



# **Procedure & User Programming Manual for All Digital Spa Controls**

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# Safety Instructions

**WARNING: Make sure your hot tub is properly wired per National Electric Codes and local codes and regulations.**

**WARNING: Make sure all electrical work is done by a licensed electrician.**

**YOU MUST READ AND FOLLOW ALL INSTRUCTIONS!**

## **A WARNING**

Before operating your spa, do the following:

1. Turn Heater "OFF". Drop the temperature to minimum.
2. Fill spa with water. Water level should be halfway up the skimmer opening.
3. Make sure that all the valves are open to allow water flow through the heater manifold.
4. Release all air from filter and heater chamber (see your filter's manual). We recommend installing our Automatic Air Bleeder.
5. Turn jets on high for a few minutes. Repeat these steps until all air has been bled from the heater chamber.

**NOTE: FAILURE TO FOLLOW THESE STEPS BEFORE ENERGIZING THE HEATER MAY CAUSE A DRY FIRE AND WILL VOID YOUR WARRANTY.**

## **B RISK OF CHILD DROWNING DANGER!**

Extreme caution must be exercised to prevent unsupervised access by children. To avoid accidents, ensure that children cannot use a spa or hot tub unless they are closely supervised **at all times**.

## **c TO REDUCE THE RISK OF INJURY TO PEOPLE DANGER!**

1. Do not remove suction fitting. RISK OF ELECTRICAL SHOCK: Install at least 5 feet (1.5 meters) from all metal surfaces. Do not permit any electrical appliances, such as radio, television, telephone, lights, etc. within 5 feet (1.5 meters) of a spa or hot tub.
2. The water in a spa or hot tub should never exceed 104°F (40°C). Water temperature between 100°F (38°C) and 104°F (40°C) is considered safe for a healthy adult. Lower water temperatures are recommended for extended use, exceeding 10 or 15 minutes; and for young children. Since excessive water temperature has a high potential for causing fetal damage during pregnancy, pregnant or even possibly pregnant women should limit spa and hot tub use and its water temperature to 100°F (38°C). Consult your physician for further restrictions.
3. RISK OF ACCIDENTAL DROWNING: The use of alcoholic beverages, drugs, or medications before or during spa use may lead to unconsciousness with the possibility of drowning and could be fatal.
4. RISK OF ACCIDENTAL DROWNING DUE TO HYPOTHERMIA: If spa water temperature falls below 98.6°F (37°C), hypothermia may result. Hypothermia is defined as very low body temperature and is caused by loss of body heat after prolonged immersion in cold water. Its symptoms are: blueness of skin color, extreme fatigue, slowing of heartbeat, and lowering of blood pressure. Hypothermia can cause coma, permanent brain damage, and possibly death.
5. REGULATING TEMPERATURE: Temp. button on SoftTouch panel.
  - a. Always check water temperature with an accurate thermometer.
  - b. Prolonged immersion in hot water may induce hyperthermia. This occurs when the internal temperature of the body reaches a level of several degrees above the normal body temperature of 98.6°F (37°C). Its symptoms are: dizziness, fainting, drowsiness, lethargy, and an increase in the internal temperature of the body. The effects of hyperthermia include: unawareness of impending hazard, failure to perceive heat, failure to recognize the need to exit the spa, physical inability to exit the spa, fetal damage for pregnant women, and unconsciousness resulting in a danger of drowning.

WARNING: The use of alcohol, drugs, or medications can greatly increase the risk of fatal hyperthermia in hot tubs and spas.

6. TO REDUCE THE RISK OF ELECTRICAL SHOCK: Replace damaged or frayed cords immediately (for cord and plug connected units only). Connect only to a ground type receptacle (for cord and plug connected units only).
7. Do not bury cord (for cord and plug connected units only).
8. This equipment is provided with a ground fault circuit interrupter on the equipment pack within the controller door. Before each use of your spa, with the unit connected to the power, push the test button. A trip indicator should appear. Push the reset button. The trip indicator should disappear. If the interrupter fails to operate in this manner there is a ground current flowing, indicating the possibility of an electrical short. Disconnect the power from the unit until the source of the breakdown has been identified and corrected.
9. Provide drainage of compartment for electrical components.
10. Before entering a spa or hot tub, measure the water temperature with an accurate thermometer. The tolerance of water temperature regulatory devices may vary as much as  $\pm 1^{\circ}\text{F}$  ( $\pm 0.5^{\circ}\text{C}$ ).
11. 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.
12. Persons using medication should consult a physician before using a spa or hot tub. Some medications may induce drowsiness; while other medications may affect heart rate, blood pressure, and circulation.
13. 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 National Electric Code ANSI/NFPA 70-1987; a disconnecting means must be readily accessible to the tub occupant but installed at least 5 feet (1.5 meters) from the tub.

14. **PRESSURE WIRE CONNECTOR** (for all units): A pressure wire connector is provided in the control box inside the unit to permit connection of a minimum No. 8 AWG (8.4 mm<sup>2</sup>) solid copper bonding conductor between this point and any metal equipment, metal enclosures of electrical equipment, metal water pipe, or conduit within 5 feet (1.5 meters) of the unit as needed to comply with local requirements.
15. **FOR UNITS WITH G.F.C.I.** (Ground Fault Circuit Interrupter): The G.F.C.I. must be tested before each use.
16. **FOR UNITS WITH GAS HEATERS:** Do not install the gas heaters indoors.



**SAVE THESE INSTRUCTIONS!**

# Megatrol Digital Spa Control



*Figure a - Megatrol Digital Control*

Thank you for buying a Megatrol Digital Spa Control System from Acura Spa Systems, Inc. Many years of experience went into the design of this family of controls. You can be assured your spa control system is the most advanced; it is highly reliable and will serve you for many years to come.

The control system has been designed with you, the user, in mind. It is very easy to operate and requires a minimal effort on your part. You may use it just as it comes to you and without any programming. Yet you have the option of getting deeply involved in the inner workings of the control if you so choose. You can custom tailor it to fit your needs.

Please take the time to read at least the first section "IN A HURRY – READ THIS" portion of the manual before starting to use your spa for the first time. You can familiarize yourself with the rest of the manual at your leisure. This manual will also serve as a reference if you choose to modify the operation of your spa.

**SAVE THIS MANUAL.  
Make it available for other spa users.**

You should also have a spa user's manual, which explains how to operate and care for your spa. Please read and follow all instructions in your spa user's manual. Maintaining the proper levels of pH and the sanitizer will extend the life of your spa equipment. Improper chemical levels in the spa are sure to cause premature heater failure as well as failure of other components in the system. Failures caused by chemical imbalance are not covered by warranty.

# Universal Spa Control



*Figure b – Universal Spa Control*

Thank you for buying a Universal Spa Control from Acura Spa Systems, Inc. Many years of experience went into the design of this family of controls. You can be assured your spa control system is the most advanced; it is highly reliable and will serve you for many years to come.

The control system has been designed with you, the user, in mind. It is very easy to operate and requires a minimal effort on your part. You may use it just as it comes to you and without any programming. Yet you have the option of getting deeply involved in the inner workings of the control if you so choose. You can custom tailor it to fit your needs.

Please take the time to read at least the first section “IN A HURRY – READ THIS” portion of the manual before starting to use your spa for the first time. You can familiarize yourself with the rest of the manual at your leisure. This manual will also serve as a reference if you choose to modify the operation of your spa.

**SAVE THIS MANUAL.  
Make it available for other spa users.**

You should also have a spa user’s manual, which explains how to operate and care for your spa. Please read and follow all instructions in your spa user’s manual. Maintaining the proper levels of pH and the sanitizer will extend the life of your spa equipment. Improper chemical levels in the spa are sure to cause premature heater failure as well as failure of other components in the system. Failures caused by chemical imbalance are not covered by warranty.

# Compact Spa Control



*Figure c – Compact Spa Control*

Thank you for buying a Compact Spa Control from Acura Spa Systems, Inc. Many years of experience went into the design of this family of controls. You can be assured your spa control system is the most advanced; it is highly reliable and will serve you for many years to come.

The control system has been designed with you, the user, in mind. It is very easy to operate and requires a minimal effort on your part. You may use it just as it comes to you and without any programming. Yet you have the option of getting deeply involved in the inner workings of the control if you so choose. You can custom tailor it to fit your needs.

Please take the time to read at least the first section "IN A HURRY – READ THIS" portion of the manual before starting to use your spa for the first time. You can familiarize yourself with the rest of the manual at your leisure. This manual will also serve as a reference if you choose to modify the operation of your spa.

**SAVE THIS MANUAL.  
Make it available for other spa users.**

You should also have a spa user's manual, which explains how to operate and care for your spa. Please read and follow all instructions in your spa user's manual. Maintaining the proper levels of pH and the sanitizer will extend the life of your spa equipment. Improper chemical levels in the spa are sure to cause premature heater failure as well as failure of other components in the system. Failures caused by chemical imbalance are not covered by warranty.

# Minitrol II Spa Control



*Figure d – Minitrol II Spa Control*

Thank you for buying a Minitrol II Spa Control from Acura Spa Systems, Inc. Many years of experience went into the design of this family of controls. You can be assured your spa control system is the most advanced; it is highly reliable and will serve you for many years to come.

The control system has been designed with you, the user, in mind. It is very easy to operate and requires a minimal effort on your part. You may use it just as it comes to you and without any programming. Yet you have the option of getting deeply involved in the inner workings of the control if you so choose. You can custom tailor it to fit your needs.

Please take the time to read at least the first section "IN A HURRY – READ THIS" portion of the manual before starting to use your spa for the first time. You can familiarize yourself with the rest of the manual at your leisure. This manual will also serve as a reference if you choose to modify the operation of your spa.

**SAVE THIS MANUAL.  
Make it available for other spa users.**

You should also have a spa user's manual, which explains how to operate and care for your spa. Please read and follow all instructions in your spa user's manual. Maintaining the proper levels of pH and the sanitizer will extend the life of your spa equipment. Improper chemical levels in the spa are sure to cause premature heater failure as well as failure of other components in the system. Failures caused by chemical imbalance are not covered by warranty.

# WF100 Topside WiFi Control Easy Setup



*Figure e – WF100 WiFi Module*

WF100 WiFi Control is a browser page control of your spa that operates through your home WiFi network. From your cell phone, tablet or your computer at work, you will be able to monitor and control your spas temperature, turn on or off the heater, pump(s), or blower.

**IMPORTANT: When mounting the WF-100 Controller inside your spa cabinet, the water in your spa can block the radio signals between the WF-100 and your Wi-Fi router. Be sure to mount the WF-100 so that the spa's water is not between the WF-100 and your Wi-Fi router.**

## **Connect to Acura WF-100 Wi-Fi Controller**

1. Turn your Spa OFF.
2. Disconnect spa side control panel from side of control.
3. Open Wi-Fi control box and connect spa side control to connection inside Wi-Fi control box.
4. Connect Wi-Fi control box cable to spa side control panel connection on the Control.
5. Turn your Spa ON.
6. On your smart device (phone, tablet or computer); choose Wireless Networks/WIFI.
7. Scan available networks for "AGI\_BOARD\_XXX" (XXX is any combination of characters).

8. Select "AGI\_BOARD\_XXX" network, your smart device will connect to Wi-Fi board's network.
9. Open a web browser (Chrome, Internet Explorer or Edge only). Type 192.168.1.3 into the web browser's address bar. (192.168.1.3 is your WIFI board's local network address).

**NOTE:** Make sure that there is nothing else in the address (the browser may put // before the address, this is wrong). You should see only 192.168.1.3, NOT //192.168.1.3!

10. A web page will open with a large button "Display Scan Results." Push this button.
11. Below the button, a list of available Wi-Fi networks will be shown. From this list, select your local network (A check will appear to the right of your chosen network). After selecting your network from the list of available networks, scroll down and verify that your networks SID (name) is shown.
12. In the "Password" field, enter your local networks password (or WEP Key).
13. Enter your email address in the "Email Address" field.
14. Re-enter your email address (for verification purposes).
15. Scroll down to the "ACCEPT" button and press it.
16. A new information page showing your network information and your email address will appear. Verify that the information is correct and then press the "JOIN" button.
17. After approximately one minute, your smart device will timeout on the connection to the Wi-Fi board, exit the browser and verify that you are reconnected to your local Wi-Fi network.

**NOTE:** You must be connected to your Wi-Fi network for all steps below to work. Make sure your smart device is connected to your local Wi-Fi and NOT the AGI\_BOARD\_XXX network.

18. Check your email on your smart device (phone, tablet or computer) for a new registration email message (this may take a few minutes).

**NOTE:** Check your SPAM and Junk email folders to make sure this message did not get flagged as spam or junk.

19. The received email has a message to "Please follow this link for registration". Press "this link" to take you to a webpage where you will enter the name of your spa. Enter the name you want to identify the spa with (no more than 8 characters, no spaces). For example, 'SPA11'.
20. Press the "REGISTER" button on the webpage to connect the Wi-Fi control to your spa.
21. After pressing "REGISTER", wait approximately 1 minute, then refresh the webpage.
22. The page should show the name of your spa and some buttons for showing the display, setting the temperature, and setting the time zone (clock). Any or all of these may already be expanded to show you the current state of your spa.
23. Bookmark this page in your browser.
24. Wait approximately 15 minutes before using the Wi-Fi to allow the control to reset.
25. To control your spa, open your browser and go to the bookmarked page.



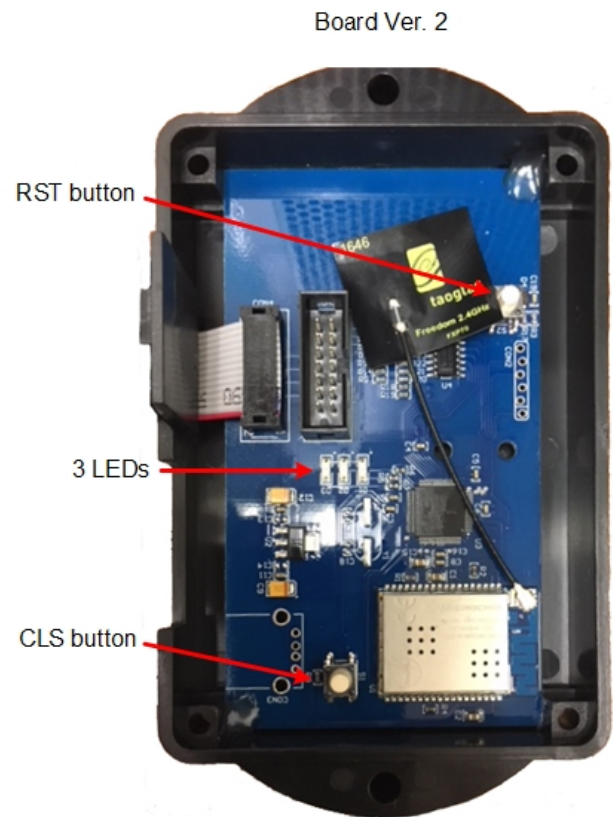
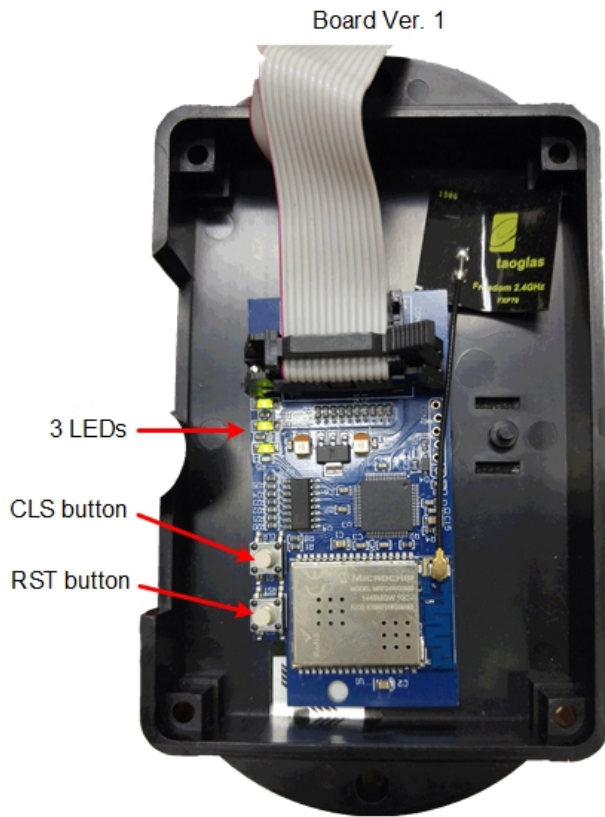
## WF100 Troubleshooting:

If you are at Step 7 above and are never seeing the "AGI\_BOARD\_XXX" (XXX is any combination of characters), the WIFI board may need to be refreshed back to factory settings. This will force it back to setup mode.

1. Remove the cover of the WIFI module.
2. With power ON, press and release the RST button.
3. Immediately press and hold the CLS button until the 3 LEDs on the board are all ON together (as shown).
4. Release the CLS button after all 3 LEDs are on together, the board will restart, removing any network configuration settings it already had.
5. You should now be able to go back to step 7 above and continue.

Press and release RST button. Immediately press and hold CLS button until all 3 LEDs light up (as shown below). Approximately 2 seconds. Release CLS button. 3 LEDs start flickering independently. Now go back to step 7.

**NOTE: There are two variations of the WF100 board, but they work identically. These instructions apply to BOTH board variations.**







# PM5010 Top Side Control Panel






Figure f – PM5010 Top Side Control

Within the panel housing is a 4-digit LED display used to communicate to the user the spa temperature, time, elapsed user time, programming, status – diagnostics, error codes and messages. The spa side controls are interchangeable (all functions can be done from either spa side control). The spa side controls have 7 membrane type switches which when depressed generate a signal that the microprocessor will interpret and act upon. The switches are labeled and have specific functions. They are divided into 2 groups:

## Device Control Group:

- Jet I 
- Jet II 
- Aux 
- Light 

## Status Control Group:

- Up 
- Down 
- Set 

**Note:** If any of these buttons are pressed and held closed for longer than 20 seconds, that button will be disabled and becomes non-functional. After releasing the button, it will be reactivated after 20 seconds. This is to prevent a collapsed or defective key from locking up the system.




# PM7000 Top Side Control Panel





Figure g – PM7000 Top Side Control

Within the panel housing is a 4-digit LED display used to communicate to the user the spa temperature, time, elapsed user time, programming, status – diagnostics, error codes and messages. The spa side controls are interchangeable (all functions can be done from either spa side control). The spa side controls have 6 membrane type switches which when depressed generate a signal that the microprocessor will interpret and act upon. The switches are labeled and have specific functions. They are divided into 2 groups:

## Device Control Group:

- Pump I 
- Aux 
- Spa Light 

## Status Control Group:

- Up 
- Down 
- Set 

**Note:** If any of these buttons are pressed and held closed for longer than 20 seconds, that button will be disabled and becomes non-functional. After releasing the button, it will be reactivated after 20 seconds. This is to prevent a collapsed or defective key from locking up the system.





# PM3002 Top Side Control Panel






Figure h – PM3002 Top Side Control

Within the panel housing is a 4-digit LED display used to communicate to the user the spa temperature, time, elapsed user time, programming, status – diagnostics, error codes and messages. The spa side controls are interchangeable (all functions can be done from either spa side control). The spa side controls have 7 membrane type switches which when depressed generate a signal that the microprocessor will interpret and act upon. The switches are labeled and have specific functions. They are divided into 2 groups:

## Device Control Group:

- Pump I 
- Pump II/III 
- Pump IV 
- Spa Light 

## Status Control Group:

- Up 
- Down 
- Set 

**Note:** If any of these buttons are pressed and held closed for longer than 20 seconds, that button will be disabled and becomes non-functional. After releasing the button, it will be reactivated after 20 seconds. This is to prevent a collapsed or defective key from locking up the system.




# HL2000 Top Side Control Panel



Figure i – HL2000 Top Side Control

Within the panel housing is a 4-digit LED display used to communicate to the user the spa temperature, time, elapsed user time, programming, status – diagnostics, error codes and messages. The spa side controls are interchangeable (all functions can be done from either spa side control). The spa side controls have 6 membrane type switches which when depressed generate a signal that the microprocessor will interpret and act upon. The switches are labeled and have specific functions. They are divided into 2 groups:

## Device Control Group:

- Pump I 
- Pump II 
- Spa Light 

## Status Control Group:

- Up 
- Down 
- Set 

**Note:** If any of these buttons are pressed and held closed for longer than 20 seconds, that button will be disabled and becomes non-functional. After releasing the button, it will be reactivated after 20 seconds. This is to prevent a collapsed or defective key from locking up the system.




# MN2000 Top Side Control Panel



Figure j – HL2000 Top Side Control

Within the panel housing is a 4-digit LED display used to communicate to the user the spa temperature, time, elapsed user time, programming, status – diagnostics, error codes and messages. The spa side controls are interchangeable (all functions can be done from either spa side control). The spa side controls have 6 membrane type switches which when depressed generate a signal that the microprocessor will interpret and act upon. The switches are labeled and have specific functions. They are divided into 2 groups:

## Device Control Group:

- Pump I 
- Pump II 
- Spa Light 

## Status Control Group:

- Up 
- Down 
- Set 

**Note:** If any of these buttons are pressed and held closed for longer than 20 seconds, that button will be disabled and becomes non-functional. After releasing the button, it will be reactivated after 20 seconds. This is to prevent a collapsed or defective key from locking up the system.

# PM6000 Top Side Control Panel

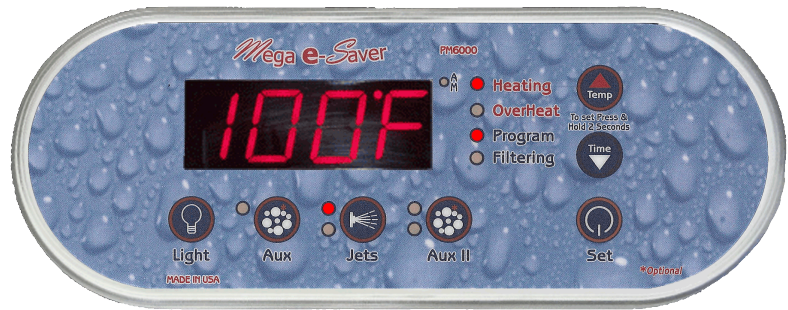






Figure k – PM6000 Top Side Control

Within the panel housing is a 4-digit LED display used to communicate to the user the spa temperature, time, elapsed user time, programming, status – diagnostics, error codes and messages. The spa side controls are interchangeable (all functions can be done from either spa side control). The spa side controls have 7 membrane type switches which when depressed generate a signal that the microprocessor will interpret and act upon. The switches are labeled and have specific functions. They are divided into 2 groups:

## Device Control Group:

- Pump I 
- Pump II/III  Aux II button
- Pump IV  Aux button
- Spa Light 

## Status Control Group:

- Up 
- Down 
- Set 





**Note:** If any of these buttons are pressed and held closed for longer than 20 seconds, that button will be disabled and becomes non-functional. After releasing the button, it will be reactivated after 20 seconds. This is to prevent a collapsed or defective key from locking up the system.

# In a Hurry – Read This!


For those who don't like to read manuals or would like to read the manual later, please read at least the following section.

**Your control system comes to you programmed with a universal set of default settings. If you choose to keep these settings, then you only need to remember two things: how to set the spa temperature and to press the SET key whenever you are done using the spa.**

## Setting Temperature

- ◆ Press and hold  for 2 seconds, then release. The display will flash the current selected temperature.
- ◆ Using  or  scroll to the desired temperature.
- ◆ Press  to lock in the new selection.

## The SET Key

After using the spa, press  to tell the control you are done using the spa. Upon entering this mode, the FILTER light is turned on, "FILE" will appear on the display, and a post use filtration cycle is executed – that is when the spa needs filtration the most. When this is done, the control will return to the spa's management mode including the different filtration cycles, heat maintenance, economy modes and protection against freezing.

The default system setting includes a 3-hour economy cycle mode; "ECON" will appear on the display; the pump will come on at most once every 3 hours to sample water temperature through the temperature sensors and heat if necessary.

The default system setting also includes an auto-filtration cycle. From the time the spa control is powered on, or the last use, the control will wait for 21 hours and then run a 3-hour filtration cycle to ensure that filtration happens once every 24 hours. If you program filtration cycles, the auto-filtration is disabled.

The rest of this manual will explain the function of each of the buttons on the control panel, how to change programmed settings and what each setting does. It will also explain all the error messages that you may encounter, and their significance and ways to correct them.











## Time of Day

The control system maintains a 12-hour AM/PM internal real-time clock. The clock is based on the line frequency. There is no battery backup and whenever the power is turned off, the time is no longer correct. It defaults to 12:00 AM whenever the power is turned on.

Setting the time is only necessary if you are going to program the filtration and silence cycles. If you use the factory default settings, then you do not need to set the time.

If you set time, the controller will display time the first 10 seconds of each minute. If time has not been set, then it will not be displayed.

### Setting the Time of Day

1. Press and hold  for 2 seconds. Current time will be displayed with the hour portion flashing.
2. Release .
3. Using  or  to scroll up and down to the desired hour. Notice the AM led lights to indicate AM hours.
4. When the correct hour and AM/PM are displayed, press  to lock in the new hour.
5. The display will now flash the minutes.
6. Using  or  to scroll to the desired minutes.
7. When the correct minutes are displayed press  to lock in the minutes. This sets the time of day.

**Note:** Time is the only parameter in your control system that is not preserved on power down. On power up it will default to 12:00 AM, all other parameters are restored to their last setting.

Every time the controller is powered up, the microprocessor automatically measures and determines the line frequency is 50 or 60 cycles to maintain the correct time.

# Using the Top Side Control

## Device Control Group

There are up to 4 device keys, JETS, AIR, AUX, & LIGHT. Your spa will have at least one water pump. Optionally your spa may have an air blower, a second and/or third pump and a spa light. It may not also have a mister or a fiber optic light setup. If your spa does not have a specific device, please disregard the function of that device.

### Primary Water Pump



Each spa should have at least one primary water pump which is usually a dual speed pump. The low speed is used to filter the spa. Also, while the spa is being heated or there is an error condition, the low speed circulates the water and you will not be able to turn it off.

The JETS key (switch) on the control panel is a 3-position switch: Low Pump, High Pump, Off. Each time the key is pressed, the next function is executed. If your primary pump is a single speed, then only the high pump will be activated. Two (2) LED indicators, LO & HI inform you which speed is on.

**Note:** If your spa is equipped with a circulating pump, it will be used for filtration and heating instead of the low speed pump.

### Air Blower



If your spa is equipped with an air blower (bubbler), it is activated by the AIR key. This is an ON/OFF key. An LED will indicate when the air blower is on.

### Auxiliary Pump(s)



Your spa may be equipped with 1 or 2 more pumps. If you have a second pump, it could be a single speed or a dual speed.

If you have a third pump, then both the second and third pumps must be single speed. The function of the AUX key changes with the number and type of auxiliary pumps used. Please consult with the table on the following page for the proper sequence of activation.

### Spa Light



The LIGHT key can also be a multifunction key. In its simplest configuration, the LIGHT key is a simple on/off switch. It turns the spa light and the

accessory, if one is attached, on/off together at the same time. Alternatively, the LIGHT key may be programmed as a 3-function key. Pressing it once will turn the spa light on. Pressing it a second time will turn on the attached accessory, while the light is still on. Press it a third time and both the spa light a accessory will go off.

Table 1 summarizes all the possible device key combinations. Please note that your spa may not necessarily have all these devices attached.

### Summary of Device Control Key Functions

SUMMARY OF FUNCTIONS FOR EACH DEVICE					
Key	Device	1	2	3	4
	Single speed pump	ON	OFF		
<b>JETS</b>	Dual speed pump	LOW	HIGH	OFF	
	Dual speed with Circ pump	LOW	HIGH	OFF	
	Circ pump is independent				
<b>AIR</b>	Single speed air blower	ON	OFF		
	One single Speed pump	ON	OFF		
<b>AUX</b>	One dual speed pump	LOW	HIGH	OFF	
	Two Single speed pumps	P1	P1&P2	P2	ALL OFF
<b>LITE</b>	Spa light	ON	OFF		
	Spa Light & Accessory	Both	Both		
		ON	OFF		
	Spa Light & Accessory	Light	Both	Both	
	3 Function	ON	ON	OFF	

Table 1 - Device keys summary of functions

The four device keys, JETS, AIR, AUX and LITE are exclusive, when one is pressed, no other key may be pressed simultaneously. You must release the pressed key before you may press another key. Also, these keys do not repeat.

If you press and hold a key for more than 20 seconds that key will be considered defective (collapsed) and will be deactivated and ignored by the system. When released, the key will stay inactive for 20 seconds before it is recognized and activated.

## Status Control Group

The keys in this group are used to communicate to the controller system settings and option selection(s). There are 3 keys in this group and 3 functions that are combinations of these keys:

Key Press	Function
TEMP (up arrow)	Prog Temp, + or Next
TIME (down arrow)	Prog TOD, - or Previous
SET key.	Select or Accept, Enter
SET & TEMP	Invert display
SET & TIME	Parameter programming
TEMP & TIME	System programming

Table 2 – Status Control Keys Summary

**TEMP** key, which is also the UP-ARROW key, is a repeat key, if held down. Think of this key as “+ or next”. Use it to:

- ◆ Press and hold for 2 seconds then release it to start desired temperature selection.
- ◆ During temperature setting press TEMP to increase selected temperature.
- ◆ When doing system programming, press TEMP to scroll to the next message.
- ◆ After message selection, the system displays the associated value, press TEMP to increase the value.

**NOTE:** When the display is inverted, you will be able to read the display from inside the spa. However, the keys will retain their functions and will not be inverted. The UP-ARROW will still function as the UP-ARROW even though when you look at it from within the spa it appears to be the DOWN-ARROW. The same also applies to the rest of the keys.

**TIME** key, which is also the DOWN ARROW key, is also a repeat key. Think of it as “- or previous”. Use it to:

- ◆ Press and hold for 2 seconds then release it to start setting the real-time clock (TOD).
- ◆ During time setting press TIME to decrease the hours or minutes value that is being set.
- ◆ When doing system programming, press TIME to scroll to the previous message.
- ◆ After selecting a message, the system displays the associated value, press TIME to decrease the value.

**SET** key, equivalent to Select or Accept. It functions as an Enter key of a personal computer; it is the proverbial “hit any key to continue”. Press the Set key to:

- ◆ After using the spa, press the SET key to tell the controller to take over the management of the spa.
- ◆ During temperature setting, press the SET key to lock in a new selected temperature.
- ◆ During time of day programming, press the SET key to lock in the hour and the minutes.
- ◆ When a message is displayed during parameter programming, press SET to select that message.
- ◆ When a parameter value is displayed, press SET to accept the displayed value and return to message display.
- ◆ During option programming, press SET to toggle a parameter ON or OFF.
- ◆ When a “HLoH” error message is displayed, press the SET key to clear the error (if the cause has been corrected). Pressing the SET key, the user acknowledges that the cause of the hi limit error has been or will be corrected.

**NOTE:** UP is same key as TEMP and DOWN is the same key as TIME. These are used interchangeably and mean the same thing. Scrolling means pushing either the UP or the DOWN key to go to the next or previous item or value.

# Programming the Top Side Control

**Parameter Programming** is a means by which the spa owner/user can change the various timing elements and calibrate temperature. The process is simple and intuitive. Only 3 keys are used; UP, DOWN, and SET. To program one or more parameters, follow this outlined procedure:

1. Press the SET and DOWN keys together. The first message in the menu, FP1 will be displayed.
2. Use the UP or DOWN keys to scroll through the messages in the menu.
3. Press the SET key to display the current value associated with the current message.
4. Use the UP or DOWN keys to increase or decrease the value.
5. Press SET to lock in the new value and return to the menu.
6. If another item needs programming, go to number 2 above.
7. To save changes, scroll to message SEND and press SET.
8. To discard changes and restore previous values, scroll to message CANC and press SET.

The menu of parameters is circular. Scrolling is from first to last or from last to first.

When in programming mode, please note that this mode will be cancelled if there is no key activity for a period of 60 consecutive seconds. Programming mode is aborted and all changes will be restored to previous values.

On the following page is an example of how to program a filtration period. When in programming mode you may program as many parameters as needed.

**Example: Program filtration period 2 to start at 5:45 PM.**

<b>Press</b>	<b>Display</b>	<b>Explanation</b>
SET & DOWN	FP1	Start programming the display, first message is Filtration Period 1.
UP	FP2	Scroll up to Filtration Period 2.
SET	12:00	Select FP2. The display shows the current FP2 start time with the hour portion flashing.
UP	1:00	Increase the hour value by 1.
UP	5:00	Press UP key 4 more times or press and hold for auto repeat.
SET	5:00	The hour is set, the minute portion flashes.
DOWN	5:45	Press UP 15 times or press and hold for auto repeat.
SET	FP2	FP2 set to 5:45 PM and the current message is displayed again.
DOWN	FP1	Scroll to previous message.
DOWN	CANC	Previous message – if you press SET when CANC is displayed, all changes will be discarded.
DOWN	SEND	Previous – save changes.
SET	Temp	Changes saved. Exit programming mode. Display current spa temperature, time or operating message.

The table on the following pages is a list of all menu items, their minimum, default, and maximum values, and an explanation of the function of each parameter.

**Note:** Time parameters have two components, the hours and the minutes. When programming a time element, first the hour portion is programmed (flashing). When the hours are set press the SET key to program the minute’s portion.

## Parameter Menu Lists

Msg	Min	Def	Max	Detail
FP1		12:00		Start time of filtration period 1.
FP2		12:00		Start time of filtration period 2.
FP3		12:00		Start time of filtration period 3.
FP4		12:00		Start time of filtration period 4.
<p><b>Note:</b> If filtration periods overlap, the most recent period (last) is in effect.</p>				
SIL		12:00		Start time of silent period. This is a period during which nothing will run. It overrides all filtration, the economy cycle, and temperature sampling. Except if temperature drops more than 15°F below the set temperature, a freeze guard will override the silent mode and command the pump to circulate water through the heater manifold. A spa may be installed near a bedroom and need not come on at specific times, for example between midnight and 7 in the morning.
FP1d	0	0	240	Duration in minutes FP1 timer will run.
FP2d	0	0	240	Duration in minutes FP2 timer will run.
FP3d	0	0	240	Duration in minutes FP3 timer will run.
FP4d	0	0	240	Duration in minutes FP4 timer will run.
SILd	0	0	12	Duration in hours the Silence Timer runs. Only a user may override the silence timer.

**Note:** Keep the value of any timer to 0 to keep it from running. Filtration timers must be programmed first one first. If the FP1d (first) timer has duration of 0, Auto Filtration will be in effect and all 4-programmed timers will be disabled.



<b>Msg</b>	<b>Min</b>	<b>Def</b>	<b>Max</b>	<b>Detail</b>
CLDN	30	60	180	Cool Down Cycle (in seconds). Whenever the heater is turned OFF, the pump keeps running the extra seconds to even the temperature of the heater element and the surrounding water to prevent scale buildup and premature heater failure.
ECL	60	180	240	Economy Cycle Length (in minutes). Time in minutes to specify the intervals between spa temperatures sampling when the spa is not in use. During this period, the spa is in sleep mode. The low speed pump may turn on to prevent the pipes from freezing. Temperature is sampled at the end of the period.
CHCL	0	60	180	Channel Clear (in seconds). Time in seconds to clear the air channel and the secondary pump(s) plumbing if the spa has not been used for a period of 24 hours. This prevents water stagnation in the plumbing.
UTO	10	20	60	User Time Out (in minutes). The time in minutes from starting any device, after which all devices will be turned OFF, and the spa put into "not in use mode". If you should leave the spa with a pump running, it will be turned off after the specified time.
PUF	30	60	180	Post Use Filtration (in minutes). Time in minutes to perform Post Use Filtration. This is the optimal time to filter the spa. When bathers have finished using the spa that is when it needs filtration the most. Press the SET key to turn everything OFF and start this cycle. It is in addition to the standard filtration cycles. Pressing any other key will cancel this function.

<b>Msg</b>	<b>Min</b>	<b>Def</b>	<b>Max</b>	<b>Detail</b>
CALB	198	208	218	<p>This is not a time element, it is one of the distinctive features of the control systems. The number is internal and is indicative of what the processor sees as temperature. It is used to calibrate the temperature reading. Turn the pump "ON" for 15 minutes. Install a known calibrated thermometer next to our sensor. Wait 1 or 2 minutes. Compare temperature readings from your known thermometer and our sensor's displayed reading.</p> <p>The total range of this parameter is 5°F. Before doing a calibration please read the warning note at the bottom of the page.</p>

**CALB examples:** To calibrate the temperature so it feels **3°F higher**, do the following: Press the Down Arrow AND Set simultaneously. Scroll down to "CALB" press Set. Using the Up Arrow increase the number by 6 counts (from 208 to 214).

To calibrate the temperature so it feels **3°F lower**, do the following: Press the Down Arrow AND Set simultaneously. Scroll down to "CALB" press Set. Using the Down Arrow, decrease the number by 6 counts (from 208 to 202).

SEND	<p>This menu message has no numerical value.</p> <p>Pressing SET while it is displayed records and saves all changes made to all parameters.</p>
------	--

CANC	<p>This menu message has no numerical value.</p> <p>Pressing SET while it is displayed discards all changes made to all parameters.</p>
------	---

## **WARNING**

The recommended maximum temperature of a spa is 104°F. The absolute maximum beyond which no one should ever be exposed is 108°F. When you calibrate the spa temperature you are doing so at your own risk. Obtain an accurate medical thermometer to check against. Please contact Acura Spa Systems, Inc. for proper procedure or if you do not feel confident.

## Programming System Options

Systems Options Programming is a means of setting the various system options. The U and P options are of the ON/OFF or 1/0 type; the option is either 1 or ON or it is 0 or OFF. The D options can only be displayed and may not be changed by the user. To initiate options programming, press the UP and DOWN arrows together. There are 3 groups of 8 options each:

User Options	U1 to U8
Protected Options	P1 to P8
Diagnostics	D1 to D8

When programming groups 1 and 2 (U and P options), either the letter U or the letter P is displayed followed by a number (1 to 8), a space and the number 1 if the option is ON or 0 if the option is OFF. For example, if the third user option was OFF the letters U3 0 will be displayed. If it was ON the display will read U3 1.

Use the scroll buttons (UP and DOWN) to navigate through the different options. Press the SET key to toggle a displayed option's status from 0 to 1 or vice versa. Go to SEND and press SET to save changes. Alternatively, go to CANC and press SET to discard all changes and restore previous settings.

The Diagnostics are not options, but rather they display internal values that are indicative of the internal state of the processor. They are useful for a serviceman or a technician to pinpoint hardware problems and error conditions.

The following tables list the User Options and the Protected Options and their significance when they are ON and OFF.

## User Options

- U1 0 = Economy mode is ON. In this mode, water temperature is sampled every 3 hours or whatever ECL is set to. If the spa is being used, the economy mode is OFF.  
1 = Auto Maintenance is ON. Temperature is sampled and acted upon continuously.
- U2 0 = Low pump on demand. The low pump will come on to sample the temperature, heat or filter the spa as needed.  
1 = The low pump runs all the time.
- U3 0 = Auto Filtration is one 3 hour long period. The length of this period is fixed and cannot be changed. It is the minimum recommended filtration time for a spa.  
1 = Auto Filtration is two periods each 3 hours long. The second period starts 12 hours after the first period is executed.
- U4 0 = User timer starts with the first key pressed and shuts the spa off at the end of countdown.  
1 = The user timer is restarted every time a key is pressed.
- U5 0 = Display TOD, time of day the first 10 seconds of every minute, if the time of day has been set.  
1 = Do NOT display TOD. If TOD was not set by the user then it most probably is incorrect and the controller will not display it even if U5 is 0.
- U6 0 = If line frequency is 60hz, then display temperature in Fahrenheit. If 50hz then display Centigrade.  
1 = If line frequency is 60hz, then display temperature in Centigrade. If 50hz then display Fahrenheit.
- U7 RESERVED, do not change. Leave set to 0.
- U8 RESERVED, do not change. Leave set to 0.

The default setting for all U options is 0.

## Protected Options (for Spa Technicians only)

**Warning: Changing any of the protected options may be dangerous and can result in injury. It can also damage the spa and its equipment as well. Changes made by the user are at his/her own risk. All liability rests with the person doing the changes. Only trained service personnel should make changes. If unsure, please contact Acura Spa Systems, Inc.**

- P1 0 = There is no additional circulating pump. The primary pump is usually 2-speed.  
The low speed is the filtering and heating pump.  
1 = A circulating pump is attached to the system.
- P2 0 = The primary pump is a 2-speed pump.  
1 = The primary pump is a single speed pump.  
**Note:** The circulating pump is always attached through the heater. All filtration and heating is done with the circulating pump when one is attached to the system.
- P3 0 = The system has high amps available.  
1 = The system is only capable of 20 or 30 amps (low power). In this mode the heater can only operate with the low or circulating pump. It is disabled with all other selections.
- P4 0 = The LITE key operates as an ON/OFF switch. The light relay and the accessory relay (if installed) operate together.  
1 = The LITE key is a 3-function key.
  - Press once, the spa light is turned ON.
  - Press again, both spa light is ON and accessory is ON.
  - Press a third time for both functions to turn OFF.
- P5 0 = 60Hz. The incoming power is 60Hz.  
1 = 50Hz. The incoming power is 50Hz.  
**Note:** If you are running on 50Hz incoming power, make sure that P5 is set to 1.
- P6 0 = Air blower is enabled. The AIR key is active.  
1 = Air blower is disabled. The AIR key is deactivated.
- P7 0 = Secondary pump is a single speed pump.  
1 = Secondary pump is a dual speed pump.
- P8 0 = There is only one secondary pump.  
1 = There are two secondary pumps.  
**Note:** If P8 is ON, then both secondary pumps must be single speed.

**Warning: An improper setting of P7 and P8 can result in damage or even destroyed pump motors. It can also cause the controller's printed circuit board to catch fire. Only trained service personnel should carry out changes. If unsure, please contact Acura Spa Systems, Inc.**

## Diagnostic Values

For Spa Technicians only: The D options are internal values and may not be changed from the control panel. When a D message is displayed, press the SET key to see what the associated value is. Here is a brief explanation:

- D1 What the microprocessor is reading as relative temperature.
- D2 What the microprocessor is reading from the keys.
- D3 What the microprocessor is sending to the relays.
- D4 Accumulated count of temperature errors encountered.
- D5 Accumulated count of hi limit errors encountered.
- D6 Accumulated count of heartbeat errors encountered.
- D7 The firmware revision number.
- D8 The manufacturing year and week in the form yyww.

# ERROR MESSAGES

There are 8 error messages that the digital controls may display. Here is a list of these messages and what they indicate:

**A CoLD** Temperature in the spa heater housing is below 40° Fahrenheit. Because spa temperature should never get this low, the status of the heater element is unknown. Therefore, the low speed or circulation pump may run continuously until temperature rises above 45°F. A spa should not be filled with water below 40°F. Please note that a running pump can heat the spa at approximately ½°F per hour. During this error condition, the spa is functional except for the heater.

**B OH** Over Heat. The spa is at a temperature that is above 108°F. Control will not accept temperature setting above 104°F. If for some reason, the spa temperature rises over the maximum level, the controller will display a flashing 105°F to 108°F. If temperature goes past 108°F then the OH message will be displayed instead of temperature. The spa is still operational but hotter than any person should be subjected to. Please do not use your spa when the temperature is flashing or the OH message is displayed.

In the summer and especially in warm regions, ambient temperature may be high enough to overheat the spa naturally. Spas are usually well insulated and can store a lot of heat in the equipment compartment.

**C HLEr** Hi Limit Over Heat. Digital controls have a backup water temperature sensor called the Hi Limit. If the sensor is disconnected or shorted, or if the spa temperature should reach above 112°F, the Hi Limit protection circuitry will force all spa functions OFF and will flash the HLEr message on the display. It is not possible to use the spa when this error is active. Once the displayed temperature goes down to 104°F press the SET key to acknowledge that you are aware of the error condition and should have the proper repairs done. If the temperature is below 104°F and HLEr stays on the display, you may need to change the sensor, or very rarely, the PC Board.

**NOTE:** During the heating cycle the pump must be "ON" (circulating water) to cool the heater. Sometimes during the heating cycle the pump motor stops (tripping thermo overload). By the time the spa control stops the heater, residual heat in the heater manifold may rise above 112°F (44.4°C). In this situation, the controller will shut the power OFF to all circuits and will display "HLEr". When this happens, you need to check your pump motor. All motors are equipped with an auto reset thermo overload that will reset itself after the motor cools down.

**D**    **SEoP** Sensor Open. Sensor Open or disconnected and the controller cannot determine the spa temperature. The heater is disabled but the spa is operational. The sensor must be replaced or reconnected for this message to go away.

**E**    **SESH Sensor Short.** The sensor is shorted and is non-functional. Temperature cannot be determined, the heater is disabled, but the spa is still operational. Sensor must be replaced for this message to go away.

**F**    **PSoC, PSoL, PSoH** fluid Switch Open with Circulating, Low or High Pump(s). The switch is not closing because of insufficient water going through the heater.

**Solutions:**

- F-1 Make sure the pump motor is "ON."
- F-2 Make sure the pump is primed and pumping water through the heater at 1.5 psi or higher pressure.
- F-3 If the pump is not "ON," check for proper voltage going from the control box to the motor.
- F-4 If the proper voltage is present at the motor and the motor is not running, change the motor.
- F-5 Check the incoming voltage to the control box at the main power Terminal block.
- F-6 If no voltage is going to the motor from the control box outlet when the pump switch is on, then the problem is in the control box. The PC board may need to be replaced.
- F-7 The fluid switch may be out of adjustment. Adjusting the pressure switch is best left to a trained technician. Rotating the knob counter-clockwise will reduce the pressure required to close the switch.
- F-8 The pressure switch may be bad. Replace the pressure switch.

**G**    **CboH** Control Box Overheat. Summer temperatures and a well-insulated spa can cause the ambient temperature in the control box to rise, more so if one or more pumps are running. This error code indicates that the ambient temperature inside the control box is over 115°F and the spa water temperature may not be accurately measured. To eliminate this error, turn the spa off for a time and/or vent the equipment compartment.

**H**    **ToE** Time Out Error. It is not likely that you will ever see this error, it indicates that the system's heartbeat is out of control. All devices will be shut down and the spa is unusable. This message will rarely ever occur, but if it does, the PC Board must be replaced.



# Megatrol™ Indicator Lights

## Megatrol™ Indicator Lights

- A = 120V Power Supply to Terminal Block (L1, N)
  - B = 240V Power Supply to Terminal Block (L1, L2)
  
  - C = Low Pump "ON"
  - D = High Pump "ON"
  - E\* = 2<sup>nd</sup> Pump High "ON"
  - F\* = 3<sup>rd</sup> Pump High "ON" OR 2<sup>nd</sup> Pump Low "ON"
  - G\* = 4<sup>th</sup> Pump High "ON"
  - H\* = Blower "ON"
  
  - I = Heater 1 "ON"
  - J\* = Heater 2 "ON"
- \* Optional Items

The indicator lights provided on the upper left side of the Megatrol™ series indicate the A/C Power supply to the control box as well as the A/C Power from the control box to the Pump(s), Heater(s), and Blower (if installed). The Indicator Lights are defined as:

- A 120V Power Supply to Terminal Block (L1, N)**  
Indicator light "A" is ON, 120 Volts is supplied to the Terminal Block.  
Indicator light "A" is OFF, 120 Volts **not** supplied to the Terminal Block.
  
- B 240V Power Supply to Terminal Block (L1, L2)**  
Indicator light "B" is ON, 240 Volts is supplied to the Terminal Block.  
Indicator light "B" is OFF, 240 Volts **not** supplied to the Terminal Block.
  
- C Low Pump Low Pump ON**  
Indicator light "C" is ON, voltage is measured on the control box receptacle between the white and red wires. If the pump is wired correctly, then the low speed pump is ON. If the low speed pump is not ON, then:
  - C1 The pump motor is bad.
  - C2 The motor has a tripped Thermo Overload due to high ambient temperature (higher than 122°F) in the equipment bay. The motor is overheating.
  - C3 Voltage drop below 216V may cause the motor to overheat. A marked 230V motor will not operate below 207V@60Hz. A marked 115V motor will not operate below 204V@60Hz.

Indicator Light "C" is OFF

C4 If indicator light "B" is ON and the low pump indicator on the Top Side Control is ON, then the PC Board relay is not engaging. Change the PC Board (removing the plastic cover on the relay may free a stuck relay switch).

## **D High Pump High Pump ON**

Indicator light "D" is ON, voltage is measured on the control box receptacle between the white and black wires. If the pump is wired correctly, then the high-speed pump is ON. If the high-speed pump is not ON, then:

D1 The pump motor is bad.

D2 The motor has a tripped Thermo Overload due to high ambient temperature (higher than 122°F) in the equipment bay. The motor is overheating.

D3 Voltage drop below 216V may cause the motor to overheat. A marked 230V motor will not operate below 207V@60Hz. A marked 115V motor will not operate below 204V@60Hz.

Indicator Light "D" is OFF

D4 If indicator light "B" is ON and the high pump indicator on the Top Side Control is ON, then the PC Board relay is not engaging. Change the PC Board (removing the plastic cover on the relay may free a stuck relay switch).

## **I Heater 1 Heater 1 ON**

Indicator light "I" is ON, there is voltage on the heater terminals. The heater should be heating unless the heating element is bad (to confirm a bad heating element, use an Amp meter and verify the amperage when indicator light "I" is ON).

Indicator Light "I" is OFF

If the heater indicator on the Top Side Control is ON and the Top Side Control LED is displaying "PSOL", "PSOH" or "PSOC", refer to section 17-F below.

## **E, F, G, H, J Pumps, Blower, Heater 2**

These are optional items and may or may not be installed in your spa. If any of these items are installed, then the appropriate indicator light(s) will be ON when there is power to that device. The troubleshooting above applies to these items also.

**Note: The indicator lights do not display power levels (such as 115V or 230V), they only indicate that voltage is ON to that circuit.**

# Electrical Connection Instructions

**Warning: Electricians must check for proper voltages before connecting incoming wires to the control's terminal block. Improper electrical connections will immediately damage or destroy components inside the control box and will void your warranty.**

**NOTICE:** All spa electrical wiring must be performed by a qualified licensed electrician and must meet all NEC (National Electric Code) and state and local codes and requirements.

## **DANGER – RISK OF ELECTRIC SHOCK**

1. The lines carrying power to the spa must be dedicated to the spa and should not be shared with any other appliance(s).
2. All electrical wiring lines must originate from the electrical panel and terminate, hard wired, into the electrical wiring compartment. The use of extension cord or plug type termination is expressly prohibited and voids the warranty.
3. Do not use aluminum wire. Use copper wire only.
4. Wire gauge must be in accordance with NEC requirements for the distance from current source to spa and the current rating as stated on the ID label that is attached to the control enclosure.
5. All wiring conduits must be done per National Electric Code and all local codes and regulations.

## GFCI Requirements

All spa installations must be protected by a GFCI. If your spa control box does not include an integrated GFCI, then you must use a GFCI breaker per National Electrical Code requirements. Carefully read and understand all GFCI instructions provided by GFCI manufacturer. Properly connect your electrical wires to the LINE side and LOAD side of the GFCI as marked on the GFCI.



**Common GFCI Wiring Mistake with a Neutral line on Incoming Power Supply:** On all digital controls with a neutral, in the hot tub industry, you may have a transformer (120V AC to 12V AC to 5V DC). The windings on the transformer reads a continuity of 30 Ohms between the Black (L1) and White (Neutral) wires; this is normal. The GFCI must be connected properly per the GFCI manufacturer's installation instructions. The GFCI installer must understand the difference between **Line** (incoming wire connections to the GFCI) and **Load** (outgoing wire connections from the GFCI to the spa control box). A common mistake GFCI installers do is wire the Neutral wires improperly by reversing the **Line** and **Load** connections to the GFCI. The **Line** Neutral wire must be connected to the Neutral Bar and the **Load** Neutral wire must be connected to the spa control box. Please make the proper electrical connections on your GFCI.

To prove that our control box is good (temporarily and for testing only), all you need to do is disconnect your GFCI from your electrical circuitry and connect directly to a regular breaker.

**Note:** If using a GFCI type breaker on 240 Volt 3-Wires the breaker's neutral (white) wire must not be used and should be capped with a wire nut.

## Circuit Breaker Requirements

<b>240 Volts</b>	4 Wires (L1, L2, N, G)	<b>30/50 Amp 2 Pole Breaker</b>
<b>240 Volts</b>	3 Wires (L1, L2, G)	<b>30/50 Amp 2 Pole Breaker</b>
<b>240 Volts</b>	4 Wires (L1, L2, N, G)	<b>20 Amp 2 Pole Breaker</b>
<b>240 Volts</b>	3 Wires (L1, L2, G)	<b>20 Amp 2 Pole Breaker</b>
<b>120 Volt</b>	3 Wires (L1, N, G)	<b>20 Amp 1 Pole Breaker</b>
<b>120 Volt</b>	3 Wires (L1, N, G)	<b>15 Amp 1 Pole Breaker</b>

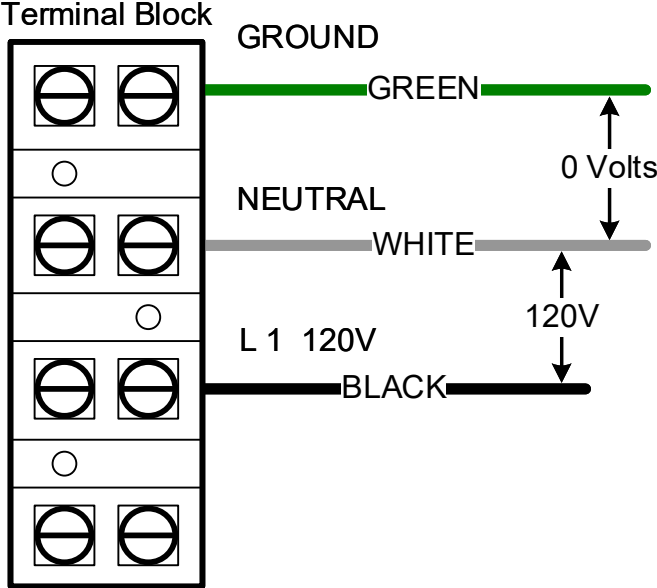
**CAUTION:** A new breaker must be used for a new spa installation. Do not use an existing breaker, as its condition is unknown. When sizing your breaker to your spa, multiply the maximum amp load your spa will use by 1.25.

**30/50 Amp Conversion at 240 Volts:** Some homes may have limited power service. It is possible to operate a 240 volt spa system using a 30 amp breaker. Connect 240 Volt power to the system as previously described, then set it to operate in the low power mode. To set the controller to operate in low power mode, you must set system option P3 to 1. Contact your local dealer about this conversion.

**Note:** Only experienced service personnel should perform conversions. Improper modifications may cause damage to the control system and/or the attached heater and pump motors.

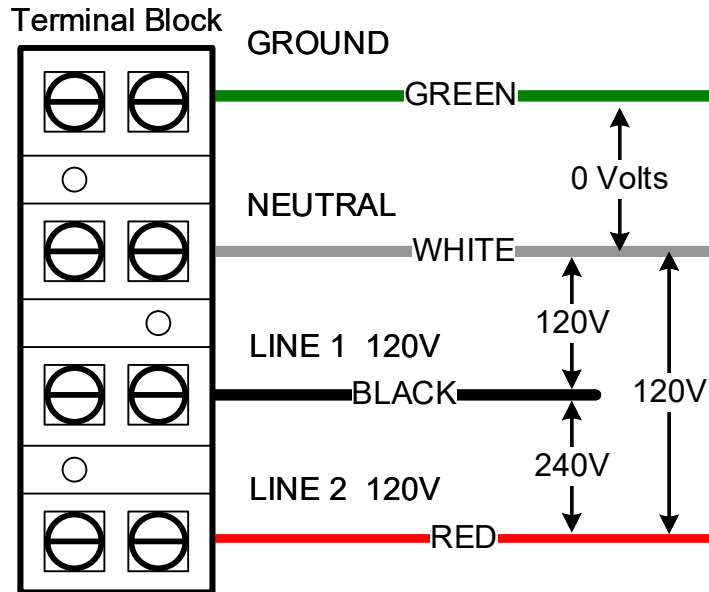
# Terminal Block Electrical Connections (120V)

## 120 Volt, 3 Wires

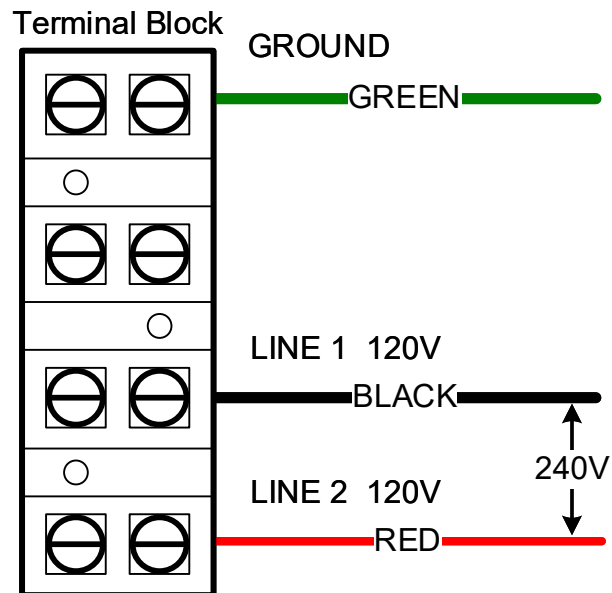


# Terminal Block Electrical Connections (240V)

## 240 Volt, 4 Wires



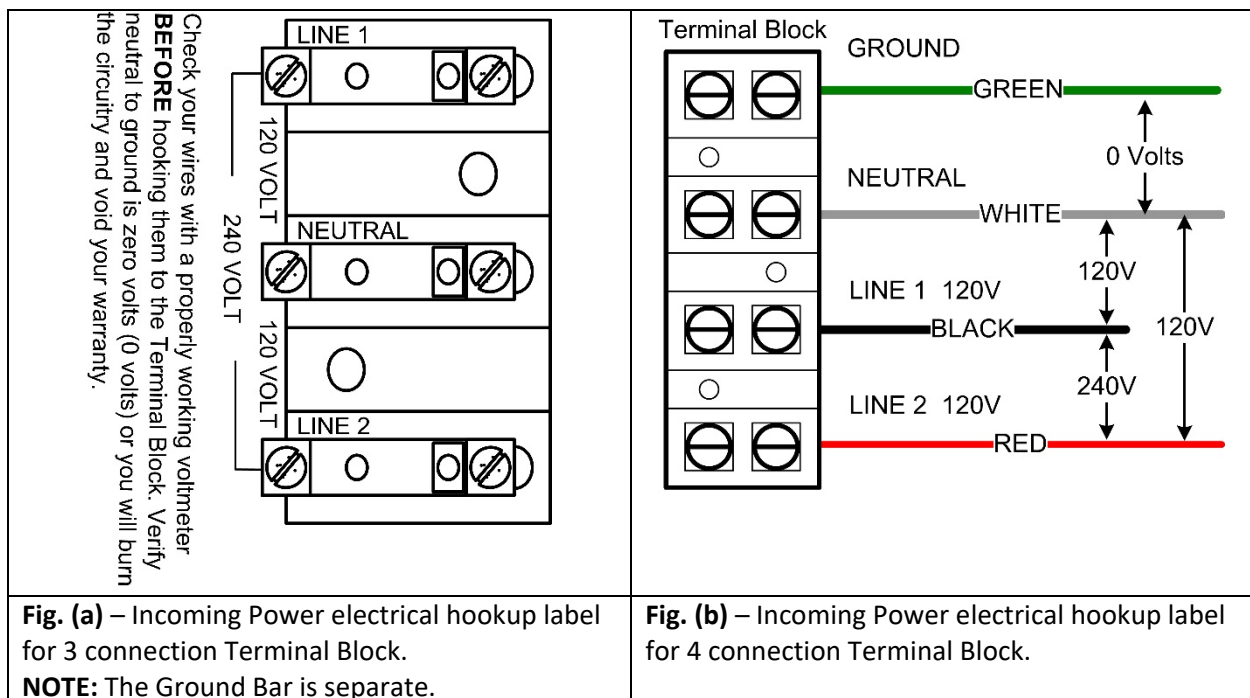
## 240 Volt, 3 Wires



# Connecting Incoming Power to Control Box

**Warning!** Read the following instructions **before** any electrical connection to control box.

- (1) All electrical work must be done by a licensed electrician.
- (2) Please provide licensed electrician's state license number.
- (3) Using a working voltmeter, test all incoming wires for proper Voltages before you hook them to main Power terminal block inside the control box. Your voltmeter should read the following:
  - a. L1 to N = 120 Volts
  - b. L2 to N = 120 Volts
  - c. L1 to L2 = 240 Volts
  - d. N to G = 0 Volts
- (4) Mark your wires:
  - a. L1 = Black
  - b. L2 = Red
  - c. Neutral = White
  - d. Ground = Green.
- (5) Install your wires to match ours; L1, L2, N and Ground (see Figs. (a) below). Firmly tighten the screws to prevent electrical vibration. NOTE: For units without Neutral you hook up L1, L2 and ground only.
- (6) All spas and hot tubs must be protected by GFCI as required per NEC and UL 1563. Read and understand the instructions provided by the GFCI manufacturer. Identify the lines and the loads of the GFCI (improperly connected, your GFCI will short to ground). Make sure to connect only the loads from the GFCI to our control box.

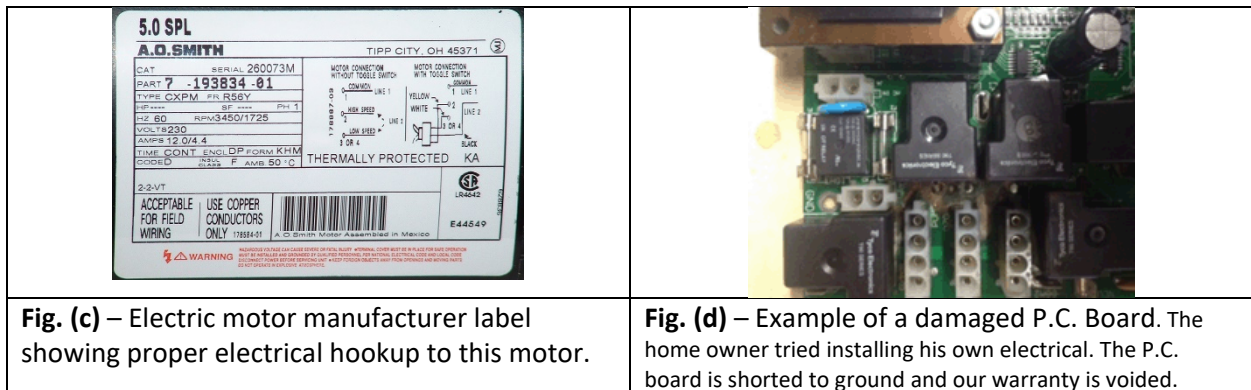










# Connecting Pump Motors to Control Box

**Warning!** Read the following instructions **before** any electrical connection to control box.

- (1) All electrical work must be done by a licensed electrician.
- (2) Please provide licensed electrician’s state license number if requesting warranty work.
- (3) Use only cords that you purchased from Acura Spa Systems, Inc.
- (4) Read the wiring diagram on the electrical pump motor. An example of this diagram is shown in Fig (b) below. Note that this diagram is on an A.O. Smith motor, other motors will have different, but similar labels. By law, ALL electric motor manufacturers MUST provide a wiring diagram on the motor.
- (5) Wiring the cord from our digital control to the pump motors:
  - a. Connect cord Black wire to terminal marked “High speed” on the motor.
  - b. Connect cord Red wire to terminal marked “Low speed” on the motor.
  - c. Connect cord White wire to terminal marked “Common” on the motor.
  - d. Connect cord Green wire to terminal marked “Ground” on the motor.


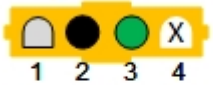



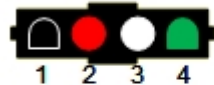



	<p><b>Pump 1</b> (White Receptacle)</p>  <p>1 2 3 4</p> <p>1 = White = Common 2 = Black = High Speed 3 = Green = Ground 4 = Red = Low Speed</p>	<p><b>Pump 2</b> (Yellow Receptacle)</p>  <p>1 2 3 4</p> <p>1 = White = Common 2 = Black = High Speed 3 = Green = Ground 4 = Red = Low Speed</p>
<p><b>Fig. (e)</b> – USC (left) and Megatrol (right) pump and accessory connections. Verify wiring in connector plug BEFORE connecting properly colored connector to pump plug.</p>	<p><b>Fig. (f)</b> – Pump 1 Connection.</p>	<p><b>Fig. (g)</b> – Pump 2 Connection.</p>
<p><b>Pump 3</b> (Red Receptacle)</p>  <p>1 2 3 4</p> <p>1 = White = Common 2 = Black = High Speed 3 = Green = Ground ⊗ 4 = No Connection</p>	<p><b>Pump 4</b> (Orange Receptacle)</p>  <p>1 2 3 4</p> <p>1 = White = Common 2 = Black = High Speed 3 = Green = Ground ⊗ 4 = No Connection</p>	<p><b>Circ Pump</b> (Black Receptacle)</p>  <p>1 2 3 4</p> <p>1 = White = Common 2 = Black = Low Speed 3 = Green = Ground ⊗ 4 = N/C = No Connection</p>
<p><b>Fig. (h)</b> – Pump 3 Connection.</p>	<p><b>Fig. (i)</b> – Pump 4 Connection.</p>	<p><b>Fig. (j)</b> – Circulating Pump Connection.</p>

# Connecting Other Accessories to Control Box

**Warning!** Read the following instructions **before** any electrical connection to control box.

- (1) All electrical work must be done by a licensed electrician.
- (2) Please provide licensed electrician's state license number if requesting warranty work.
- (3) Use only cords that you purchased from Acura Spa Systems, Inc.
- (4) Wiring cords from our digital control to accessories, follow the wiring charts below.

	<p style="text-align: center;">Air/Blower (Orange Receptacle)</p>  <p style="text-align: center;">1 2 3 4</p> <p>1 = White = Common 2 = Black = Line 3 = Green = Ground ⓧ 4 = No Connection</p>	<p style="text-align: center;">Sanitizer (Blue Receptacle)</p>  <p style="text-align: center;">1 2 3 4</p> <p>1 = White = Common 2 = Black = Line 3 = Green = Ground ⓧ 4 = No Connection</p>
<p><b>Fig. (k)</b> – USC (left) and Megatrol (right) pump and accessory connections. Verify wiring in connector plug BEFORE connecting properly colored connector to pump plug.</p>	<p><b>Fig. (l)</b> – Blower Connection.</p>	<p><b>Fig. (m)</b> – Sanitizer Connection.</p>
<p style="text-align: center;">Mister (Brown Receptacle)</p>  <p style="text-align: center;">1 2 3 4</p> <p>1 = White = Common 2 = Black = Hot 3 = Green = Ground ⓧ 4 = N/C = No Connection</p>	<p style="text-align: center;">Stereo (Green Receptacle)</p>  <p style="text-align: center;">1 2 3 4</p> <p>1 = White = Common 2 = Black = Line 3 = Green = Ground ⓧ 4 = No Connection</p>	<p style="text-align: center;">F1/F2/FB (Black Receptacle)</p>  <p style="text-align: center;">1 2 3 4</p> <p>1 = Black = Light 2 = Red = Color Wheel 3 = White = Common 4 = Green = Ground</p>
<p><b>Fig. (n)</b> – Mister Connection.</p>	<p><b>Fig. (o)</b> – Stereo Connection.</p>	<p><b>Fig. (p)</b> – Fiber Connection.</p>
<p style="text-align: center;">Light (12V)</p>  <p style="text-align: center;">1 2</p> <p>White OR Black</p>		
<p><b>Fig. (q)</b> – 12V Light.</p>		



# Terms & Conditions

Acura Spa Systems, Inc. is proud to present this online product catalog to you for your buying consideration. It contains new part numbers and precludes all previous catalogs or verbal terms of sale. Our extensive product line consists of spa pumps, spa equipment packs, spa digital controls, spa lights, spa electromechanical controls, spa air blowers, spa heated air blowers, spa unions, spa air buttons, spa neck massagers, spa foot massager, spa water jets, and spa vibrating jets.

## Terms:

- ◆ We only build to order. We ship as soon as possible. Usually production needs two working days.
- ◆ All sales are Cashier's Check, Certified Check, Money Order, Visa, Mastercard, Discover, and American Express.
- ◆ Once a credit card is provided for payment to Acura Spa Systems, Inc. the credit card holder has authorized the credit card provider (the bank) to pay Acura Spa Systems in full and waived any stop payments or charged back authorities.
- ◆ For credit card sales, complete your order online, or you may fax or mail our Credit Card Authorization Form.
- ◆ For expedited shipping (overnight, 2-day, 3-day, etc.), the additional shipping charges from FedEx will be added to your final invoice with the shipped product(s). The shipping costs are the standard published FedEx rates from Acura Spa Systems zip code (92509) to your zip code.
- ◆ No shipments will be made while an account is outstanding.
- ◆ All part sales are final. We only ship new parts.
- ◆ All returns are subject to a 50% restocking charge upon approval by Acura Spas management. No returns will be accepted for credit.
- ◆ Non-Sufficient Funds (NSF) checks are subject to a \$25.00 service fee.
- ◆ Uncleared NSF checks make open orders subject to immediate cancellation.
- ◆ All outstanding invoices are subject to a 2% monthly interest charge.
- ◆ All prices are subject to change without notice.
- ◆ All electrical work must be performed by a licensed electrician and meet UL 1563 and all local codes and regulations.
- ◆ All accessory cords (such as for pumps, lights, blowers, ozonators, stereos, fiber optics, mist pumps, etc.) are not provided unless ordered per Acura part number.
- ◆ All accessories must be externally grounded and bonded to your electrical control box using an 8-gauge solid copper wire by your licensed electrician. (to meet UL 1563 and NEC).
- ◆ All plumbing work must meet I.A.P.M.O., UL 1563, and all local codes and regulations and must be performed by a licensed plumbing contractor.
- ◆ Spa Dealer discounts are only available for stocking dealers of the Acura product they currently stock and sell upon approval by Acura Spa Systems management.
- ◆ Parts sold as DIY are not warranted by Acura Spa Systems.
- ◆ All electric motors are warranted solely by the motor manufacturers.
- ◆ Acura Spa Systems liability is limited to part replacement only.

## Ordering:

- ◆ Please use current part number and description when ordering.
- ◆ All telephone orders must be confirmed with a written purchase order.
- ◆ You may FAX your purchase order to (951) 684-6677 or E-mail to orders@acuraspa.com.
- ◆ To place orders for automatic shipment, please E-mail to orders@acuraspa.com.
- ◆ To check on status of orders placed, please E-mail to status@acuraspa.com.
- ◆ Be sure that all products and parts ordered will fit your application, Acura Spa Systems cannot be held responsible for parts and products ordered that will not work in your application.
- ◆ Any modifications to an open order is subject to an automatic \$45.00 processing fee that will be charged on your credit card.
- ◆ Any modifications to an open order requires a confirmation number from an Acura Spa Systems representative.

## Shipments:

- ◆ Acura Spa Systems is not a freight company or a delivery service. Purchaser may pick up their merchandise Will Call at our facility or we can contract a freight company to deliver the merchandise at the purchaser's risk(s). Once the freight company picks up products from Acura Spa System's facilities, all liability for the merchandise are the sole responsibility between the purchaser and the freight company.
- ◆ If purchaser does not choose 'Freight Insurance' Option when placing their order, the purchaser is accepting the shipping companies limited liability for items lost or damaged in shipment.
- ◆ If purchaser does not choose 'Delivery Signature' Option when placing their order, they are authorizing the shipping company to leave the items at the address specified solely at the purchaser's risk.
- ◆ All shipments are F.O.B. Riverside, California.
- ◆ Unless specified, all shipments will be delivered by the shipping carrier, no signature required. Additional charges are added on your invoice if delivery signature is required.
- ◆ We can only provide the shipping and handling (s&h) amount after your order has been processed and shipped.
- ◆ Be sure to include your email address, phone number, or fax number so that we can contact you after your order ships.
- ◆ Free Freight (when applicable) only for online orders Standard Ground shipping one-way in the USA (contiguous 48 states). Other forms of shipping incur additional shipping costs.
- ◆ A \$7 Handling charge is applied to all orders.

## **Claims:**

- ◆ All claims for lost or damaged freight must be made by the purchaser directly to the freight carrier within the freight carriers established time limit.
- ◆ Acura Spa Systems, Inc. is headquartered in Riverside, California. Any legal claims filed against Acura Spa Systems, Inc. or its officers must be filed in the district of Riverside California.

## **Returns:**

- ◆ We only build product to order.
- ◆ All returns are handled per our published limited warranty.
- ◆ All returned products require the electrician and/or plumbing contractor's proof of license that installed the products (proof includes their name, phone number, license number and licensing state), as well as a Returned Goods Authorization (RGA) Form before returning any product to Acura Spa Systems, Inc.
- ◆ All returned products must be shipped freight prepaid; no product will be accepted otherwise.
- ◆ All returns are subject to a 50% restocking charge upon approval by Acura Spas management. No returns will be accepted for credit.
- ◆ If a customer refuses delivery, the customer is solely responsible for all shipping, handling and processing fees and charges.
- ◆ No product may be returned after 30 days from date of invoice.
- ◆ Custom built products, such as spa controls, spa packs, pumps, heaters, and blowers, are non-refundable.
- ◆ Acura Spa Systems, Inc. solely will determine the salability of all returned goods.

## **Notes:**

- ◆ All electrical work must be performed by a licensed electrician and meet UL 1563 and all local codes and regulations.
- ◆ All plumbing work must meet I.A.P.M.O., UL 1563, and all local codes and regulations and must be performed by a licensed plumbing contractor.
- ◆ We reserve the right to refuse service to anyone.





# ACURA SPA SYSTEMS LIMITED WARRANTY

ACURA SPA SYSTEMS, INC. ♦ 2954 RUBIDOUX BLVD. ♦ RIVERSIDE, CA 92509 ♦ FAX: 951-684-6677

Acura Spa System Products are warranted to be free of defects in parts and workmanship at time of purchase by the original owner from Acura Spa Systems, Inc. If this product is found to have a manufacturing defect, Acura Spa Systems will repair or replace defective parts with new or remanufactured ones at our option at no charge to the original owner. For 18 months from date of original purchase or 2 years from date of manufacture (whichever occurs first). Blowers, Minitrol II Series Spa Controls and Top Side Controls are only warranted for 12 months from date of manufacture. Titanium Heaters for the Megatrol™ and Cosmoheat Titanium Heaters are warranted against corrosion for 5 years from date of manufacture. Pump motors are warranted by the motor manufacturer. Parts used for replacement are warranted for the REMAINDER of this original limited warranty period.

Acura Spa Systems will provide replacement of defective parts without charge, subject to the following conditions:

1. Owner must provide verification of the date of purchase when requesting limited warranty service (paid sales receipt required from Acura Spa Systems).
2. All repairs must be performed by an authorized Acura Spa Systems facility. If information is needed in obtaining the location of the nearest authorized service facility, please contact the service department of the factory. Acura Spa Systems does not warrant labor done outside of Acura Spa Systems facilities.
3. Units shipped to service facility must be in original shipping carton and/or properly packed to prevent damage, freight prepaid and fully insured. Acura Spa Systems will return units freight collect. Please include proof of purchase and description of problem with attached "Return Goods Authorization." Do not ship without paper "**Return Goods Authorization**". Please contact the factory to obtain your Return Goods Authorization number. Expenses of shipment and cost of repair of products to an authorized Acura Spa Systems service facility are the responsibility of the purchaser.
4. Installation and removal labor is the responsibility of the purchaser.
5. For warranty to be effective, a maintenance record of regular service must be provided.
6. Installer's electrical license number and city/county inspector's approval must be provided.
7. Installer is responsible for all damages done during or as a result of their installation.
8. Replacement parts are only warranted when installed at Acura Spa Systems facility.

## Warranty Limitations

Acura Spa Systems liability is limited only to part replacement. The Limited Warranty provided by Acura Spa Systems does not cover:

- A. Spa shell, spa skirt, modifications of original product or component not part of Acura Spa Systems products.
- B. Any defect, malfunction or failure caused by or resulting from improper service, maintenance, installation or water supply to pump, water chemistry, packaging for return or repairs made or attempted by other than Acura Spa Systems, neglect, accident or any other cause beyond the control of Acura Spa Systems.
- C. Rotating the pump housing from the original manufactured position will void the warranty.
- D. Accessory cords (such as for pumps, lights, blowers, ozonators, stereos, fiber optics, mist pumps, etc.) must be checked for proper electrical connections to their appropriate electrical control box receptacle. Improperly wired cords will damage electrical circuitry inside the control and will void warranties.
- E. Accessory cords improperly plugged in or plugged into the wrong electrical control box receptacle will damage electrical circuitry inside the control and will void warranties.

- F. Uncrating, set-up or installation, adjustment of customer operated controls.
- G. Any products with serial numbers altered or removed.
- H. Commercial or industrial uses.
- I. Accident or acts of God.
- J. In no event shall Acura Spa Systems be liable for loss of profits, indirect, consequential or incidental damages.
- K. Improper electrical installation.
- L. Damages caused by electrical power failure.
- M. Damages caused by freezing.
- N. Damages caused by water below 40°F (4°C).
- O. Damages caused by water above 122°F (50°C).
- P. Damages caused by exposure to heat over 122°F (50°C).
- Q. Water damaged digital top side controls or P.C. boards, improperly installed components, or water damaged components will void the warranty.
- R. Aquassage Boot is not warranted against discoloration, cracks, cuts, or misuse.
- S. Pump seals and O-Rings are only warranted for 90 days from the original date of purchase. Damage to Seals and O-Rings due to chemicals are not covered by this limited warranty. Running pumps with low water level or no water will damage the pump seals and impellers. Leaking seals may cause damage to electric motors and this is not covered under the warranty.
- T. Individually purchased parts and products that are not assembled by Acura Spa Systems, Inc. are not covered by this limited warranty.
- U. Dry fired heaters, chemically damaged heaters, and corroded heaters are not warranted. Chemicals with acid mordant substances are harmful to the heater's pump seals and other metal components and will void the warranty. Water damaged P.C. boards, improperly installed components, or water damaged components will void the warranty.
- V. All plastic components are warranted to be free from defects in manufacturing. Plastic components are not warranted for cracking, discoloration, fading, warping, or damage during use outside of Acura Spa Systems.
- W. Warranty does not cover damage during shipment. All items shipped from Acura Spa Systems are shipped insured if requested by purchaser. Please contact the carrier to file a claim.
- X. Warranty does not cover water damaged or miswired blower motors.
- Y. All parts and motors are warranted by their original manufacturers.
- Z. Blown fuses and blown capacitors are not warranted.
- AA. Parts sold as DIY are not warranted by Acura Spa Systems.
- BB. All electric motors are warranted solely by the motor manufacturers.
- CC. No person, agent, distributor, dealer, service facility or company is authorized to change, modify or amend the terms of this limited warranty in any manner or fashion whatsoever. Except and to the extent provided in this limited warranty, Acura Spa Systems makes no express warranty regarding Acura Spa Systems products.

Further, all implied warranty relating to any portion of this product, including any warranty or merchant ability or fitness, for a particular purpose is limited to the duration of the applicable expressed warranty contained above. Acura Spa Systems shall not be liable to the purchaser or to any other person for any incidental or consequential damages, so the above limitation and exclusions may not apply to you. This warranty gives you specific legal rights and you may also have other rights, which vary from state to state. Acura Spa Systems, Inc. is headquartered in Riverside, California. Any legal claims filed against Acura Spa Systems, Inc. or its officers must be filed in the district of Riverside California. This warranty is subject to change only by Acura Spa Systems, Inc.

**Important Notice:** In order to allow Acura Spa Systems to better service customer needs, please provide us with model and serial numbers, which are located on the front of your product.

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Model No. \_\_\_\_\_ Serial No. \_\_\_\_\_

Date Purchased \_\_\_\_\_ Mfg. Code \_\_\_\_\_

Dealer Name \_\_\_\_\_

Dealer Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

R.G.A.# \_\_\_\_\_

ACURA SPA SYSTEMS, INC. 2954  
RUBIDOUX BLVD.  
RIVERSIDE, CA 92509  
FAX: 951-684-6677

