AquaCal®

HEATWAVE SUPERQUIET®

TropiCool® WATER CHILLER

Operation Manual

Five (Push) Button Display v2.xxx (HP11 control board), with embedded WiFi.

Important

Read this document before operating / installing this product

For additional product manuals and operation / installation procedures, please visit www.AquaCal.com

MODEL / SERIAL NUMBER

LTM1111 REL D- (project rel 9.00)

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Contacting AquaCal AutoPilot, Inc.

For further assistance, please contact the distributor or installer of this product.

If unavailable, please contact AquaCal® for a partner in your area. To better assist you, please have the heat pump model and serial number available.

- See "*Identifying Model Specifications*" on page 74.

Product Information:	
Website	www.AquaCal.com

Service Information:	
Website	www.AquaCal.com/help

SAFETY

- For personal safety, and to avoid damage to equipment, follow all safety instructions displayed on the equipment and within this manual. Repair and service of heat pump must be performed by an authorized service center.
- Warranties may be voided if the equipment has been improperly installed, maintained or serviced.
- If the issue persists, please contact the installing dealer for service.

SAFETY SIGNALS

Throughout this document, safety signals have been placed where particular attention is required.

DANGER — Failure to heed the following will result in injury or death.

WARNING — Failure to heed the following may result in injury or death.

NOTICE — Failure to heed the following may result in damage to equipment.

When installing and using your heat pump basic safety precautions must always be followed, including the following:

DANGER Failure to heed the following will result in injury or death.

- The heat pump utilizes high voltage and rotating equipment. Use caution when servicing.
- Prior to installing and servicing the equipment, ensure that power has been deactivated, and a lockout-tag out procedure has been performed.
- Follow all National Electric Codes (NEC) and / or State and Local guidelines.
- Heat Pump equipment must be installed according to manufacturer's instructions and specifications and must follow all National and / or State and Local installation guidelines. The manufacturer will not be liable in case of non-compliance with the installation standards that apply locally.
- Handling, installation, cleaning, servicing and / or disposal of the refrigerant can only be done by a person with the proper qualifications (EPA or equivalent licensing).
- For any action, other than simple maintenance operations by the user as described in this manual, the product should be maintained by a certified professional.
- Moving parts can cause severe injury or death. Do not touch the fan or the moving parts, and do not insert objects or your fingers close to the moving parts when the device is operating.
- Do not pull on hoses and / or connections to move the machine.
- Follow all instructions for installation and usage in this manual in order to prevent injury or death.
- Do not remove any safety labels that are affixed to this unit, including but not limited to, "WARNING", "Refrigerant Safety", "Risk of Fire or Explosion", "Electrical Safety", and "Potable Water" labels.

WARNING Failure to heed the following may result in injury or death.

- Installation and repairs must be performed by a qualified technician possessing the adequate technical skills (electricity, hydraulic, refrigeration) in order to undertake maintenance operations or repairs on the device.
- A qualified technician working on the device must use / wear personal protective equipment (safety goggles, protection gloves, etc.) in order to avoid risk of injury during work on the device.
- The Heat Pump contains refrigerant under pressure. Repairs to the refrigerant circuit must not be attempted by untrained and / or unqualified individuals. Service must be performed only by qualified HVAC technicians. Recover refrigerant before opening the system.
- Improper water chemistry can present a serious health hazard. To avoid possible hazards, maintain pool / spa water per standards as detailed in the product's operation manual.
- Sudden or prolonged immersion in water warmer than normal body temperature may cause a condition known as Hyperthermia and related injuries.
    - Hyperthermia occurs when the internal temperature of the body reaches a level several degrees higher than the normal body temperature of 98.6° F (37° C).
    - The symptoms of Hyperthermia include, but are not limited to, a failure to perceive heat, slurred speech or mumbling, slow, shallow breathing, weak pulse, clumsiness, drowsiness or low energy level, confusion, poor decision-making, lack of concern about personal welfare; progressive loss of consciousness resulting in danger of drowning.
    - The effects of Hyperthermia include failure of the nervous system, respiratory system and heart; failure to recognize the need to exit spa; unawareness of impending hazard; physical inability to exit the spa; progressive loss of consciousness resulting in danger of drowning.
    - Persons having an adverse medical history. or pregnant women, should consult a physician before immersing in a warm body of water. Children and the elderly should be supervised by a responsible adult.
    - When pregnant, soaking in warm water for long periods of time can harm the fetus.
    - The use of alcohol, drugs, or medication can greatly increase the risk of fatal Hyperthermia.
    - Exit immediately if uncomfortable, dizzy, or sleepy.

- Sudden or prolonged immersion in water colder than normal body temperature may cause a condition known as Hypothermia and related injuries.
    - Hypothermia occurs when the internal temperature of the body reaches a level several degrees below the normal body temperature of 98.6° F (37° C).
    - The symptoms of Hypothermia include, but are not limited to, shivering (although as hypothermia worsens, shivering stops), slurred speech or mumbling, slow, shallow breathing, weak pulse, clumsiness, drowsiness or low energy level, confusion, poor decision-making, lack of concern about personal welfare, unconsciousness, and bright red, cold skin (in infants).
    - The effects of Hypothermia include failure of the nervous system, respiratory system and heart; failure to recognize the need to exit spa or cold plunge; unawareness of impending hazard; fetal damage in pregnant women; physical inability to exit the spa or cold tub; progressive loss of consciousness resulting in danger of drowning.
    - Persons having an adverse medical history. or pregnant women, should consult a physician before immersing in a cold body of water. Children and the elderly should be supervised by a responsible adult.
    - When pregnant, soaking in cold water for long periods of time can harm the fetus.
    - The use of alcohol, drugs, or medication can greatly increase the risk of fatal Hypothermia.
    - Exit immediately if uncomfortable, dizzy, shivering, or sleepy.
- This appliance is not to be used by individuals (including children) with reduced physical, sensory, or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction by a person responsible for their safety.
- Children must be supervised and are not to play with the appliance.
- If multiple heat pumps are on-site, confirm that a multiple heat pump configuration has been utilized. This will prevent multiple heat pumps from attempting to start at the same time, causing an excessive power drop at start-up. This can be done with either an external sequencing controller, or if equipped, a heat pump option.
- If a fixed device does not have a power cord and plug, or any other means to disconnect from the power supply with separation of the contacts in all poles, enabling total disconnection in case of a category III electrical surge, the manual will specify that the disconnection means must be integrated into the fixed wiring, as per relevant wiring rules.
- An appropriate disconnection method, complying with all local and national requirements relating to category III electrical surges, and that disconnects all poles of the supply circuit, must be installed in the device's supply circuit. This disconnection method is not provided with the device and should be supplied by the installation technician.
- Prior to installation, ensure that:
    - The voltage indicated on the device's information plate matches the voltage of the power supply.
    - The power supply is suitable for operating the device and has a ground connection.
    - Any electrical plug (if necessary) is designed to properly fit the electrical outlet.
- Do not use an extension cord to connect the device; connect the device directly to a suitable power outlet.
- If a power cord is used and it becomes damaged, it must be replaced by a qualified individual.

NOTICE Failure to heed the following may result in damage to equipment.

- Maintain proper water chemistry to avoid damage to the pump, filter, pool shell, etc.
- Water flow exceeding the maximum flow rate requires a bypass. Damage due to excessive water flow will void the warranty.
- Failure to protect equipment against corrosive conditions will adversely affect the life of the equipment and will void equipment warranty.
- The device is designed specifically for use in swimming pools and spas; it must not be used for purposes other than designed.

SAVE THESE INSTRUCTIONS

1 - Site Configuration Presets (Optional)

A list of site configurations (presets) can be used to easily configure equipment directly connected to the heat pump. Connected equipment, such as a circulation pump for example, can have all the necessary options automatically set to operate the device.

> ***NOTE***
> *The standard (from the factory) heat pump **does not use** groups or schedules. These can be created as needed depending on if a heat pump option has been utilized.*

NOTICE Failure to heed the following may result in damage to equipment.

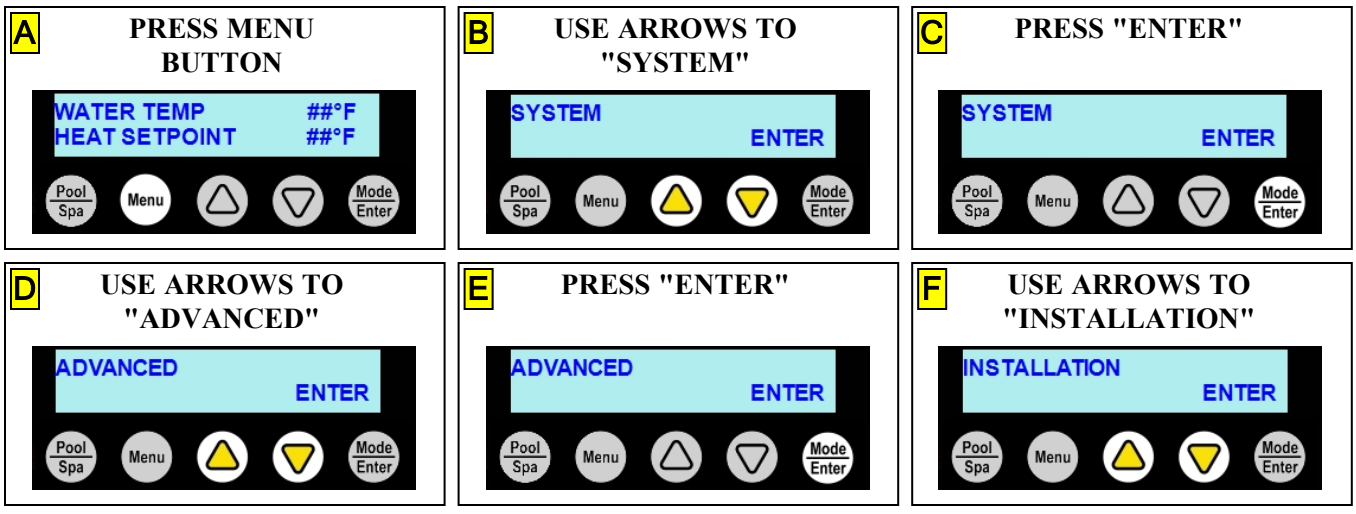
- Any existing programs or settings will be cleared and replaced with the chosen preset option. If this is undesired, then press the button under "SKIP" to exit the menu and set up equipment manually.
- After using a preset, values such as system RPMs should be checked to confirm they do not exceed system requirements. Damage to equipment due to excessive water flow, from setting RPMs too high, is not covered under factory warranties.

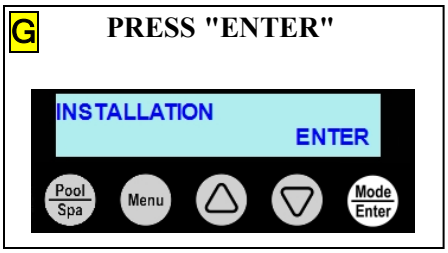
> ***NOTE***
> *After using a preset, any setting can be manually customized (or fine tuned) by the installer. Values, such as circulation pump RPMs, should be checked to confirm they do not exceed system requirements.*

> ***ALSO NOTE***
> - If necessary, the system can be set to factory default if an incorrect preset has been used. See "*Factory Reset*" on page 61.
> - If a third-party external controller was used prior to upgrading the system, a factory reset will be required to see all presets. See "*Factory Reset*" on page 61.
> - If the PoolSync® external controller was used prior to upgrading the system, all applicable heat pump presets will be shown.

Navigate to the installation menus to access these preset configurations.

Enter "Installation" menus, then proceed





Select the appropriate preset for the site conditions.

PRESET OPTIONS:

Pool / Spa, No Pump 5
Pool Only, No Pump 6
Spa Only, No Pump 6
Pool / Spa, No Pump 6
Pool / Spa, Aquastar VS 6
Pool / Spa, Hayward VS 7
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Pool Only, Aquastar VS 8
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Spa Only, Aquastar VS 10
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Spa Only, Jandy VS 11
Spa Only, Sta-Rite VS 11
Spa Only, Pentair VS 11
Spa Only, VGreen VS 11

Pool / Spa, No Pump



This preset configures the heat pump as follows:

- No circulation pump is configured.
- No schedules are configured.

When pressed, the "Pool/Spa" button will display with three choices:

1. Pool - With an initial timer set for 48 hours at 85° F.
2. Spa - With an initial timer of 2 hours at 104° F.
3. Schedules - Without an active schedule, the heat pump mode is initially set to "OFF".

Pool Only, No Pump



This preset configures the heat pump as follows:

- No circulation pump is configured.
- No schedules are configured.

When pressed, the "Pool/Spa" button will display with two choices:

1. Pool - With an initial timer set for 48 hours at 85° F.
2. Schedules - Without an active schedule, the heat pump mode is initially set to "OFF".

Spa Only, No Pump



This preset configures the heat pump as follows:

- No circulation pump is configured.
- No schedules are configured.

When pressed, the "Pool/Spa" button will display with two choices:

1. Spa - With an initial timer of 2 hours at 104° F.
2. Schedules

Pool / Spa, No Pump



This preset configures the heat pump as follows:

- No circulation pump is configured.
- No schedules are configured.

When pressed, the "Pool/Spa" button will display with three choices:

1. Pool - With an initial timer set for 48 hours at 85° F.
2. Spa - With an initial timer of 2 hours at 104° F.
3. Schedules - Without an active schedule, the heat pump mode is initially set to "OFF".

Pool / Spa, Aquastar VS



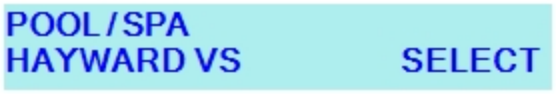
This preset configures the heat pump as follows:

- An Aquastar variable speed circulation pump is configured.
- A pool schedule is configured (Everyday from 8:00 am to 6:00 pm)

When pressed, the "Pool/Spa" button will display with three choices.

1. Pool - With an initial timer set for 48 hours at 85° F.
2. Spa - With an initial timer of 2 hours at 104° F.
3. Schedules

Pool / Spa, Hayward VS



This preset configures the heat pump as follows:

- A Hayward variable speed circulation pump is configured.
- A pool schedule is configured (Everyday from 8:00 am to 6:00 pm)

When pressed, the "Pool/Spa" button will display with three choices.

1. Pool - With an initial timer set for 48 hours at 85° F.
2. Spa - With an initial timer of 2 hours at 104° F.
3. Schedules

Pool / Spa, Jandy VS



This preset configures the heat pump as follows:

- A Jandy variable speed circulation pump is configured.
- A pool schedule is configured (Everyday from 8:00 am to 6:00 pm)

When pressed, the "Pool/Spa" button will display with three choices.

1. Pool - With an initial timer set for 48 hours at 85° F.
2. Spa - With an initial timer of 2 hours at 104° F.
3. Schedules

Pool / Spa, Pentair VS



This preset configures the heat pump as follows:

- A Pentair variable speed circulation pump is configured.
- A pool schedule is configured (Everyday from 8:00 am to 6:00 pm)

When pressed, the "Pool/Spa" button will display with three choices.

1. Pool - With an initial timer set for 48 hours at 85° F.
2. Spa - With an initial timer of 2 hours at 104° F.
3. Schedules

Pool / Spa, Sta-Rite VS



This preset configures the heat pump as follows:

- An Sta-Rite variable speed circulation pump is configured.
- A pool schedule is configured (Everyday from 8:00 am to 6:00 pm)

When pressed, the "Pool/Spa" button will display with three choices.

1. Pool - With an initial timer set for 48 hours at 85° F.
2. Spa - With an initial timer of 2 hours at 104° F.
3. Schedules

Pool / Spa, VGreen VS



This preset configures the heat pump as follows:

- A VGreen variable speed circulation pump is configured.
- A pool schedule is configured (Everyday from 8:00 am to 6:00 pm)

When pressed, the "Pool/Spa" button will display with three choices.

1. Pool - With an initial timer set for 48 hours at 85° F.
2. Spa - With an initial timer of 2 hours at 104° F.
3. Schedules

Pool Only, No Pump



This preset configures the heat pump as follows:

- No circulation pump is configured.
- No schedules are configured.

When pressed, the "Pool/Spa" button will display with two choices:

1. Pool - With an initial timer set for 48 hours at 85° F.
2. Schedules - Without an active schedule, the heat pump mode is initially set to "OFF".

Pool Only, Aquastar VS



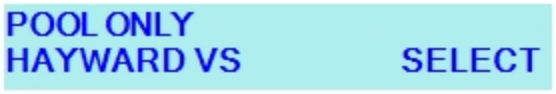
This preset configures the heat pump as follows:

- An Aquastar variable speed circulation pump is configured.
- A pool schedule is configured (Everyday from 8:00 am to 6:00 pm)

When pressed, the "Pool/Spa" button will display with two choices.

1. Pool - With an initial timer set for 48 hours at 85° F.
2. Schedules

Pool Only, Hayward VSS



This preset configures the heat pump as follows:

- A Hayward variable speed circulation pump is configured.
- A pool schedule is configured (Everyday from 8:00 am to 6:00 pm)

When pressed, the "Pool/Spa" button will display with two choices.

1. Pool - With an initial timer set for 48 hours at 85° F.
2. Schedules

Pool Only, Jandy VS



This preset configures the heat pump as follows:

- A Jandy variable speed circulation pump is configured.
- A pool schedule is configured (Everyday from 8:00 am to 6:00 pm)

When pressed, the "Pool/Spa" button will display with two choices.

1. Pool - With an initial timer set for 48 hours at 85° F.
2. Schedules

Pool Only, Sta-Rite VS



This preset configures the heat pump as follows:

- An Sta-Rite variable speed circulation pump is configured.
- A pool schedule is configured (Everyday from 8:00 am to 6:00 pm)

When pressed, the "Pool/Spa" button will display with two choices.

1. Pool - With an initial timer set for 48 hours at 85° F.
2. Schedules

Pool Only, Pentair VS



This preset configures the heat pump as follows:

- A Pentair variable speed circulation pump is configured.
- A pool schedule is configured (Everyday from 8:00 am to 6:00 pm)

When pressed, the "Pool/Spa" button will display with two choices.

1. Pool - With an initial timer set for 48 hours at 85° F.
2. Schedules

Pool Only, VGreen VS



This preset configures the heat pump as follows:

- A VGreen variable speed circulation pump is configured.
- A pool schedule is configured (Everyday from 8:00 am to 6:00 pm)

When pressed, the "Pool/Spa" button will display with two choices.

1. Pool - With an initial timer set for 48 hours at 85° F.
2. Schedules

Spa Only, No Pump



This preset configures the heat pump as follows:

- No circulation pump is configured.
- No schedules are configured.

When pressed, the "Pool/Spa" button will display with two choices:

1. Spa - With an initial timer of 2 hours at 104° F.
2. Schedules

Spa Only, Aquastar VS



This preset configures the heat pump as follows:

- An Aquastar variable speed circulation pump is configured.
- A pool schedule is configured (Everyday from 8:00 am to 6:00 pm)

When pressed, the "Pool/Spa" button will display with two choices.

1. Spa - With an initial timer of 2 hours at 104° F.
2. Schedules

Spa Only, Hayward VS



This preset configures the heat pump as follows:

- A Hayward variable speed circulation pump is configured.
- A pool schedule is configured (Everyday from 8:00 am to 6:00 pm)

When pressed, the "Pool/Spa" button will display with two choices.

1. Spa - With an initial timer of 2 hours at 104° F.
2. Schedules

Spa Only, Jandy VS



This preset configures the heat pump as follows:

- A Jandy variable speed circulation pump is configured.
- A pool schedule is configured (Everyday from 8:00 am to 6:00 pm)

When pressed, the "Pool/Spa" button will display with two choices.

1. Spa - With an initial timer of 2 hours at 104° F.
2. Schedules

Spa Only, Sta-Rite VS



This preset configures the heat pump as follows:

- An Sta-Rite variable speed circulation pump is configured.
- A pool schedule is configured (Everyday from 8:00 am to 6:00 pm)

When pressed, the "Pool/Spa" button will display with two choices.

1. Spa - With an initial timer of 2 hours at 104° F.
2. Schedules

Spa Only, Pentair VS



This preset configures the heat pump as follows:

- A Pentair variable speed circulation pump is configured.
- A pool schedule is configured (Everyday from 8:00 am to 6:00 pm)

When pressed, the "Pool/Spa" button will display with two choices.

1. Spa - With an initial timer of 2 hours at 104° F.
2. Schedules

Spa Only, VGreen VS



This preset configures the heat pump as follows:

- A VGreen variable speed circulation pump is configured.
- A pool schedule is configured (Everyday from 8:00 am to 6:00 pm)

When pressed, the "Pool/Spa" button will display with two choices.

1. Spa - With an initial timer of 2 hours at 104° F.
2. Schedules

2 - Operation

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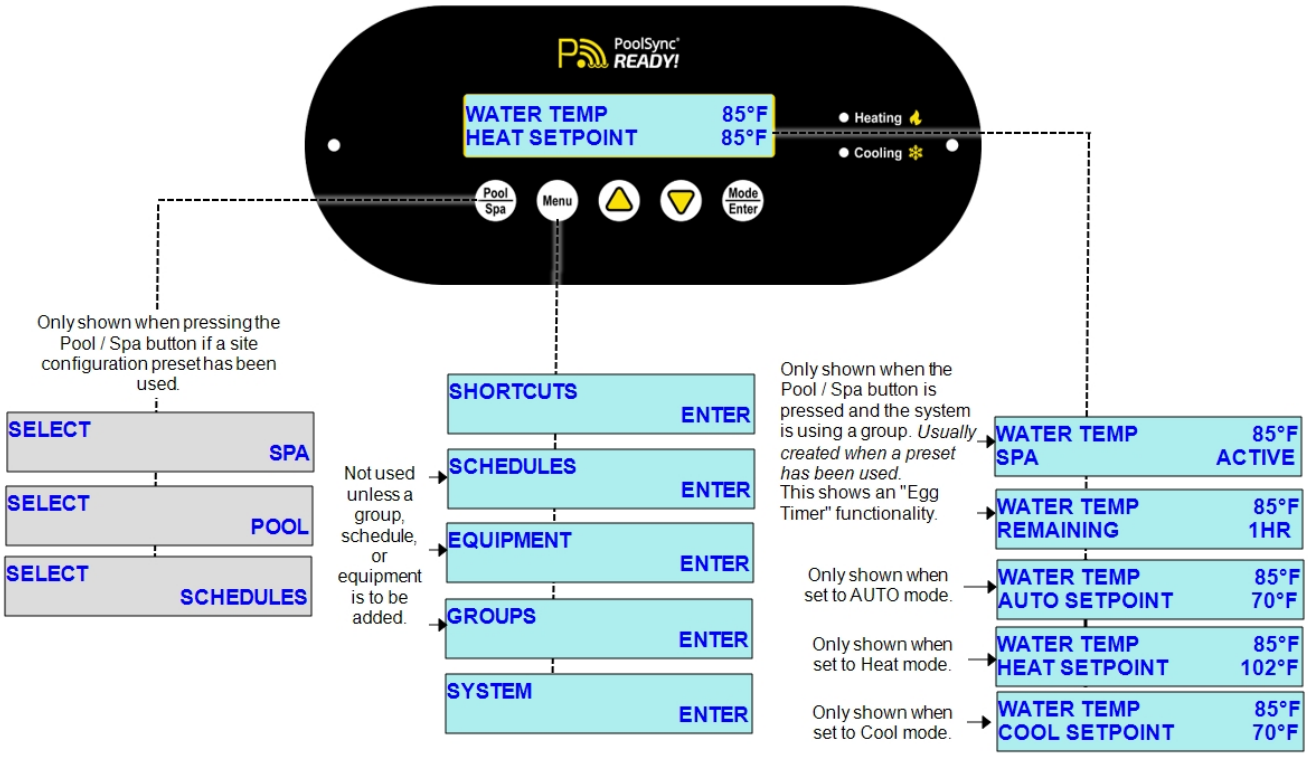
2.1 Display Panel

The following information outlines the operation for a standard installation.

Control Buttons will operate differently for custom installations; such as:

- When a heat pump is connected to an external controller or multiple heat pump configuration.
- When a site configuration preset has been used.
- When a group or schedule has been created.



Buttons

Button	Description
	Select either the POOL or SPA mode. Any connected valves or circulation pumps will activate. To deactivate, press the "Pool/Spa" button again. If an option is highlighted, it will automatically activate after 10 seconds. To deactivate and resume operation, select "Schedules". This button is only active if a group and schedules have been created. ***NOTE*** *The standard (from the factory) heat pump* ***does not have*** *a group or schedule. These can be created as needed depending on if a heat pump option has been utilized.*
	Enter the user menus for heat pump options. Also used to exit from a menu. Press and hold the MENU button to exit to the main status screen.
	Used to increase temperature setpoint and navigate through menu options.
	Used to decrease temperature setpoint and navigate through menu options.
	Used to select the heat pump's operating mode. Also used to edit or confirm options in a menu.

Indicator Lights

Indicator	Description
Heating	Red LED indicates the heat pump is heating the water.
Cooling	Blue LED indicates the heat pump is cooling the water.
When calling for heating or cooling, up to a three-minute delay may occur before the compressor starts.	

Displays

	Display	Description
Entry code required		The heat pump has a user lock enabled. See "*Using Entry Code to Access Heat Pump*" on the next page.
No water flow		No water flow is detected. The filter pump is off or the heat pump is not receiving the correct water flow.
Primary Heat Pump		Primary heat pump controlling other connected heat pumps
Remote Controlled - by primary Heat Pump		Heat Pump is set to be controlled by another connected heat pump.
Remote Controlled - by external controller		Heat Pump is set to be controlled by an external controller.
Set to 75° F - Maintaining		Maintaining a water temperature set on the thermostat. In this example, the pool thermostat has been set to 75° F.
Set to 45° F - Cooling		Cooling water to point set on the thermostat. In this example, the pool thermostat has been set to 45° F.
Set to 75° F - Heating		Heating water to point set on the thermostat. In this example, the pool thermostat has been set to 75° F.
Set to Off		The heat pump has been deactivated using the "Mode / Enter" button. The heat pump will automatically restart on the next scheduled call for heating or cooling. Other activated devices will continue to operate

2.2 Programming

IN THIS SECTION:

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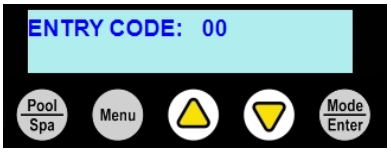
2.2.A Using Entry Code to Access Heat Pump

If a user entry code has been enabled in the user menu, an entry code will be required to access heat pump options.

1 **USE ARROWS TO ENTER CODE**



2 **ENTER TO UNLOCK**



PLEASE NOTE -

- If the entry code has been misplaced, the heat pump will need to be reset to factory defaults.
- After three minutes of inactivity, the heat pump's sleep mode will activate.

2.2.B Activate HEAT Mode, COOL Mode, AUTO Mode, or Deactivate Equipment

Press "Mode / Enter" button until the desired mode is displayed.

- "HEAT" mode - After the fan and compressor start, the red "Heating" light will activate.
- "COOL" mode - After the fan and compressor start, the blue "Cooling" light will activate.
- "AUTO" mode - After the fan and compressor start, the heat pump will maintain the set temperature within 1°. The red "Heating" or blue "Cooling" light will activate.
- "OFF" - The heat pump will indicate it is deactivated. Any equipment connected to the heat pump will continue to operate. To deactivate all equipment connected to the heat pump, activate the service mode. See "*Service Mode*" on page 57.

HEAT THE WATER
Use Mode Button to Select



COOL THE WATER
Use Mode Button to Select



USE AUTO MODE
Use Mode Button to Select



DEACTIVATE UNIT
Use Mode Button to Select



2.2.C Setting Date and Time

The date and time are required in order to allow schedules to operate properly.
Set the heat pump's date and time using the following steps.

> ***PLEASE NOTE:***
> If a PoolSync® device is attached and in-use, the time and date will automatically be set and maintained. Be sure to select the proper time zone in the PoolSync® menu.

Enter "System" menus, then proceed

A **PRESS MENU BUTTON**



B **USE ARROWS TO "SYSTEM"**



C **PRESS "ENTER"**



1 **USE ARROWS TO MENU "TIME / DATE"**



2 **PRESS ENTER, ITEM TO CHANGE WILL BLINK**



3 **USE ARROWS TO CHANGE**



4 **ENTER TO SAVE**



MENU TO EXIT, PRESS & HOLD TO STATUS



2.2.D Setting Date and Time Format

The heat pump's date and time format can be customized.

Customize Time

The time can be displayed in 24-hour *military* time (the default display is 12-hour).

Enter "System" menus, then proceed

A **PRESS MENU BUTTON**

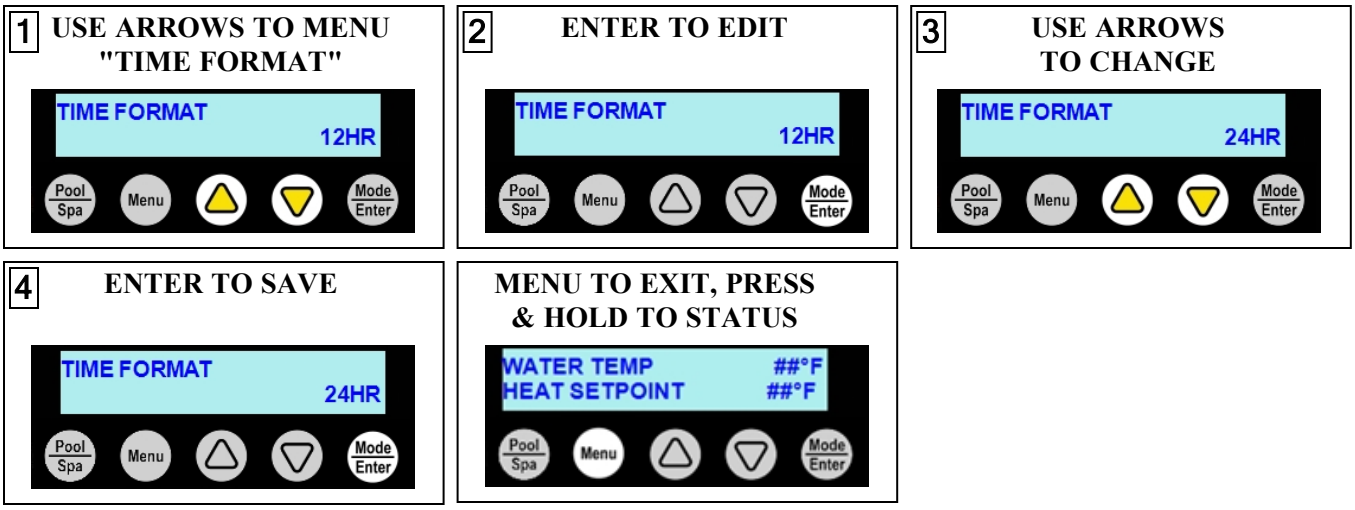


B **USE ARROWS TO "SYSTEM"**



C **PRESS "ENTER"**

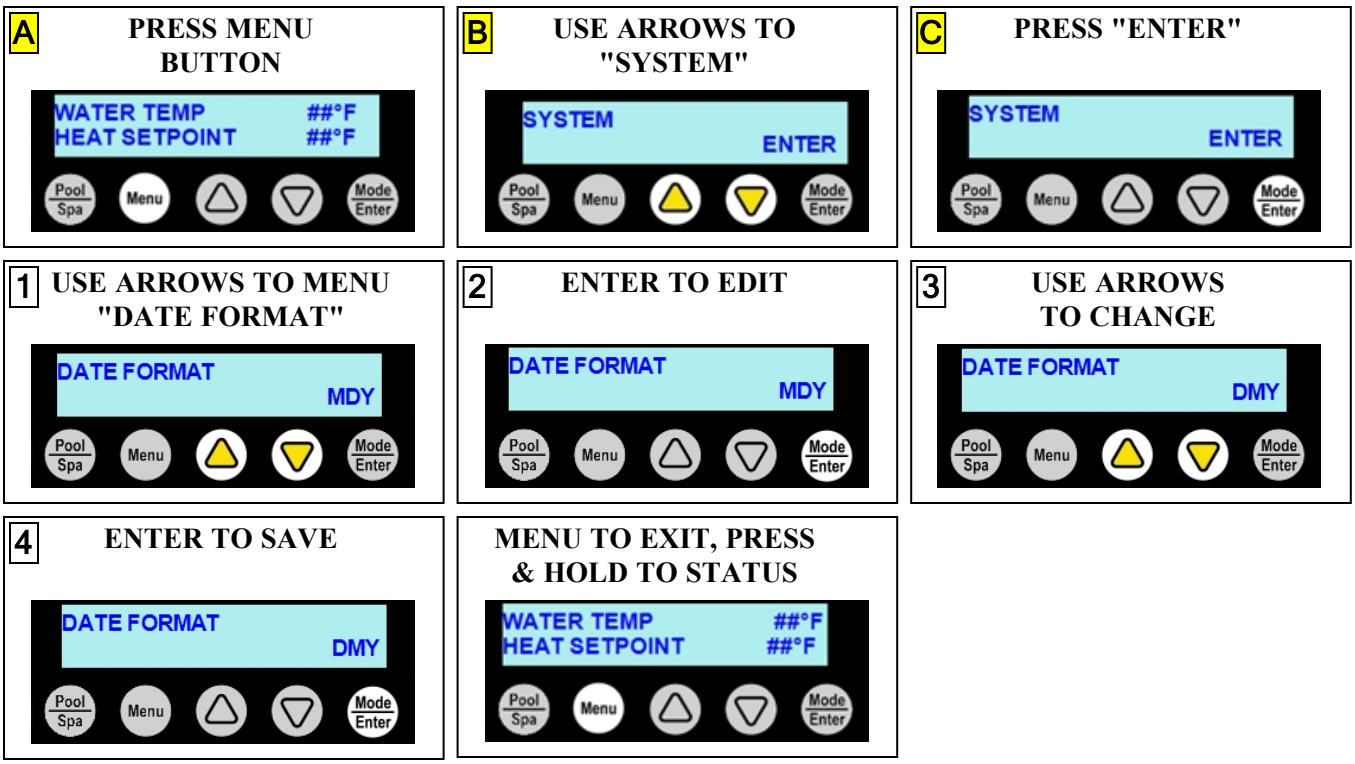




Customize Date

The date can be displayed as Day-Month-Year (the default is Month-Day-Year).

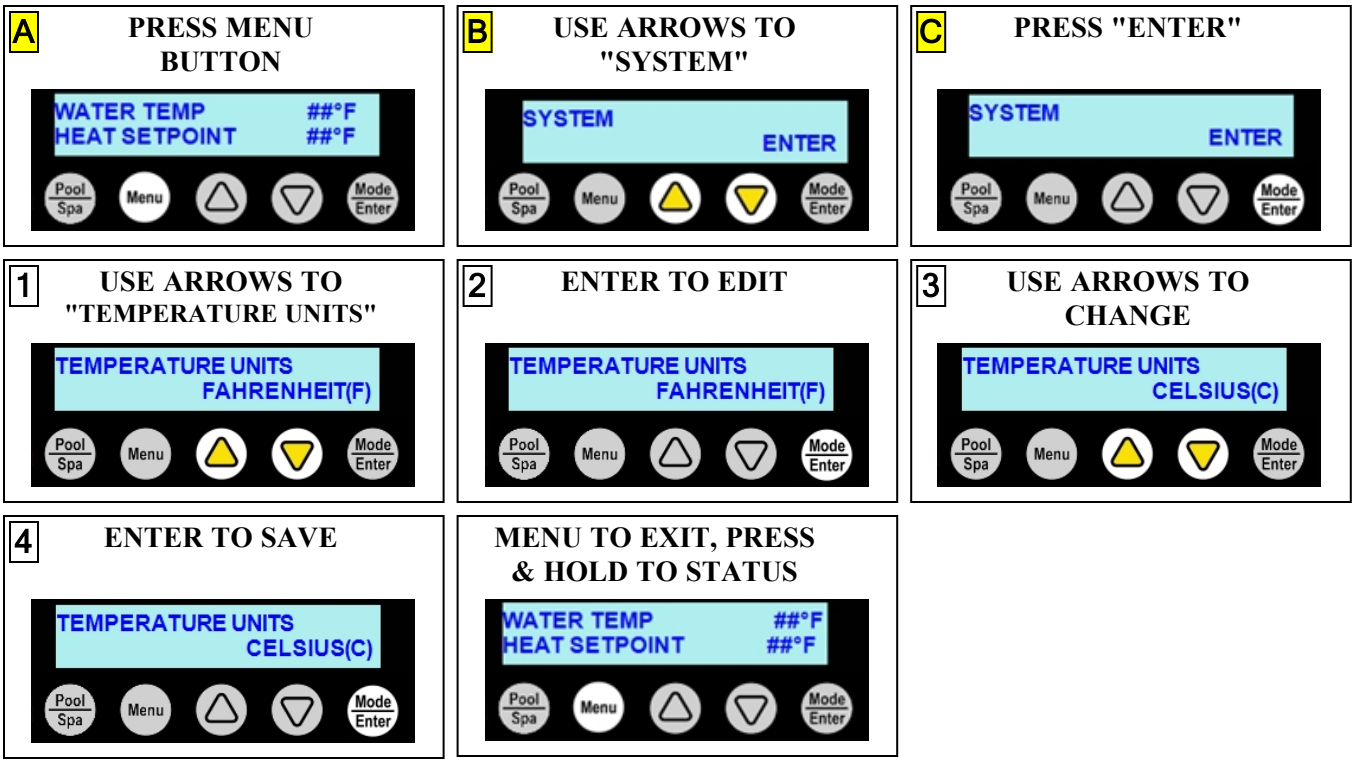
Enter "System" menus, then proceed



2.2.E Selecting Celsius or Fahrenheit

The user has the option of changing the way the water temperature is displayed. Either in Fahrenheit or Celsius. In the following example, the temperature units are changed from Fahrenheit to Celsius.

Enter "System" menus, then proceed



2.2.F Set a desired temperature (setpoint) for the Heat Pump to activate

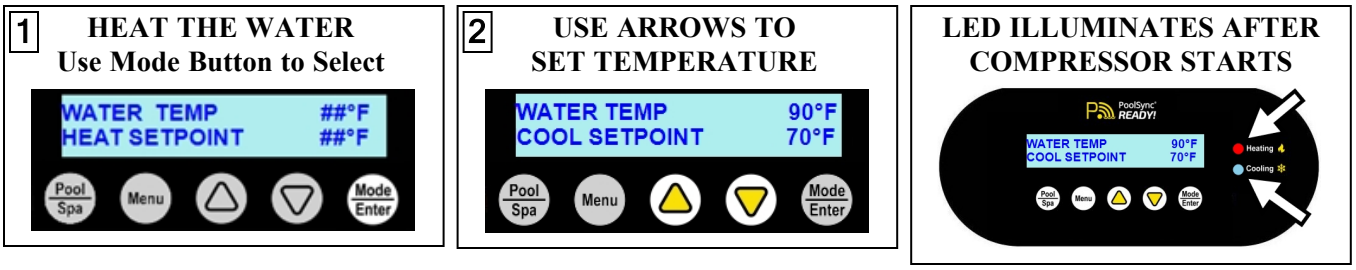
Press the up or down arrow to set the desired temperature (setpoint) for the water.

- The heating indicator will illuminate when heating the water.
- The cooling indicator will illuminate when cooling the water.

> ***PLEASE NOTE:***
> - The maximum temperature the Heat Pump can be set to is 104° F (40° C).

> ***PLEASE NOTE:***
> *The heat pump will not operate if incoming water temperatures are above 108° F (42° C). If sustained water temperatures will fall below 32° F (0° C), the equipment must be winterized in order to prevent damage. See "Winterizing" on page 72.*

> ***NOTE:***
> *If a group's schedule is active and the temperature setpoint is changed, that group's temperature setpoint will also be changed.*



2.2.G Using Shortcuts

The shortcuts menu provides quick access to model specific options and features. The following outlines some of these options.

Service Mode

This mode will deactivate the heat pump as well as all equipment connected to the heat pump.

- (See "*Service Mode*" on page 57 for more information.)

Group Access

> ***NOTE***
> *The standard (from the factory) heat pump **does not have** a group or schedule. These can be created as needed depending on if a heat pump option has been utilized.*

As a group is created, a shortcut automatically appears in the shortcuts menu. The user can activate the group by shortcut and will be asked how long to operate that group.

- Multiple group shortcuts can operate at the same time. The time remaining for each group to operate will appear on the status screen.
- After the group shortcut timer expires, the heat pump group will resume its normally scheduled activity.
- To cancel the group shortcut's operation before its timer expires, go to the shortcut menu, select it, and choose "STOP".
- See "*Using a Group Shortcut*" on the facing page.
- See "*Stopping a Group Shortcut*" on the facing page.

> ***PLEASE NOTE:***
> *The Spa and Pool groups (if applicable) will not appear in the shortcuts menu. Use the schedules or the Pool / Spa button to activate those groups.*

Schedule Mode

> ***NOTE***
> *The standard (from the factory) heat pump **does not have** a group or schedule. These can be created as needed depending on if a heat pump option has been utilized.*

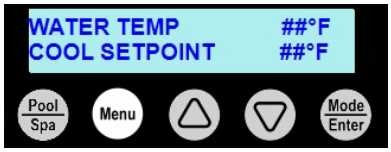
There are three modes that can be set when running schedules.

- "AUTO" - The default mode. This allows schedules to run normally.
- "AWAY" - This mode is generally used when the user is away on vacation and doesn't want to maintain a water temperature. The heat pump will be deactivated while the rest of the schedules (including filtration) are allowed to continue.
- "OFF" - This mode turns off all schedules. The schedules resume when the schedule mode is set to "AUTO" again.
- (See "*Schedule and Program Modes*" on page 38 for more information.)

Using a Group Shortcut

In this example, a user activates a group that was previously created called "FILTRATION".

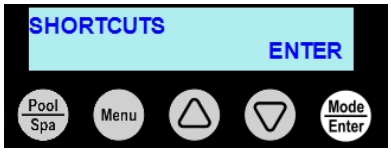
A PRESS MENU BUTTON



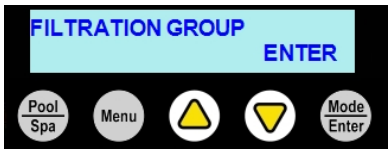
B USE ARROWS TO "SHORTCUTS"



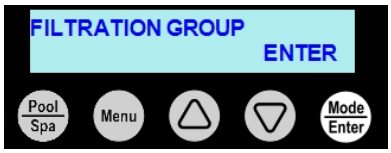
C PRESS "ENTER"



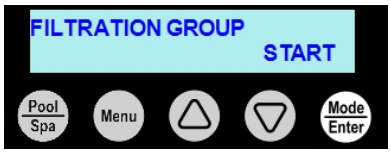
1 ARROWS TO SHORTCUT TO USE



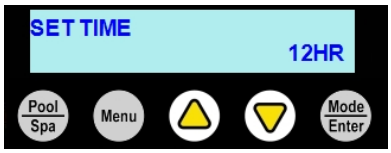
2 ENTER TO SELECT SHORTCUT



3 ENTER TO START



4 ARROWS TO MAXIMUM TIME TO OPERATE



5 ENTER TO ACTIVATE



MENU TO EXIT, PRESS & HOLD TO STATUS

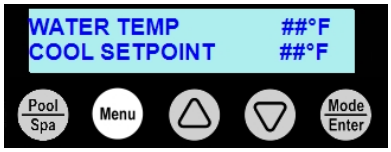


On the status screen the group will show as active. It will then display the time remaining before the group expires.

Stopping a Group Shortcut

In this example a group called "FILTRATION" is deactivated before it's time expires.

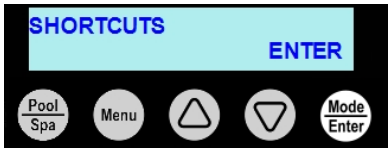
A PRESS MENU BUTTON



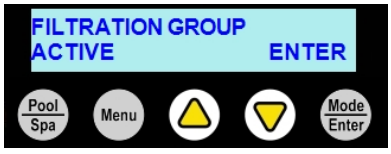
B USE ARROWS TO "SHORTCUTS"



C PRESS "ENTER"



1 ARROWS TO SHORTCUT TO STOP

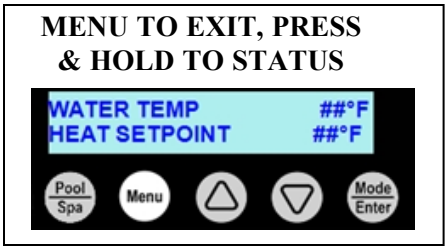


2 ENTER TO SELECT



3 ENTER TO STOP





2.3 Programming (Optional)

2.3.A Configure to use WiFi

Selected heat pumps come with WiFi. This can be activated to control the heat pump remotely. If the heat pump does not have internal WiFi, the user can order a wall mounted WiFi device. See "*PoolSync® WiFi Controller (PS0001)*" on page 63.

Steps to activate:

1. The user needs to have the credentials for the home's WiFi access point (user name and password). This will be required to set up the heat pump.
2. Download the WiFi application on to a mobile device.

The application can be downloaded here:

Download on the App Store

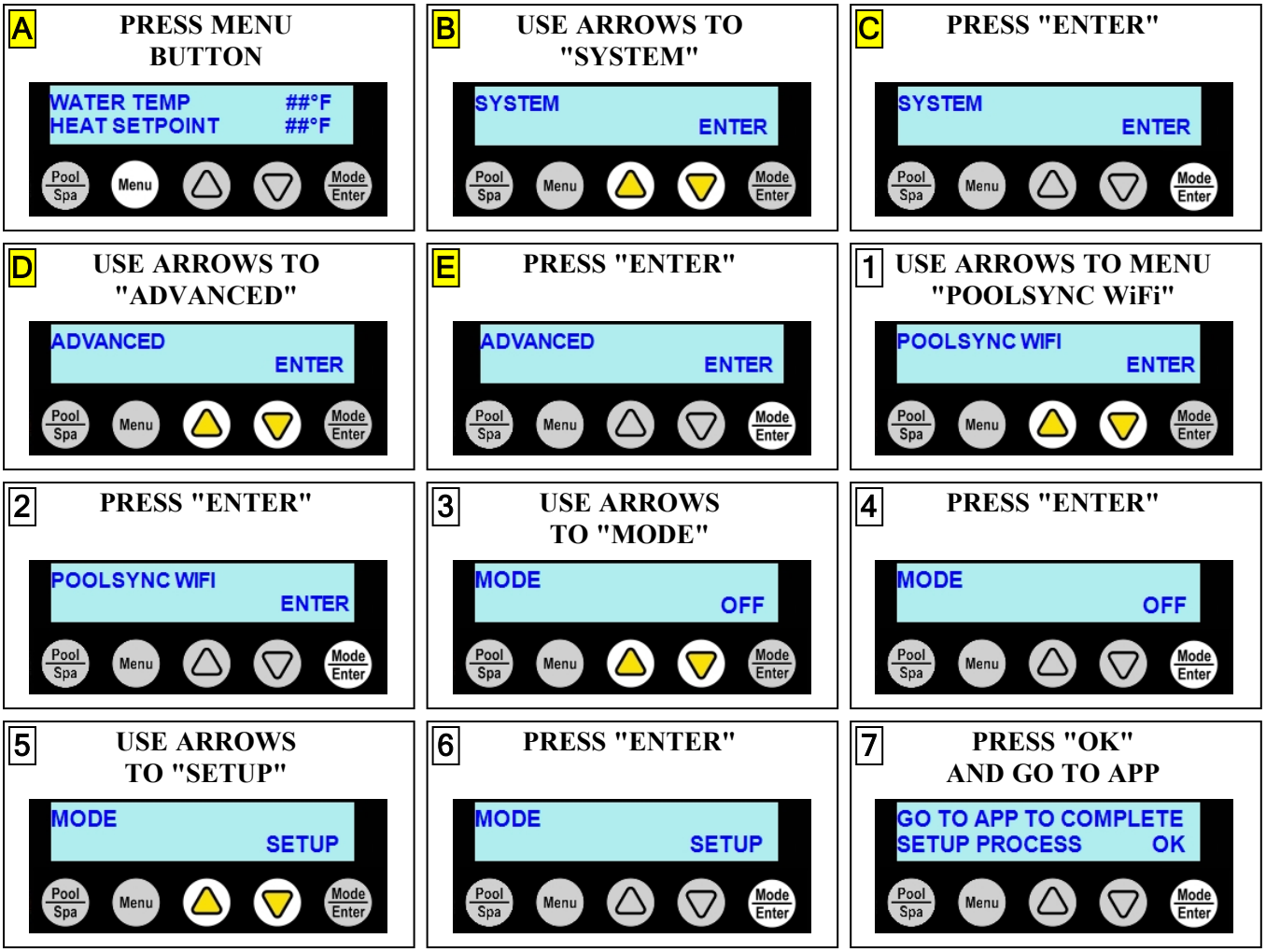
GET IT ON Google Play

Look for the PoolSync® application from AquaCal AutoPilot, Inc.

3. Using the mobile application:
   a. Select "ADD NEW".
   b. Select "WiFi Heat Pump".
4. At the heat pump:
   a. Use the following menus to activate WiFi.

Setup at heat pump

Enter "Advanced" menus, then proceed



8. Using the mobile application:
    a. Select "CHECK & BEGIN",
    b. Select "Allow while using" to find the heat pump's WiFi .
    c. Select "Join" on the WiFi network for the "PoolSync-####".
    d. Select "ALLOW" to find home devices on the local networks.
    e. After a few moments, the user will be asked to choose and enter the home's WiFi credentials.
    f. Then select "CONNECT".
9. At the heat pump:
    a. The user will then be asked to authenticate the mobile device.



10. Using the mobile application:
    a. After reviewing the permissions, select "FINISH SETUP" on the application.
    b. WiFi should now be available to control the heat pump.

> ***NOTE***
> *If the setup process has been interrupted or stopped in some way, the user can reset the WiFi to factory settings and then restart.*
>
> 1. Using the mobile application, Select the three dots in the upper right of the application to get to settings.
>   a. Select "Factory Reset" and "OK".
>   b. Refresh the screen by doing a swipe down, then if necessary, select "Remove Device" and "OK".
> 2. At the heat pump, change the mode to "OFF".
> 3. Restart the setup process as needed. (See "*Setup at heat pump*" on the previous page for more information.)

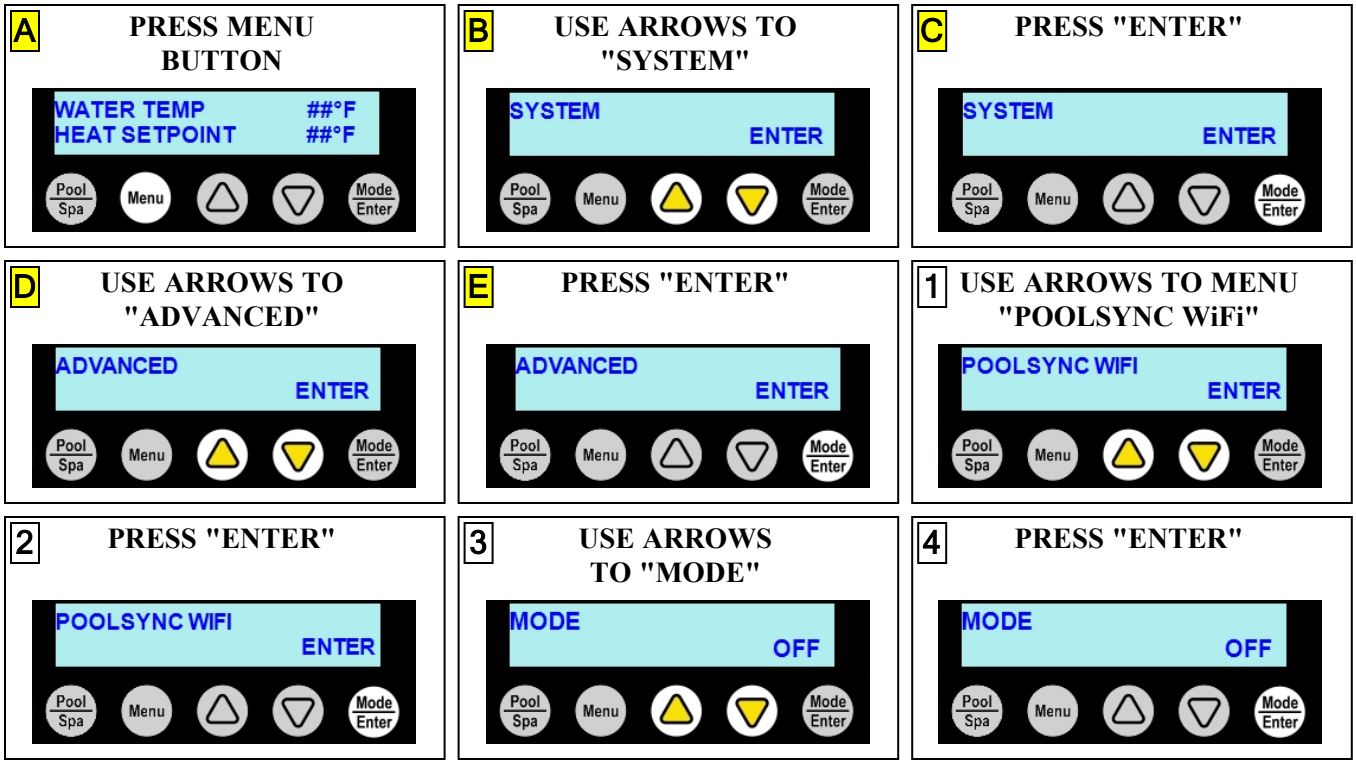
2.3.B WiFi modes

The heat pump's WiFi system can be configured to use several modes.
This section describes each mode and when to use them.

> ***PLEASE NOTE:***
> *This mode is different than the primary heat pump mode on the main display which controls heating modes and menu entry.*

Activating a Heat Pump's WiFi mode:

Enter "Advanced" menus, then proceed



5. Select a mode, and hit enter. Possible modes include "SETUP", "SERVICE ACCESS", "NORMAL", and "OFF".

The "SETUP" mode:

- This mode is used when activating the WiFi on select heat pumps.
- This mode will automatically deactivate once the setup process has completed.
- This mode will timeout automatically after 20 minutes if no setup action is performed.

The "SERVICE ACCESS" mode:

- This mode turns the heat pump's WiFi into an access point and is used by installers to gain access when the User’s home WiFi access credentials are not known.
- This mode will timeout automatically after 20 minutes if no setup action is performed.

The "NORMAL" mode:

- This mode indicates that WiFi is active. No action is required.

The "OFF" mode:

- This mode is used when the heat pump either does not have WiFi access, or the user is using a wall mounted PoolSync® WiFi device.

2.3.C Freeze Protection

NOTICE Failure to heed the following may result in damage to equipment.

- By default (from the factory) the Freeze Protection feature ***WILL NOT*** protect the heat pump.
    - The Freeze Protection feature is dependent on equipment controlled by properly configured groups. Damage due to improperly configured or operated heat pumps are not covered under warranty.

When the heat pump and freeze protection has been properly configured to control the circulation pump, water is circulated through designated group's plumbing circuits in 5 minute cycles. The water circulation lowers the chances of water freezing in those circuits.

Requirements for Freeze Protection

- A circulation pump must exist in the group to be protected.
- Water flow must be properly directed through a group's plumbing circuit.
- The group's freeze protection option must be set to on.

If properly configured:

- Freeze protection will automatically activate when the water temperature falls below 37° F (3° C).
- When the water temperature rises to 42° F (6° C), freeze protection will deactivate.
- These set temperatures and cycle times can be adjusted as needed in settings. See "*Adjusting Freeze Protection Options*" on the facing page.

NOTE:

- Freeze protection is meant to be temporary. If freezing temperatures will continue for an extended time frame, the pool equipment ***must*** be winterized.
- The heat pump will not attempt to heat water in freezing conditions.
- As a group cycles on and off, any devices contained within that group will also cycle on and off. If this behavior is undesirable, the device can either be removed from the group or manually deactivated.
- If a freeze protection air sensor has been installed and enabled, the air will be monitored instead of water.

Adjusting Groups to Allow Freeze Protection

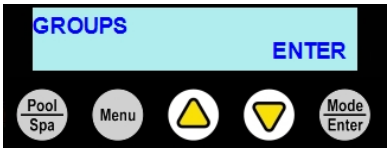
In the following example, a "FOUNTAIN" group is edited to enable freeze protection.

Enter "Groups" menus, then proceed

A **PRESS "MENU" BUTTON**

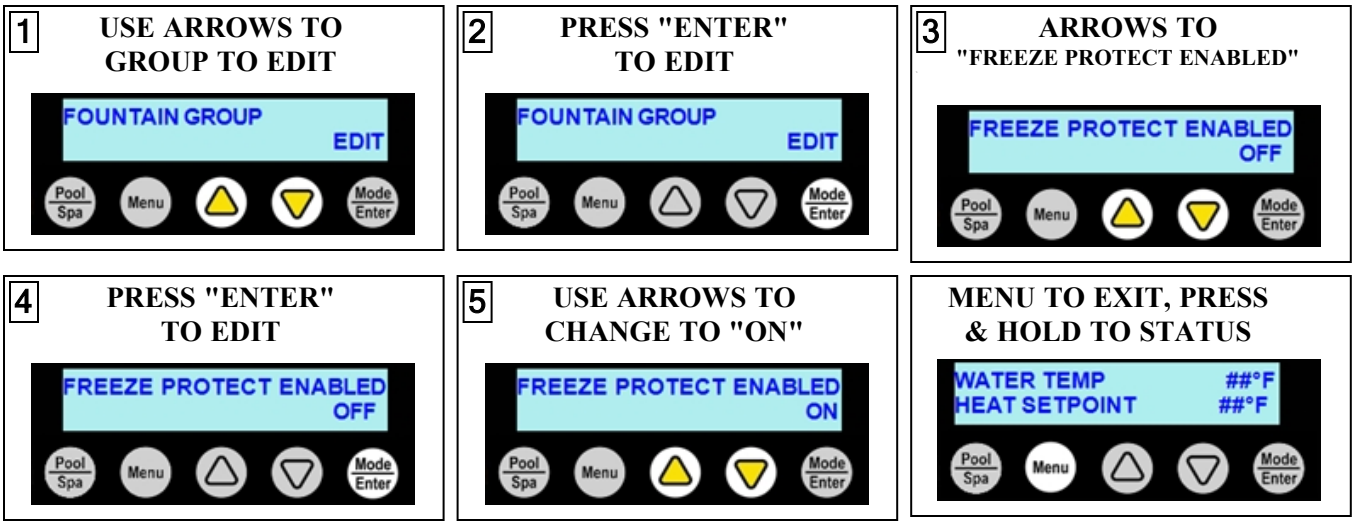


B **USE ARROWS TO "GROUPS"**



C **PRESS "ENTER"**





Adjusting Freeze Protection Options

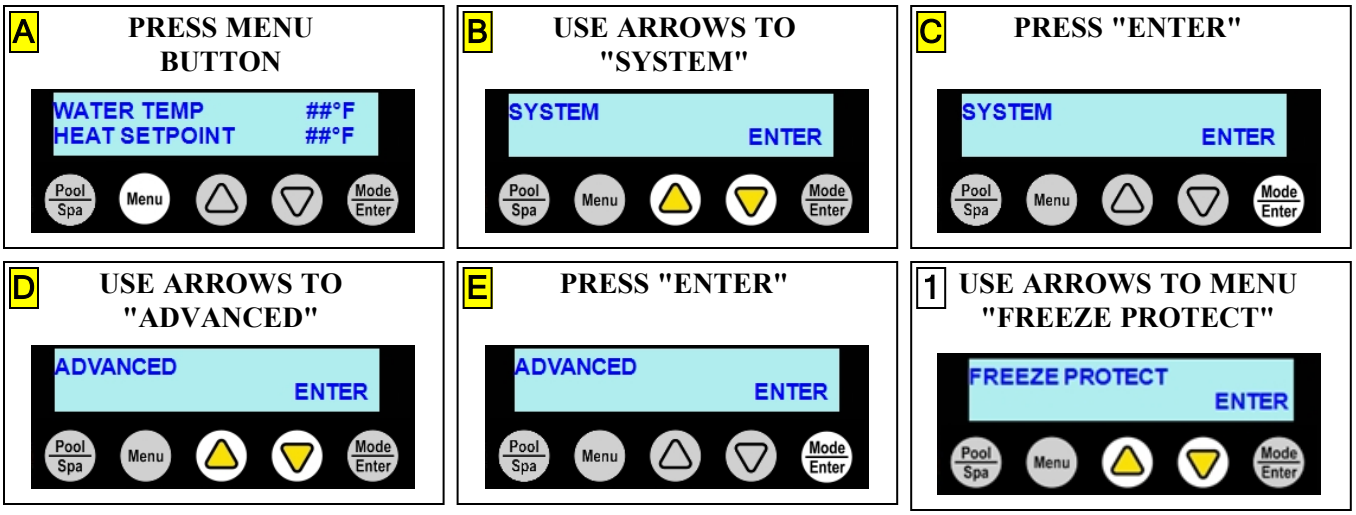
NOTICE Failure to heed the following may result in damage to equipment.

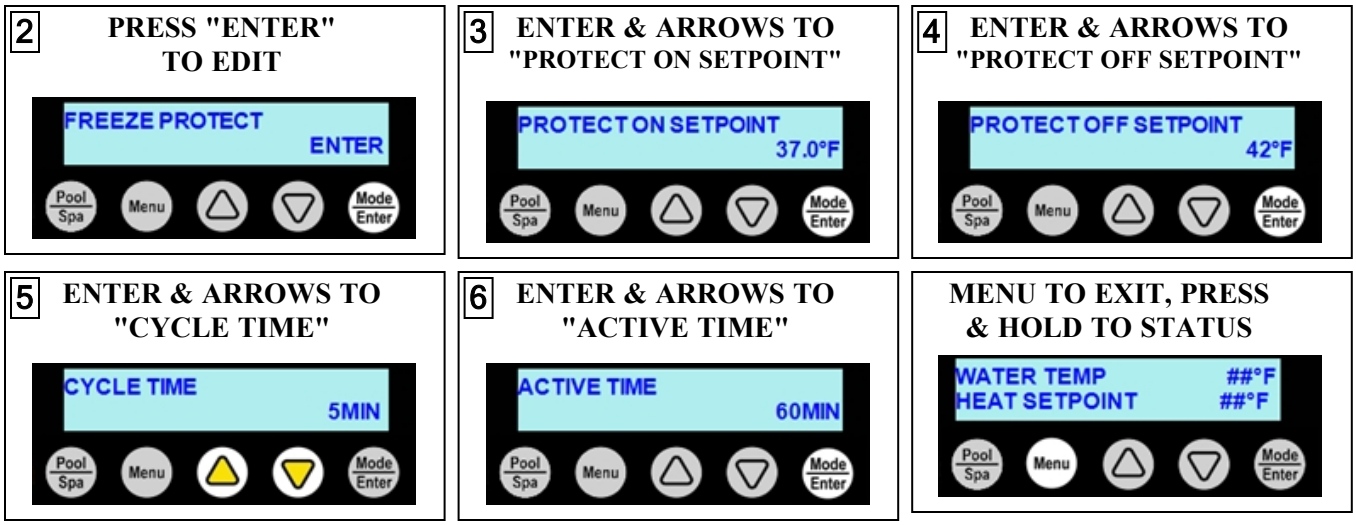
- Use extreme care when setting and adjusting freeze protection options. Improper freeze protection settings can cause damage to equipment. This is not covered by heat pump warranty.

Available freeze protection options:

- "PROTECT ON SETPOINT" can be adjusted from 33° F to 39° F (.6° C to 4° C). The default is 37° F (3° C).
- "PROTECT OFF SETPOINT" can be adjusted from 40° F to 45° F (4° C to 7° C). The default is 42° F (5.5° C).
- "CYCLE TIME" can be adjusted from 5 to 20 minutes. The default is 5 minutes.
- "ACTIVE TIME" can be adjusted from 15 to 120 minutes. The default is 60 minutes.

Enter "Advanced" menus, then proceed





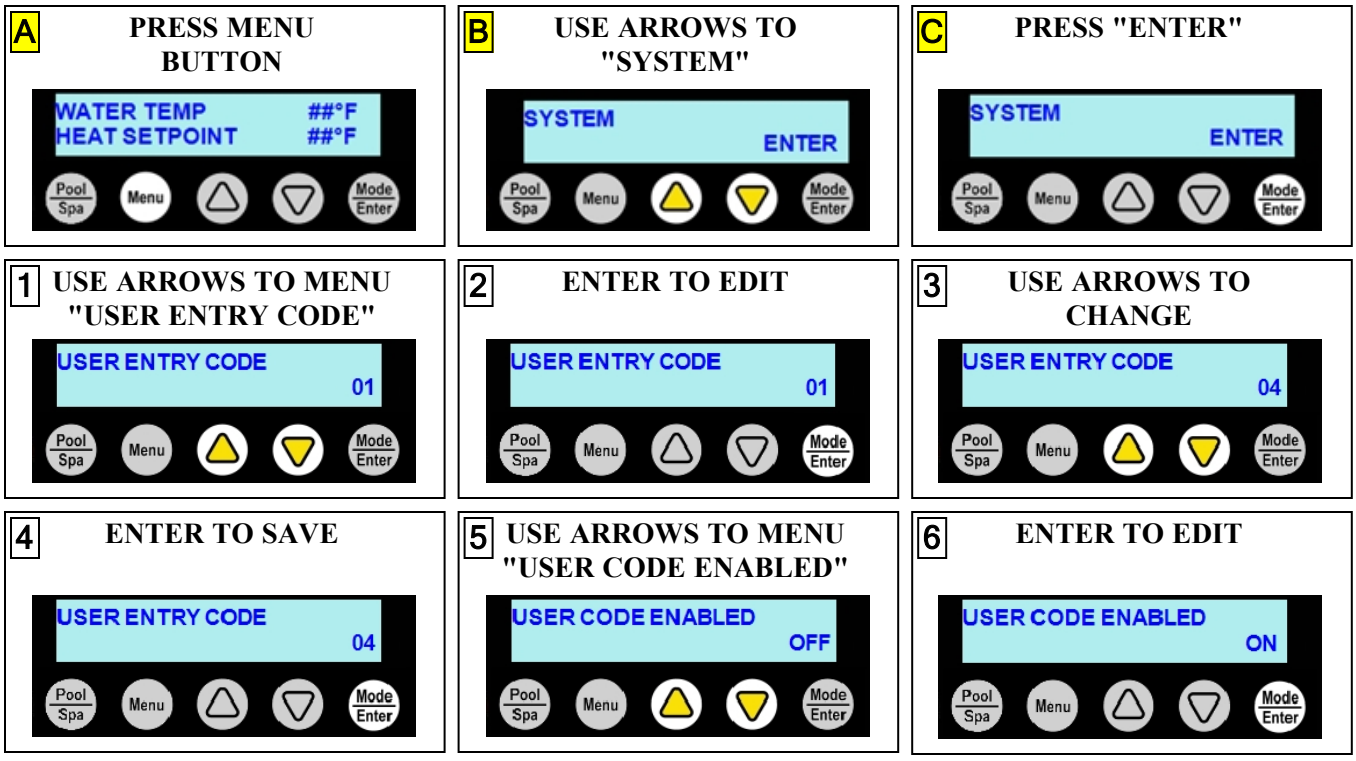
2.3.D Setting Entry Code Option

The entry code feature can prevent unauthorized access to the heat pump adjustments. This feature initiates after the heat pump goes into the sleep mode for the first time. This feature is commonly used on commercial applications.

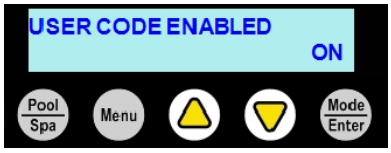
NOTICE Failure to heed the following may result in damage to equipment.

- **Before enabling the entry code feature, be sure to record the code.** If lost, the heat pump will require a program reset to regain access. This reset may require additional configuration by the installer.

Enter "System" menus, then proceed



7 **USE ARROWS TO CHANGE**



8 **ENTER TO SAVE**



MENU TO EXIT, PRESS & HOLD TO STATUS



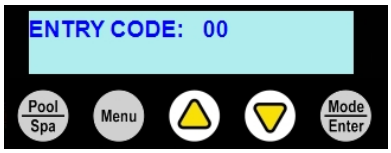
2.3.E Disabling Entry Code Option

PLEASE NOTE -

- If an entry code has already been activated, the code must be entered before proceeding to disable.

Use Entry Code

1 **USE ARROWS TO ENTER CODE**



2 **ENTER TO UNLOCK**



Disable User Lock

Enter "System" menus, then proceed

A **PRESS MENU BUTTON**



B **USE ARROWS TO "SYSTEM"**



C **PRESS "ENTER"**



3 **USE ARROWS TO "USER ENTRY CODE ENABLED"**



4 **ENTER TO EDIT**



5 **ARROWS TO CHANGE**



6 **ENTER TO SAVE**



MENU TO EXIT, PRESS & HOLD TO STATUS



2.3.F Configuring Groups

A group is used to control multiple devices (equipment) connected to the heat pump, either by manually activating the group through a shortcut, or scheduling the group to activate at a specified time.

EXAMPLES IN THIS SECTION:

F.1 Create a Group **30**
F.2 Edit a Group **31**
F.3 Delete a Group **32**

F.1 Create a Group

EXAMPLES OF GROUPS THAT CAN BE CREATED:

- A Custom Filtration Group -
  - This group could be used if the user didn't want to regulate the temperature of the water the entire time the circulation pump is activated. A custom group can be created that separates the amount of filtration time from the amount of time allowed for the heat pump to heat or cool the water.

The example below shows a "FILTRATION" group being created manually.
A circulation pump will be added to the group.

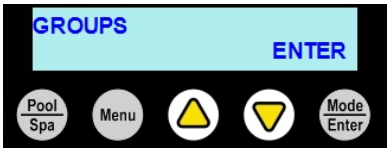
PLEASE NOTE
This section only describes the configuration of an already connected circulation pump. To physically wire this type of device to the heat pump, see the heat pump's installation manual.

Enter "Groups" menus, then proceed

A **PRESS "MENU" BUTTON**



B **USE ARROWS TO "GROUPS"**



C **PRESS "ENTER"**



1 **USE ARROWS TO "NEW GROUP SETUP"**



2 **ENTER TO CREATE**



3 **USE ARROWS TO NAME "FILTRATION"**



4 **ENTER TO SAVE**



5 **USE ARROWS TO SET MAXIMUM ACTIVE TIME**



6 **ENTER TO SAVE**



7 **USE ARROWS TO SET FREEZE PROTECT OPTION**



8 **ENTER TO SAVE**



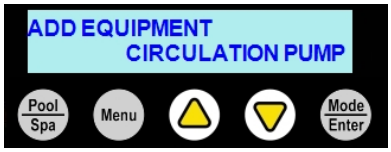
9 **PRESS BUTTON UNDER "YES" TO SAVE**



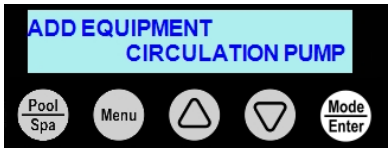
10 **PRESS "ENTER" TO ADD EQUIPMENT**



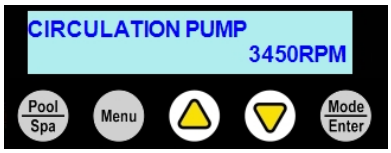
11 **USE ARROWS TO SELECT EQUIPMENT**



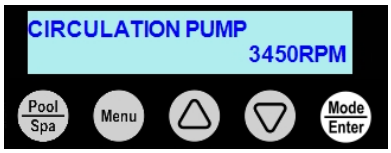
12 **ENTER TO SAVE**



13 **USE ARROWS TO SET RPM**



14 **ENTER TO SAVE**



MENU TO EXIT, PRESS & HOLD TO STATUS



The group is now ready to be activated using a shortcut or scheduled to activate at a certain time.

- See "*Using a Group Shortcut*" on page 21.
- See "*Create a Schedule*" on page 33.

F.2 Edit a Group

The example below shows a "FILTRATION" group being edited.
An existing variable speed circulation pump will be deleted and an attached single speed circulation pump (named "POOL PUMP") will be added. The device will be set to be "ON" when the group is active.

Enter "Groups" menus, then proceed

A PRESS "MENU" BUTTON



B USE ARROWS TO "GROUPS"



C PRESS "ENTER"



1 USE ARROWS TO "FILTRATION GROUP"



2 ENTER TO EDIT



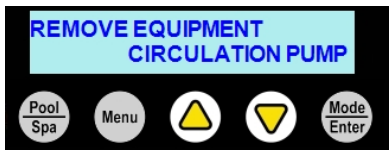
3 USE ARROWS TO "REMOVE EQUIPMENT"



4 ENTER TO SELECT



5 USE ARROWS TO DEVICE TO REMOVE



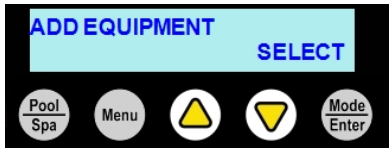
6 ENTER TO SELECT



7 PRESS BUTTON UNDER "YES" TO CONFIRM



8 USE ARROWS TO "ADD EQUIPMENT"



9 ENTER TO SELECT



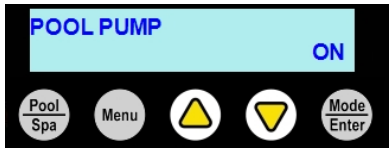
10 USE ARROWS TO DEVICE TO ADD



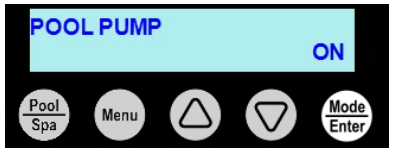
11 ENTER TO SELECT



12 USE ARROWS TO SELECT DEVICE STATE



13 ENTER TO SAVE



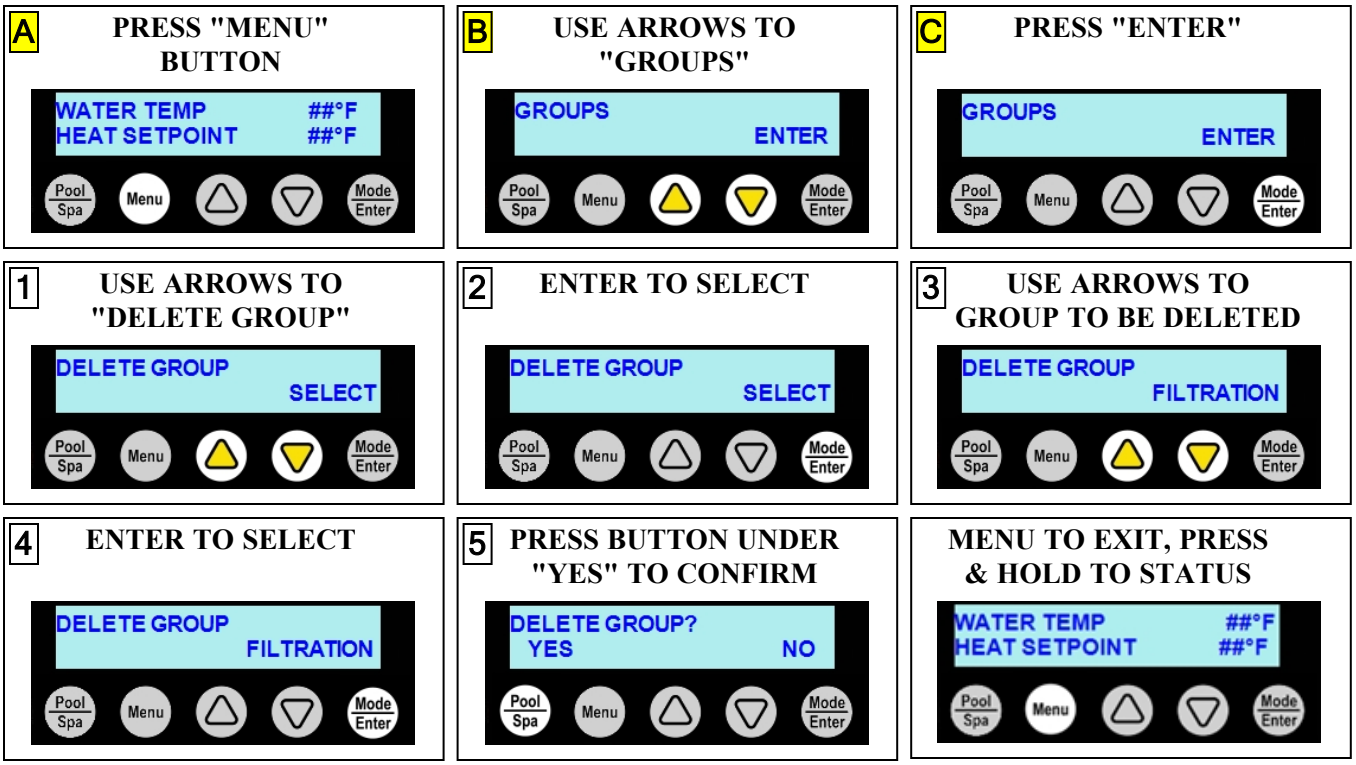
MENU TO EXIT, PRESS & HOLD TO STATUS



F.3 Delete a Group

The example below shows a "FILTRATION" group being deleted.
Any schedules associated with that group will also be deleted.

Enter "Groups" menus, then proceed



2.3.G Configuring Schedules

A schedule can be used to activate a group of devices at a specified time.

- See "*Configuring Groups*" on page 30.

EXAMPLES IN THIS SECTION:

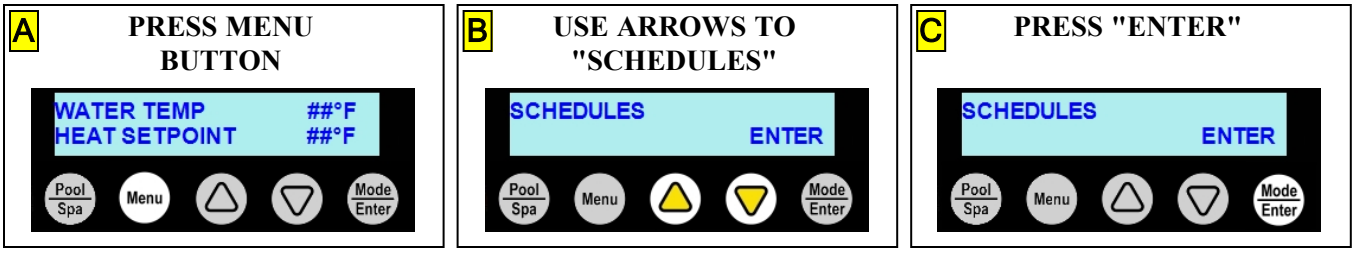
G.1 Create a Schedule 33
G.2 Edit a Schedule 35
G.3 Delete a Schedule 36

G.1 Create a Schedule

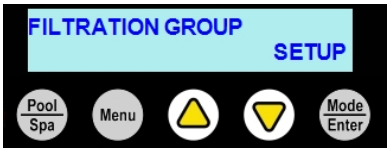
A maximum of four (4) schedule programs can be configured for each group.

The example below shows a "FILTRATION" group being scheduled.

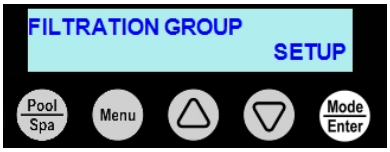
Enter "Schedules" menus, then proceed



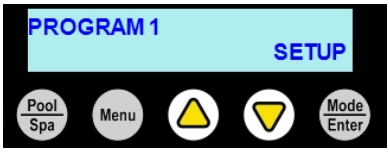
1 ARROWS TO GROUP TO SCHEDULE



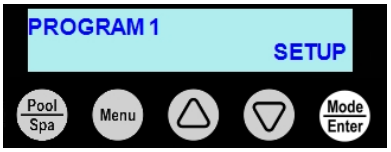
2 ENTER TO EDIT



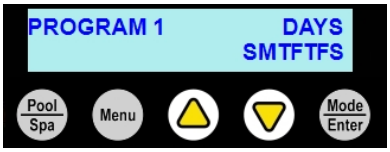
3 USE ARROWS TO THE PROGRAM TO SCHEDULE (1-4)



4 ENTER TO EDIT



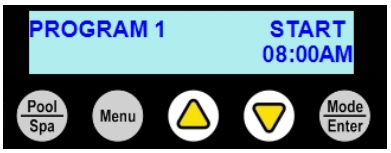
5 USE ARROWS TO EDIT DAYS



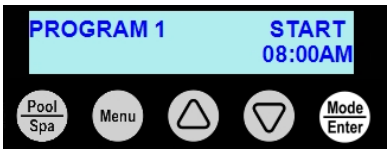
6 ENTER TO SAVE



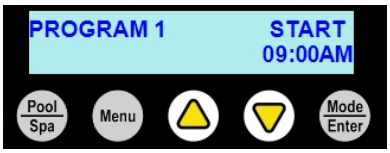
7 USE ARROWS TO "START" TIME



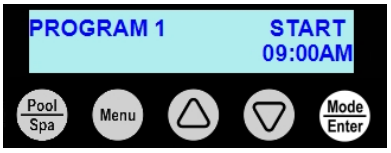
8 ENTER TO EDIT



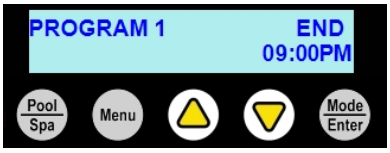
9 USE ARROWS TO CHANGE



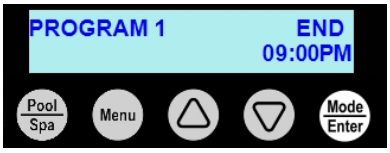
10 ENTER TO SAVE



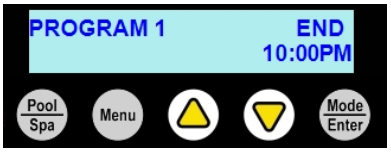
11 USE ARROWS TO "END" TIME



12 ENTER TO EDIT



13 USE ARROWS TO CHANGE



14 ENTER TO SAVE



MENU TO EXIT, PRESS & HOLD TO STATUS



The example shows a pool group schedule being edited:

- From 8:00AM-5:00PM SMTWTFS (everyday)
- To 9:00AM-6:00PM -MTWTF- (Monday through Friday)

WARNING Failure to heed the following may result in injury or death.

- When editing schedules containing the circulation pump, allow time for proper filtration.
- Follow all State and Local guidelines in regards to satisfying code-specified whole system turnover rates.

PLEASE NOTE:

This is not a recommended filtration schedule.

- What is shown is just an example of how to edit a schedule.
- A default schedule was initially created using an installation preset available in the installation menu.

Enter "Schedules" menus, then proceed

A PRESS MENU BUTTON



B USE ARROWS TO "SCHEDULES"



C PRESS "ENTER"



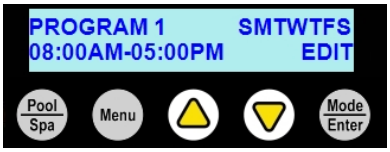
1 USE ARROWS TO "POOL GROUP"



2 PRESS ENTER TO EDIT



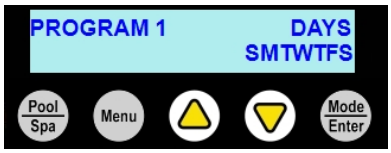
3 USE ARROWS TO SCHEDULE TO EDIT



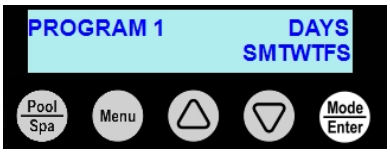
4 ENTER TO EDIT



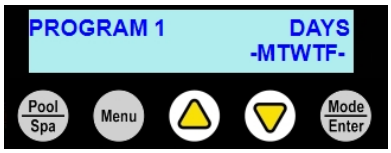
5 USE ARROWS TO "PROGRAM 1 DAYS"



6 ENTER TO EDIT



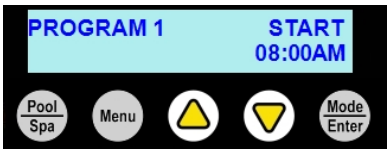
7 USE ARROWS TO CHANGE



8 ENTER TO SAVE



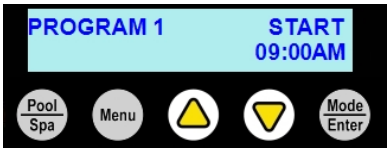
9 USE ARROWS TO "PROGRAM1 START"



10 ENTER TO EDIT



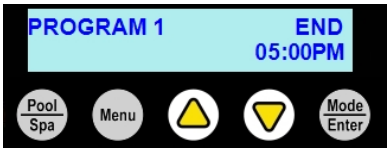
11 USE ARROWS TO CHANGE



12 ENTER TO SAVE



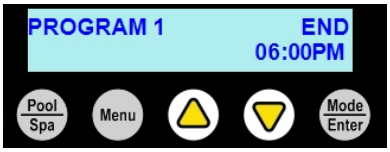
13 USE ARROWS TO "PROGRAM1 END"



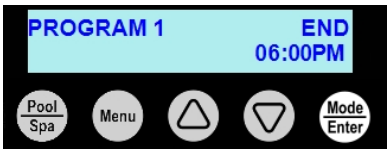
14 ENTER TO EDIT



15 USE ARROWS TO CHANGE



16 ENTER TO SAVE



MENU TO EXIT, PRESS & HOLD TO STATUS



G.3 Delete a Schedule

Select the group and then the program to edit. Use the clear option to remove the program's schedule.
In the following example, the group "FILTRATION" has a schedule in "PROGRAM 1" that will be cleared (deleted).

Enter "Schedules" menus, then proceed

A PRESS MENU BUTTON



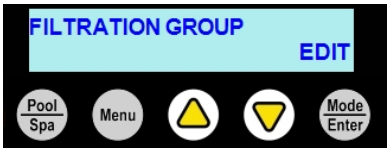
B USE ARROWS TO "SCHEDULES"



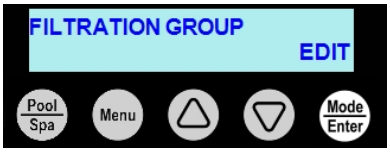
C PRESS "ENTER"



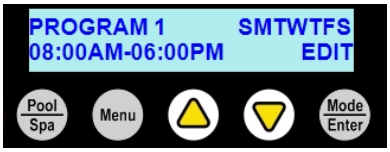
1 ARROWS TO SCHEDULED GROUP



2 ENTER TO EDIT



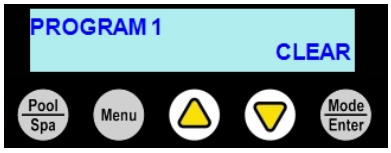
3 USE ARROWS TO PROGRAM TO EDIT



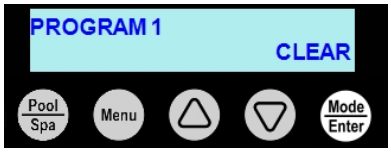
4 **ENTER TO EDIT**



5 **USE ARROWS TO "CLEAR"**



6 **ENTER TO SELECT**



7 **SELECT "YES" TO CLEAR PROGRAM**



MENU TO EXIT, PRESS & HOLD TO STATUS



2.3.H Schedule and Program Modes

If the heat pump uses groups and schedules, the schedules can be deactivated temporarily as needed. Either globally through a schedule mode, or individually by setting a group's program mode.

> ***NOTE***
> *The standard (from the factory) heat pump* ***does not have*** *a group or schedule. These can be created as needed depending on if a heat pump option has been utilized.*

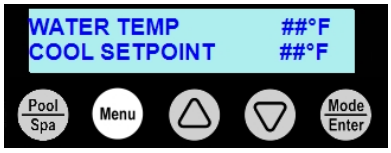
SCHEDULE MODE	Description	
"AUTO"	The default mode. This allows schedules to run normally.	See "*Set Schedule Mode to "AUTO"*" on the facing page.
"AWAY"	This mode is generally used when the user is away on vacation and doesn't want to maintain water temperature. The heat pump will be deactivated while the rest of the schedules (including filtration) are allowed to continue.	See "*Set Schedule Mode to "AWAY"*" on the facing page.
"OFF"	This mode turns off all schedules. The schedules resume when the schedule mode is set to "AUTO" again. Please note - this will also halt any connected circulation pump activity. This option is not meant for long term usage.	See "*Set Schedule Mode to "OFF"*" on page 40.

PROGRAM MODE	Description	
"ON"	A group's scheduled programs are set to operate normally.	See "*Set Group Programs to "ON"*" on page 40.
"PAUSED"	A group's scheduled programs will be paused. The programs will automatically resume the next scheduled day. No other group's activities will be effected.	See "*Set Group Programs to "PAUSED"*" on page 41.
"OFF"	This mode turns off all schedule programs for the group indefinitely. Programs resume when the program mode is set to "ON" again.	See "*Set Group Programs to "OFF"*" on page 42.

Set Schedule Mode to "AUTO"

Enter "Shortcuts" menus, then proceed

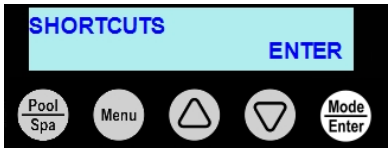
A PRESS MENU BUTTON



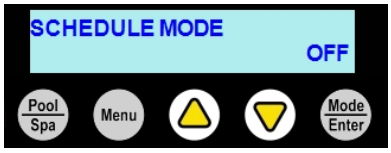
B USE ARROWS TO "SHORTCUTS"



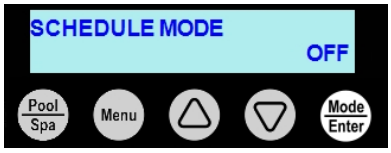
C PRESS "ENTER"



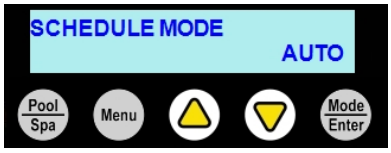
1 ARROWS TO "SCHEDULE MODE"



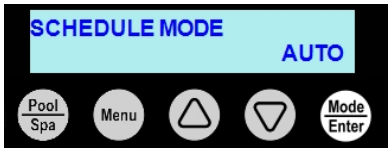
2 ENTER TO EDIT



3 ARROWS TO "AUTO"



4 ENTER TO SAVE



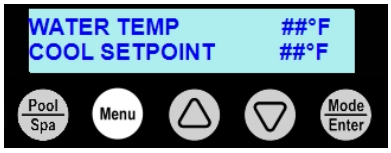
MENU TO EXIT, PRESS & HOLD TO STATUS



Set Schedule Mode to "AWAY"

Enter "Shortcuts" menus, then proceed

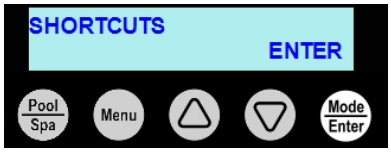
A PRESS MENU BUTTON



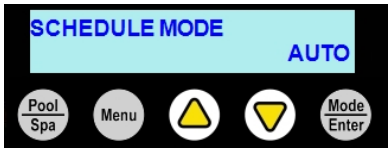
B USE ARROWS TO "SHORTCUTS"



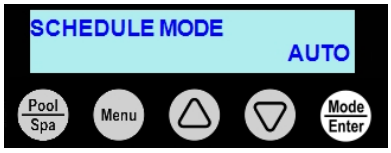
C PRESS "ENTER"



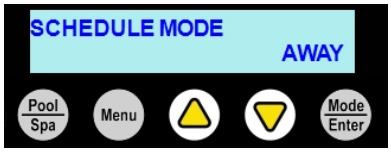
1 ARROWS TO "SCHEDULE MODE"



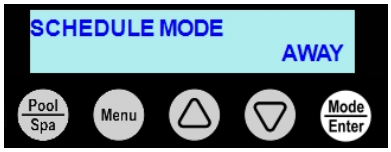
2 ENTER TO EDIT



3 ARROWS TO "AWAY"



4 ENTER TO SAVE



5 ARROWS AND ENTER TO SET END DATE



MENU TO EXIT, PRESS & HOLD TO STATUS



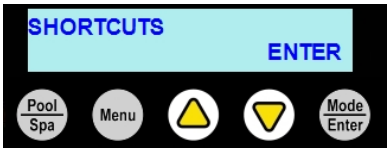
Set Schedule Mode to "OFF"

Enter "Shortcuts" menus, then proceed

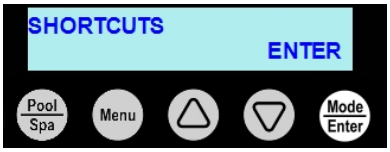
A PRESS MENU BUTTON



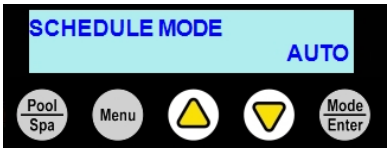
B USE ARROWS TO "SHORTCUTS"



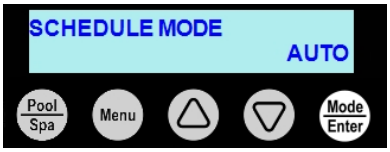
C PRESS "ENTER"



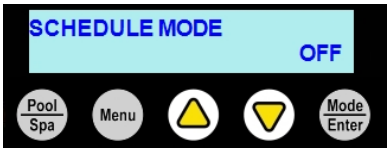
1 ARROWS TO "SCHEDULE MODE"



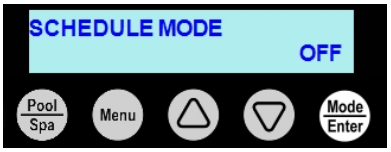
2 ENTER TO EDIT



3 ARROWS TO "OFF"



4 ENTER TO SAVE



MENU TO EXIT, PRESS & HOLD TO STATUS



Set Group Programs to "ON"

In the following example, a "Pool" group's set of scheduled programs will be set from "PAUSED" back to "ON".

Enter "Schedules" menus, then proceed

A PRESS MENU BUTTON



B USE ARROWS TO "SCHEDULES"



C PRESS "ENTER"



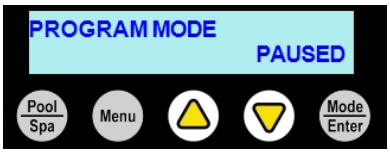
1 ARROWS TO "POOL GROUP"



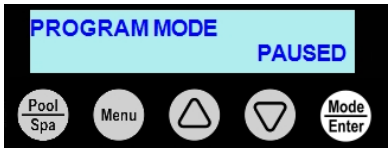
2 ENTER TO EDIT



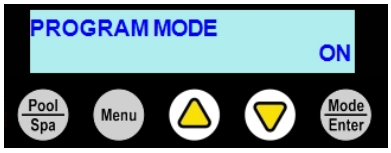
3 ARROWS TO "PROGRAM MODE"



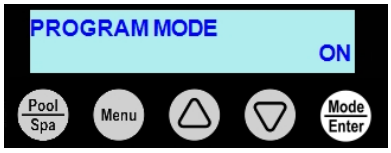
4 ENTER TO EDIT



5 ARROWS TO "ON"



6 ENTER TO SAVE



MENU TO EXIT, PRESS & HOLD TO STATUS



Set Group Programs to "PAUSED"

In the following example, a "Pool" group's set of scheduled programs will be paused. This will continue until the programs are set back to "ON".

Enter "Schedules" menus, then proceed

A PRESS MENU BUTTON



B USE ARROWS TO "SCHEDULES"



C PRESS "ENTER"



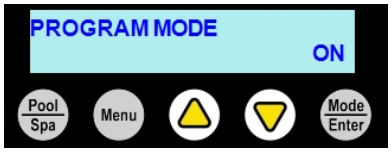
1 ARROWS TO "POOL GROUP"



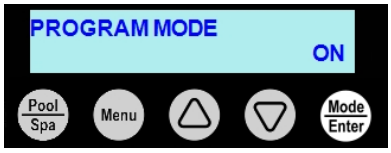
2 ENTER TO EDIT



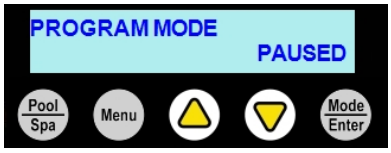
3 ARROWS TO "PROGRAM MODE"



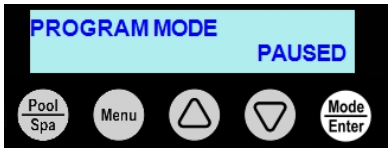
4 ENTER TO EDIT



5 ARROWS TO "PAUSED"



6 ENTER TO SAVE



MENU TO EXIT, PRESS & HOLD TO STATUS



Set Group Programs to "OFF"

In the following example, a "Pool" group's set of scheduled programs will be set from "ON" to "OFF".
The schedules will not resume until the programs are set back to "ON".

Enter "Schedules" menus, then proceed

A PRESS MENU BUTTON



B USE ARROWS TO "SCHEDULES"



C PRESS "ENTER"



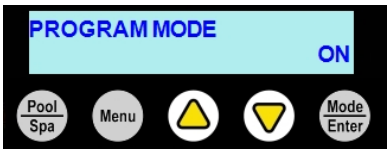
1 ARROWS TO "POOL GROUP"



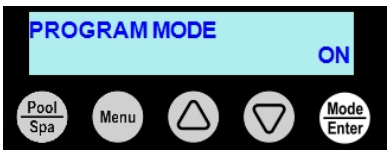
2 ENTER TO EDIT



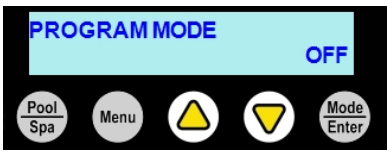
3 ARROWS TO "PROGRAM MODE"



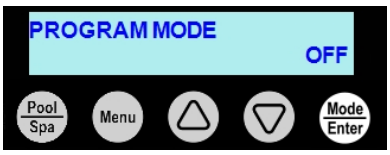
4 ENTER TO EDIT



5 ARROWS TO "OFF"



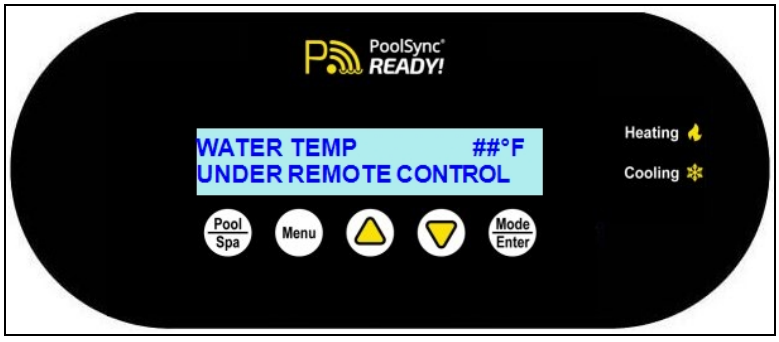
6 ENTER TO SAVE



MENU TO EXIT, PRESS & HOLD TO STATUS



2.3.I Operating Heat Pump (With an External Controller)



If the display indicates the unit is under remote control, an external control device has been configured to control the heat pump. See the external control device manual. Or contact installer or manufacturer of that device.

PLEASE NOTE:

- Not all external controllers are supported by the heat pump. Please check controller product documentation if needed.
- When using a SMART external control device, the time-out and service modes will deactivate the Heat Pump.
- Also note that not all external controllers support heat pumps with a cooling mode.

2.3.J Operating Solar Control

IN THIS SECTION:

Activating Solar Control Feature 44
Manually Configure (Add) Solar Controller to Heat Pump 45
Manually Configure (Add) a Solar Control Device to a Group 46
Solar Control Mode 46
Set a desired temperature (setpoint) for solar system to activate 49
Heat Pump Mode (Hybrid or OFF Only) 50
Solar Boost (ECO Mode Only) 50
Solar Heat / Cool Mode 51
Adjusting Solar Heating Differential 52
Adjusting Solar Cooling Differential 53
Solar Override 54
Viewing Solar Roof Temperature 56

Activating Solar Control Feature

Solar control needs to be enabled before the solar control options will be offered in the heat pump.

> ***NOTE***
> *A roof temperature sensor, two correctly positioned water temperature sensors, and a solar valve actuator are required in order to control the solar system.*

Enter "Solar Advanced" menus, then proceed

A PRESS MENU BUTTON



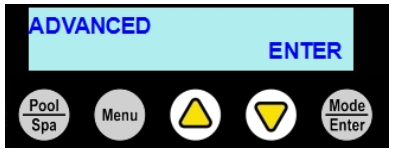
B USE ARROWS TO "SYSTEM"



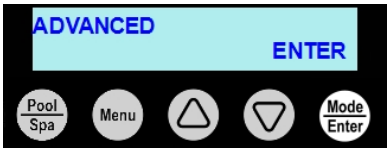
C PRESS "ENTER"



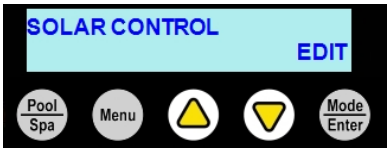
D USE ARROWS TO "ADVANCED"



E PRESS "ENTER"



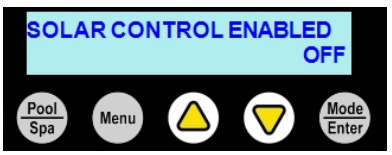
1 ARROWS TO "SOLAR CONTROL"



2 ENTER TO EDIT



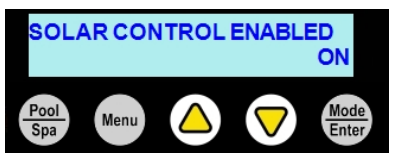
3 ARROWS TO "SOLAR CONTROL ENABLED"



4 ENTER TO SELECT



5 ARROWS TO "ON"



6 ENTER TO SAVE



MENU TO EXIT, PRESS & HOLD TO STATUS

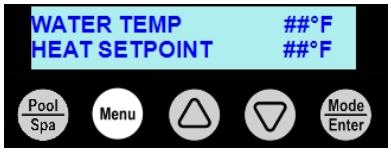


Manually Configure (Add) Solar Controller to Heat Pump

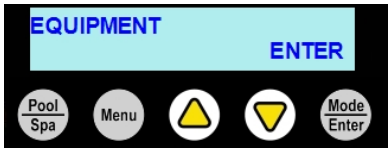
In this example, the solar controller equipment is to be configured (Added).

Enter "Equipment" menus, then proceed

A **PRESS MENU BUTTON**



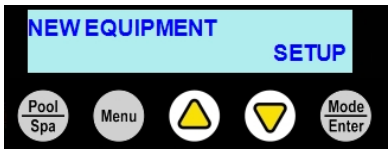
B **USE ARROWS TO "EQUIPMENT"**



C **PRESS "ENTER"**



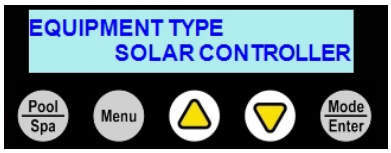
1 **USE ARROWS TO MENU "NEW EQUIPMENT"**



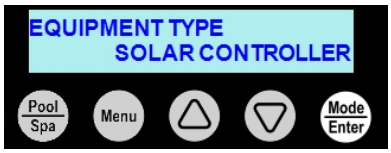
2 **ENTER TO SELECT**



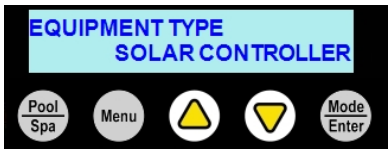
3 **USE ARROWS TO "SOLAR CONTROLLER"**



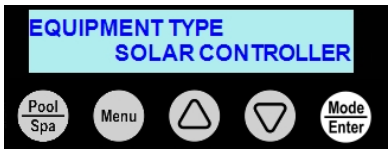
4 **ENTER TO SELECT**



5 **USE ARROWS TO MENU DEVICE NAME**



6 **ENTER TO SAVE**



7 **ARROWS TO SOLAR CONTROLLER TYPE**



8 **ENTER TO SAVE**



9 **USE ARROWS TO SELECT DEVICE'S PORT**



10 **ENTER TO SELECT**



11 **PRESS BUTTON UNDER "YES" TO SAVE**



MENU TO EXIT, PRESS & HOLD TO STATUS



- The configured device will now be available for insertion into a group.
  - See "*Manually Configure (Add) a Solar Control Device to a Group*" on the next page.

Manually Configure (Add) a Solar Control Device to a Group

It is required that a Solar Controller device is added to any group where control of a connected solar system is to be used. In the following example, the "POOL" group is edited to add the "Solar Controller" device.

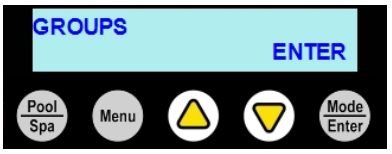
> ***NOTE***
> *When setting up a heat pump using an installation preset, this device is already added to groups by default. And this manual setup is not required.*

Enter "Groups" menus, then proceed

A PRESS "MENU" BUTTON



B USE ARROWS TO "GROUPS"



C PRESS "ENTER"



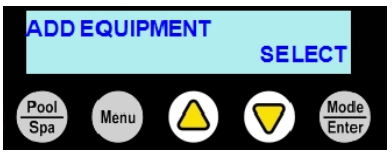
1 ARROWS TO "POOL GROUP"



2 ENTER TO EDIT



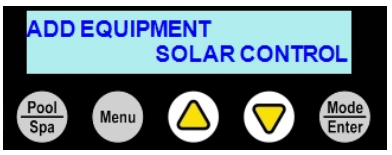
3 ARROWS TO "ADD EQUIPMENT"



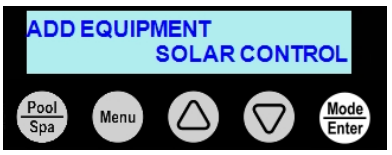
4 ENTER TO SELECT



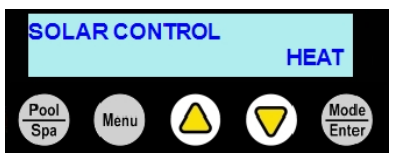
5 ARROWS TO "SOLAR CONTROL"



6 ENTER TO SELECT



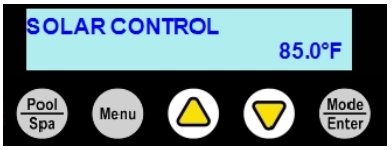
7 ARROWS TO SELECT TEMPERATURE MODE



8 ENTER TO SELECT



9 ARROWS TO SELECT SET TEMPERATURE



10 ENTER TO SAVE



MENU TO EXIT, PRESS & HOLD TO STATUS



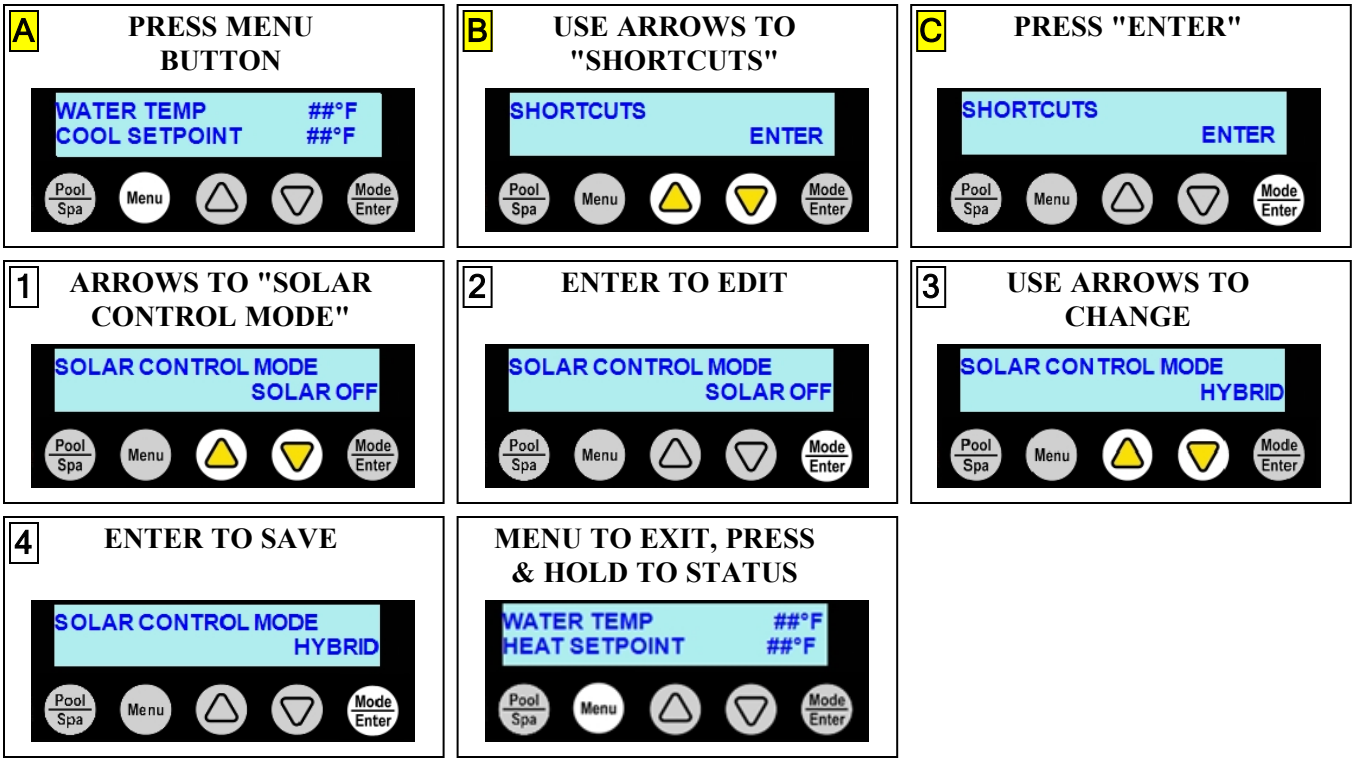
Solar Control Mode

Selecting how the Solar System is to be used is necessary. The Solar Control mode has three available options ("HYBRID", "ECO", or "SOLAR OFF").

- **"HYBRID"**
  - In Hybrid mode, the heat pump and solar control work together to maintain the pool / spa water temperature within two setpoints. A heat pump setpoint and a solar setpoint (a minimum and maximum temperature).
  - The heat pump is typically used to maintain the minimum setpoint, while solar control maintains the maximum setpoint.
- **"ECO"**
  - In ECO (or economy) mode, the heat pump operation is disabled. Monitoring of the solar differences in temperature are made. The solar diverter valve actuator will activate as needed.
  - This is the maximum economical maintenance of the Pool / Spa water temperature by the solar system only.
  - A single water setpoint temperature is maintained by the user.
  - A solar boost mode is available to temporarily override this mode and activate the heat pump to bring water quickly to a desired temperature. See "*Solar Boost (ECO Mode Only)*" on page 50.
- **"SOLAR OFF"**
  - Solar control is disabled. This is the default setting from the factory.
  - When in this state, the valve actuator will rotate to the solar off position.
  - Unless the manual override feature is enabled. Water is diverted through the heat pump only.

Set Solar Control to HYBRID Mode

Enter "Shortcuts" menus, then proceed



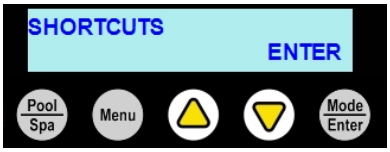
Set Solar Control to ECO Mode

Enter "Shortcuts" menus, then proceed

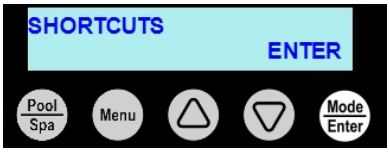
A PRESS MENU BUTTON



B USE ARROWS TO "SHORTCUTS"



C PRESS "ENTER"



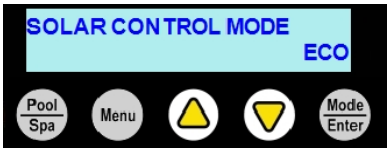
1 ARROWS TO "SOLAR CONTROL MODE"



2 ENTER TO EDIT



3 USE ARROWS TO CHANGE



4 ENTER TO SAVE



MENU TO EXIT, PRESS & HOLD TO STATUS



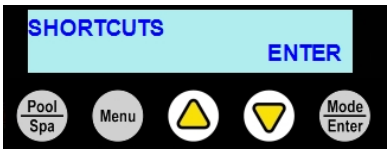
Set Solar Control to SOLAR OFF

Enter "Shortcuts" menus, then proceed

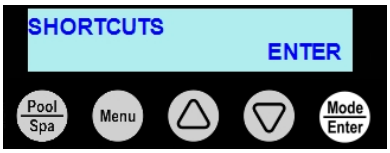
A PRESS MENU BUTTON



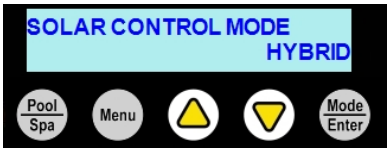
B USE ARROWS TO "SHORTCUTS"



C PRESS "ENTER"



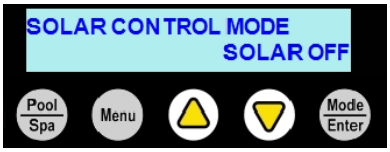
1 ARROWS TO "SOLAR CONTROL MODE"



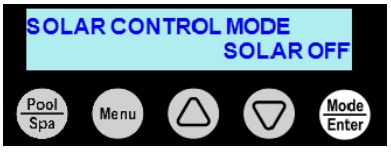
2 ENTER TO EDIT



3 USE ARROWS TO CHANGE



4 ENTER TO SAVE



MENU TO EXIT, PRESS & HOLD TO STATUS



Set a desired temperature (setpoint) for solar system to activate

PLEASE NOTE

Setting a water temperature setpoint for the solar system is only useful if the SOLAR CONTROL MODE is set to "HYBRID" or "ECO" mode. See "Solar Control Mode" on page 46.

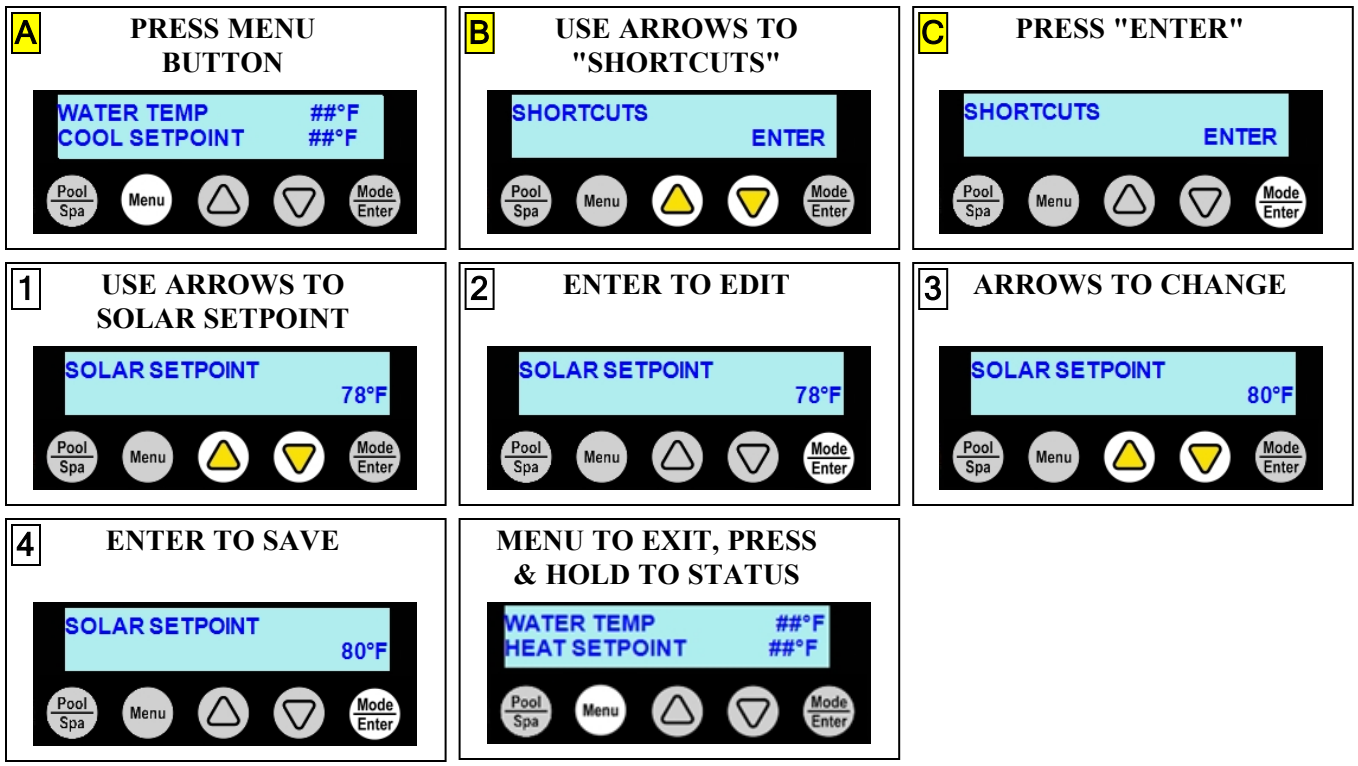
ALSO NOTE:

- The maximum temperature the Solar System can be set to is 104° F (40° C).
- The solar system will be set to off if incoming water temperatures are above 108° F (42° C). This assumes the heat pump is controlling the solar system and it was installed as recommended.

Example:

The solar system is set from 78° F to 80° F.

Enter "Shortcuts" menus, then proceed



Heat Pump Mode (Hybrid or OFF Only)

When using a Heat Pump's to control a solar control system, an applicable mode must be chosen. Available modes are "HEAT SETPOINT" or "OFF".

Press "Mode / Enter" button until the desired mode is displayed.

- HEAT SETPOINT - Used to activate heat pump's heating mode. If the heat pump's setpoint is below the Pool or Spa water temperature, the fan and compressor will start, then the red "Heating" light will activate.
- OFF - The heat pump will indicate it is deactivated. The current water temperature will be displayed.

> ***PLEASE NOTE:***
> *This mode does not control the solar control mode. See "Solar Control Mode" on page 46.*





Solar Boost (ECO Mode Only)

Solar Boost allows the user to temporarily override the "ECO" mode to rapidly bring the water temperature to the solar temperature setpoint.

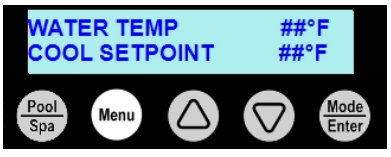
- The option activates the heat pump and solar system at the same time.
- When boost is activated, the heat pump setpoint is automatically changed to match the solar setpoint. The equipment operates together towards a single target setpoint
- Once the pool / spa water temperature reaches the setpoint, the system falls back into the ECO mode.

> ***NOTE***
> - This mode is only available if the solar control has been set to the "ECO" mode. See "*Solar Control Mode*" on page 46.

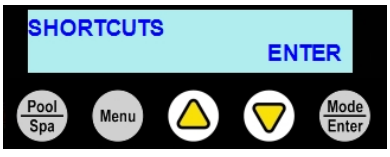
Activating Solar Boost

Enter "Shortcuts" menus, then proceed

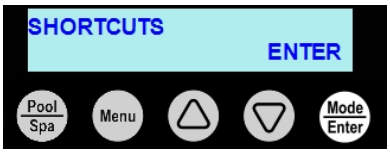
A **PRESS MENU BUTTON**



B **USE ARROWS TO "SHORTCUTS"**



C **PRESS "ENTER"**



1 **USE ARROWS TO "SOLAR BOOST"**

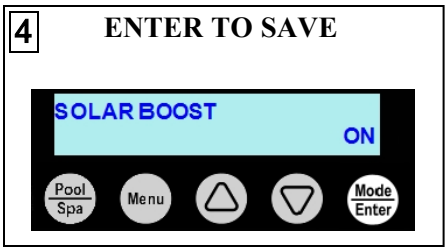


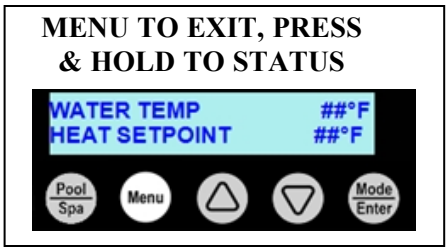
2 **ENTER TO EDIT**



3 **USE ARROWS TO CHANGE**





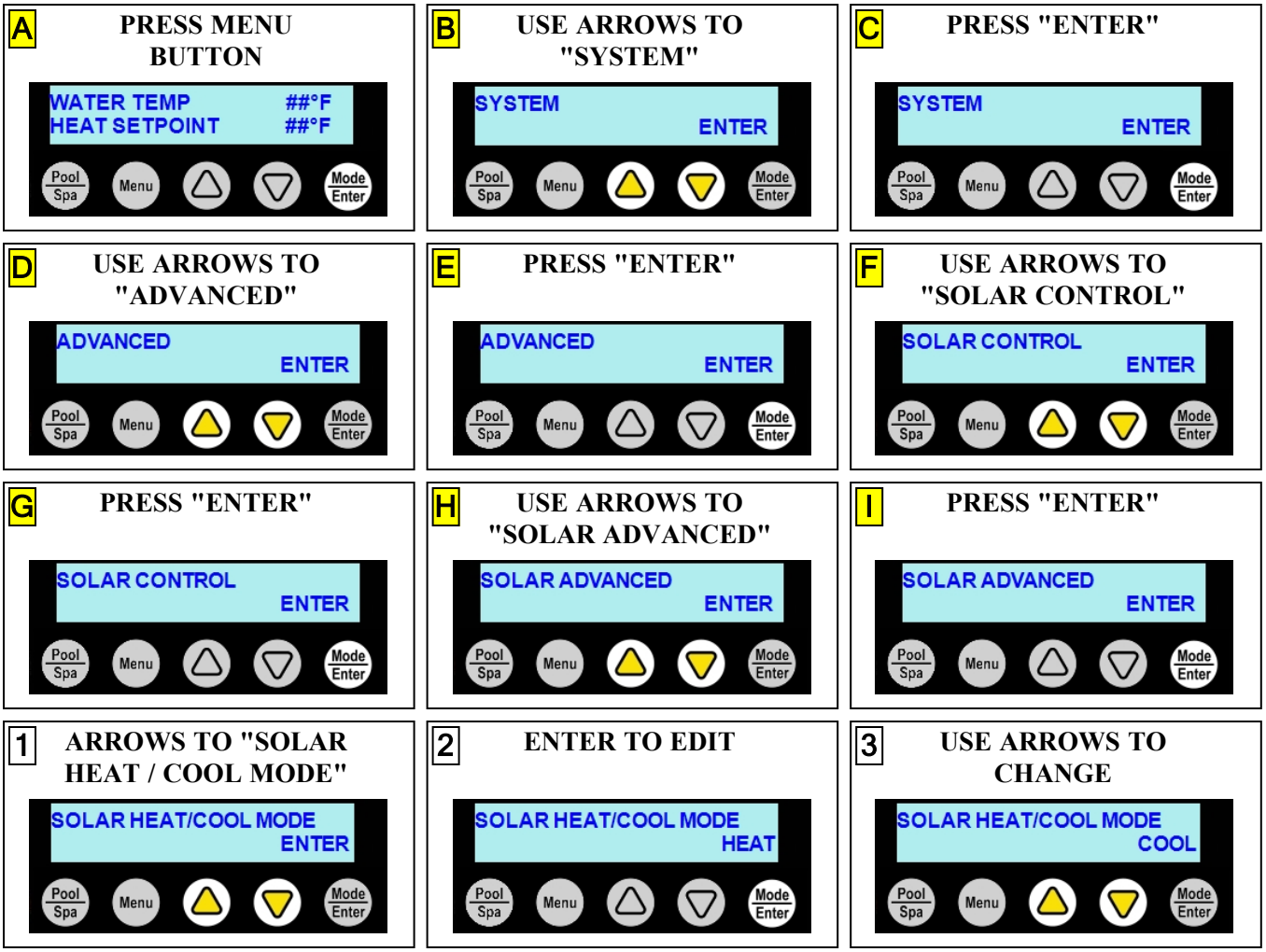


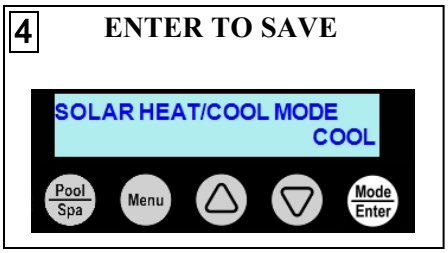
Solar Heat / Cool Mode

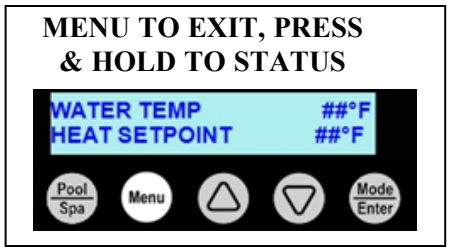
The user can set the Solar Heat Cool mode if necessary. Available options are "HEAT", "COOL", or "AUTO". The default mode from the factory is "HEAT". It is advised that this mode match the heat pump's mode button setting.

In the following example, the Solar Heat / Cool Mode is reset from "HEAT" to "COOL".

Enter "Solar Advanced" menus, then proceed





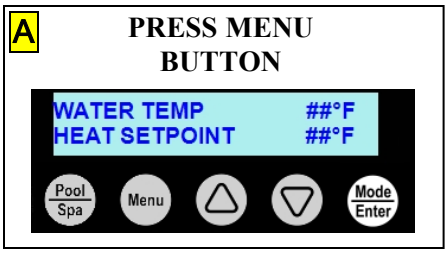


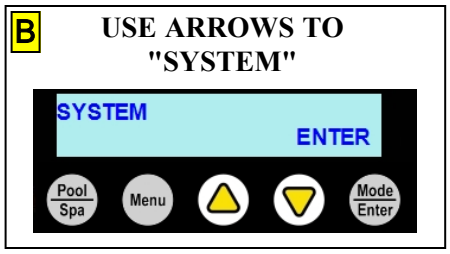
Adjusting Solar Heating Differential

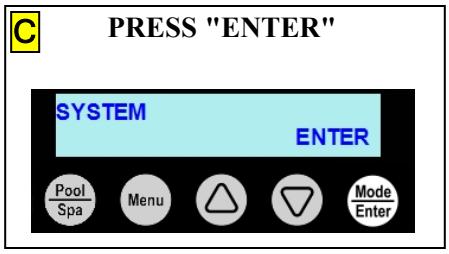
In general, the water flowing through the solar collectors is used to heat the pool / spa water. The unit will call for heating when the solar setpoint is higher than the existing pool / spa water temperature.

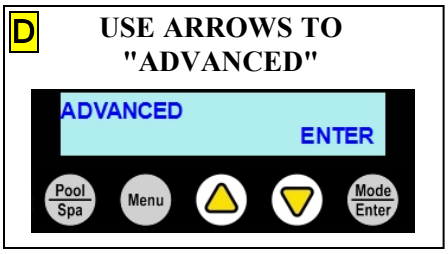
- Heating starts when the roof temperature is 6° F greater than the water temperature of the pool or spa.
- Heating stops when the roof temperature is within 2° F of the water temperature of the pool or spa.
- Please note - the Heat Pump solar settings must be as follows:
  - The "SOLAR CONTROL MODE" is set to "ECO" mode. See "*Solar Control Mode*" on page 46.
  - The "SOLAR HEAT / COOL MODE" is set to "HEAT" or "AUTO". See "*Solar Heat / Cool Mode*" on the previous page.

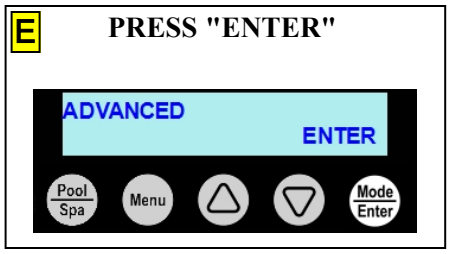
Enter "Solar Advanced" menus, then proceed

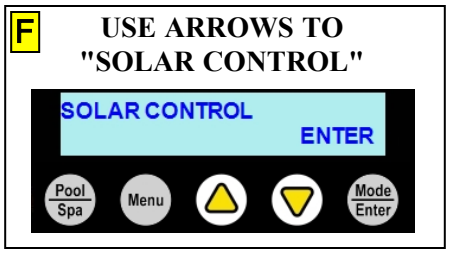


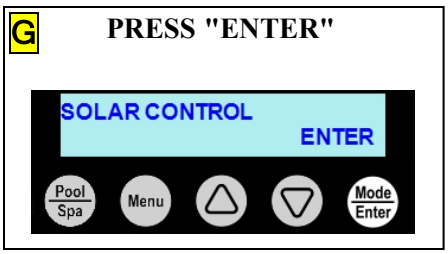


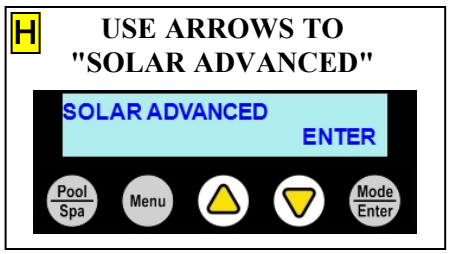














1 USE ARROWS TO "HEAT ON DIFFERENTIAL"



2 ENTER TO EDIT



3 USE ARROWS TO CHANGE



4 ENTER TO SAVE



5 ARROWS TO "HEAT OFF DIFFERENTIAL"



6 ENTER TO EDIT



7 USE ARROWS TO CHANGE



8 ENTER TO SAVE



MENU TO EXIT, PRESS & HOLD TO STATUS



Adjusting Solar Cooling Differential

The water flowing through the solar collectors can be used to cool the pool / spa water. The unit will call for cooling when the solar setpoint is lower than the existing pool / spa water temperature.

- Cooling starts when the roof temperature is 8° F less than the water temperature of the pool or spa.
- Cooling stops when the roof temperature is within 3° F of the water temperature of the pool or spa.
- Please note - the Heat Pump solar settings must be as follows:
  - The "SOLAR CONTROL MODE" is set to "ECO" mode. See "*Solar Control Mode*" on page 46.
  - The "SOLAR HEAT / COOL MODE" is set to "COOL" or "AUTO". See "*Solar Heat / Cool Mode*" on page 51.

Enter "Solar Advanced" menus, then proceed

A PRESS MENU BUTTON

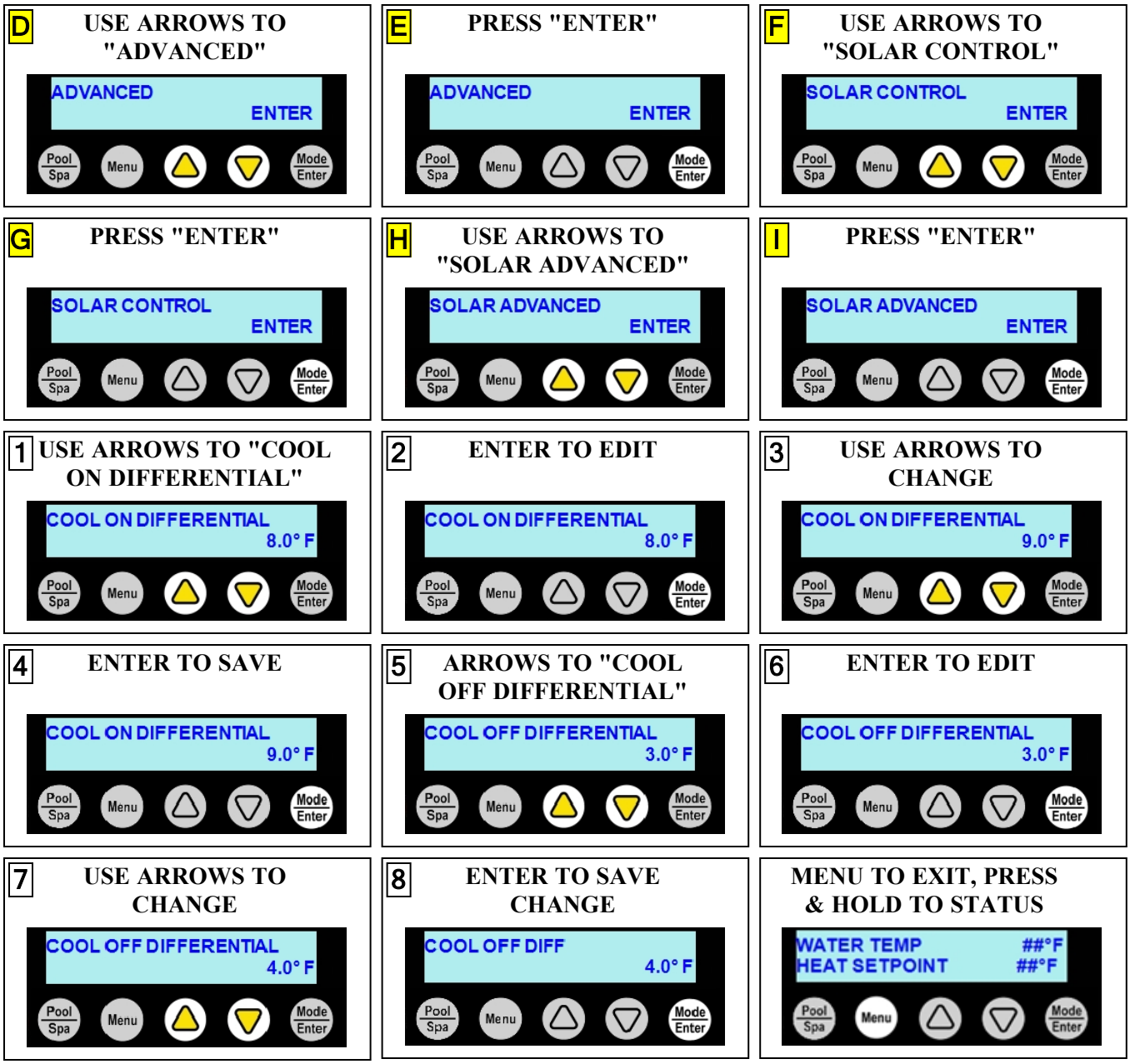


B USE ARROWS TO "SYSTEM"



C PRESS "ENTER"

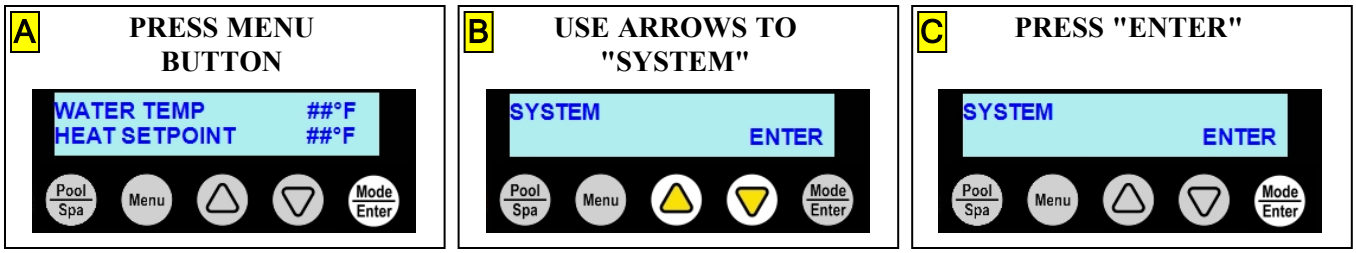




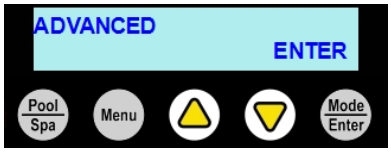
Solar Override

The solar system valve can be forced "ON" to allow an installer or maintenance professional to check for leaks in the solar collectors. The time the valve is overridden can be adjusted from 5 to 30 minutes. The default time is 15 minutes.

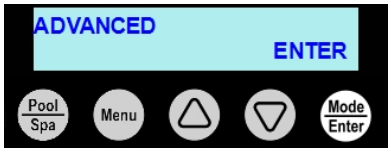
Enter "Solar Advanced" menus, then proceed



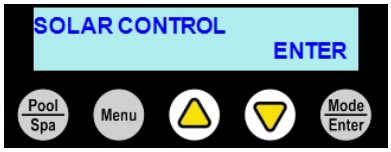
D USE ARROWS TO "ADVANCED"



E PRESS "ENTER"



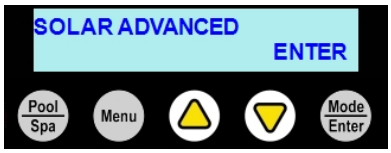
F USE ARROWS TO "SOLAR CONTROL"



G PRESS "ENTER"



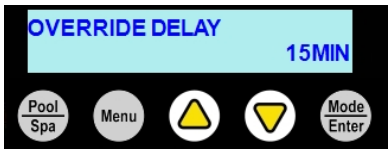
H USE ARROWS TO "SOLAR ADVANCED"



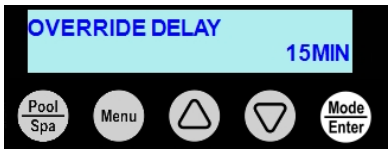
I PRESS "ENTER"



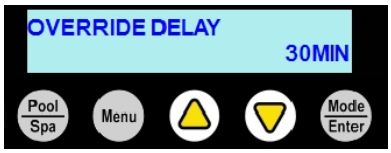
1 USE ARROWS TO "OVERRIDE DELAY"



2 ENTER TO EDIT



3 USE ARROWS TO CHANGE



4 ENTER TO SAVE



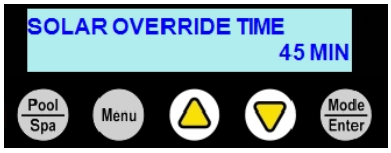
5 ARROWS TO "OVERRIDE ENABLE"



6 ENTER TO EDIT



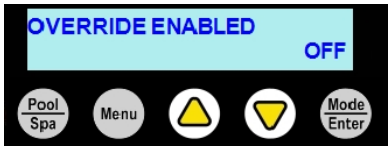
7 USE ARROWS TO CHANGE



8 ENTER TO SAVE



9 USE ARROWS TO "OVERRIDE ENABLED"



10 ENTER TO EDIT



11 ARROWS TO CHANGE TO "ON"



12 ENTER TO SAVE



MENU TO EXIT, PRESS & HOLD TO STATUS



Viewing Solar Roof Temperature

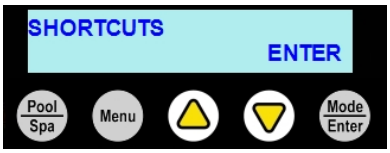
A sensor located on the roof can measure the roof's air temperature. This approximates the heating or cooling potential of the water in the solar panels on the roof. This menu is a status screen and can not be edited.

Enter "Shortcuts" menus, then proceed

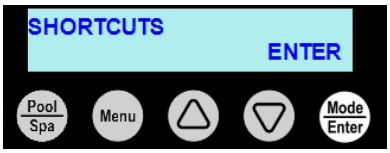
A **PRESS MENU BUTTON**



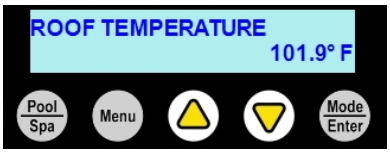
B **USE ARROWS TO "SHORTCUTS"**



C **PRESS "ENTER"**



1 **USE ARROWS TO "ROOF TEMP"**



MENU TO EXIT, PRESS & HOLD TO STATUS



3 - Appendix

IN THIS SECTION:

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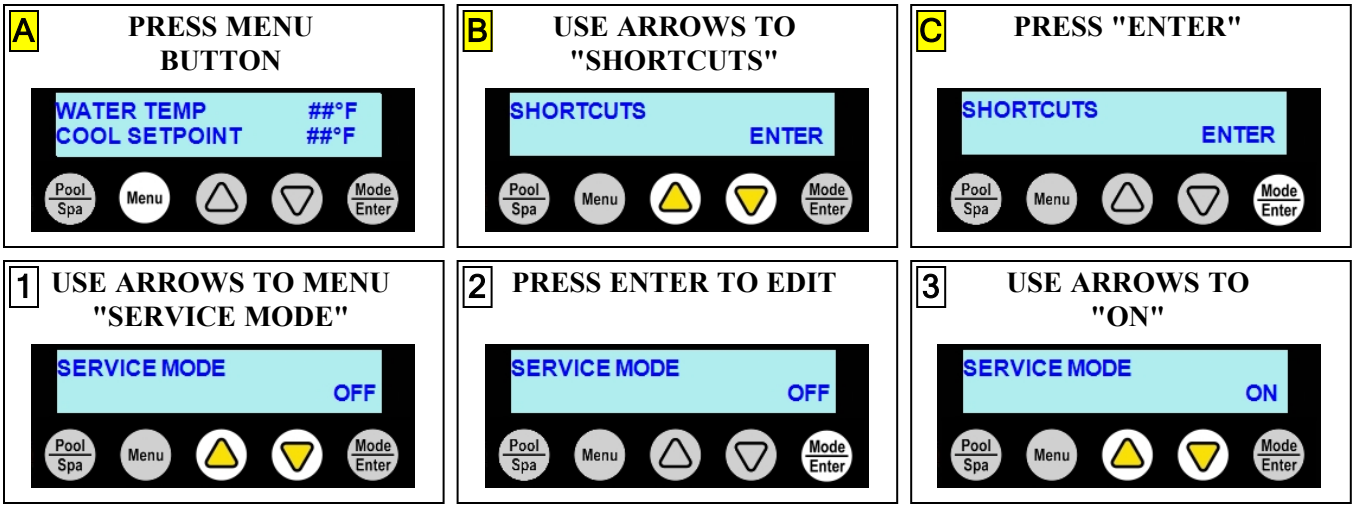
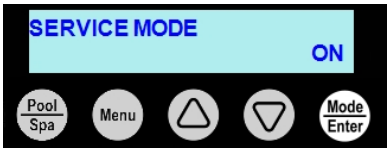
3.1 Service Mode

The heat pump can be set into a service mode where all connected devices and programmed schedules including the heat pump can be deactivated for servicing. While in service mode, connected devices / equipment can be manually activated as needed.

Enter "Shortcuts" menus, then proceed



4 **ENTER TO SAVE**



MENU TO EXIT, PRESS & HOLD TO STATUS



When service is complete, repeat above steps setting SERVICE MODE to "OFF".

3.2 Adjustments

IN THIS SECTION:

3.2.A Adjusting Water Flow Using ΔT (Delta-T) 59

3.2.A Adjusting Water Flow Using ΔT (Delta-T)

The Delta-T is the temperature difference between the water temperatures entering and leaving the heat pump.

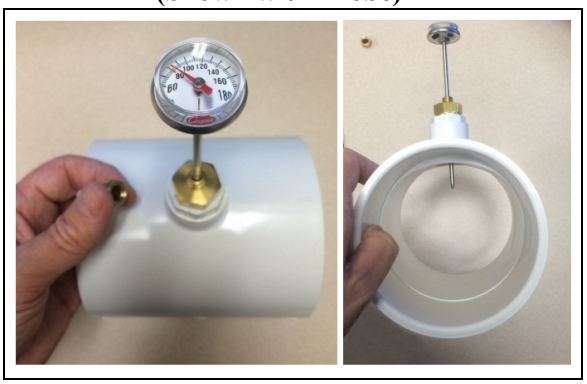
The equipment can be fine-tuned for maximum performance by balancing water flow rates to maintain an ideal ΔT.

The adjustment procedure must be completed with the unit in heating mode

PLEASE NOTE -

- The installation of temperature ports is required for all commercial applications.
- The installation of temperature ports is strongly recommended for residential installations.

Temperature Port (Shown with Probe)



1. Adjust the thermostat to its lowest setting with the unit in heating mode.
2. Deactivate the water filtration pump.
3. Confirm that the filters leading to the heat pump are clean.
4. Adjust the valves controlling water headed towards the heat pump to the half-open position.
5. Adjust the valves controlling water leading away from the heat pump to a fully open position.
6. Activate the pool water filtration pump.
7. Slowly raise the thermostat temperature until the heat pump activates.
   - After a four-minute delay, the heat pump's compressor will start.
8. With the heat pump running, confirm the filtration pump is operating properly with adequate flow and no short cycling.
9. Wait for water temperatures to stabilize (approximately 5 minutes).
10. Adjust valves in the following order using the temperature chart provided.
    a. Adjust the valve that controls water exiting the heat pump until the correct temperature differential is achieved. Match the temperature measured with a temperature probe to the chart.
    b. Wait for water temperatures to stabilize. Then check the temperature again. Re-adjust the valve as needed.
11. Mark valves at these positions for future reference.

HEAT EXCHANGER TYPE	MODEL	TEMPERATURE
Titanium ThermoLink®	SQ140R	3° to 7° F (1.7° C to 3.9° C)
Titanium ThermoLink®	SQ200R	3° to 8° F (1.7° C to 4.4° C)

HEAT EXCHANGER TYPE	MODEL	TEMPERATURE
Titanium ThermoLink®	TC1000	2° to 5° F (1.1° C to 2.8° C)
Titanium ThermoLink®	TC1500	3° to 7° F (1.7° C to 3.9° C)

Table 1 - Temperature Chart

PLEASE NOTE -

- Temperature differences are based on pool water temperatures of 69° to 75° F. (20.5° to 23.8° C)

3.3 Defaults

IN THIS SECTION:

3.3.A Equipment Parameters **60**

3.3.B Factory Reset **61**

3.3.A Equipment Parameters

This section describes all the possible parameters for equipment that can be connected to the heat pump.

Pumps

Parameter	Description
Name	A set of names are provided for easy identification of the circulation pump.
Pump Type	A choice between a variable speed or single speed circulation pump is provided.
Port	This is the connection port where a circulation pump is connected to the heat pump. • The connection ports are normally "Port B" on the control board for a variable speed circulation pumps. • Expansion board replay ports are available ("A" (default), "C", "D", "E", or "F") for single speed pumps. Or a combination of relay ports can be used for multi-speed circulation pumps.
Minimum Speed	The minimum allowed speed for the circulation pump to operate.
Maximum Speed	The maximum allowed speed for the circulation pump to operate.
Priming Time	The amount of time allowed to prime the variable speed circulation pump to remove air bubbles in the lines. Air bubbles would prevent the water from circulating properly in the system.
Priming Speed	The variable speed circulation pump's operating speed when priming the equipment.
Heat / Cool Speed	The speed a variable speed circulation pump must run when actively heating or cooling the water.

Chlorinator

Parameter	Description
Name	A set of labels are provided for easy identification of the chlorination system's connection port on the control board.
Chlorinator Type	CHLORSYNC (*ChlorSync™*)
Port	This is the logical ID of the device (default is "BROADCAST"). The device itself would be connected to the heat pump via a PoolSync device on port "D". See "*PoolSync® WiFi Controller (PS0001)*" on page 63.

3.3.B Factory Reset

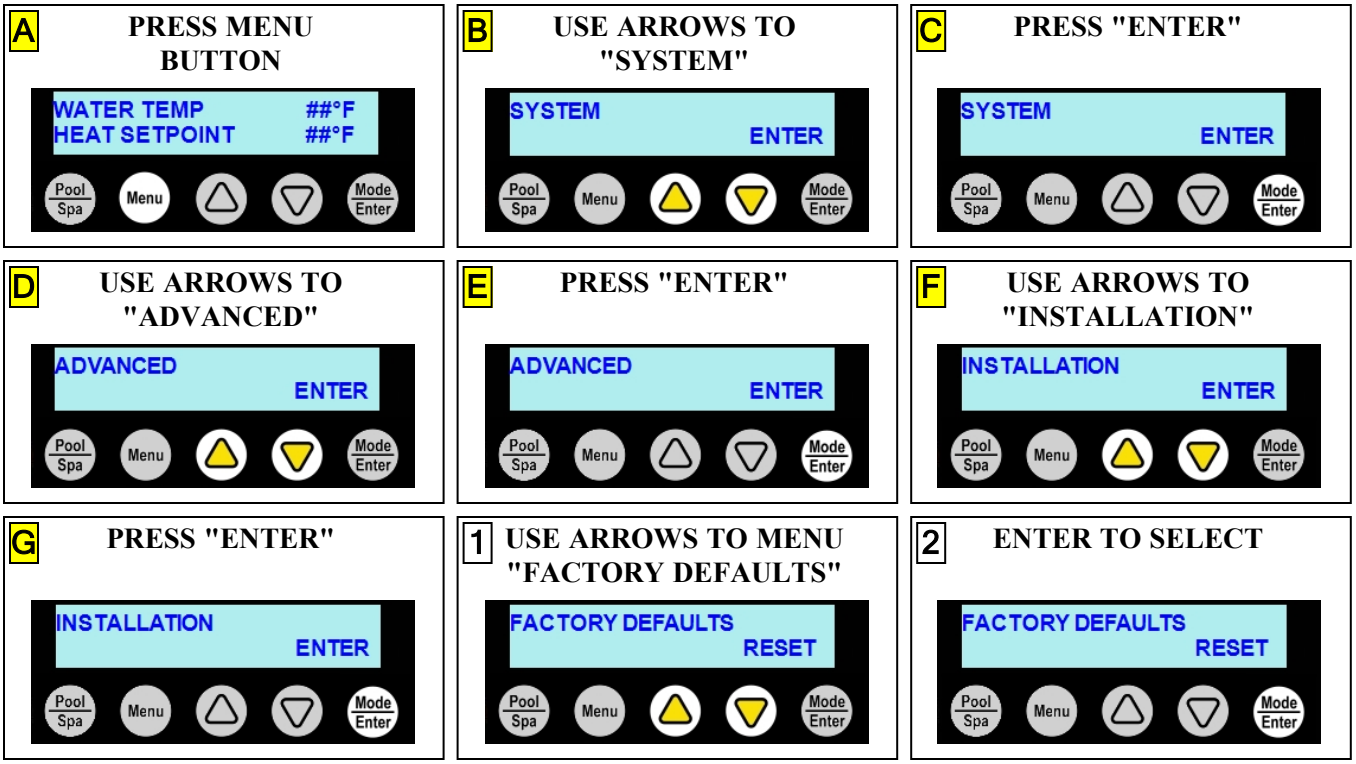
A factory reset of all settings can be performed if needed.
This will reset all settings to factory defaults.

> ***PLEASE NOTE:***
> *This action will wipe all previously set configurations such as external controller settings, optional device settings, groups, equipment, schedules, and site specific settings and return the heat pump to its default firmware settings from the factory.*

NOTICE Failure to heed the following may result in damage to equipment.

- Any site specific settings entered by the installer will be lost when performing this operation.

Enter "Installation" menus, then proceed



3 **PRESS BUTTON UNDER "YES" TO CONFIRM**



The system will restart and operate as if no equipment is connected directly to the heat pump.

3.4 Supplemental

IN THIS SECTION:

3.4.A Available Accessories 62
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3.4.A Available Accessories

Accessories may be purchased through an authorized dealer of AquaCal® products.

Bypass Valve Kit (# STK0135)

- When high flow rates are outside recommended specifications, please use this kit or an alternative bypass valve system.
- This kit can be used to control excessive water flow through the heat pump. It provides automatic flow adjustments for most applications.



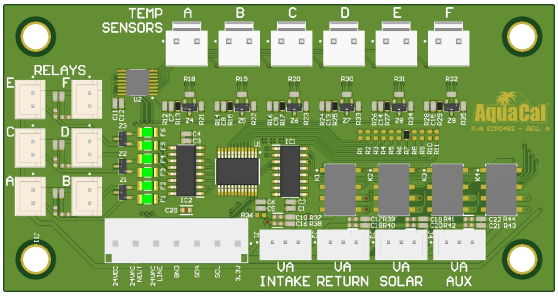
Condensation Drain Kit (# STK0202)

- Used when condensation water flow must be directed to a specific location.



Expansion Board Upgrade Kit (# STK0271)

- This kit contains an upgrade board that will give the heat pump direct control of actuators, circulation pumps, and relay-controlled devices.



Liquid Blankets

- An invisible liquid heat barrier designed to retain heat and extend the swimming season.
- AquaCal® recommends Lo-Chlor® Aqua Blanket™.



Plumbing Unions

- 2 Inch Unions - (# PLS2627)



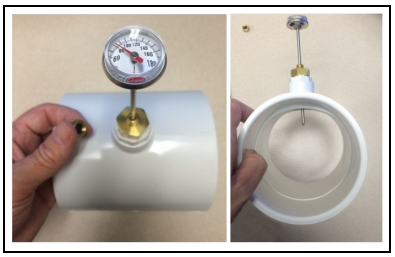
PoolSync® WiFi Controller (PS0001)

- This kit will add WiFi control capabilities to heat pumps without the WiFi feature already equipped on the unit.
- Contact installing dealer to order this product.



Temperature Port Kit (# STK0096)

- This port can be used to adjust water flow using Delta-T.
- The kit comes with port, installation components, and a temperature probe.



3.4.B Water Chemistry

Check water chemistry regularly and maintain within recommended levels. Standards vary in different residential and commercial applications. Follow all local applicable codes.

NOTICE Failure to heed the following may result in damage to equipment.

- Do not allow water to flow through the heat pump when refinishing or acid washing a pool. Use an installed bypass to route water away from the heat pump or deactivate the filter pump.
- To avoid damage to equipment, monitor and maintain chemistry within recommended levels.

CHEMISTRY LEVEL CHART (RESIDENTIAL)		
CHEMICAL	**POOLS**	**SPAS**
Chlorine	1.0 – 3.0 ppm (1 – 3 mg/L)	3.0 – 5.0 ppm (3 – 5 mg/L)
Bromine	2.0 – 6.0 ppm (2 – 6 mg/L)	2.0 – 6.0 ppm (2 – 6 mg/L)
Cyanuric Acid	30 – 50 ppm (30 – 50 mg/L)	30 – 50 ppm (30 – 50 mg/L)
pH	7.4 – 7.6	7.4 – 7.6
Total Alkalinity	80 – 120 ppm (80 – 120 mg/L)	80 – 120 ppm (80 – 120 mg/L)
Calcium Hardness	200 – 400 ppm (200 – 400 mg/L)	150 – 250 ppm (150 – 250 mg/L)
Total Dissolved Solids*	0 – 1500 ppm (0 – 1.5 g/L)	1500 (1.5 g/L) ppm above start-up of total dissolved solids in spas

* Salt from a chlorine generator is not included in Total Dissolved Solids.

3.4.C Cleaning Equipment

Cleaning and polishing the heat pump regularly can protect its appearance and longevity. More frequent servicing may be required for heat pumps located in sandy or coastal areas where sand and salt spray can damage equipment.

WARNING Failure to heed the following may result in injury or death.

- Possible electric shock hazard - Deactivate power to all electrical devices on the pad when washing heat pump. Do not restore electrical power until equipment is completely dry.

NOTICE Failure to heed the following may result in damage to equipment.

- Do not use a pressure cleaner to wash the heat pump. Damage to heat pump components may result. If using a hose-end spray nozzle adjust the spray pattern to low strength only.
- Do not spray water directly into the interior of the heat pump; damage to components may result.
- Do not use chemicals on the display panel.

Cleaning

1. Wash cabinet using a low-pressure water hose. A high-pressure water stream will cause damage to the aluminum fins of the heat pump. This damage is not covered under the product warranty.
2. While the heat pump is still wet, use an approved cleaning agent to clean the exterior of the heat pump. **Do not use chemicals on the display panel.**
3. Use a detergent-dampened cloth to wipe the heat pump's exterior cabinet.
4. Flush all exterior with fresh water using a low-pressure water hose.
5. Dry the cabinet using a soft cloth being careful not to damage fins.

APPROVED CLEANING AGENTS•
Fantastic®
Formula 409®
Cascade®
All Power Plain Detergent (3% Solution)

Table 2 - Cleaning Agents

• The trademarks used in approved cleaning agents are the property of their owners and are not related to AquaCal®.

Polishing

1. Polish the heat pump's cabinet panels using an approved polishing agent and following the manufacturer's instructions. **Do not use chemicals on the display panel.**
2. Rinse the heat pump panels with fresh water, wipe, and buff panels using a dry soft cloth.
3. Allow heat pump interior and surrounding equipment to "air-dry" for several hours prior to restoring electrical power.

APPROVED POLISHING AGENTS•
Simoniz® Wax
Glo-Coat®
Armor All® Protectant

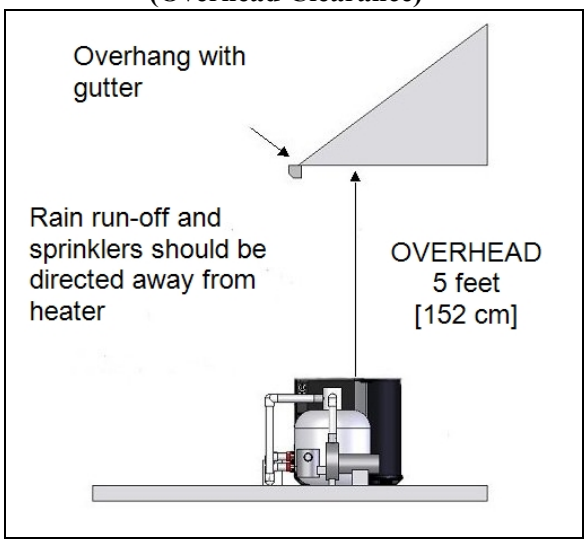
Table 3 - Polishing Agents

• The trademarks used in approved polishing agents are the property of their owners and are not related to AquaCal®.

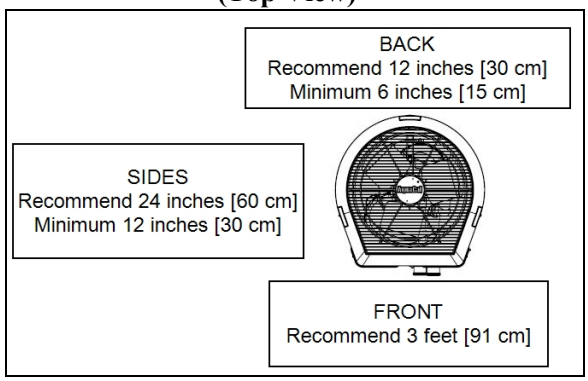
3.4.D Clearances

- Proper air circulation is required for the heat pump to operate efficiently. View the diagram showing minimum clearances required for the proper operation of the heat pump.
- Avoid storing corrosive chemicals near the heat pump to minimize potential damage to the exterior of the heat pump.
- Avoid placing objects near or on top of the heat pump. This includes shrubbery and lawn furniture. These objects will reduce performance and efficiency and hinder maintenance access.

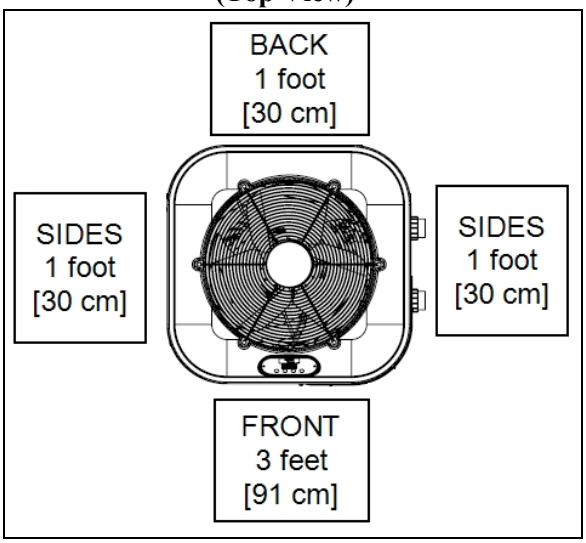
(Overhead Clearance)



(Top View)



(Top View)



3.4.E Irrigation and Storm Run-Off

- Irrigation water may damage heat pump components. Direct irrigation water away from the heat pump.
- The heat pump will withstand normal rainfall. Do not allow a roof slope to direct rainwater onto the heat pump. Have a gutter installed on the roof edge to direct this water away from the heat pump. Or install the heat pump in another location.

3.4.F Freeze Protection

NOTICE Failure to heed the following may result in damage to equipment.

- By default (from the factory) the Freeze Protection feature ***WILL NOT*** protect the heat pump.
    - The Freeze Protection feature is dependent on equipment controlled by properly configured groups. Damage due to improperly configured or operated heat pumps are not covered under warranty.

When the heat pump and freeze protection has been properly configured to control the circulation pump, water is circulated through designated group's plumbing circuits in 5 minute cycles. The water circulation lowers the chances of water freezing in those circuits.

Requirements for Freeze Protection

- A circulation pump must exist in the group to be protected.
- Water flow must be properly directed through a group's plumbing circuit.
- The group's freeze protection option must be set to on.

If properly configured:

- Freeze protection will automatically activate when the water temperature falls below 37° F (3° C).
- When the water temperature rises to 42° F (6° C), freeze protection will deactivate.
- These set temperatures and cycle times can be adjusted as needed in settings. See "*Adjusting Freeze Protection Options*" on the facing page.

NOTE:

- Freeze protection is meant to be temporary. If freezing temperatures will continue for an extended time frame, the pool equipment ***must*** be winterized.
- The heat pump will not attempt to heat water in freezing conditions.
- As a group cycles on and off, any devices contained within that group will also cycle on and off. If this behavior is undesirable, the device can either be removed from the group or manually deactivated.
- If a freeze protection air sensor has been installed and enabled, the air will be monitored instead of water.

Adjusting Groups to Allow Freeze Protection

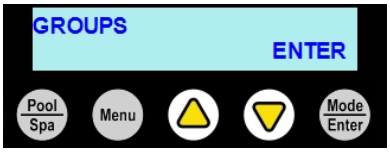
In the following example, a "FOUNTAIN" group is edited to enable freeze protection.

Enter "Groups" menus, then proceed

A **PRESS "MENU" BUTTON**

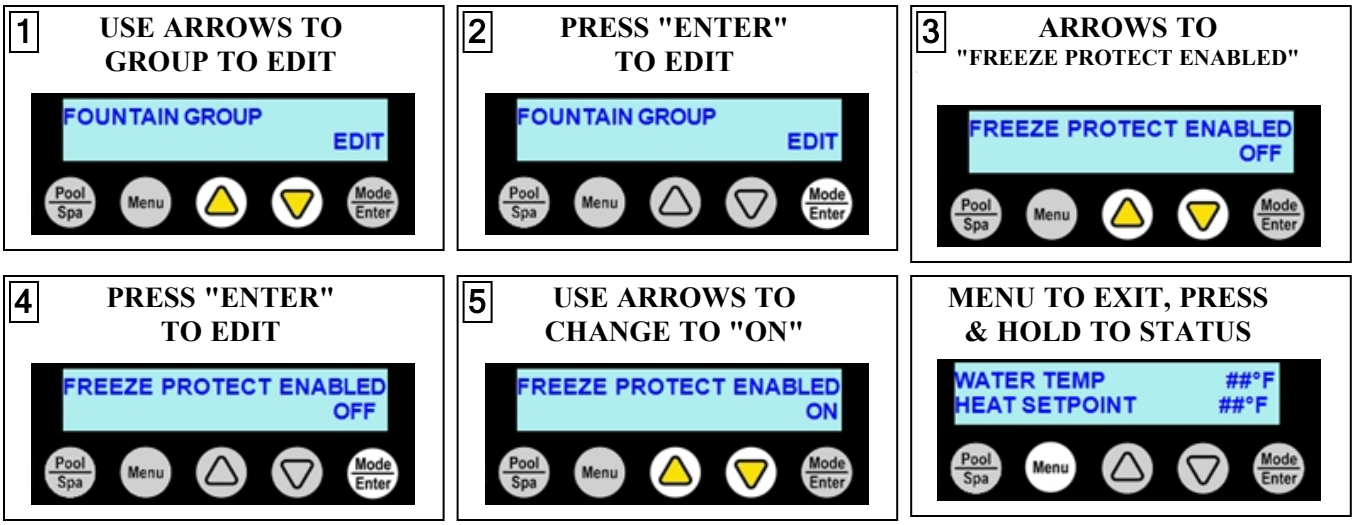


B **USE ARROWS TO "GROUPS"**



C **PRESS "ENTER"**





Adjusting Freeze Protection Options

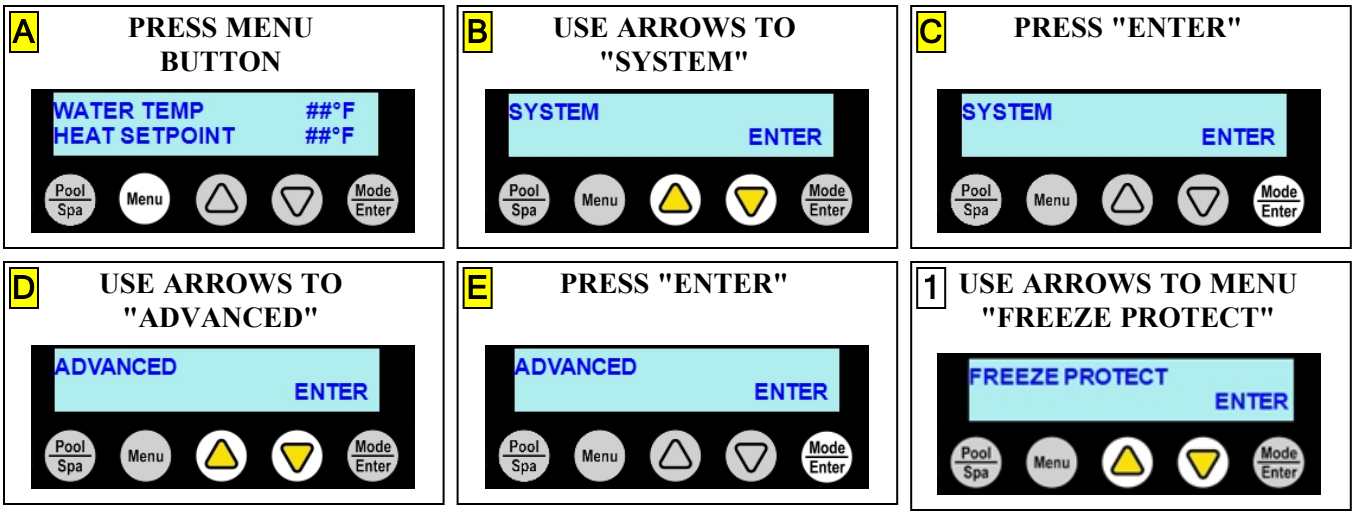
NOTICE Failure to heed the following may result in damage to equipment.

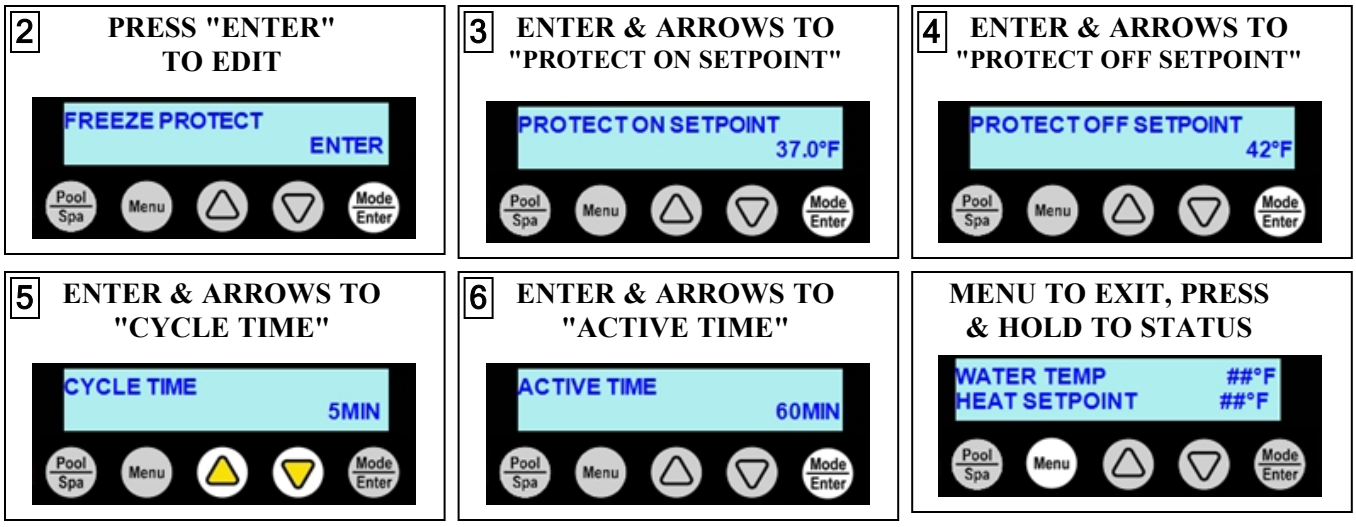
- Use extreme care when setting and adjusting freeze protection options. Improper freeze protection settings can cause damage to equipment. This is not covered by heat pump warranty.

Available freeze protection options:

- "PROTECT ON SETPOINT" can be adjusted from 33° F to 39° F (.6° C to 4° C). The default is 37° F (3° C).
- "PROTECT OFF SETPOINT" can be adjusted from 40° F to 45° F (4° C to 7° C). The default is 42° F (5.5° C).
- "CYCLE TIME" can be adjusted from 5 to 20 minutes. The default is 5 minutes.
- "ACTIVE TIME" can be adjusted from 15 to 120 minutes. The default is 60 minutes.

Enter "Advanced" menus, then proceed





3.4.G Initial Heating Recommendations

The following recommendations will reduce the amount of time required to heat a pool. **If unsure of equipment heating capability, review equipment data plate.** See "*Identifying Model Specifications*" on page 74.

> ***NOTE***
> *Using a pool blanket or liquid blanket can allow the water to retain heat and have quicker heating times.*

1. Confirm the valves are turned to the correct body of water.
2. Set the pool time clock to 24 hour operation.
3. Confirm the mode has been set to "HEAT" mode.
4. Set the desired temperature "HEAT SETPOINT" for the water.
5. After the desired temperature has been reached, reset circulation pump time clock to normal time frame.

3.4.H Initial Cooling Recommendations

The following recommendations will reduce the amount of time required to cool a pool. **If unsure of equipment cooling capability, review equipment data plate.** See "*Identifying Model Specifications*" on page 74.

1. Confirm the valves are turned to the correct body of water.
2. Set the pool time clock to 24 hour operation.
3. Confirm the mode has been set to "COOL" mode.
4. Set the desired temperature "COOL SETPOINT" for the water.
5. After the desired temperature has been reached, reset circulation pump time clock to normal time frame.

3.4.I Standards

Conforms To

UL STD 1995:2015 Ed. 4+R:03Oct2014, 60335-2-40:2019 Ed. 3, 60335-1:2016 Ed. 6

Certified To

CSA STD C22 .2#236:2011 Ed. 4, .2#60335-2-40:2019 Ed. 3, C22.2#60335-1:2016 Ed. 2

3.4.J FCC Compliance

NOTE

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device has been tested and complies with part 15 of the FCC rules. Operation is subject to the following two conditions

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate any connected PoolSync®'s receiving antenna.
- Increase the separation between the equipment and any connected PoolSync®'s receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio / TV technician for help.

3.4.K Winterizing

Failure to properly winterize the heat pump as needed may result in serious equipment damage.

DANGER Failure to heed the following will result in injury or death.

- Deactivate power while routing wiring to control board.
- Heat Pump equipment must be installed within manufacturer specifications and must follow all National and/or State and Local installation guidelines.
- Follow all National Electric Codes (NEC) and/or State and Local guidelines.

WARNING Failure to heed the following may result in injury or death.

- Deactivate all electrical power to heat pump before performing hard freeze procedures.

NOTICE Failure to heed the following may result in damage to equipment.

- Failure to winterize heat pump may result in serious equipment damage. Freeze damage is not covered under the heat pump warranty.
- While the plumbing connections are in the winterized condition (not fully tightened), it is imperative that water not run through the heat pump. Loss of water through loose plumbing connections may result in damage to circulation pump, pool and spa structures, and other equipment.

Light Freeze Conditions

A light freeze is when the ambient air temperature falls below 32 degrees Fahrenheit (0° C) for less than 8 hours. Typically during light freeze conditions circulating (or moving) water will not freeze. Temporarily activate the filter pump for continuous operation during light freeze conditions. If the heat pump is directly controlling a water circulation pump, any groups marked as requiring freeze protection will automatically have water circulated to the equipment. See "*Freeze Protection*" on page 68.

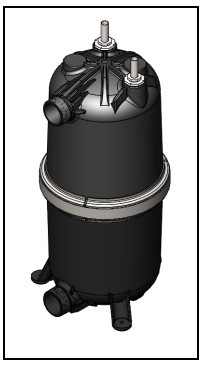
Hard Freeze Conditions

A hard freeze is when the ambient air temperature falls below 32 degrees Fahrenheit (0° C) for more than 8 hours. In areas where this condition is prevalent and sustained, the heat pump MUST be winterized for hard freeze conditions. Follow the correct procedure depending on the type of heat exchanger found in the heat pump.

Titanium ThermoLink® Exchanger (with no Drain)

1. Disconnect the plumbing to the heat pump at connection unions (removal is counter-clockwise).
2. Allow water to drain completely from the heat pump. Expect to see a lot of water drain out at first, and then a small amount to continue to drain out over a long period.
3. After heat pump has fully drained, loosely reconnect plumbing connection unions.
4. Winterizing is complete.
5. When ready to use the heat pump again, hand-tighten connection unions. Reconnect electrical power, and set the operating mode on the heat pump. Activate the filter pump.

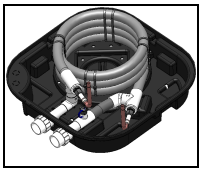
No Drain

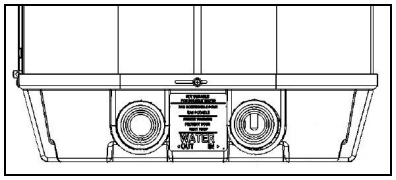


Titanium Tube-in-Tube Exchanger

1. Disconnect the plumbing to the heat pump at connection unions (removal is counter-clockwise).
2. Allow water to drain completely from the heat pump. Expect to see a lot of water drain out at first, and then a small amount to continue to drain out over a long period.

Titanium Tube-in-Tube





3. Place an air hose into the water inlet of the heat pump; wrap a clean rag around the hose to form a temporary seal.
4. Push all water from the water circuit using compressed air no stronger than 50 psig (446 kPa). The residual water should be forced out of the heat pump's water outlet. Allow compressed air to blow into the heat pump inlet for at least 15-20 seconds after the water stops coming out.
5. Repeat process on the outlet side of the heat pump.
6. Loosely reconnect plumbing connection unions.
7. Winterizing is complete.
8. When ready to use the heat pump again, hand-tighten connection unions. Reconnect electrical power, and set the operating mode on the heat pump. Activate the filter pump.

3.5 System Information

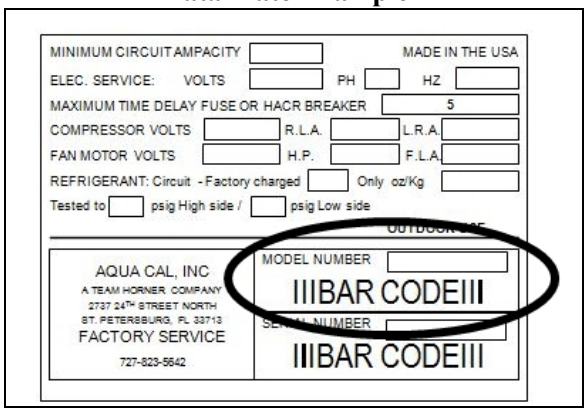
IN THIS SECTION:

3.5.A Identifying Model Specifications 74
3.5.B Viewing System Information 74
3.5.C Viewing MAC Address (Configured WiFi Only) 75
3.5.D Water Flow Rates 76

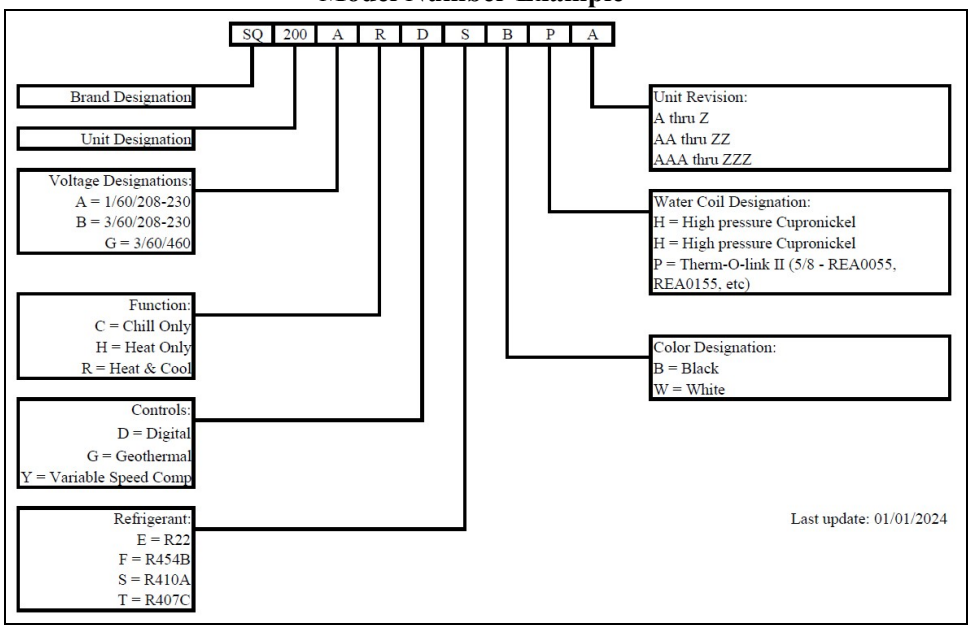
3.5.A Identifying Model Specifications

1. Find Data Plate - The data plate is usually posted on the side of the equipment or the inside of the heat pump's access plate.
2. Find the model number on the data plate. The first letters and numbers indicate the model type.
3. The complete model number identifies the equipment's specifications.

Data Plate Example



Model Number Example



3.5.B Viewing System Information

The heat pump model, serial number, and firmware version can be viewed in the information menus.

Enter "System" menus, then proceed

A PRESS MENU BUTTON



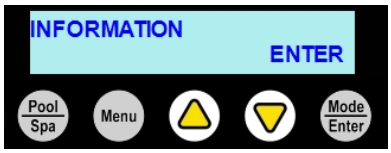
B USE ARROWS TO "SYSTEM"



C PRESS "ENTER"



1 USE ARROWS TO MENU "INFORMATION"



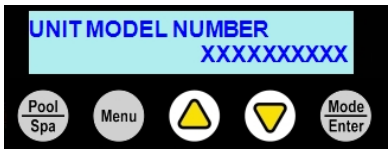
2 PRESS ENTER TO VIEW



3 USE ARROWS TO VIEW "UNIT SERIAL NUMBER"



4 USE ARROWS TO VIEW "UNIT MODEL NUMBER"



5 USE ARROWS TO VIEW "FIRMWARE VERSION"



MENU TO EXIT, PRESS & HOLD TO STATUS

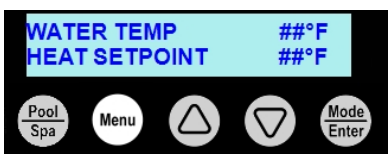


3.5.C Viewing MAC Address (Configured WiFi Only)

If WiFi has been enabled, the Heat Pump's MAC address can be viewed in the PoolSync® menus.

Enter "Advanced" menus, then proceed

A PRESS MENU BUTTON



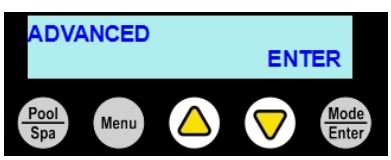
B USE ARROWS TO "SYSTEM"



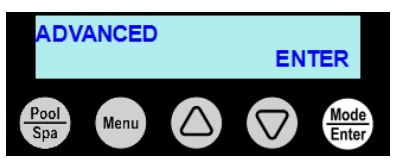
C PRESS "ENTER"



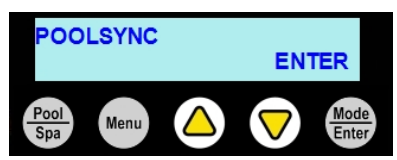
D USE ARROWS TO "ADVANCED"



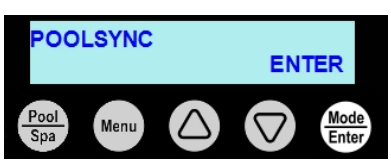
E PRESS "ENTER"



1 USE ARROWS TO MENU "POOLSYNC"



2 SELECT ENTER



3 USE ARROWS TO VIEW "MAC ADDRESS"



MENU TO EXIT, PRESS & HOLD TO STATUS



3.5.D Water Flow Rates

Maintain water flow rates as indicated. Please note, these specifications relate to the heat pump only. Code-specified whole system turnover rates must be satisfied.

NOTICE Failure to heed the following may result in damage to equipment.

- Water flow exceeding maximum flow rates will negatively affect the total pool filtration performance and may damage the heat pump. This will not be covered under the equipment warranty.

MODEL	HEAT EXCHANGER TYPE	FLOW RATES	
		MINIMUM	MAXIMUM
SQ140R	Titanium ThermoLink®	30 GPM (113.6 L/min)	70 GPM (265 L/min)
SQ200R	Titanium ThermoLink®	30 GPM (113.6 L/min)	70 GPM (265 L/min)
TC1000	Titanium ThermoLink®	30 GPM (113.6 L/min)	70 GPM (265 L/min)
TC1500	Titanium ThermoLink®	30 GPM (113.6 L/min)	70 GPM (265 L/min)

** Head Loss - 30 GPM = 1.5 PSI, 70 GPM = 8.2 PSI*

PLEASE NOTE -

If minimum flow rates are not met, heat pump output is reduced and performance will suffer. Internal safety devices may deactivate the heat pump with the following errors:

- **HIGH PRESSURE FAULT**
- **HP5 SYSTEM LOCKOUT**
- **LOW PRESSURE FAULT**
- **LP5 SYSTEM LOCKOUT**

- Operate water filtration devices per manufacturer's specifications. Dirty filters can cause a reduction of water flow to the heat pump. An increase of 7-10 psi (48 to 69 kPa) higher than the clean filter pressure typically reduces flow rates. This requires the filter to be cleaned or back-washed.
- Keep baskets free of debris. A large quantity of debris in the pump and skimmer baskets can reduce water flow.
- Check for improper valve settings. A partially closed valve after the filter, or a full-open bypass around the heat pump, will cause insufficient water flow through the heat pump.
- The maximum operating pressure is 50 psi (345 kPa). These specifications relate to the heat pump only.
- The heat pump is not intended to be installed on high pressure applications.
- Code-specified whole system turnover rates must be satisfied.

4 - Troubleshooting

DANGER Failure to heed the following will result in injury or death.

- Deactivate power while routing wiring to control board.
- Heat Pump equipment must be installed within manufacturer specifications and must follow all National and/or State and Local installation guidelines.
- Follow all National Electric Codes (NEC) and/or State and Local guidelines.

WARNING Failure to heed the following may result in injury or death.

- Repairs must not be attempted by untrained or unqualified individuals.
- The heat pump contains refrigerant under high pressure. Repairs to the refrigerant circuit must not be attempted by untrained or unqualified individuals. Service must be performed only by qualified HVAC technicians. Recover refrigerant before opening the system.

NOTICE Failure to heed the following may result in damage to equipment.

- Service by unauthorized personnel will void the heat pump warranty.

IN THIS SECTION:

Fault Codes

AQUASTAR VS PUMP FAULT 79
COMPRESSOR LOCKOUT 79
DEFROST1 SENSOR OPEN or DEFROST2 SENSOR OPEN 79
DEFROST1 SENSOR SHORT or DEFROST2 SENSOR SHORT 79
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4.1 Fault Codes

A fault code indicates a specific issue or condition that will require action before the equipment can resume operating.

> Please perform the following troubleshooting.
> If the issue reoccurs, please contact AquaCal. See "*Contacting AquaCal AutoPilot, Inc.*" on page 1.

AQUASTAR VS PUMP FAULT

ISSUE

The heat pump has either lost communication with a connected Aquastar circulation pump. Or the Aquastar pump needs attention.

RESOLUTION

Check wiring between pump and unit for breaks or damage.

Reset the heat pump and circulation pump power breakers to potentially clear any internal pump faults.

Check circulation pump documentation for further troubleshooting advice on that equipment.

COMPRESSOR LOCKOUT

ISSUE

The compressor has failed to start properly and has gone into protection mode.

RESOLUTION

Service by an HVAC qualified technician is required.

DEFROST1 SENSOR OPEN or DEFROST2 SENSOR OPEN

ISSUE

Open defrost sensor.

RESOLUTION

A qualified technician should replace the defrost sensor.

DEFROST1 SENSOR SHORT or DEFROST2 SENSOR SHORT

ISSUE

Shorted defrost sensor.

RESOLUTION

A qualified technician should replace the defrost sensor.

ERROR AT PRIMARY UNIT

ISSUE

The heat pump is secondary to a primary heat pump that is displaying a fault code.

RESOLUTION

The error at the primary heat pump must be corrected before the secondary unit will resume operation.

HAYWARD VS PUMP FAULT

ISSUE

The heat pump has either lost communication with a connected Hayward circulation pump. Or the Hayward pump needs attention.

RESOLUTION

Check wiring between pump and unit for breaks or damage.

Reset the heat pump and circulation pump power breakers to potentially clear any internal pump faults.

Check circulation pump documentation for further troubleshooting advice on that equipment.

HIGH PRESSURE FAULT

ISSUE

The refrigerant system's high-pressure switch is showing as open.

RESOLUTION

Heat Only Units

Determine if the proper amount of water flow is being provided to the equipment.

1. Confirm the filter pump is on.
2. If a multiple-speed filter pump is being used, run filter pump at a higher speed. Do not exceed the maximum flow rate for the model.
3. Confirm water is not being diverted away from the heat pump.
   - See "*Water Flow Rates*" on page 76.
   - See "*Adjusting Water Flow Using ΔT (Delta-T)*" on page 59.

Cool Only Units

Determine if there is a proper air circulation around the equipment.

1. Check for proper fan operation. If the fan is not operating, contact AquaCal® Technical Support.
2. Check for obstructed airflow around the heat pump.
   - See "*Clearances*" on page 66.
3. Check for a dirty or blocked evaporator coil.
   - See "*Cleaning Equipment*" on page 65.

Heat and Cool Units (Reversing)

Place heat pump in heating mode and perform the following troubleshooting.

Determine if the proper amount of water flow is being provided to the equipment.

1. Confirm the filter pump is on.
2. If a multiple-speed filter pump is being used, run filter pump at a higher speed. Do not exceed the maximum flow rate for the model.
3. Confirm water is not being diverted away from the heat pump.
   - See "*Water Flow Rates*" on page 76.
   - See "*Adjusting Water Flow Using ΔT (Delta-T)*" on page 59.

HIGH WATER TEMP

ISSUE

Incoming water temperature has exceeded 108° F (42° C) and the unit has been deactivated. The heat pump will not operate until the incoming water temperature drops to 100° F (38° C) or lower.

RESOLUTION

1. Determine if a gas heater is sending water directly to the heat pump. This situation would need to be corrected before continuing.
2. If a solar panel system sends water directly to the heat pump (a normal system), this fault can initially arise until water temperature normalizes.
3. If the **HIGH WATER TEMP** fault continues to display, the water temperature sensor may require replacement.

HP5 SYSTEM LOCKOUT

ISSUE

The heat pump has locked due to five high-pressure faults during one call for heating or cooling.

RESOLUTION

1. Deactivate then reactivate power to the heat pump to clear error.
2. Troubleshoot the high-pressure issue causing the error.
    - See "*HIGH PRESSURE FAULT*" on the previous page.

HPC TEMP SYSTEM LOCKOUT

ISSUE

The heat pump's controller board is overheating.

RESOLUTION

A qualified technician should be contacted to correct the issue.

JANDY VS PUMP FAULT

ISSUE

The heat pump has either lost communication with a connected Jandy circulation pump. Or the Jandy pump needs attention.

RESOLUTION

Check wiring between pump and unit for breaks or damage.

Reset the heat pump and circulation pump power breakers to potentially clear any internal pump faults.

Check circulation pump documentation for further troubleshooting advice on that equipment.

LOW PRESSURE FAULT

ISSUE

The refrigerant system's low-pressure switch is showing as open.

RESOLUTION

Heat Only Units

1. Check for proper fan operation. If the fan is not operating, contact AquaCal® Technical Support.
2. Check for obstructed airflow around the heat pump.
   - See "*Clearances*" on page 66.
3. Check for a dirty or blocked evaporator coil.
   - See "*Cleaning Equipment*" on page 65.
4. Check for signs of heavy ice buildup on the coil.

Cool Only Units

Determine if the proper amount of water flow is being provided to the equipment.

1. Confirm the filter pump is on.
2. If a multiple-speed filter pump is being used, run filter pump at a higher speed. Do not exceed the maximum flow rate for the model.
3. Confirm water is not being diverted away from the heat pump.
   - See "*Water Flow Rates*" on page 76.
   - See "*Adjusting Water Flow Using ΔT (Delta-T)*" on page 59.

Heat and Cool Units (Reversing)

Place heat pump in heating mode and perform the following troubleshooting.

1. Check for proper fan operation. If the fan is not operating, call for service.
2. Check for obstructed airflow around the heat pump.
   - See "*Clearances*" on page 66.
3. Check for a dirty or blocked evaporator coil.
   - See "*Cleaning Equipment*" on page 65.
4. Check for signs of heavy ice buildup on the coil.

LP5 SYSTEM LOCKOUT

ISSUE

The heat pump has locked due to five low-pressure faults during one call for heating or cooling.

RESOLUTION

1. Deactivate then reactivate power to the heat pump to clear error.
2. Troubleshoot the low-pressure issue causing the error.
   - See "*LOW PRESSURE FAULT*" above.

MULTIPLE PRIMARY FAULT

ISSUE

If more than one heat pump is set as Primary in a multiple heat pump configuration, the primary units can compete for control of the secondaries, causing them to chatter on / off.

RESOLUTION

1. Verify that only one heat pump is set up as a "PRIMARY" unit in a multiple heat pump configuration.

MULTI-UNIT COMM FAULT

ISSUE

Secondary heat pump is not receiving a signal from the primary heat pump.

RESOLUTION

1. Confirm the primary heat pump is operating correctly. If, for example, no power is supplied to the primary heat pump, an error will appear on the secondary heat pumps.

NO CONTROLLER COMM

ISSUE

The heat pump is unable to communicate with the display board.

RESOLUTION

1. Power cycle the heat pump at the breaker panel.
2. If this does not resolve the issue, a qualified technician should verify the connection between the control board and the display (loose or disconnected cable, crimps in the cable, etc.).
3. If the issue reoccurs, please contact AquaCal. See "*Contacting AquaCal AutoPilot, Inc.*" on page 1.

OTA SYSTEM LOCKOUT

ISSUE

The water has surpassed a safe temperature level. The heat pump has deactivated.

- One of two water temperature sensors may be out of calibration or have failed. Both sensors must be within a certain temperature range.
- The water temperature may have exceeded 110° F.

RESOLUTION

Call for service.

PENTAIR VS PUMP FAULT

ISSUE

The heat pump has either lost communication with a connected Pentair water pump. Or the Pentair pump needs attention.

RESOLUTION

Check wiring between pump and unit for breaks or damage.

Reset the heat pump and circulation pump power breakers to potentially clear any internal pump faults.

Check circulation pump documentation for further troubleshooting advice on that equipment.

SMART COMM FAULT

ISSUE

Heat Pump is not receiving a signal from an external controller using a smart connection point.

RESOLUTION

1. Confirm a smart external controller is being used.
    - If unsure, contact installer of heat pump for more information. The heat pump may need to be reconfigured to set external controller to "none".
2. If using a smart external controller, confirm the controller is correctly set to send signals to the heat pump. See manuals or guides provided with the external controller.

STA-RITE VS PUMP FAULT

ISSUE

The heat pump has either lost communication with a connected Sta-Rite water pump. Or the Sta-Rite pump needs attention.

RESOLUTION

Check wiring between pump and unit for breaks or damage.

Reset the heat pump and circulation pump power breakers to potentially clear any internal pump faults.

Check circulation pump documentation for further troubleshooting advice on that equipment.

VGREEN VS PUMP FAULT

ISSUE

The heat pump has either lost communication with a connected VGreen circulation pump. Or the VGreen pump needs attention.

RESOLUTION

Check wiring between pump and unit for breaks or damage.

Reset the heat pump and circulation pump power breakers to potentially clear any internal pump faults.

Check circulation pump documentation for further troubleshooting advice on that equipment.

WATER TEMP1 SENSOR SHORT or WATER TEMP1 SENSOR OPEN

ISSUE

Open or shorted water sensor.

RESOLUTION

A qualified technician should replace the water sensor. Until the sensor is replaced, the setpoint is limited to 96° F (35.5° C)

WATER TEMP2 SENSOR SHORT or WATER TEMP2 SENSOR OPEN

ISSUE

Open or shorted water sensor.

RESOLUTION

A qualified technician should replace the water sensor. Until the sensor is replaced, the setpoint is limited to 96° F (35.5° C)

4.2 Issues and Resolutions

Please perform the following troubleshooting.
For further assistance, please contact AquaCal. See "*Contacting AquaCal AutoPilot, Inc.*" on page 1.

Blank Display

ISSUE

The Heat Pump may have an incoming power problem.

RESOLUTION

Confirm electrical power is being supplied to the heat pump from electrical disconnect(s).

Circulation Pump Won't Activate

ISSUE

A circulation pump controlled by the heat pump will not activate as needed.

RESOLUTION

1. Confirm circulation pump is receiving power.
2. Reset circulation pump power breaker to allow internal pump faults to clear.
3. Confirm circulation pump is included in any group that requires it. See "*Edit a Group*" on page 31.
4. Confirm the group containing the circulation pump has an appropriate schedule. See "*Edit a Schedule*" on page 35.
5. Confirm the schedule mode is set to "AUTO" and the scheduled program mode is set to "ON". See "*Schedule and Program Modes*" on page 38.

Display Panel Not Responding

ISSUE

The heat pump's display panel will not respond to user input.

RESOLUTION

1. If heat pump display shows "**UNDER REMOTE CONTROL**", use the external control device to control the heat pump.
2. If needed, check with the external controller manufacturer for further assistance using that device.

Displays "DEFROSTING"

ISSUE

The heat pump has sensed the coil is icing up. See "*Ice Forming on the Heat Pump*" on page 93. No action is required.

RESOLUTION

Heat Only Units - Passive Defrost

When ice starts to form on the coil, the compressor will stop operating while the fan continues to operate.

- The coil will begin to warm to the surrounding air temperature. When the coil's temperature rises above 38° F (3.3° C), the compressor is restarted and heating resumes.
- If the coil's temperature remains below 38° F (3.3° C), the compressor will remain off.

Heat and Cool Units - Active Defrost

Hot refrigerant gas will be sent through the coil to rapidly remove ice or frost.

During this process, the melting of the ice may appear as steam coming off the heat pump. This is normal.

Displays "FREEZE PROTECTION ACTIVE"

ISSUE

The heat pump has sensed the air temperature has dropped below 37° F (3° C). This is the default setpoint before the heat pump begins to circulate water to groups marked as needing freeze protection. The heat pump will not heat water in these conditions. (See "*Freeze Protection*" on page 68 for more information.)

NOTICE Failure to heed the following may result in damage to equipment.

- Freeze protection is meant to be temporary. If freezing temperatures will continue for an extended time frame, the pool equipment ***must*** be winterized.

NOTE

The freeze protection feature's "protect on setpoint" can be manually changed from (33° to 39° F (.6° to 4° C). The default is 37° F (3° C)

PLEASE NOTE:

This protection is only available for heat pumps that directly control a circulation pump.

Displays "NO SYSTEM FIRMWARE"

ISSUE

The heat pump has encountered a software error.

RESOLUTION

1. If heat pump is using a PoolSync®, confirm the device is connecting to the internet. It will automatically attempt to load firmware on the heat pump. See PoolSync® manual for specifics.
2. Call for service.

Displays "NO POOL/SPA WATER FLOW"

ISSUE

Low or no water detected. This is normal when the circulation pump is deactivated.

RESOLUTION

1. Confirm the filter pump is on.
2. If a multiple-speed filter pump is being used, run at a higher speed to determine if the error persists. Do not exceed the maximum flow rate for your model.
3. Confirm water is not being diverted away from the heat pump.
    - See "*Water Flow Rates*" on page 76.
    - See "*Adjusting Water Flow Using ΔT (Delta-T)*" on page 59.

Displays "NO POOL/SPA GROUP EXISTS "

ISSUE

When pushing the POOL / SPA button, the heat pump displays the message "NO POOL/SPA GROUP EXISTS".

RESOLUTION

In order for this button to be active, a Pool Group, Spa Group, or both, must be created; either using a preset option or manually.

> ***NOTE***
> *The standard (from the factory) heat pump* ***does not have*** *a group or schedule. These can be created as needed depending on if a heat pump option has been utilized.*

Displays "POOLSYNC NO WIFI"

ISSUE

Internal WiFi has been activated, but the heat pump is not connected to the user's home WiFi access point.

RESOLUTION

Confirm if the heat pump's WiFi setup process been completed:

- If the WiFi has been successfully setup in the past, check that the mode on the heat pump has been set to "NORMAL".
- If the WiFi has never been successfully setup in the past, check that the heat pump mode has been set to "SETUP". Then complete the WiFi setup.
- See "*WiFi modes*" on page 24.

Confirm the heat pump is properly communicating with the user's home WiFi:

- Check that the user is using the correct password for the home's WiFi.
- Confirm user's home WiFi is in range, powered, and working with other devices in the home.
  - This can be done by checking the RSSI in application. If the RSSI is showing as "poor", the user may need to consider using a WiFi extender.

Displays "POOLSYNC NO CLOUD"

ISSUE

Internal WiFi has been activated, but the heat pump cannot access the cloud (internet access).

RESOLUTION

Confirm that the heat pump has successfully connected to the home's WiFi access point.

- Has setup been successfully completed? If not, this is a message that shows in the setup process and will go away when setup is completed. Please wait until is complete.
  - The mode will show as "NORMAL". See "*The "NORMAL" mode:*" on page 25.
- This may be a home internet issue. Confirm that the user's internet is active and that the user's WiFi access point is working.
- Possible issue with the external cloud service. Wait for one hour. If issue continues, contact installing dealer for service. For further assistance, please contact AquaCal. See "*Contacting AquaCal AutoPilot, Inc.*" on page 1.

Displays "POOLSYNC NOT DETECTED"

ISSUE

Internal WiFi has been activated, but the heat pump cannot detect the WiFi feature in the heat pump equipment.

RESOLUTION

- The heat pump may not have an internal WiFi feature. If this feature is not included with the heat pump, change the WiFi feature mode to "OFF".
- The internal WiFi equipment may not be wired correctly. Call installing dealer for service. For further assistance, please contact AquaCal. See "*Contacting AquaCal AutoPilot, Inc.*" on page 1.

Displays "POOLSYNC SERVICE ACCESS"

ISSUE

Internal WiFi has been activated, and the heat pump is currently in WiFi service access mode.

RESOLUTION

- If not intending to use the heat pump's WiFi in service access mode, change the heat pump WiFi mode to "NORMAL" or "OFF".
- See "*WiFi modes*" on page 24.

Displays "POOLSYNC SETUP MODE"

ISSUE

Internal WiFi has been activated, and the heat pump is currently in WiFi setup mode.

RESOLUTION

- If not intending to setup the heat pump WiFi feature, change the heat pump WiFi mode to "OFF".
- If setting up WiFi, this is a normal message that will not display after WiFi setup process is complete.
- See "*WiFi modes*" on page 24.

Displays "SET TO SWITCH REMOTELY"

ISSUE

If when pressing the "Pool / Spa" button the display flashes the message "**SET TO SWITCH REMOTELY**", the heat pump is using a remote relay switch or a 3-wire controller.

RESOLUTION

- The Pool and Spa thermostat automatically switch when using these modes.
- Operation manually will not be available when using these external devices. No action is required.

Displays "UNIT MODEL NUMBER"

ISSUE

The heat pump has encountered a software error.

RESOLUTION

- The model number and serial number will need to be re-entered into the system. The system will then operate as normal.
- If the issue reoccurs, please contact the distributor or installing dealer.

Heat Pump Not Running

ISSUE

The heat pump will not run.

RESOLUTION

1. Confirm equipment is receiving power. Is the heat pump display illuminated?
    - If not, confirm the main breaker (located at the power supply panel) and the disconnect switch (located near the heat pump) are both turned on.
    - If the display still does not illuminate, it is recommended that the heat pump installer or electrician confirm the heat pump is receiving power.
2. Confirm correct mode is selected.
    - See "*Activate HEAT Mode, COOL Mode, AUTO Mode, or Deactivate Equipment*" on page 16.
3. Confirm thermostat is set correctly.
    - When heating the water is desired, the thermostat should be set above the current water temperature.
    - When cooling the water is desired, the thermostat should be set below the current water temperature.
    - See "*Set a desired temperature (setpoint) for the Heat Pump to activate*" on page 19.
4. If an error code is displayed, diagnose and correct the cause of the code.
    - See "*Fault Codes*" on page 79.
5. If the heat pump is using an external controller, the heat pump may not be set correctly to accept the controller’s signal.

Heat Pump's Tripping Breaker

ISSUE

The heat pump breaker(s) keeps tripping.

RESOLUTION

1. If AquaCal® heat pumps have been connected using a multiple heat pump configuration, the configuration may be incorrect. Please confirm settings or contact installer of equipment.
2. Have an electrician confirm breakers are correct type, in good condition, and properly sized for the heat pump.

Heat Pump Won’t Shut Off

ISSUE

The heat pump will not deactivate.

RESOLUTION

> ***PLEASE NOTE***
> *When the heat pump is set to off, the display will show the current water temperature or no water flow indicator.*

1. Confirm the correct mode has been set on the heat pump.
    - See "*Activate HEAT Mode, COOL Mode, AUTO Mode, or Deactivate Equipment*" on page 16.
2. Confirm the heat pump has reached the desired temperature set on the thermostat. The heat pump will continue to run until the set temperature is reached.
    - See "*Set a desired temperature (setpoint) for the Heat Pump to activate*" on page 19.
3. If the heat pump is using an external controller, it may not be set correctly. See the external controller's manual.

Heat Pump Is Running, Not Heating

ISSUE

The heat pump is running. But the water is not heating.

RESOLUTION

1. If the heat pump is using an external controller, confirm it is set correctly.
   - See "*Operating Heat Pump (With an External Controller)*" on page 42.
   - If the heat pump is still not running correctly with this device, contact the installer of the device or the device's manufacturer for further assistance.
2. Confirm heat pump mode is set to heat.
3. Confirm thermostat is set higher than the current water temperature.
4. Confirm valves are positioned to heat the correct body of water (either the pool or the spa). If heating a spa that overflows into a pool, confirm the spa is isolated when being heated (not flowing into the pool).
5. Confirm heat pump is transferring heat into the water.
   - Measure the temperature of air discharge coming out of the heat pump fan. If discharge air is between 8° to 16° F (-13° to -9° C) colder than the outside ambient air, the heat pump is moving heat into the water.
6. If an error code is displayed, diagnose and correct cause of code.
   - See "*Fault Codes*" on page 79.
7. Confirm that the filter pump has a sufficient run-time. The heat pump will not run (or heat the water) without water flow.
   - See "*Initial Heating Recommendations*" on page 70.
8. If heating a spa, deactivate air blower or venturi (if equipped) to allow for quicker heating times. For pools, deactivate water features, such as slides, waterfalls, or fountains to allow water to retain heat. Use of a liquid pool blanket product, such as an Aqua Blanket™, can also compensate for excessive heat loss.
   - See "*Liquid Blankets*" on page 63.

Heat Pump Is Running, Not Cooling

ISSUE

The heat pump is running. But the water is not cooling.

RESOLUTION

1. If the heat pump is using an external controller, confirm the heat pump is programmed properly to allow for cooling.
   - See "*Operating Heat Pump (With an External Controller)*" on page 42.
2. Confirm the heat pump mode is set to cool.
3. Confirm the thermostat is set below the current water temperature.
4. Confirm valves are positioned to cool the correct body of water (either the pool or the spa). If cooling a spa that overflows into a pool, confirm the spa is isolated when being cooled (not flowing into the pool).
5. If an error code is displayed, determine and correct the condition causing the code.
   - See "*Fault Codes*" on page 79.
6. Confirm heat pump is transferring heat out of the water.
   - Measure the temperature of air discharge coming out of the heat pump's fan. If the air is between 8° to 16° F (-13° to -9° C) warmer than the outside ambient air, the heat pump is moving heat out of the water.
7. Confirm that the filter pump has a sufficient run-time. The heat pump will not run (or cool the water) without water flow.
   - See "*Initial Cooling Recommendations*" on page 70.

Ice Forming on the Heat Pump

ISSUE

When conditions are too cold for proper operation, the heat pump will enter a defrost mode. This prevents ice from building up on the evaporator coil.

RESOLUTION

Heat Only Units:

- The heat pump may develop a fine layer of white frost on the outside coil before entering the defrost mode. This is normal.
  - See "*Displays Defrosting*" on page 86.
- If heavy ice (not frost) starts to build up, shut off the heat pump. Contact the installer or manufacturer.
- If the ambient air temperature will be falling below 32° F (0° C) for more than 8 hours, winterize equipment.

Cool Only Units

- The heat pump may enter defrost mode if the water flow rate falls below the acceptable range. See "*Water Flow Rates*" on page 76.
- If the ambient air temperature will be falling below 32° F (0° C) for more than 8 hours, winterize equipment.

Heat and Cool Units (with Active Defrost or “Icebreaker”):

- During freezing conditions, pool or spa heating will continue. Frost or ice may develop during the “countdown” to the active defrost (up to 50 minutes). This is normal. See "*Displays Defrosting*" on page 86.
- The heat pump will enter an "active defrost" stage to remove the accumulated frost and ice.
  - Be sure to observe the unit for at least 50 minutes. If it has not entered an active defrost cycle, call for service.

> ***TIP:***
> *The heat pump can be manually defrosted by temporarily switching to the cooling mode until the ice or frost melts.*

- If the ambient air temperature is (or will be) falling below 32° F (0° C) for more than 8 hours, winterize equipment.

"Pool / Spa" Button Isn't Working

ISSUE

The "Pool / Spa" button is disabled if the following devices have been configured on the heat pump. Check with installer if unsure of devices enabled on heat pump.

- A 2-wire external controller.
- A 3-wire external controller.
- A "SMART" external controller.
- An external flow switch.

RESOLUTION

If not used to operate the heat pump, deactivate the external control device.

Schedule Not Working

ISSUE

A device isn't operating as scheduled.

RESOLUTION

- Confirm the device is part of the scheduled group.
- Confirm the group has an appropriate schedule program. See "*Configuring Groups*" on page 30.
- Confirm the schedule mode is set to "AUTO" and the scheduled program mode is set to "ON". See "*Schedule and Program Modes*" on page 38.
- Confirm the time is set correctly in the system. See equipment manual for information on changing date and time on heat pump.

> ***NOTE***
> *The standard (from the factory) heat pump* ***does not have*** *a group or schedule. These can be created as needed depending on if a heat pump option has been utilized.*

Water Coming From Heat Pump

ISSUE

The water may be normal condensation produced as a by-product of the heat pump's refrigeration process.

The heat pump can produce up to 8 to 10 gallons (30 to 38 liters) of condensation per hour depending on the humidity of the ambient air. Determine if the water is condensation or a possible leak.

RESOLUTION

1. Deactivate heat pump, leaving the filter pump on. After several hours, determine if the water is still coming from the heat pump.
2. If using chlorine or bromine as a pool/spa sanitizer, test the water around the heat pump using a test strip. If the test strip indicates that chlorine or bromine is present, a leak may exist.

> ***PLEASE NOTE -***
> *If desired, a kit is available to re-direct condensation water away from the heat pump.*