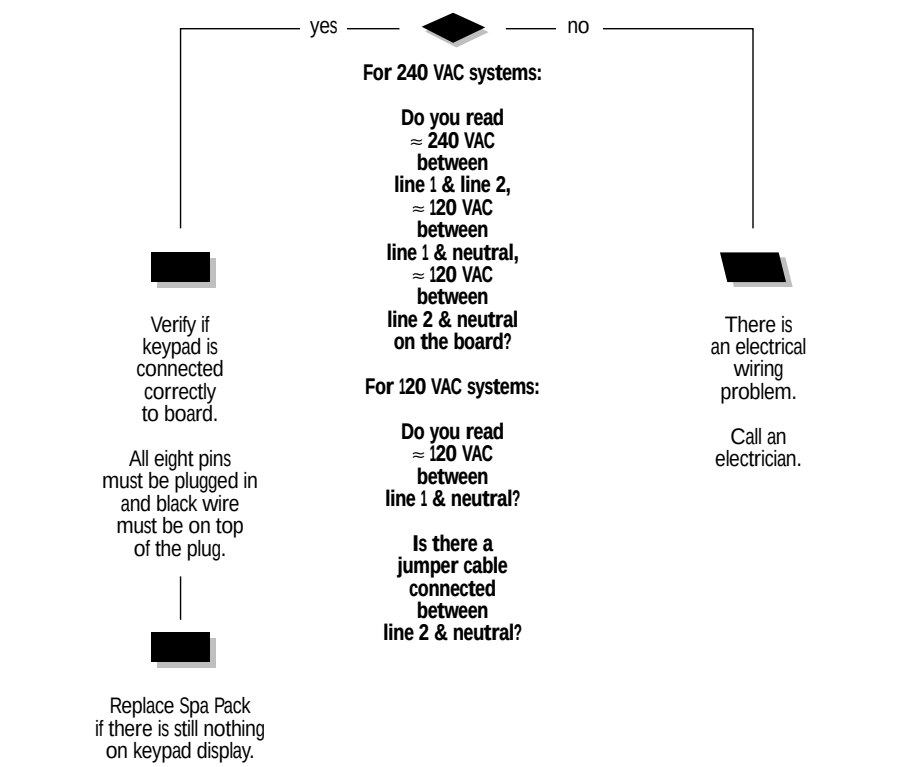
2• Make sure temperature probe is properly connected.

If it is, replace probe.

3• Replace Spa Pack if HL error condition still persists.

"Nothing Seems to Work!" Flow Chart

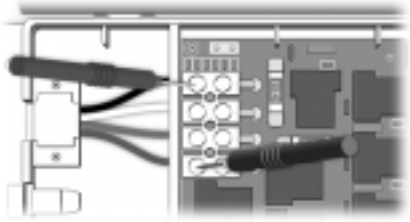
If nothing seems to work, follow Troubleshooting Flow Chart below to identify the problem:



Nothing Works!

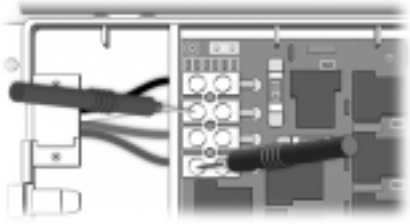
If everything is connected, but nothing seems to work, there is probably a power supply problem. Carry out the following tests to identify and correct the problem:

For 240 VAC systems:



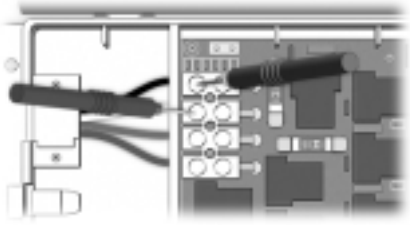
1• On the terminal block, measure voltage between line 1 and line 2.

You should get ≈240 VAC.



2• Measure voltage between line 1 and neutral.

You should get ≈120 VAC.



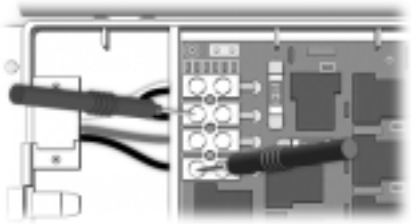
3• Measure voltage between line 2 and neutral.

You should get ≈120 VAC.

4• If you do not get good readings, this probably indicates an electrical wiring problem.

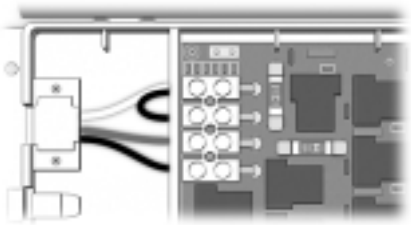
Call an electrician!

For 120 VAC systems:



1• Measure voltage between line 1 and neutral.

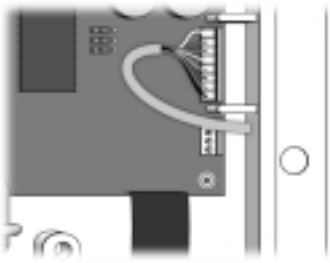
You should get ≈120 VAC.



2• Verify that there is a jumper cable connected between line 2 and neutral.

Nothing Works!

If you are getting good voltage readings, but nothing seems to work, carry out the following tests to correct the problem:

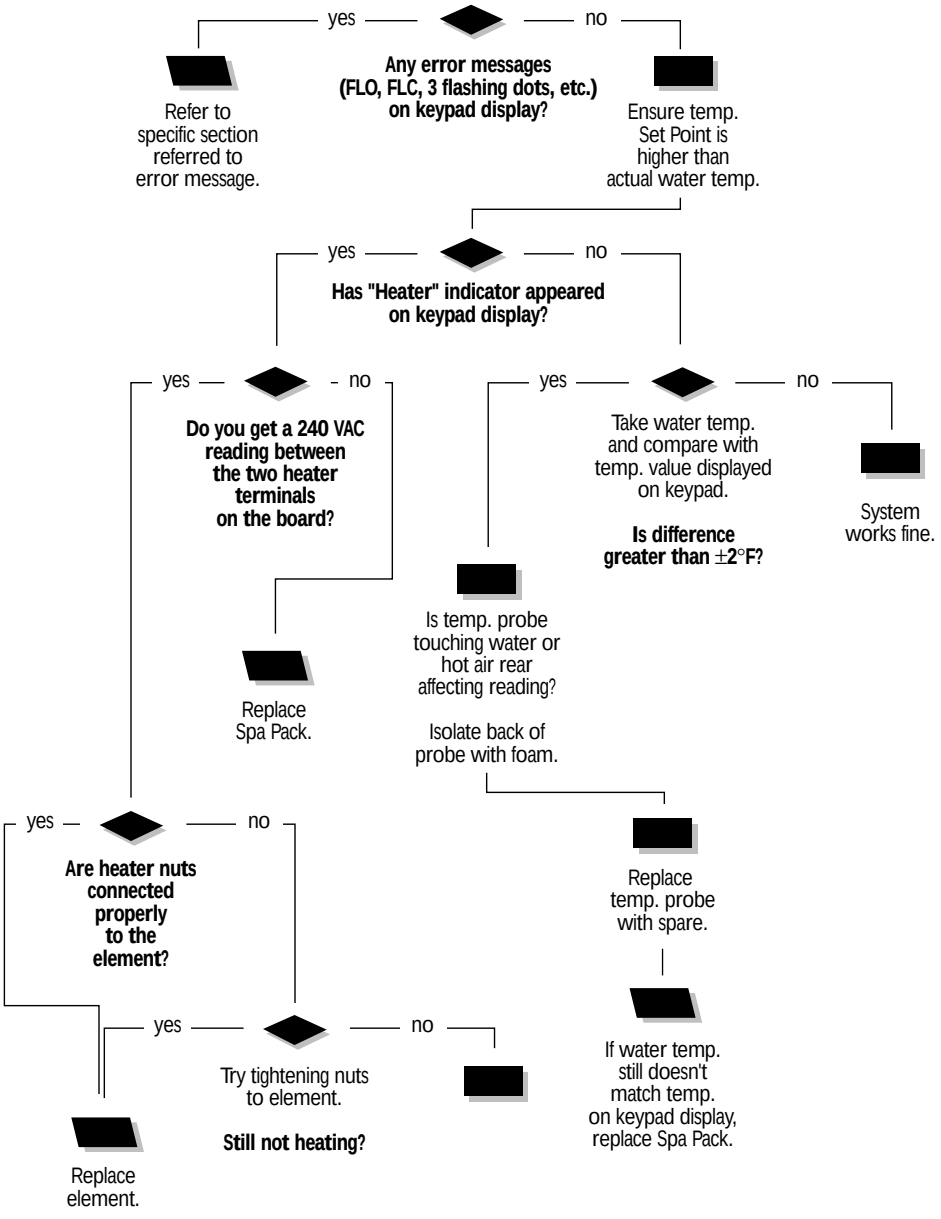


1• Verify if keypad is correctly connected to the board.

2• If nothing works, replace Spa Pack.

"Spa Not Heating" Flow Chart

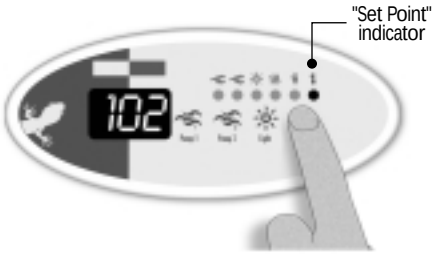
If the spa does not seem to be heating the water, follow Troubleshooting Flow Chart below to identify the problem:



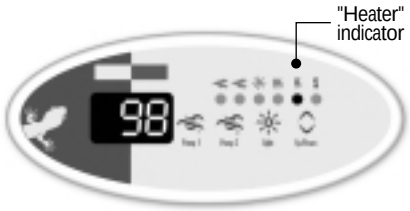
Spa Not Heating!

If the spa does not appear to be heating the water, carry out the following tests to correct the problem:

1• Check for an error message on keypad display. If there is one, refer to section indicated by the error message.



2• If there is no message, try to increase temperature by raising temperature Set Point. Press **Up** arrow key to increase Set Point.



3• Verify if "Heater" indicator appears on the display.

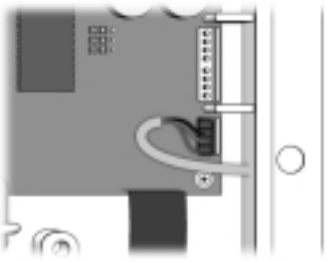
"Heater" indicator will be on when heater is on. It will flash if more heat has been requested, but heater has not yet started.

If "Heater" indicator does not light up:

4• Use a digital thermometer to take water temperature and compare your reading with the value on keypad display.

If values are different (±2°F), verify if sensor is touching water or if hot air from rear could be affecting readings.

5• If so, use foam to isolate behind the probe.



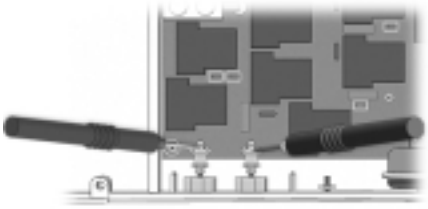
6• If not, replace temperature sensor with a spare one.

7• If spa is still not heating, replace Spa Pack.

Spa Not Heating!

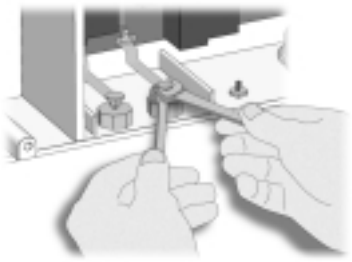
If "Heater" indicator appears on the display, but spa is still not heating, carry out the following tests to correct the problem:

If "Heater" indicator lights up on the display:



1• Remove plastic cover and measure voltage between the two heater screws on the board.

Replace board if you are not getting a reading of ≈240 VAC.



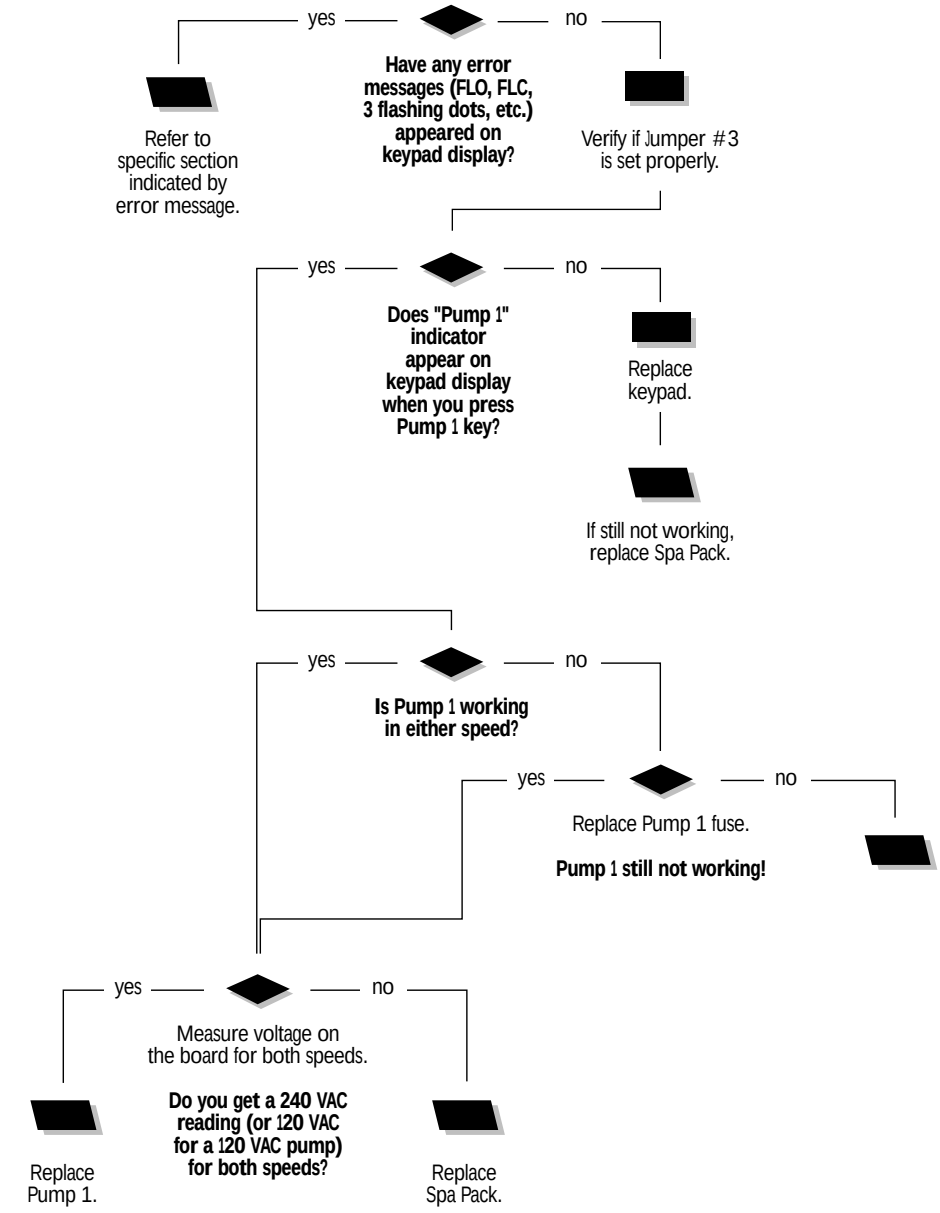
2• If voltage reading is correct, verify if heater nuts are properly connected to the element.

If not, tighten nuts to the element.

3• If problem persists, replace the element.

Pump 1 Flow Chart

If Pump 1 is not working, follow Troubleshooting Flow Chart below to identify the problem:



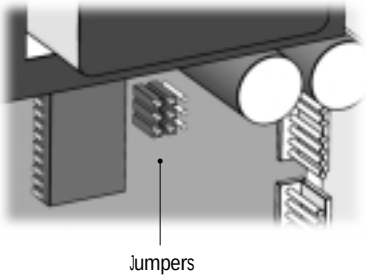
Pump 1 Does Not Work!

If Pump 1 is not working, carry out the following tests to correct the problem:

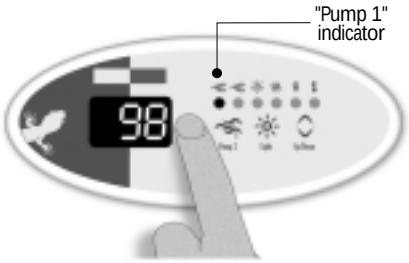
To increase the life of the relay, we use a "snubber" circuit on the pump relay. With this type of circuit, if no pump is connected to an output and relays are open, the voltmeter will continue reading around 60 volts. This is normal.

It is important to measure voltage when pump is connected to pack. Power must remain On.

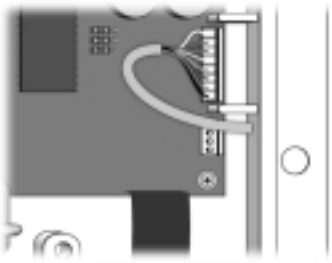
1• Check for an error message on keypad display. If there is one, refer to specific section indicated by error message.



2• Also, verify that Jumper #3 is set properly for 1 or 2 pumps (refer to page 10 for more info).



3• Verify if "Pump 1" indicator appears on keypad display when you press **Pump** 1 key.



4• If "Pump 1" indicator does not appear, use a spare keypad to verify if keypad is defective.

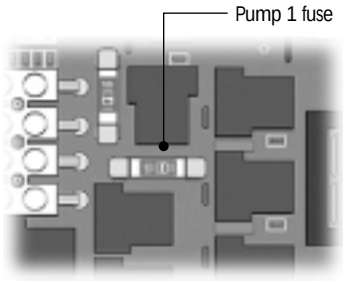
If it is, replace keypad.

If not, replace Spa Pack.

5• If "Pump 1" indicator appears when **Pump** 1 key is pressed, verify if pump works in either speed.

Pump 1 Does Not Work!

If Pump 1 does not work in either speed, carry out the following tests to correct the problem:

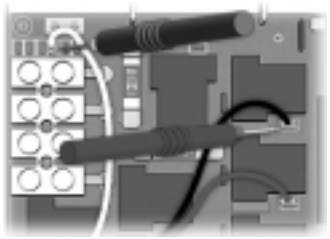


1• If Pump 1 does not work in either speed, replace Pump 1 fuse.

2• If replacing the fuse is not effective or if Pump 1 works in only one speed, take voltage reading on the board for both speeds.

Turn Pump 1 to high speed and take voltage reading between white and red wire connectors:
240 VAC pump: P12 & P18
120 VAC pump: P7 & P12

Your reading shoud be:
≈240 VAC for a 240 VAC pump
≈120 VAC for a 120 VAC pump



3• Turn Pump 1 to low speed and take voltage reading between white and black wire connectors:
240 VAC pump: P14 & P18
120 VAC pump: P7 & P14

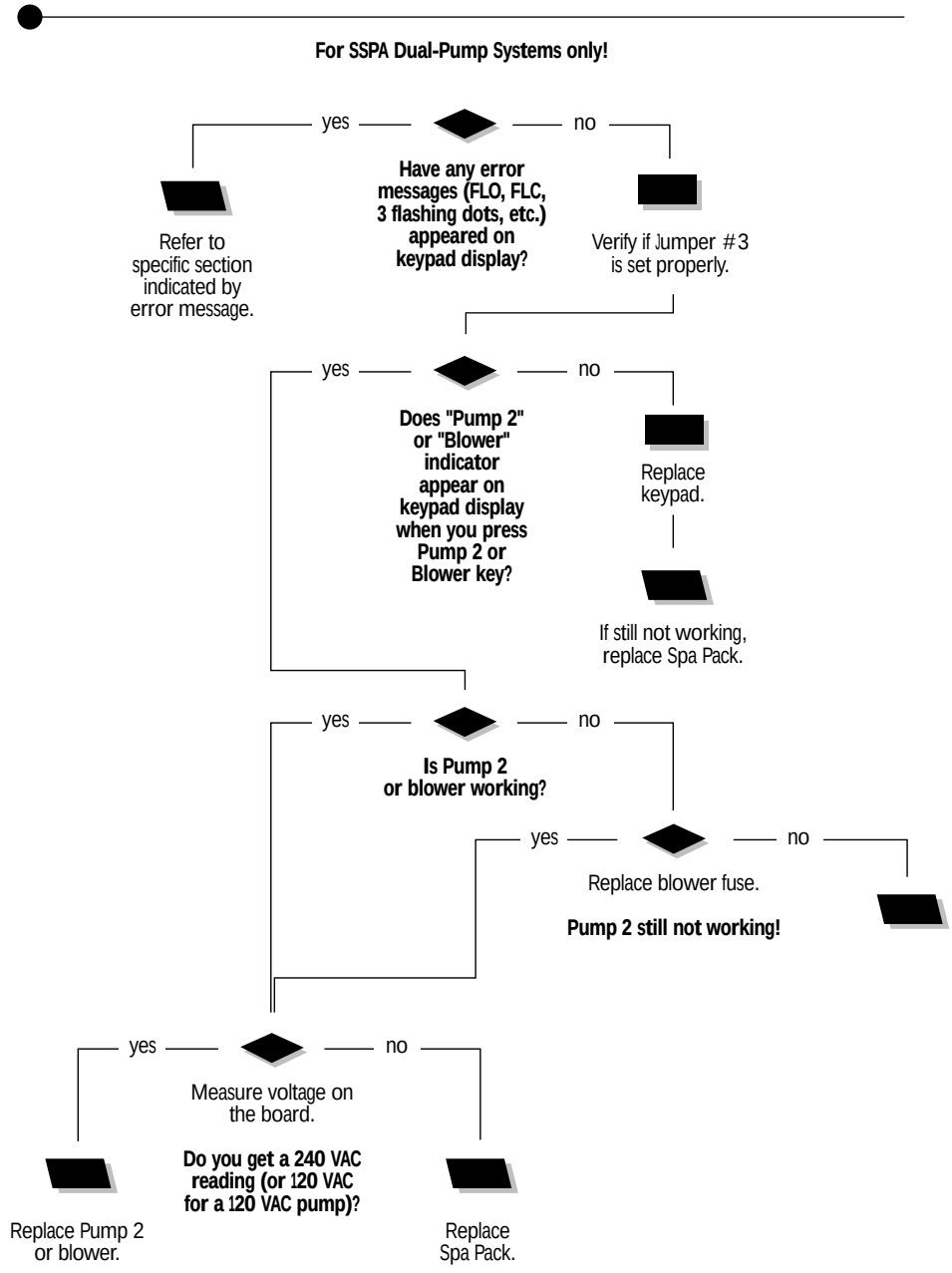
Your reading shoud be:
≈240 VAC for a 240 VAC pump
≈120 VAC for a 120 VAC pump

4• If voltage is as it should be, replace Pump 1.

5• If not, replace Spa Pack.

Pump 2 or Blower Flow Chart

If Pump 2 or blower does not work, follow Troubleshooting Flow Chart below to identify the problem:



Pump 2 or Blower Does Not Work!

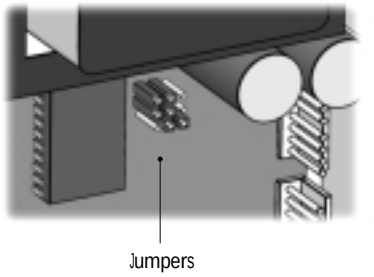
If Pump 2 or blower does not work, carry out the following tests to correct the problem:

For SSPA Dual-Pump Systems only!

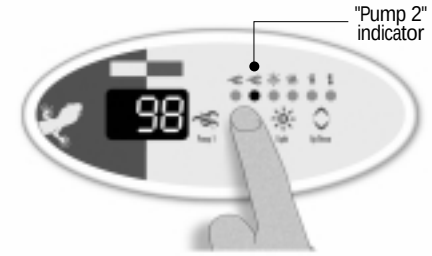
To increase the life of the relay, we use a "snubber" circuit on the pump relay. With this type of circuit, if no pump is connected to an output and relays are open, the voltmeter will continue reading around 60 volts. This is normal.

It is important to measure voltage when pump is connected to pack. Power must remain On.

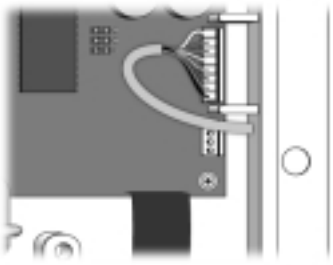
1• Check for an error message on keypad display. If there is one, refer to specific section indicated by error message.



2• Also, verify that Jumper #3 is set properly for 2 pumps (refer to page 10 for more info).



3• Verify if "Pump 2" or "Blower" indicator appears on keypad display when you press **Pump 2** or **Blower** key.



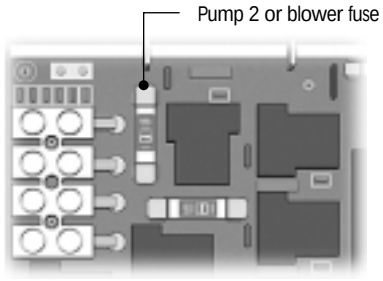
4• If "Pump 2" or "Blower" indicator does not appear, use a spare keypad to verify if keypad is defective.

If it is, replace keypad.

If not, replace Spa Pack.

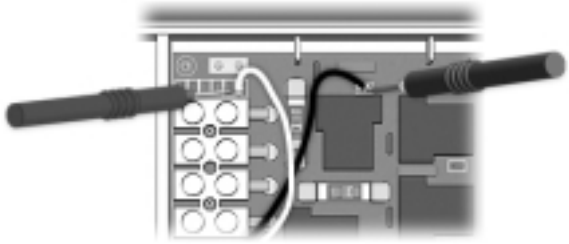
Pump 2 or Blower Does Not Work!

If Pump 2 or blower does not work, carry out the following tests to correct the problem:



1• If Pump 2 or blower does not work even when indicator is on, replace Pump 2 or blower fuse.

2• If replacing the fuse is not effective, take voltage reading on the board.



Turn Pump 2 or blower on and take voltage reading between white and black wire connectors:
240 VAC pump or blower: P11 & P17
120 VAC pump: or blower: P9 & P11

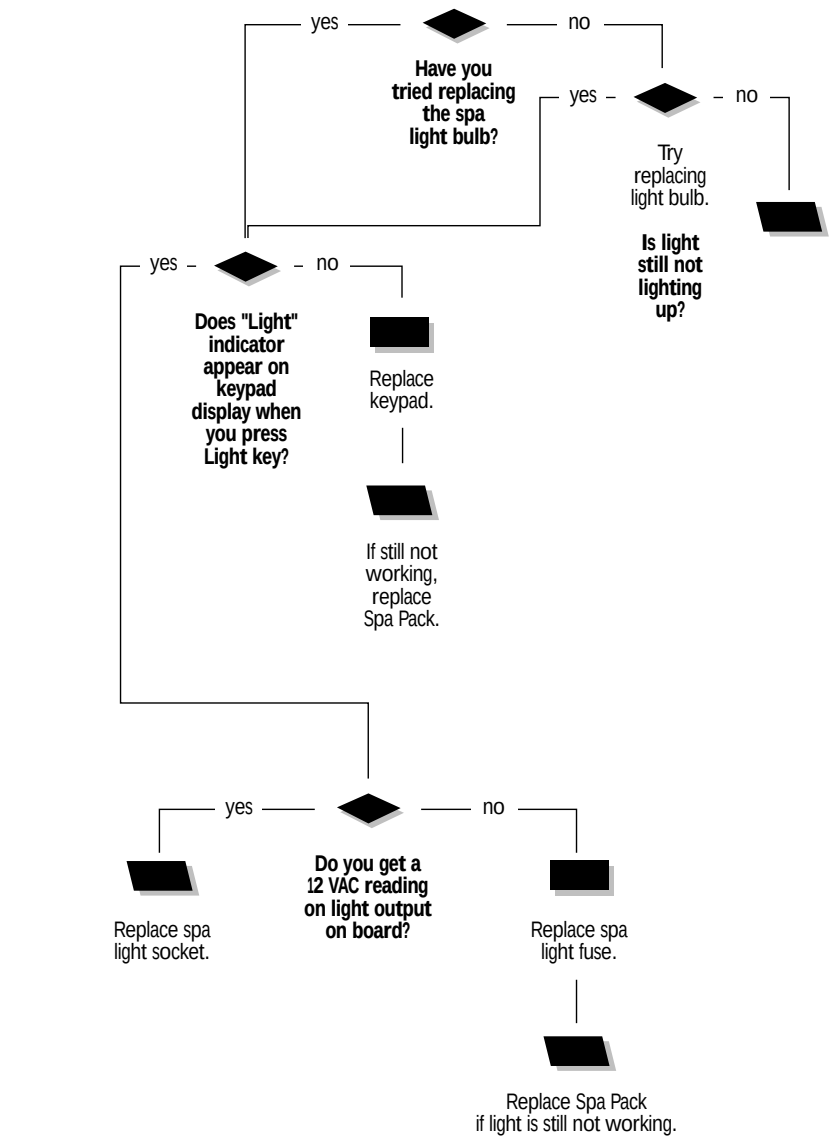
Your reading shoud be:
≈240 VAC for a 240 VAC pump or blower
≈120 VAC for a 120 VAC pump or blower

3• If voltage is as it should be, replace Pump 2 or blower.

4• If not, replace Spa Pack.

Spa Light Flow Chart

If spa light does not appear to be working, follow Troubleshooting Flow Chart below to identify the problem:

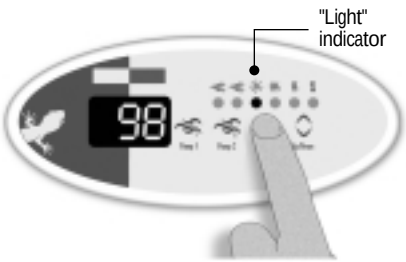


Spa Light Does Not Work!

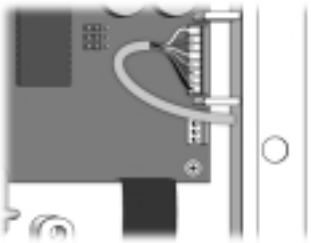
If spa light is not working, carry out the following tests to correct the problem:

It is important to measure voltage when light is connected to pack. Power must remain On.

1• The first step is to replace the spa's light bulb.



2• If light still isn't working, verify if "Light" indicator appears on keypad display when you press **Light** key.



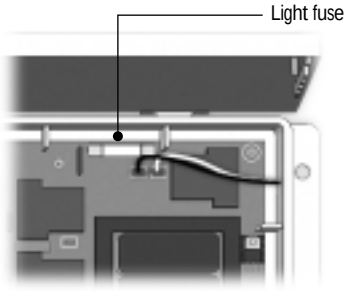
3• If "Light" indicator doesn't appear, use a spare keypad to verify if spa keypad is defective.

If it is, replace keypad.

If not, replace Spa Pack.

4• If "Light" indicator appears, but light still isn't working, remove plastic cover and measure voltage between two light wires on the board.

If you get ≈12 VAC, replace light socket.

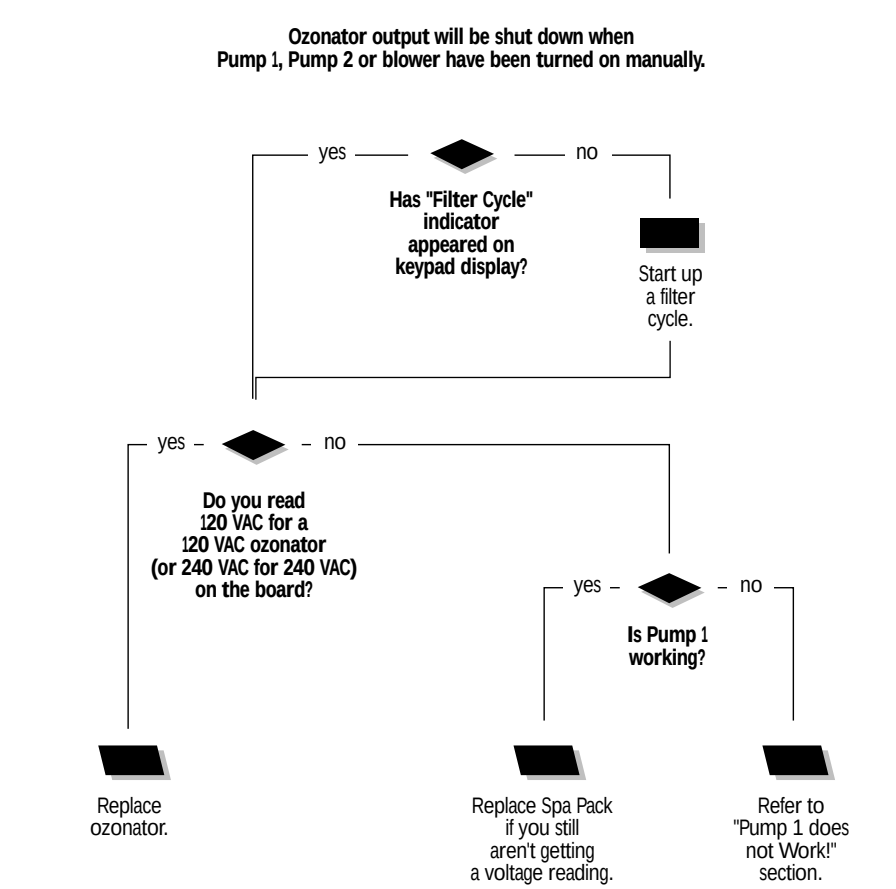


5• If you aren't getting a voltage reading, replace light fuse on the board.

6• If problem persists, replace Spa Pack.

Ozonator Flow Chart

If the ozonator is not working, follow Troubleshooting Flow Chart below to identify the problem:



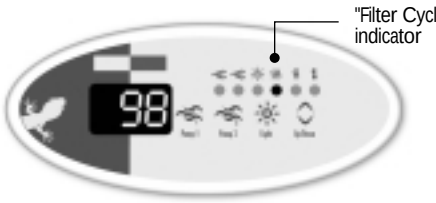
Ozonator Does Not Work!

If ozonator isn't working, carry out the following tests to correct the problem:

To increase the life of the relay, we use a "snubber" circuit on the ozonator relay. With this type of circuit, if no ozonator is connected to an output and relays are open, the voltmeter will still get a reading of around 60 volts. This is normal.

It is important to take voltage reading when ozonator is connected to pack. Power must remain On.

Please take note that ozonator output will be shut down when Pump 1, Pump 2 or blower have been turned on manually.

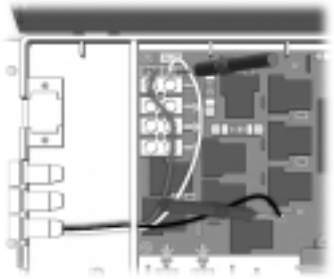


1• Verify if "Filter Cycle" indicator appears on keypad.

2• If not, start up a filter cycle.

Press and hold **Light** key for 5 seconds. The display will show a value that represents the filter cycle duration in hours.

Press **Light** key again. The filter cycle will start immediately.



3• Measure voltage between ozonator black and white connectors:
240 VAC ozonator: P16 & P19
120 VAC ozonator: P16 & P8

You should read ≈240 VAC (≈120 VAC for a 120 VAC ozonator).

4• Replace ozonator if you get a good voltage reading.

5• Check if Pump 1 is working.

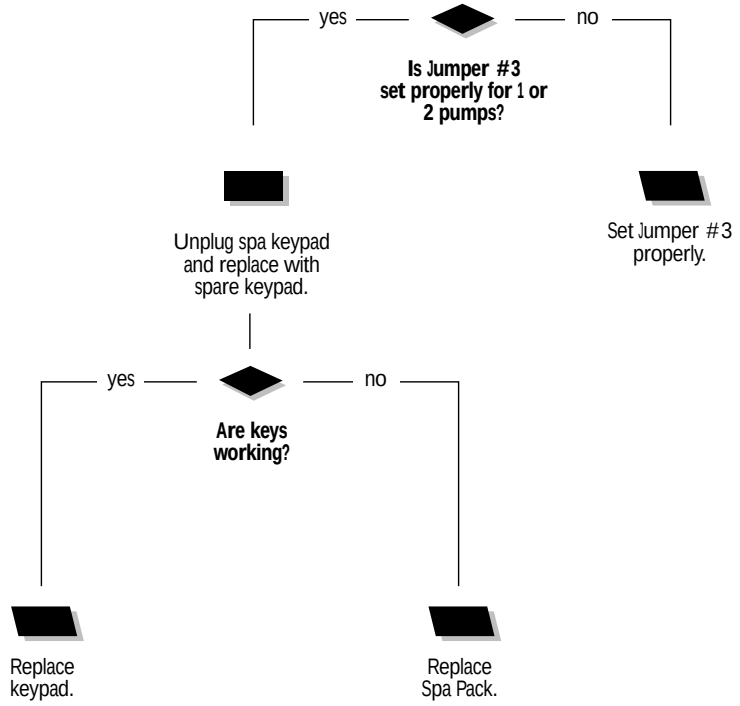
If so, replace Spa Pack.

If Pump 1 is not working, refer to "Pump 1 does not Work!" section.

Keys Flow Chart

If any of the keys on the keypad do not seem to be working, follow Troubleshooting Flow Chart below to identify the problem:

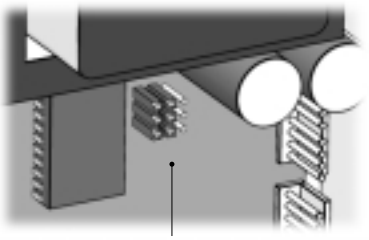
Make sure to use the proper keypad: TSC-35 keypad with SSPA-MP spa pack. TSC-18, TSC-19 or TSC-9 keypad with SSPA-1 spa pack. Also refer to Jumper Section (p. 10) to see if outputs are set correctly.



Keys Don't Work !

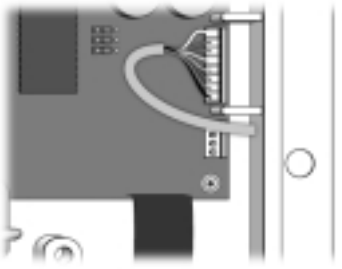
If any of the keys do not seem to be working, carry out the following tests to correct the problem:

Make sure to use the proper keypad: TSC-35 keypad works with a SSPA-MP spa pack. TSC-18, TSC-19 or TSC-9 keypad works with a SSPA-1 spa pack. Also refer to Jumper Section (p. 10) to see if outputs are set correctly.

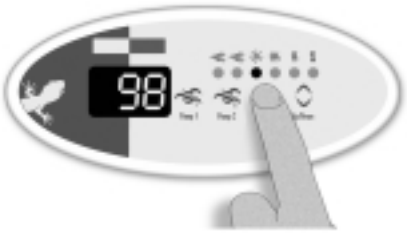


Jumpers

1• Verify that Jumper #3 is set properly for 1 or 2 pumps (refer to page 10 for more info.)



2• Replace spa keypad with a spare keypad.



3• Verify if keys respond correctly.

4• If they do, replace keypad.

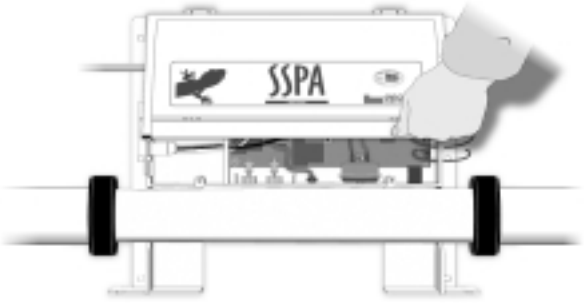
5• If they do not respond, replace Spa Pack.

How To Replace The Spa Pack

When replacing an SSPA spa pack, it is important to make sure to turn power off before proceeding.

1• Unplug Pump 1, Pump 2 (or blower) and ozonator connectors.

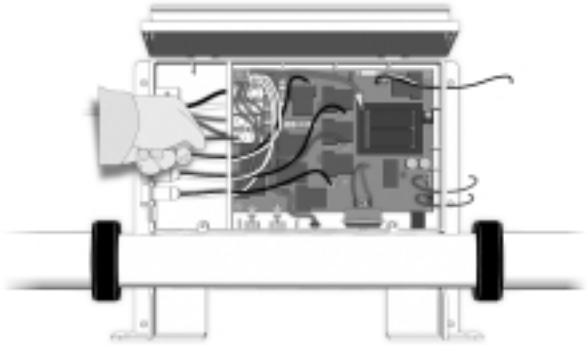
2• Remove 2 screws from front pack cover.



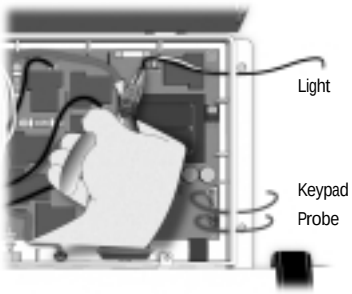
3• Lift the Spa Pack cover.

How To Replace The Spa Pack

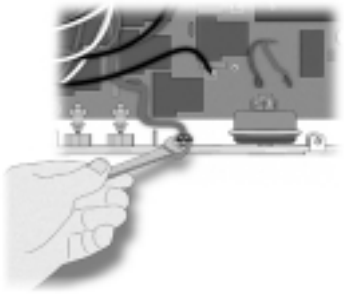
When replacing an SSPA spa pack, it is important to make sure to turn power off before proceeding.



4• Disconnect power input cables.



5• Disconnect light cables, keypad and temperature probe connectors.



7• Disconnect heater ground cable.

6• Disconnect pressure switch cable.

8• With wrenches, free the board blades by removing the 2 heater nuts.

How To Replace The Spa Pack

When replacing an SSPA spa pack, it is important to make sure to turn power off before proceeding.

9• Slide the pack out of the heater barrel.

10• Check if high-limit sensor is properly in place in its slot and slide new pack into position.

11• Connect heater to the board blades. It is important to hold both nuts when tightening. If you bend or twist the end of the element, you may damage it.

12• Reconnect heater ground cable and pressure switch cables.

13• Reconnect light cables, keypad and temperature probe.

14• Plug in Pump 1, Pump 2 (or blower) and ozonator connectors.

15• Reconnect power input cables.

16• Close pack cover.

How To Adjust The Pressure Switch

When a voltmeter is available:

1• Set voltmeter to "Ω" (while both probes are touching one another, voltmeter should beep to show there is continuity).

2• Turn pump off.

3• Do you have continuity on pressure switch?

If you have no continuity, go to step 4.

If you do have continuity, increase pressure switch setting by turning clockwise until voltmeter stops beeping. Then, decrease another 1/4 of turn.

4• Turn pump on at low speed and wait a few minutes.

If FLO does not appear, you have adjusted the pressure switch successfully.

If FLO appears, decrease pressure switch setting by turning counter clockwise until voltmeter starts beeping (there is continuity). Then, decrease another 1/4 of turn. Turn pump off.

FLC Should not appear (restart procedure if FLC appears).

5• When adjustment procedure is completed, apply Loctite 425 to the adjustment screw to secure it in place.

How To Adjust The Pressure Switch

When a voltmeter is not available:

1• Turn pump on at low speed.

2• Increase the pressure switch setting to 4 P.S.I. or until FLO message is displayed.

3• Start decreasing pressure switch setting by very slowly turning adjustment screw counter clockwise until FLO message disappears. Then, decrease another 1/4 of turn.

4• Turn pump on at high speed for 30 seconds; there should be no FLO message.

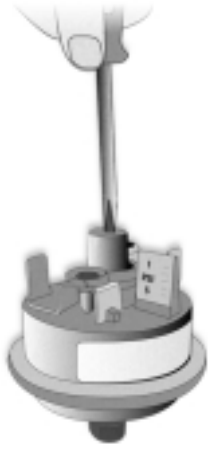
5• Turn pump off and wait 30 seconds. You should not see an FLC message.

6• Turn pump to low speed for 30 seconds. You should not see an FLO message.

7• If you see an FLO or an FLC message, restart the adjustment procedure.

If you are not able to adjust the pressure switch, change it.

8• When adjustment procedure is completed, apply Loctite 425 to the adjustment screw to secure it in place.



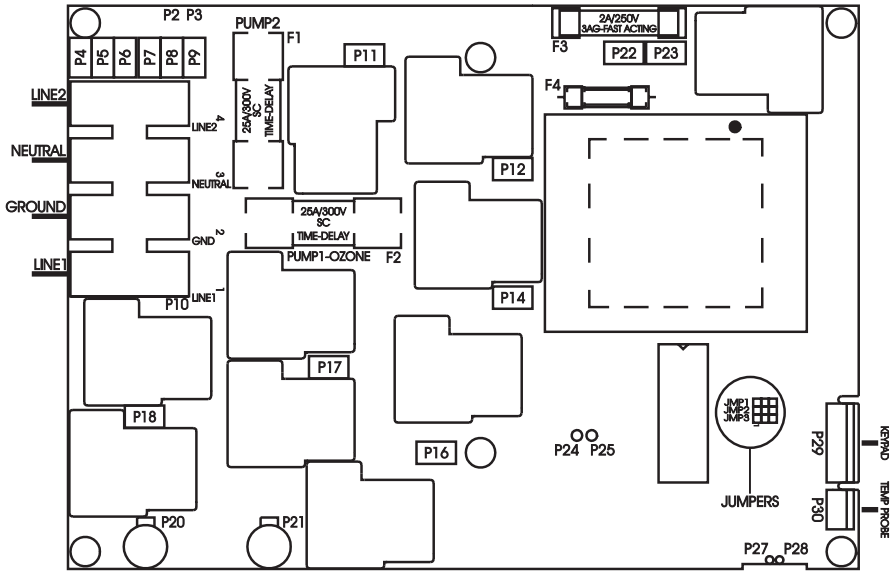
Parts List

*We recommend that field service technicians keep the items identified with an * in stock.*

Ref.:	Part Number	Description	Retail U.S.	CDN	
1	530AB0061	Tail piece for 2" heater	5.39	7.33	
1	530AB0042-P5	Gasket for 2" tail piece (package of 5)	8.00	10.88	
2	282CA0071	Nut for 2" heater	4.90	6.67	*
4	9920-400178	Light cords (option LS)	7.57	10.3	*
6	9920-400200	J&J mini connector for pump 1	7.26	9.88	
6	9920-400199	J&J mini connector for pump 2, single speed	6.68	9.09	
6	9920-400200	J&J mini connector for pump 2, two speeds	7.26	9.88	
6	9920-400204	J&J mini connector for ozone	5.92	8.06	
6	9920-400203	J&J mini connector for blower	5.92	8.06	
6	9920-400205	J&J mini connector for circulation pump	5.92	8.06	
6	9920-400277	AMP connector for pump 1	7.26	9.88	
6	9920-400276	AMP connector for pump 2, single speed	6.68	9.09	
6	9920-400277	AMP connector for pump 2, two speeds	7.26	9.88	
6	9920-400278	AMP connector for ozone	6.68	9.09	
6	9920-400278	AMP connector for blower	6.68	9.09	
6	9920-400276	AMP connector for circulation pump	6.68	9.09	
12	530AA0107	In-line 5.5Kw heater	143.17	194.79	
12	530AB0087	5.5Kw 240V element for in-line heater	88.20	119.99	*
13	510AD0064	Pressure switch	28.42	38.67	*
19	282AD0038-P25	Ground screws (package of 25)	9.86	13.42	
22	430AC0103-P10	Fuses for light (package of 10)	11.14	15.15	*
23	430AE0033-P10	Fuses for pumps (package of 10)	56.57	76.97	*
29	430AD0066-P10	Fuses for transformer	11.14	15.15	
30	9920-400262	10-foot temperature probe	19.20	26.12	*

Wiring Diagram (SSPA-1)

The wiring diagram below provides a general idea of SSPA-1 wiring, but it is important to note that it may not apply to all systems. The wiring diagram including on inside power box cover is the one to be used as main reference for the spa you are servicing.



Pump 1	
Voltage	240v
Green / Ground	P4
Black / Low Speed	P14
Red / High Speed	P12
White / Com	P18

Pump 2	
Voltage	240v
Green / Ground	P6
Black / Line	P11
White / Com	P17

Jumper Settings

Refer to page 10

Ozonator	
Voltage	120v
Green / Ground	P5
Black / Line	P16
White / Neutral	P8

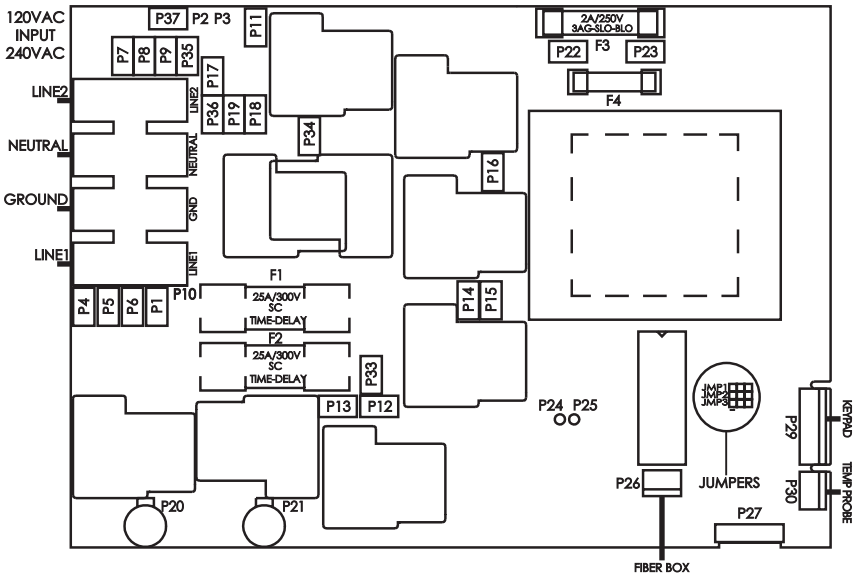
Light Connector	
White / 0 VAC	P23
Black / 12 VAC	P22

Heater	
Black 1	P20
Black 2	P21

Pressure Switch	
Green	P25
Red	P24

Wiring Diagram (SSPA-MP)

The wiring diagram below provides a general idea of SSPA-MP wiring, but it is important to note that it may not apply to all systems. The wiring diagram including on inside power box cover is the one to be used as main reference for the spa you are servicing.



Pump 1		
Voltage	120v	240v
Green / Ground	P4	P4
Black / Low Speed	P14	P14
Red / High Speed	P12	P12
White / Com	P7	P18

Ozonator		
Voltage	120v	240v
Green / Ground	P5	P5
Black / Line	P16	P16
White / Com	P8	P19

Light Connector	
White / Light	P23
Black / 12 VAC	P22

Pump 2		
Voltage	120v	240v
Green / Ground	P6	P6
Black / Line	P11	P11
White / Com	P9	P17

Blower		
Voltage	120v	240v
Green / Ground	P37	P37
Black / Line	P34	P34
White / Com	P35	P36

Heater	
Black 1	P20
Black 2	P21

Jumper Settings
Refer to page 10

Fiber Box	
Voltage	120v
Green / Ground	P1
Black / Line	P33
White / Neutral	P35

Pressure Switch	
Green	P24
Red	P25

Professional Repair Kit

All you need in one case!

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- Top side controls (keypads)
- Temperature probes
- Pressure switch cables
- Flow switches
- Elements
- Heater wires
- Transformer
- Ground lugs
- Grommets
- Standoffs
- Light cords
- Strain reliefs for light cord
- Plugs
- Fuse kits
- Screws

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- System Malfunctions
- Part Replacement Procedure
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