



Superstor Pool Heater

Installation

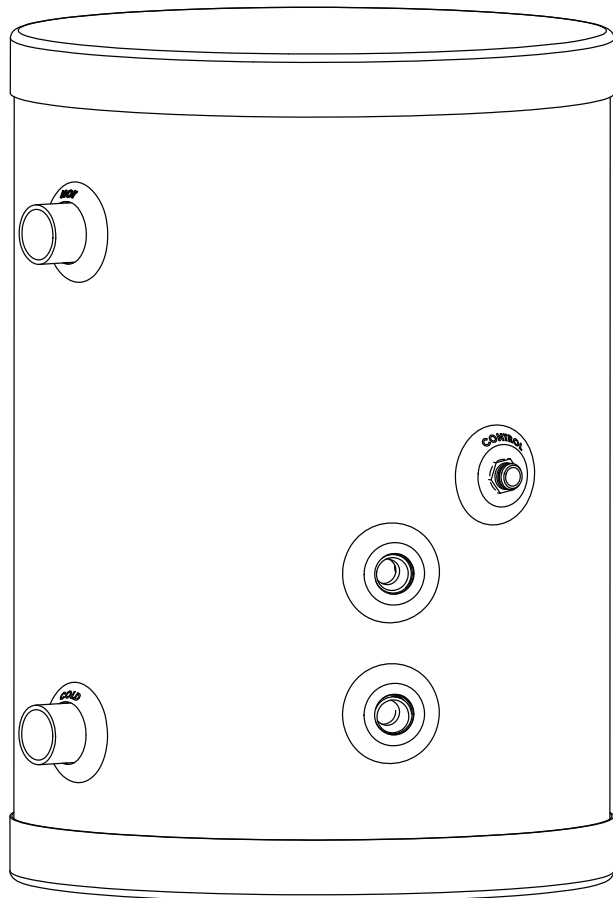
Start-Up

Maintenance

Parts

Warranty

SSU-20PH Model



WARNING

This manual must only be used by a qualified installer / service technician. Read all instructions in this manual before installing. Perform steps in the given order. Failure to do so could result in substantial property damage, severe personal injury, or death.

CAUTION

The use of a salt chlorine generator is prohibited in a system serviced by this pool heater. Salinated water will cause corrosive damage to the pool heater tank and component parts and possibly lead to premature failure. Such failure is NOT covered by warranty. Please seek an alternative sanitation method.

NOTICE

HTP reserves the right to make product changes or updates without notice and will not be held liable for typographical errors in literature.

NOTE TO CONSUMER: PLEASE KEEP ALL INSTRUCTIONS FOR FUTURE REFERENCE.

SPECIAL ATTENTION BOXES

The following defined terms are used throughout this manual to bring attention to the presence of hazards of various risk levels or to important product information.

DANGER

DANGER indicates an imminently hazardous situation which, if not avoided, will result in serious personal injury or death.

WARNING

WARNING indicates a potentially hazardous situation which, if not avoided, could result in personal injury or death.

CAUTION

CAUTION indicates a potentially hazardous situation which, if not avoided, may result in moderate or minor personal injury.

CAUTION

CAUTION used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.

NOTICE

NOTICE is used to address practices not related to personal injury.

Foreword

This manual is intended to be used in conjunction with other literature provided with the pool heater. This includes all related control information. It is important that this manual, all other documents included in this system, and additional publications including the *Code for the Installation of Heat Producing Appliances* (latest version), be reviewed in their entirety before beginning any work.

Installation should be made in accordance with the regulations of the Authority Having Jurisdiction, local code authorities, and utility companies which pertain to this type of water heating equipment.

Authority Having Jurisdiction (AHJ) – The AHJ may be a federal, state, local government, or individual such as a fire chief, fire marshal, chief of a fire prevention bureau, labor department or health department, building official or electrical inspector, or others having statutory authority. In some circumstances, the property owner or his/her agent assumes the role, and at government installations, the commanding officer or departmental official may be the AHJ.

NOTE: HTP, Inc. reserves the right to modify product technical specifications and components without prior notice.

For the Installer

This pool heater must be installed by qualified and licensed personnel. The installer should be guided by the instructions furnished with the pool heater, and by local codes and utility company requirements.

Installations Must Comply With:

Local, state, provincial, and national codes, laws, regulations, and ordinances.

The latest version of the National Electrical Code, NFPA No. 70. In Canada, refer to Canadian Electrical Code C22.1.

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Part 1 - General Safety Information

This pool heater is intended to be connected to a boiler. Basic operation requires a boiler with adequate BTU capacity and a properly sized circulator to transfer the BTUs to the pool heater.

An optional control is available to monitor pool water temperature when the pool filter pump is on. This system will not operate if the boiler or pool filter pump is not operating.

Pool control with sensor and transformer - Part # SP-30

WARNING

Installer - Read all instructions in this manual before installing. Perform steps in the given order.

User - This manual is for use only by a qualified heating installer / service technician. Have this pool heater serviced / inspected annually by a qualified service technician.

FAILURE TO ADHERE TO THESE GUIDELINES CAN RESULT IN SUBSTANTIAL PROPERTY DAMAGE, SEVERE PERSONAL INJURY, OR DEATH.

NOTE: Obey all local codes. Obtain all applicable permits before installing the water heater.

NOTE: Install all system components and piping in such a manner that does not reduce the performance of any fire rated assembly.

NOTE: If the pool heater is exposed to the following, do not operate. Immediately call a qualified service technician.

1. Fire
2. Damage
3. Water

Failure to follow this information could result in property damage, severe personal injury, or death.

This water heater must be installed upright in the vertical position as described in this manual. DO NOT attempt to install this water heater in any other orientation. Doing so will result in improper water heater operation and property damage, and could result in serious personal injury or death.

CAUTION

Do not use this pool heater for anything other than its intended purpose (as described in this manual). Doing so could result in property damage and WILL VOID product warranty.

High heat sources (sources generating heat 100°F / 37°C or greater, such as stove pipes, space heaters, etc.) may damage plastic components of the pool heater or plastic vent pipe materials. Such damages ARE NOT covered by warranty. It is recommended to keep a minimum clearance of 8" from high heat sources. Observe heat source manufacturer instructions, as well as local, state, provincial, and national codes, laws, regulations and ordinances when installing this pool heater and related components near high heat sources.

NOTICE

UNCRATING THE POOL HEATER - Any claims for damage or shortage in shipment must be filed immediately against the transportation company by the consignee.

A. When Servicing the Pool Heating System

To avoid electric shock, disconnect electrical supply before performing maintenance.

To avoid severe burns, allow pool heater and associated equipment to cool before servicing.

B. Heater Water

Do not use petroleum-based cleaning or sealing compounds in a pool heating system. Gaskets and seals in the system may be damaged. This can result in substantial property damage.

Do not use "homemade cures" or "patent medicines". Damage to the pool heater, substantial property damage, and/or serious personal injury may result.

Part 2 - Prepare the Pool Heater

Remove all sides of the shipping crate to allow the heater to be moved into its installation location.

CAUTION

COLD WEATHER HANDLING - If the pool heater has been stored in a very cold location (BELOW 0°F) before installation, handle with care until the components come to room temperature. Failure to do so could result in damage to the pool heater.

A. Locating the Pool Heater

If the pool heater is to be located outdoors it must be in a covered area, protected from the rain and sun.

For winterizing, the pool heater must be completely drained and have one gallon of non-toxic, food-grade propylene glycol, FDA rated as GRAS (Generally Recognized As Safe) pumped into the heat exchanger to prevent freezing.

Choose a location for the pool heater as centralized to the piping system as possible. Also, locate the pool heater and domestic water piping where it will not be exposed to freezing temperatures. All piping should be insulated. Additionally, place the pool heater so that the drain, controls, and inlets/outlets are easily accessible.

This water heater must be installed vertical on a level surface.

WARNING

Ensure the location can support the entire filled weight of the pool heater. Failure to properly support the pool heater could result in property damage, severe personal injury, or death.

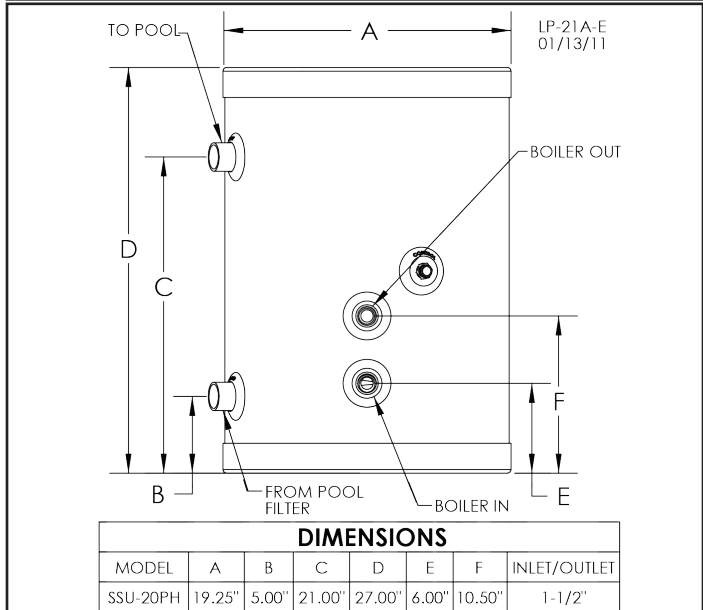


Figure 1 - Pool Heater Dimensions

CAUTION

Locate the water heater where any leakage from the relief valve, related piping, tank, or connections will not result in damage to surrounding areas or lower floors of the building. The water heater should be located near a floor drain or installed in a drain pan. Leakage damages ARE NOT covered by warranty.

DANGER

This water heater must not be located near flammable liquids such as gasoline, butane, liquefied propane, adhesives, solvents, paint thinners, etc., as the controls of this water heater could ignite these vapors and cause an explosion resulting in property damage, severe personal injury, or death.

NOTE: To save on heating costs and improve energy efficiency keep the distance between the boiler and pool heater to a minimum to reduce heat loss from excess piping and keep friction loss at a minimum. Ensure all piping between the boiler and pool heater is properly insulated to minimize heat loss.

The pool heater may be located some distance from the boiler provided the circulator meets flow requirements through the coil. The greater the distance from the pool heater to the boiler the longer the response will be to a call for hot water.

This pool heater must be installed vertical on a level surface.

B. Water Chemistry Requirements

CAUTION

The use of a salt chlorine generator is prohibited in a system serviced by this pool heater. Salinated water will cause corrosive damage to the pool heater tank and component parts and possibly lead to premature failure. Such failure is NOT covered by warranty. Please seek an alternative sanitation method.

Part 3 - Piping

A. Plumbing

It is mandatory that all plumbing be done in accordance with federal, local, and state plumbing codes and practices. Failure to properly install the pool heater WILL VOID the warranty. It is also necessary to use both thread tape and pipe dope on all mechanical plumbing connections.

B. Piping to the Pool Filter

Pool water side piping (pool in and pool out) is recommended to be 1 1/2" PVC. A bypass will be necessary between the inlet and outlet of the pool heater. See Figure 2. The bypass will allow the boiler to keep up with the pool heater. If the bypass is not installed, the boiler may not be able to provide adequate temperature.

C. Piping to the Boiler

Piping between the boiler and pool heater should be 1 1/4" copper. It is very important to properly size the boiler circulator to match total system flow rates, pressure drop (feet of head), and boiler output. For example, if the boiler is 100,000 BTU/H, the system requires a 6 GPM flow rate through the heat exchanger. See Table 1.

To achieve proper flow rates, calculate friction loss for the length of piping, plus the number of fittings, elbows, tees, pool heat exchanger, etc. Pool heat exchanger friction loss is 4.5' at 6 GPM, 7' at 7 GPM, and 9.2' at 8 GPM. The minimum boiler temperature must be maintained at 160°F or higher. Low boiler temperature will dramatically reduce the life of the boiler.

Model	BTU Output	Rec. Flow Rate	Heat Exchanger Pressure Drop
SSU-20PH	100,000	6 GPM	4.5'
	125,000	7 GPM	7.0'
	150,000	8 GPM	9.2'
	195,000	9 GPM	10.6'
	200,000	10 GPM	12.5'

Table 1 - Pressure Drop through the Heat Exchanger

CAUTION

Use two wrenches when tightening water piping at the heater. Use one wrench to prevent the heater return or supply line from turning. Failure to prevent piping connections from turning could cause damage to water heater components.

D. Application

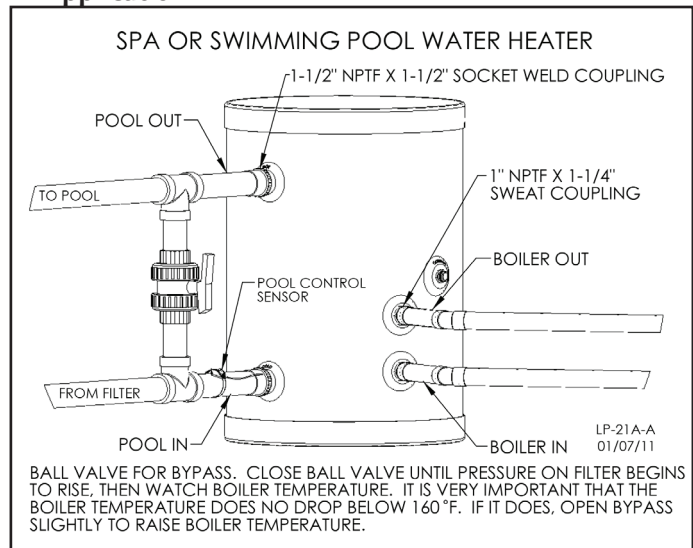


Figure 2 - Pool Heater Piping

Part 4 - Heater Control and Wiring

A. Control

If the pool heater control is to be located outdoors it must be located in a covered area, protected from the rain and sun. However, the control transformer must be kept indoors. A ground fault outlet is mandatory. The control probe needs to be installed onto the inlet line of the pool heater. This probe monitors incoming water temperature to the pool heater only when the pool filter is running. See Figure 3 for control wiring.

At the beginning of the season it may be necessary during start-up to leave the pool filter on for a few days to heat the pool. See Table 2 to determine actual heating time.

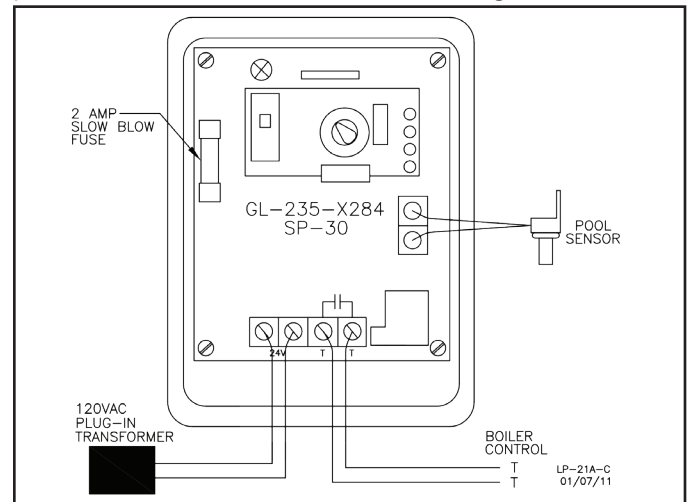


Figure 3 - Control Wiring

B. Sensor Installation

Proper sensor installation is critical for reliable and efficient operation. The sensor should be located close to the inlet of the pool heater (pipe running from the pool filter) as possible.

Mount sensor by following the instructions in Figure 4. If the wiring needs to be longer, use commonly available thermostat "TT" wire on the transformer line to the boiler. If a standard control is used, install a tee in the inlet line and use a standard aquastat well to mount the control bulb.

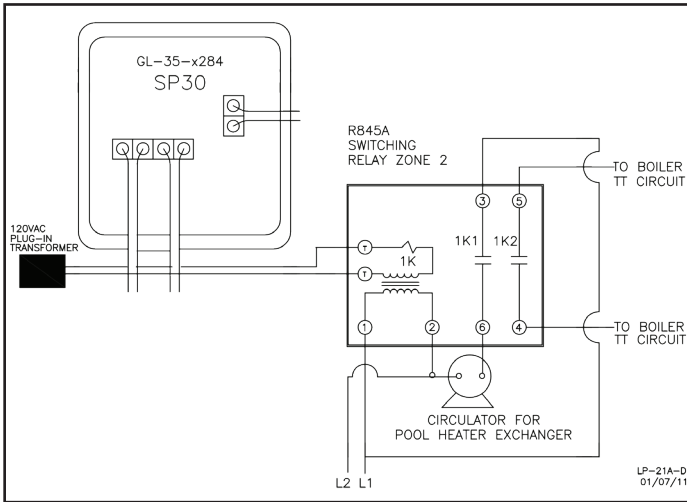


Figure 4 - Wiring Pool Heater Control to Boiler Control

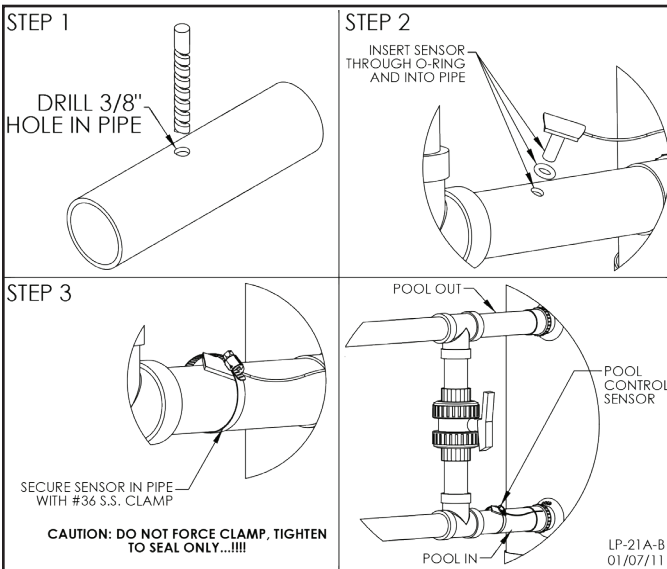


Figure 5 - Wiring Pool Heater Control to Boiler Control

Part 5 - Sizing the Pool Heater

Heating Time in Hours	Temperature Rise in Degrees Fahrenheit					
	20°	25°	30°	40°	50°	60°
6	40	50	60	80	100	120
12	20	25	30	40	50	60
24	10	12.5	15	20	25	30
48	5	6.3	*7.5	10	12.5	15
72	3.4	4.25	5.1	6.8	8.5	10.2
96	2.5	3	3.75	5	6.25	7.5
120	1.7	2	2.5	3.3	4.25	5
144	1.4	1.7	2.2	2.8	3.5	4.25
168	1.3	1.6	2.1	2.7	3.4	4.1
192	1.2	1.5	2.0	2.6	3.3	4
216	1.1	1.4	1.9	2.5	3.2	3.9
240	1	1.25	1.8	2.4	3.1	3.8

Table 2 - Water Heater Sizing - *Temperature Rise Demonstrated in Example

NOTE: THE SSU-20PH CAN TRANSFER A MAXIMUM OF 200,000 BTU/H FROM THE BOILER. PLEASE MAKE SURE

TO CORRECTLY SIZE THE CIRCULATOR OFF THE BOILER. SEE TABLE 1.

NOTE: The following is presented as a guide to determine the heating time in hours for water heaters used to heat swimming pools and baptistries.

EXAMPLE FORMULA TO ESTABLISH POOL RECOVERY:

Boiler 84,000 BTU/H divided by pool capacity (gallons) = Factor

TO FIND POOL CAPACITY IN GALLONS:

1. Find volume of pool (or baptistry tank) in cubic feet. Length x width x average depth = cubic feet of water.
2. Convert cubic feet of water to gallons = multiply by 7.5.
3. Use SSU-20PH, i.e. 84,000 BTU/H.

4. To determine how long it is going to take to heat pool, divide 84,000 into pool capacity in gallons. The answer should be matched with the figures in Table 2 under the appropriate temperature rise column.

Example:

7500 Gallon Pool needs to be heated from 40°F to 70°F (30°F rise) = 84,000 BTU divided by 7500 gallons = 11.2* (*See Table 2) under 30°F rise columns. In less than 48 hours, this temperature rise can be accomplished.

5. The boiler must supply enough BTUs for the gross output of the pool heater. Once the pool is at temperature (70°F in this example), the pool heater will require very few BTU/H to maintain the pool at temperature.

Part 6 - Maintenance

When heater is not used during the winter months, turn off power to heater and drain water from the tank and piping to prevent freezing.

For winterizing, disconnect tank and pump one gallon of non-toxic food-grade propylene glycol, FDA rated as GRAS (Generally Recognized As Safe) into the heat exchanger to prevent freezing.

SuperStor Ultra Pool Heater Limited Warranty

Five Year Warranty to Assure Your Complete Satisfaction

HTP warrants the SuperStor Ultra Pool Heater to be free from defects in materials and workmanship according to the following terms, conditions, and time periods. UNLESS OTHERWISE NOTED THESE WARRANTIES COMMENCE ON THE DATE OF INSTALLATION. HTP SHALL NOT, UNDER ANY CIRCUMSTANCES, BE LIABLE FOR LABOR CHARGES, INCIDENTAL, CONSEQUENTIAL, OR SECONDARY DAMAGES AND EXPENSES RESULTING FROM ALLEGED DEFECTS UNDER THIS WARRANTY.

COVERAGE

Warranted Unit	Components	Warranty Period
Pool Heater Assembly	Stainless Steel Storage Tank, Insulation, and Outer Jacket	5 Years

A. HTP warrants that it will repair or replace, at its option, without charge, any defective pool heater found to have failed due to manufacturer's defect within five years of the installation date. HTP will NOT accept claims from the purchaser for labor costs incurred as a result of the repair, replacement, removal, or reinstallation of a pool heater. It is expressly agreed between HTP and the purchaser that repair or replacement are the exclusive remedies of the purchaser.

B. If HTP is unable to repair or replace a pool heater so as to conform to this warranty after a reasonable number of attempts, HTP will then provide, at its option, a replacement unit. These remedies are the purchaser's exclusive remedies for breach of warranty.

C. If at the time of a request for service the purchaser cannot provide a copy of the original sales receipt or the warranty card registration, the warranty period for the pool heater shall then be deemed to have commenced thirty (30) days after the date of manufacture of the pool heater and NOT the date of installation.

OWNER'S RESPONSIBILITIES

The owner or installer must:

1. Install, operate, and maintain the pool heater in accordance with the installation manual. Preventive maintenance can help to avoid any unnecessary breakdown of the pool heater and keep it operating at optimum efficiency.
2. Operate the storage assembly at pressure below that shown on the rating plate on the pressure relief valve.
3. Keep the storage tank free of damaging scale deposits.
4. Make provisions so if the storage tank or any component part or connection should leak, the resulting flow of water will not cause damage to the area in which it is installed. A water heater temperature and pressure relief valve should be piped to the nearest drain in order to avoid damage in the event the valve is activated.
5. Not use a salt chlorine generator with the pool heater. Salinated water will damage the tank.

WARRANTY EXCLUSIONS

HTP does not warrant:

1. All labor charges incurred by any person in connection with the examination or replacement of a pool heater claimed by the purchaser to be defective.
2. Any failed components not manufactured by HTP as part of the pool heater.
3. Pool heaters repaired or altered without prior written approval of HTP so as to affect adversely their reliability.

4. Any damages, defects or malfunctions resulting from improper maintenance, misuse, abuse, accident, negligence, freezing and the like.

5. Any damage or failure resulting from hard water scale buildup on the tank heat exchanger tubes.

6. Any damage or failure resulting from improper installation or failure to maintain and operate the pool heater in accordance with the printed instructions that accompany the unit.

7. Malfunctions resulting from, or repairs necessitated by, flood, fire, wind, or lightning, or uses of the pool heater for purposes other than that for which it was designed.

8. Condition resulting from exposure to foreign particles in the tank and exposure to chlorine content higher than 100 parts per million, or not maintaining a proper chemical balance in your pool and spa (pH level between 7.2 and 7.8, total alkalinity [TA] between 80 and 120 ppm. Total dissolved solids [TDS] less than 2000.)

9. Any damages, malfunctions, or failures resulting from the use of dielectric unions.

10. Damages or failures caused by the use of a salt chlorine generator with the pool heater.

11. Any unit purchased from an unauthorized dealer or any online retailer.

12. Pool heaters installed outside the fifty states (and the District of Columbia) of the United States of America and Canada.

PROCEDURES FOR WARRANTY SERVICE REQUESTS

Any claim for warranty assistance must be made promptly. Determine if the pool heater is "in-warranty" (that is, within the applicable warranty period) by reviewing a copy of the original sales receipt. You must present a copy of the original sales receipt for a warranty service request.

If your pool heater is "in-warranty", contact the retailer from whom the pool heater was purchased (or the installer) for assistance. Be prepared to provide the retailer or installer with a copy of your original receipt, complete model and serial numbers, and the date of installation of your pool heater, in addition to explanation of your pool heater problem.

Warranty coverage is subject to validation of "in-warranty" coverage by HTP claims department personnel. All alleged defective or malfunctioning parts must be returned to HTP via the local distribution channels where original purchase was made. NOTE: Any parts or heaters returned to HTP for warranty analysis will become the property of HTP and will not be returned, even if credit is denied.

If all warranty conditions are satisfied, HTP will provide replacement parts to the retailer.

If you have questions about the coverage of this warranty, please contact HTP at the address or phone number stated below:

HTP
P.O. Box 429
120 Braley Road
East Freetown, MA. 02717
Attention: Warranty Service Department
(800) 323-9651

SERVICE, LABOR AND SHIPPING COSTS

This warranty does not extend to shipping charges, delivery expenses, or administrative fees incurred by the purchaser in repairing or replacing the pool heater. This warranty does not extend to labor costs beyond the coverage specified in this warranty document.

**LIMITATIONS OF YOUR HTP WARRANTY AND REMEDIES
THE FOREGOING WARRANTIES ARE EXCLUSIVE AND ARE
GIVEN AND ACCEPTED IN LIEU OF ANY AND ALL OTHER**

WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE AND ANY OBLIGATION, LIABILITY, RIGHT, CLAIM OR REMEDY IN CONTRACT OR TORT, WHETHER OR NOT ARISING FROM HTP'S NEGLIGENCE, ACTUAL OR IMPUTED. THE REMEDIES OF THE PURCHASER SHALL BE LIMITED TO THOSE PROVIDED HEREIN TO THE EXCLUSION OF ANY OTHER REMEDIES INCLUDING WITHOUT LIMITATION, INCIDENTAL OR CONSEQUENTIAL DAMAGES, SAID INCIDENTAL AND CONSEQUENTIAL DAMAGES INCLUDING, BUT NOT LIMITED TO, PROPERTY DAMAGE, LOST PROFIT OR DAMAGES ALLEGED TO HAVE BEEN CAUSED BY ANY FAILURE OF HTP TO MEET ANY OBLIGATION UNDER THIS AGREEMENT INCLUDING THE OBLIGATION TO REPAIR AND REPLACE SET FORTH ABOVE. NO AGREEMENT VARYING OR EXTENDING THE FOREGOING WARRANTIES, REMEDIES OR THIS LIMITATION WILL BE BINDING UPON HTP. UNLESS IN WRITING AND SIGNED BY A DULY AUTHORIZED OFFICER OF HTP. THE WARRANTIES STATED HEREIN ARE NOT TRANSFERABLE AND SHALL BE FOR THE BENEFIT OF THE ORIGINAL PURCHASER ONLY.

NO OTHER WARRANTIES

Your HTP Warranty gives you specific legal rights, and you may also have other rights that vary from state to state. Some states do not allow the exclusion or limitation of incidental or consequential damages so this limitation or exclusion may not apply to you.

These are the only written warranties applicable to the pool heater manufactured and sold by HTP. HTP neither assumes nor authorizes anyone to assume for it any other obligation or liability in connection with said Pool Heaters.

HTP reserves the right to change specifications or discontinue models without notice.

Customer Installation Record Form	
The following form should be completed by the installer for you to keep as a record of the installation in case of a warranty claim. After reading the important notes at the bottom of the page, please also sign this document.	
Customer's Name	
Date of Installation	
Installation Address	
Product Name / Serial Number(s)	
Comments	
Installer's Code / Name	
Installers Phone Number	
Signed by Installer	
Signed by Customer	

IMPORTANT

Customer: Please only sign after the installer has fully reviewed the installation, safety, proper operation, and maintenance of the system. If the system has any problems please call the installer. If you are unable to make contact, please call your sales representative.

Distributor / Dealer: Please insert contact details.