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## Installation, Operation, and Service Procedures

### for all S-5 and S-11 heaters



S-11 shown

### General Description

This procedure book covers all S series heaters. They are designed to be used only with baptismal pools manufactured by Fiberglass Specialties, Inc.

Optional items available for use with S series heaters have their own instruction sheets. Allow for placement, wiring, and plumbing of all optional items prior to beginning the installation of this heater.

**HEY!** The system **timer works by moving the minute hand clockwise**, not turning the body of the timer. Turning the body of the clock will permanently damage the unit making it unusable.

Note: These systems are designed for use with municipal water systems. The warranty for all products (including the pool) is void if any non-potable water is used in the pool.

# Important Safety Instructions

Read before beginning any work on the heater

1. **Read, understand, and follow all instructions.**
2. DO NOT permit children to use or operate this heater
3. Install within 5' of the pool using non-metallic connections
4. WARNING—FOR INDOOR USE ONLY.
5. Do not permit any electrical appliance, such as a light, telephone, radio, television, or microphone within 20' of the pool
6. A clearly labeled emergency switch must be provided by the installer at least 5' away, adjacent to, and within site of the pool.
7. Heater and pool are intended for use as described in this manual. Do not use attachments not recommended by the manufacturer.
8. Never drop or insert any object into any opening.
9. This heater has a built in Ground Fault Circuit Interrupter (GFCI). The GFCI should be tested once a month. To test the GFCI, push the test button. The GFCI should interrupt the power. Push the reset button and power should be restored. If the GFCI does not operate in this manner, there may be ground current flowing indicating the possibility of electrical shock. DO NOT use the heater or any other accessories. Turn off the power at the breaker box and have the problem corrected by a qualified service person.
10. A green colored terminal is provided within the terminal compartment. To reduce the risk of electric shock, connect this terminal to the grounding terminal of your electric service or supply panel with a continuous green insulated copper wire equivalent in size to the circuit conductors supplying this equipment.
11. A pressure wire connector has been provided on the Heater to permit connection of a #8 AWG solid copper bonding conductor between this unit and all other electrical equipment and exposed metal in the vicinity, as needed to comply with local requirements.

# Step 1

## Pre-Plan & Assembly

- Assemble the heater and pump to the base using the instructions provided
  - Locate the heater in an accessible area adjacent to and at the same approximate elevation as the floor of the baptismal pool. The heater must be located within 5' of the pool.
  - The final installation must be such that no person can touch water and any source of electrical power at the same time.
  - The final installation must be indoors with a minimum of 6" from any combustible materials including the combustible materials in the floor.
  - Allow for adequate clearance for servicing the heater and any options installed.
  - Locate the system where, if any connections were to leak or rupture, water damage will not occur. Under no circumstances will FSI nor any of its vendors or agents be responsible for any water damage.
  - Minimum piping to be used is 1 1/2" I.D. schedule 40, PVC water pipe on all inlet and outlet connections.
  - Electrical service required for the H-5 is 40amp, 240v. For the H-11 a 60 amp, 240 volt is needed.
1. With the heater in a location as described above mark a centerline of the suction fitting on the side wall of the pool. The mark should be 3" to 4" above the floor of the pool. **DO NOT DRILL THE HOLE!** Next mark the location of the return fitting. The return fitting should be installed above the suction fitting and at least 6" below the top of the pool. During usage, the return fitting must be 3" below the water line to prevent excessive turbulence.
  2. At this time, consider the location of the Autofill, water level controller, and electric drain plus any optional items ( UV Sanitizer, filter, skimmer, etc.) that may be included in the final installation. Review the installation recommendations for those items as well as their location to assure a proper installation.
  3. With the heater in its final position, in line and level with the suction fitting location, determine the exact position of the heater by preassembling the plumbing headers and circuits as shown in **Figure 1, Page 7. Be sure to align the fittings and support the heater in such a way that the plumbing is not put into tension with the baptistry wall. Such tension can cause unnecessary leaks and noise due to vibration.**
  4. After all parts have been preassembled and aligned with hole locations, using a 2 3/4" hole saw, drill the fiberglass and install the Suction and Return fittings. Follow the instructions supplied with the fittings including using silicone on the fitting flanges to create a watertight seal. Position the heater and glue the required joints.
  5. When all glued parts are dry, re-assemble, making sure all o-rings and gaskets are in place on all union connections. Union connections should only be hand tight. Over tightening these connections can cause them to crack and leak and are not covered by warranty. If the union connection doesn't feel tight, check the gasket for debris and /or replace the gasket.

## Step 2

### Electrical

- **IMPORTANT NOTE :** Due to the risk of electrical shock, a licensed electrician experienced in spa/baptismal pool heaters should install this unit in strict compliance with the National Electrical Code and any state or local code which may apply. Units are required to have a clearly labeled emergency switch provided by the installer as part of the installation. The switch must be readily accessible to the occupants and shall be installed at least 5 feet (1.52 meters) away, adjacent to, and within sight of the unit.

### Wiring the Heater

- Remove 2 Phillips head screws from the top of the front cover of the heater and hinge the cover forward.
- Note the location of the terminal block inside the heater. The terminals on the block are marked Line 1 (L1), Line 2 (L2), Neutral (N), and Ground. Connect the input service wires to the appropriate terminal. Connect the ground wire to the ground lug.
- Close and secure the cover.
- Connect the pump using the receptacle located on the side of the heater.



### Air Switch Installation

This heater is supplied with 2 air switches to control start/stop (timer override) and fill/drain. The air switches can be mounted on the lip of the pool or any other convenient location and allows the user to turn the heater system on and off when the control switch on the front panel is set for timer operation.

To install the air switches, drill a hole on the lip of the pool or another convenient location. Mount the air switch, then press the clear tubing supplied onto the end of the switch. Run the tubing to the air switch receptacle on the side of the heater.



# Installation of Auto Fill and Auto Drain

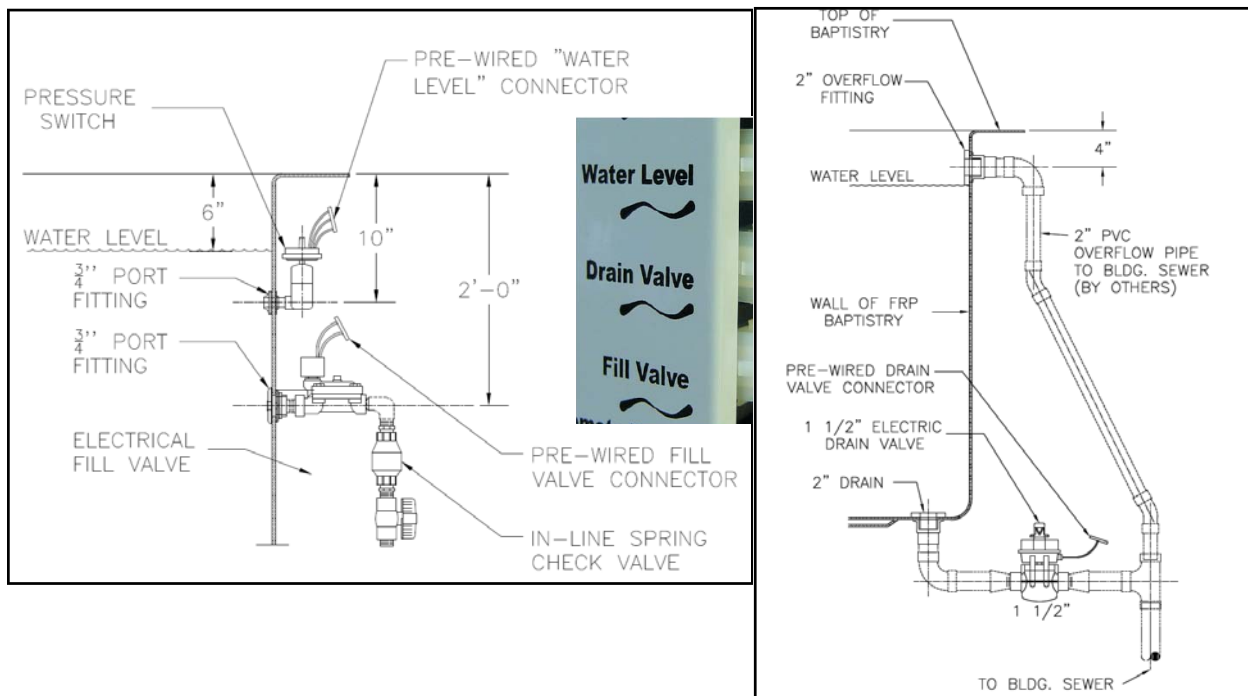
**NOTE: It is the responsibility of the owner/installer to verify the overflow drain port supplied will offset the incoming flow of water.**

## Installation of the Fill Port -

1. In a convenient location, close enough to the heater to allow connection of the pig tail, drill a 1 1/8" hole approximately 6" above the floor of the baptistry.
2. Smooth hole on both sides. Slide the gasket over the threads of the fill port and push it through the hole. Install and tighten the nut to the back of the baptistry.
3. Install the fill device using Teflon tape on all threaded connections.
4. Plug the Fill Port into the heater using the pin connector.

## Installation of the Water Level Pressure Switch -

1. In a convenient location, drill a 1 1/8" hole, 10" below the rim of the baptistry.
2. Smooth hole on both sides. Slip the gasket onto the water port and slide it through the side of the baptistry. Install the nut and tighten securely.
3. Install the Pressure switch onto the water port using Teflon tape on all threads.
4. Plug the Water Level Pressure Switch into the Heater using the pin connector.
5. Adjust the water level by turning the grey knob on the pressure switch as necessary.



## Installation of the Auto Drain -

In a convenient location, pipe in the auto drain unit before the junction of the over flow drain (see drawing)

Plug the auto drain into the heater using the pin connector

## Check for Proper System Operation

1. Fill the pool with water. The pool is considered full when the water level is 6" below the top of the baptismal.
2. Turn the thermostat to the OFF position
3. Set the Timer Mode Switch to the #2 position
4. Turn on the power at the breaker.
5. The system is operating properly if the system is idle.
6. Turn up the thermostat. The pump should start running and, once pressure builds in the pump, the system will begin to heat. The amber "Heater On" light should now be illuminated.
7. If the light does not come on, TURN OFF THE POWER. Refer to Trouble Guide on page 7.

## Operation of the Heater

1. Fill the baptismal Pool with fresh water to the proper level (6" below the top of the pool, but at least 3" above the water return line (outlet fitting). Never operate the pump or heater without water in the system. Resulting damage from dry operation is not covered by the warranty.
2. Turn the power on to the heater from the main breaker. Water should now circulate. If water is not circulating, turn the power off and refer to the Trouble Shooting Guide at the back of this booklet.
3. Set the thermostat to the desired temperature
4. Check the water temperature using a thermometer (by others) until the desired temperature is reached. Adjust the thermostat until a comfortable setting has been reached.
5. Select the operational switch on the front of the heater to operate the system by the time clock or allow the system to continuously operate.

## Operation of the Time Clock

The system includes a 7 day time clock to allow for automatic control of the system.

1. Set the time by spinning the small minute hand of clock in the center of the timer. Do not spin the clock from the outside. Do not turn the minute hand counter clockwise.
2. Each tooth on the timer, when pushed out, represents 2 hours of operation. Consult the Temperature Rise chart on the page 8 for mathematically estimated heating times. Time on the chart do not allow for heat rising off the pool, so additional time will be necessary.

## Operation of Auto Fill / Auto Drain System

When the air button is pressed, and the water turned on, the water level pressure switch will allow the fill port to run water into the pool. When the water level reaches a point 4" above the water level pressure switch, the fill port will turn off. The water level will then be approximately 6" below the top of the baptismal to allow for displacement during usage. Should the water level drop 2" below normal, the water level pressure switch will activate the fill port and refill the baptismal to the proper level. These levels are preset at the factory and should not require adjustment.

When the pool is full and the auto fill system is activated the auto drain system can be activated by depressing the air button once. This will disable the auto fill system and automatically open the electric drain.

Pressing the air button again re-activates the fill system and closes the drain.

## Important Warnings

- The main power to the heater system and all other electrical components should be turned off before anyone enters the pool. Even if the thermostat or timer have paused the heater functions, live electrical circuits are still present!
- Do not operate the pool until it is full. Running the heater or other accessories without proper water level may cause the system to operate at abnormally high temperatures, premature failure of components, and unnecessary tripping of the high limit switch.
- Do not heat water in excess of 102°F. A temperature of 100°F is considered safe for healthy adults only. Hotter water increases a risk of hypothermia. Young children, elderly persons, persons having medical problems and persons on medications should have special consideration.
- Pregnant women need to be alerted to the danger of fetal damage and should consult their physicians before being baptized.
- Always check the water temperature using an accurate thermometer. Thermostats installed in the system may error in regulating water temperature by as much as 4°.
- Never, never tamper with the controls!. Scalding may occur if safety controls are not in proper order.
- If freezing temperatures are expected, drain the pool and the heater system, then turn off the electrical power. Follow the Operation Instructions on page 5 for restarting the heater.

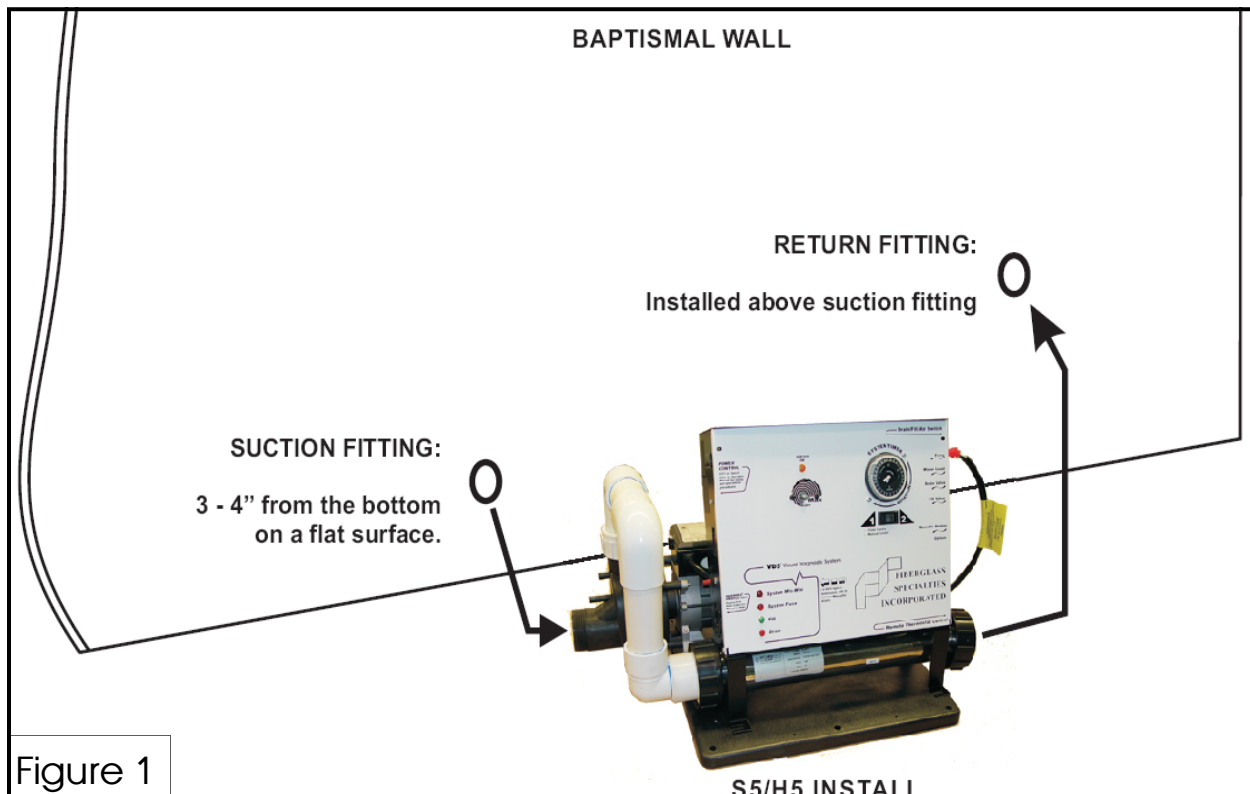


Figure 1

## Trouble Shooting Guide

### Nothing Operates:

Main Breaker	Set to on position
Sub-panel circuit breaker	Set to on position
GFIC tripped	Set to on position
Components not plugged in	Plug in all components
Time Clock has turned system off	Adjust time clock
Overheat Protection Switch tripped	Reset High Limit Switch and monitor closely. If condition repeats, contact Service Center.

### No Pump Operation:

Timer not programmed	Program timer for on/off operation
Overheat Protection switch tripped	Reset High Limit Switch and monitor closely. If condition repeats, contact Service Center.
Mode Switch set in Mode 2	Turn up thermostat
Air Switch activated	Press air switch again
Pump not plugged in	Plug in pump

<b>Temperature Rise by Model Number</b>									
H&S 5					H&S 11				
		Hours				Hours			
Model	Gallons	20° Rise	40° Rise	20° Rise	40° Rise	20° Rise	40° Rise	20° Rise	40° Rise
T2S	800	6.67	14.29	3.56	7.14				
T2M	865	7.21	15.45	3.84	7.72				
T2L	1050	8.75	18.75	4.67	9.68				
S1	590	4.92	10.54	2.62	5.67				
S2	690	5.75	12.32	3.07	6.16				
MX	705	5.88	12.59	3.13	6.29				
M1	750	6.25	13.39	3.33	6.70				
M2	795	6.63	14.20	3.53	7.10				
MINI	490	4.08	8.75	2.18	4.38				
R1	715	5.96	12.77	3.18	6.38				
R2	850	7.08	15.18	3.78	7.59				
EZ1	350	2.92	6.25	1.56	3.13				
EZ2	465	3.88	8.30	2.08	4.15				

### Warranty

Fiberglass Specialties, Inc warrants this heater to be free from defects in workmanship and materials, and we will, within one year from date of installation, but no later than six months from time of shipment from the FSI factory, for the original purchaser, repair, or, at our option, replace any defective part. If your system is damaged or destroyed by improper maintenance, excessive water harshness, incorrect water chemistry, or freezing, this warranty is void. Costs associated with removal or reinstallation of the parts, returning parts to the factory, or other incidental costs will not be covered under this warranty. Liability shall be limited to the original purchase price of the heater system. Fiberglass Specialties, Inc shall not be liable for any consequential damages resulting from use of this product.