



HAYWARD®

**POOL AND SPA/HOT TUB HEATERS
H250FDN & H250FDP; H350FDN & H350FDP;
H400FDN & H400FDP MODELS**

OWNER'S MANUAL

FOR YOUR SAFETY

⚠ WARNING: If the information in these instructions is not followed exactly, a fire or explosion may result causing property damage, injury, or death.

- Do not store or use gasoline or other flammable vapors or liquids in the vicinity of this or any other appliance.

WHAT TO DO IF YOU SMELL GAS:

- Do not try to light any appliance.
- Do not touch any electrical switch; do not use any phone in your building.
- Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
- If you cannot reach your gas supplier, call the fire department.
- Installation and service must be performed by a qualified installer, service agency, or the gas supplier.



FOR YOUR SAFETY

This product must be installed and serviced by authorized personnel, qualified in pool/spa heater installation. Improper installation and/or operation can create carbon monoxide gas and flue gases that can cause serious injury, property damage, or death.

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Basic safety precautions should always be followed, including the following: Failure to follow instructions can cause severe injury and/or death.

 This is the safety-alert symbol. When you see this symbol on your equipment or in this manual, look for one of the following signal words and be alert to the potential for personal injury.

 **WARNING** warns about hazards that could cause serious personal injury, death or major property damage and if ignored presents a potential hazard.

 **CAUTION** warns about hazards that will or can cause minor or moderate personal injury and/or property damage and if ignored presents a potential hazard. It can also make consumers aware of actions that are unpredictable and unsafe.

 **ATTENTION** indicates special instructions that are important but not related to hazards.

**READ AND FOLLOW ALL INSTRUCTIONS IN THIS OWNER'S
MANUAL AND ON EQUIPMENT.
IMPORTANT SAFETY INSTRUCTIONS**

**Before installing or servicing this electrical equipment, turn power supply OFF.
KEEP SAFETY LABELS IN GOOD CONDITION AND REPLACE IF MISSING OR DAMAGED.**

 **WARNING** – To reduce risk of injury, do not permit children to use or climb on the heater, pumps or filters. Closely supervise children at all times. Components such as the filtration system, pumps, and heaters must be positioned to prevent children from using them as a means of access to the pool.

 **CAUTION** – This heater is intended for use on permanently installed swimming pools and may also be used with spas. Do NOT use with storable pools. A permanently installed pool is constructed in or on the ground or in a building such that it cannot be readily disassembled for storage. A storable pool is constructed so that it is capable of being readily disassembled for storage and reassembled to its original integrity.

Though this product is designed for outdoor use, it is strongly recommended to protect the electrical components from the weather. Select a well drained area, one that will not flood when it rains. It requires free circulation of air for cooling. Do not install in a damp or non-ventilated location.



 **WARNING** – It is required that licensed electricians do all electrical wiring. Risk of Electric Shock. Hazardous voltage can shock, burn, cause death or serious property damage. To reduce the risk of electric shock, do NOT use an extension cord to connect unit to electric supply. Provide a properly located outlet. All electrical wiring MUST be in conformance with applicable local and national codes and regulations. Before working on this unit, turn off power supply to the heater.

 **WARNING** – To reduce the risk of electric shock replace damaged wiring immediately. Locate conduit to prevent abuse from lawn mowers, hedge trimmers and other equipment.

 **WARNING** – Failure to bond to pool structure will increase risk for electrocution and could result in injury or death. To reduce the risk of electric shock, the electrician must comply with installation instructions and must bond the heater accordingly. In addition, the licensed electrician must also conform to local electrical codes for bonding requirements.

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NOTES TO THE ELECTRICIAN:

Use a solid copper conductor, size 8 or larger. Run a continuous wire from external bonding lug to reinforcing rod or mesh. Connect a No. 8 AWG solid copper bonding wire to the grounding lug provided on the heater and to all metal parts of swimming pool or spa, and to all electrical equipment, metal piping (except gas piping), and conduit within 5 ft. (1.5 m) of inside walls of swimming pool or spa.

IMPORTANT -Reference NEC codes for all wiring standards including, but not limited to, grounding, bonding and other general wiring procedures.



WARNING – Suction Entrapment Hazard.

Suction in suction outlets and/or suction outlet covers which are damaged, broken, cracked, missing, or unsecured can cause severe injury and/or death due to the following entrapment hazards:

Hair Entrapment- Hair can become entangled in suction outlets.

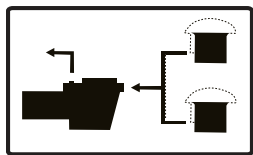
Limb Entrapment- A limb inserted into an opening of a suction outlet or suction outlet cover that is damaged, broken, cracked, missing, or not securely attached can result in a mechanical bind or swelling of the limb.

Body Suction Entrapment- A differential pressure applied to a large portion of the body or limbs can result in an entrapment.

Evisceration/ Disembowelment - A vacuum applied directly to the intestines through an unprotected suction outlet sump or suction outlet cover which is damaged, broken, cracked, missing, or unsecured can result in evisceration (disembowelment).

Mechanical Entrapment- There is potential for jewelry, swimsuit, hair decorations, finger, toe or knuckle to be caught in an opening of a suction outlet or suction outlet cover resulting in mechanical entrapment.

WARNING - To reduce the risk of entrapment hazards:



- When suction outlets are less than a 18" x 23" equivalent, a minimum of two functioning suction outlets per pump must be installed. Suction outlets in the same plane (i.e. floor or wall), must be installed a minimum of three feet (3') [1 meter] apart, as measured from near point to near point.
- Dual suction outlets shall be placed in such locations and distances to avoid "dual blockage" by a user.
- Dual suction fittings shall not be located on seating areas or on the backrest for such seating areas.
- The maximum system flow rate shall not exceed the flow rating of any listed (per current revision of ASME/ANSI A112.19.8) suction outlet cover installed.
- Never use the Pool or Spa if any suction outlet component is damaged, broken, cracked, missing, or not securely attached.
- Replace damaged, broken, cracked, missing, or not securely attached suction outlet components immediately.
- Install two or more suction outlets per pump in accordance with latest APSP (formally NSPI) Standards and CPSC guidelines. Follow all applicable National, State, and Local codes.

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-  **WARNING** – Failure to remove pressure test plugs and/or plugs used in winterization of the pool/spa from the suction outlets can result in an increase potential for suction entrapment as described above.
-  **WARNING** – Failure to keep suction outlet components clear of debris, such as leaves, dirt, hair, paper and other material can result in an increase potential for suction entrapment as described above.
-  **WARNING** – Suction outlet components have a finite life, the cover/grate should be inspected frequently and replaced at least every ten years or if found to be damaged, broken, cracked, missing, or not securely attached.
-  **WARNING** – All suction and discharge valves **MUST** be OPEN when starting the circulation system. Failure to do so could result in severe personal injury and/or property damage. All drains and suction outlets **MUST** have properly installed covers, securely attached using the screws supplied with the covers. If screws are lost, order replacement parts from your supplier.



-  **WARNING – Hazardous Pressure.** Pool and spa water circulation systems operate under hazardous pressure during start up, normal operation, and after pump shut off. Stand clear of circulation system equipment during start up. Failure to follow safety and operation instructions could result in violent separation of the pump housing and cover due to pressure in the system, which could cause property damage, severe personal injury, or death. Before servicing pool and spa water circulation system, all system and pump controls must be in off position and filter manual air relief valve must be in open position. Before starting system pump, all system valves must be set in a position to allow system water to return back to the pool. Do not change filter control valve position while system pump is running. Before starting system pump, fully open filter manual air relief valve. Do not close filter manual air relief valve until a steady stream of water (not air or air and water) is discharged.



-  **WARNING – Separation Hazard.** Failure to follow safety and operation instructions could result in violent separation of pump components. Strainer cover must be properly secured to pump housing with strainer cover lock ring. Before servicing pool and spa circulation system, manual air relief valve must be in open position. Do not operate pool and spa circulation system if a system component is not assembled properly, damaged, or missing. Do not operate pool and spa circulation system unless filter air relief valve body is in locked position in filter upper body.

-  **WARNING** – Never operate or test the circulation system at more than 40 PSI.
-  **WARNING** – Fire and burn hazard. Motors operate at high temperatures and if they are not properly isolated from any flammable structures or foreign debris they can cause fires, which may cause severe personal injury or death. It is also necessary to allow the motor to cool for at least 20 minutes prior to maintenance to minimize the risk of burns.
-  **WARNING** – Failure to install according to defined instructions may result in severe personal injury or death.

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WARNING – The following “Safety Rules for Hot Tubs” recommended by the U.S. Consumer Product Safety Commission should be observed when using the spa.

1. Spa or hot tub water temperatures should never exceed 104°F [40°C]. A temperature of 100°F [38°C] is considered safe for a healthy adult. Special caution is suggested for young children. Prolonged immersion in hot water can induce hyperthermia.
2. Drinking of alcoholic beverages before or during spa or hot tub use can cause drowsiness, which could lead to unconsciousness and subsequently result in drowning.
3. Pregnant women beware! Soaking in water above 100°F [38°C] can cause fetal damage during the first three months of pregnancy (resulting in the birth of a brain-damaged or deformed child). Pregnant women should adhere to the 100°F [38°C] maximum rule.
4. Before entering the spa or hot tub, users should check the water temperature with an accurate thermometer; spa or hot tub thermostats may err in regulating water temperatures by as much as 4°F (2.2°C).
5. Persons taking medications, which induce drowsiness, such as tranquilizers, antihistamines or anti-coagulants, should not use spas or hot tubs.
6. If the pool/spa is used for therapy, it should be done with the advice of a physician. Always stir pool/spa water before entering the pool/spa to mix in any hot surface layer of water that might exceed healthful temperature limits and cause injury. Do not tamper with controls, because scalding can result if safety controls are not in proper working order.
7. Persons with a medical history of heart disease, circulatory problems, diabetes or blood pressure problems should obtain a physicians advice before using spas or hot tubs.
8. Hyperthermia occurs when the internal temperature of the body reaches a level several degrees above normal body temperature of 98.6°F [37°C]. The symptoms of Hyperthermia include: drowsiness, lethargy, dizziness, fainting, and an increase in the internal temperature of the body.

The effects of Hyperthermia include:

1. Unawareness of impending danger.
2. Failure to perceive heat.
3. Failure to recognize the need to leave the spa.
4. Physical inability to exit the spa.
5. Fetal damage in pregnant women.
6. Unconsciousness resulting in danger of drowning.

DEFINITIONS:

Suction Outlet –	The term Suction Outlet is a fitting, fitting assembly, cover/grate and related components that provide a means for water to exit the pool and into the pump circulating system.
Inches of Mercury (in Hg) -	A unit for measuring pressure below atmospheric (“suction” or “vacuum”) (1.0 inch Hg = .491 PSI)
Main Drain –	See Suction Outlet
PSI –	An abbreviation for pounds per square inch.

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INTRODUCTION:

This manual contains instructions for installation, operation, maintenance, troubleshooting, and parts lists for the safe use of the swimming pool/spa/hot tub heaters. Hayward strongly recommends that the owner read the manual before using the swimming pool/spa/hot tub heater. If after reviewing the manual any questions remain unanswered, contact the factory or local representative.

LIMITED WARRANTY SUMMARY:

We warrant the pool/spa/hot tub heater to be free from defects in materials and workmanship, and we will within one year from date of installation for all users, for the original purchaser, repair or, at our option, replace without charge any defective part. We further warrant that if the heat exchanger or exchanger headers (water-containing section) leak within one year from date of such installation for all users, due to defects in materials and workmanship, we will provide a replacement part. Cost of freight, installation, fuel, and service labor (after one year) is at user's expense. For full details of warranty agreement, see warranty certificate included in this manual.



ATTENTION: If the pool/spa/hot tub heater is damaged or destroyed by improper maintenance, excessive water hardness, incorrect water chemistry, or freezing it is not covered under the manufacturer's warranty.

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MAINTAINING PROPER WATER CHEMISTRY

WARNING: Failure to Maintain Proper Water Chemistry May Cause Premature Heat Exchanger Damage or Failure

The heat exchanger in your Hayward pool heater is made from the highest quality of copper and nickel (Cupronickel) materials. The premium materials and the exacting processes used in the manufacture of the heat exchanger is state of the art in pool heater design and manufacture. Yet, it remains vital that the heat exchanger be protected from damaging or corrosive chemicals, insufficient water flow or improperly balanced water chemistry. Heat exchanger damage or failure resulting from improper flow, improperly balanced pool water or the improper addition of sanitizers into the water is NOT covered under the terms of your warranty.

The following factors are critical to heat exchanger protection. Follow these guidelines to help prevent pre-mature damage or failure to your heater and heat exchanger.

1. WATER FLOW THROUGH HEATER

Water must be flowing through the heater at the minimum rated flow rate during operation. Check that the pump is operating and the system is filled with water and purged of all air prior to starting the heater. The minimum rated flow rates are listed in the installation manual on page 25. Some installations may require an adjustment to the water pressure switch for proper low-flow protection. Test your system and if necessary, adjust the water pressure switch as described in the installation manual on page 34.

2. POOL/SPA WATER CHEMISTRY

The chemistry balance and mineral content of swimming pool water changes daily due to the addition of pool and sanitizing chemicals, bather loads, rain, runoff and the amount of sun - to name a few. Improper chemistry balance and mineral content can cause scaling and deposits to form on pool walls, in the filtration system, in the heat exchanger tubes and additionally can promote corrosive action to all metals in the water path. Changing spa water regularly and maintaining the correct chemical balance in your pool/spa will keep the pool/spa safe and sanitary, and will help protect the heat exchanger. Use a 4-way pool/spa water test kit to check your water frequently (at least weekly). Use the following guidelines to help protect your heater's heat exchanger:

	Recommended Level	Effect of Low Levels	Effect of High Levels
Chlorine	1 - 3 ppm	hazy water, algae growth, bacteria causing infections	swimmer irritation, bleaching of clothes/hair, corrosive to heat exchanger
Bromine	2 - 4 ppm		
pH	7.4 - 7.6	corrosive to heat exchanger, swimmer irritation	cloudy water, scaling of heat exchanger, reduced sanitizer effectiveness
Total Alkalinity	80 - 120 ppm	corrosive to heat exchanger, large fluctuations in pH	scaling of heat exchanger
Calcium Hardness	200 - 400 ppm	corrosive to heat exchanger	scaling of heat exchanger
Salt	2700 - 3400 ppm	poor salt chlorinator performance	corrosive to heat exchanger

3. SKIMMER CHLORINATION

Placing chlorine or bromine tablets directly into the skimmer may result in high chemical concentrations flowing through the heater. DO NOT place chlorine or bromine tablets in the skimmer.

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4. CHLORINATOR INSTALLATION

Chlorinators must be installed downstream of the heater, and a check valve must be installed between the heater and chlorinator to prevent high chemical concentrations from back flowing into the heater. Make sure your piping arrangement meets the chlorinator installation requirements shown in the installation manual on page 26.

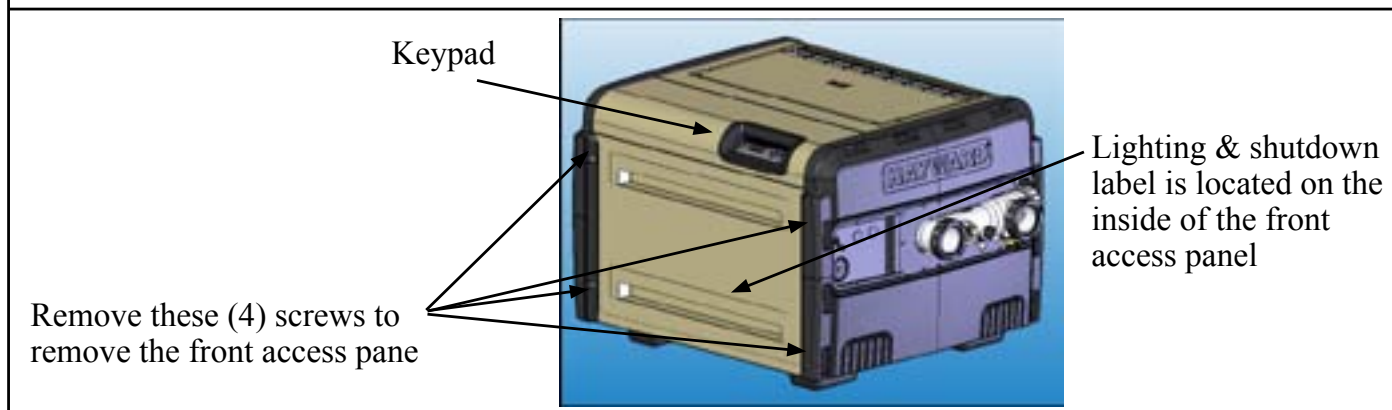
5. BYPASS

Until water chemistry is properly balanced, and if your piping has a bypass valve installed for the heater, open the bypass so that corrosive and potentially damaging water will not flow through the heater and therefore the heat exchanger. Close the bypass valve once the water is properly balanced. Failure to close the bypass valve when attempting to operate the heater will result in extensive damage to the heat exchanger. Ensure water flow through the heater is restored before operating the heater. A bypass feature is also advantageous for service needs and for the ability to remove the heater from the water path when not heating. Refer to page 25 in the installation manual for further information.

HEATER OPERATION:

Full lighting and shutdown instructions are included on the lighting & operating instructions label affixed to the inside of the front access panel. See Figure 2 for the location of this label and the keypad. See Figure 3 for the label.

Figure 2: Keypad and label locations



WARNING: If you smell gas in the appliance area or near the floor (PROPANE IS HEAVIER THAN AIR AND HENCE SETTLES ON THE FLOOR), stop and follow the instructions on the front cover of this manual. Since propane can accumulate in confined areas, extra care should be taken when lighting propane heaters.



ATTENTION: Do not use the heater below 40°F (4°C) temperature without adequate temperature protection.



WARNING: Do not ingest alcohol or drugs during use or prior to using pool, spa, or hot tub. Ingestion of such intoxicants can cause drowsiness, which can lead to unconsciousness, and subsequently result in drowning.

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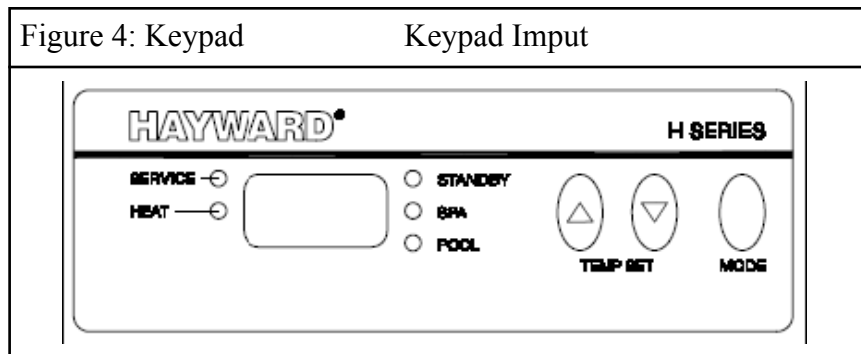
Figure 3: Lighting & Operating Instructions label

FOR YOUR SAFETY READ BEFORE LIGHTING WARNING: If you do not follow these instructions exactly, a fire or explosion may result causing property damage, personal injury or loss of life. A. This appliance does not have a pilot. It is equipped with an ignition device which automatically lights the burners. Do not try to light the burners by hand. B. BEFORE LIGHTING smell all around the appliance area for gas. Be sure to smell next to the floor because some gas is heavier than air and will settle on the floor. WHAT TO DO IF YOU SMELL GAS • Do not try to light any appliances. • Do not touch any electric switch; do not use any phone in your building. • Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions. • If you cannot reach your gas supplier, call the fire department. C. Use only your hand to turn the gas control knob. Never use tools. If the knob will not turn by hand, don't try to repair it; call a qualified service technician. Force or attempted repair may result in a fire or explosion. D. Do not use this appliance if any part has been under water. Immediately call a qualified service technician to inspect the appliance and to replace any part of the control system and any gas control which has been under water. E. Should over-heating occur, or the gas supply fails to shut off, turn off manual gas valve to the appliance.	OPERATING INSTRUCTIONS 1. STOP! Read the safety information on this label. 2. Change the "MODE" on the control panel to "STANDBY". 3. Remove the heater's front access panel. 4. This appliance is equipped with an ignition device which automatically lights the burner. Do not try to light the burners by hand. 5. Turn gas control knob clockwise to "OFF". GAS CONTROL KNOB SHOWN IN "OFF" POSITION  6. Wait five (5) minutes to clear out any gas. If you then smell gas, STOP! Follow "B" in the safety information on this label. If you don't smell gas, go to the next step. 7. Turn gas control knob counterclockwise to "ON". 8. Replace the heater's front access panel. 9. Set the "MODE" on the control panel to "SPA" or "POOL". 10. Set the set point temperature on the control panel to the desired setting. 11. If the appliance does not operate, repeat steps 2 thru 10. If the appliance still does not operate, follow instructions "TO TURN OFF GAS TO APPLIANCE" and call your service technician or gas supplier. TO TURN OFF GAS TO APPLIANCE 1. Change the "MODE" on the control panel to "STANDBY". 2. Remove the heater's front access panel. 3. Turn the gas control knob clockwise to "OFF". 4. Replace the heater's front access panel.
POUR VOTRE SÉCURITÉ LIRE AVANT L'ALLUMAGE MISE EN GARDE: Si vous ne suivez pas exactement ces instructions, un incendie ou une explosion pourrait survenir et causer des dommages à la propriété, des blessures corporelles ou la perte de la vie. A. Cet appareil n'a pas de pilote. Un mécanisme d'allumage automatique pour les brûleurs. N'essayer pas d'allumer les brûleurs à la main. B. AVANT L'ALLUMAGE, sentir tout autour de l'appareil pour détecter d'éventuelles odeurs de gaz. S'assurer de sentir près du plancher parce que les gaz plus lourds que l'air, se concentrent au niveau du plancher. QUE FAIRE EN PRÉSENCE D'ODEURS DE GAZ: • Ne pas essayer d'allumer l'appareil. • Ne pas toucher à un commutateur électrique; Ne pas utiliser le téléphone dans la maison. • Appeler immédiatement fournisseur de gaz chez un voisin. Suivre les instructions du fournisseur de gaz. • Si le fournisseur ne peut pas être atteint, appeler le service des incendies. C. Utiliser uniquement les mains pour actionner les boutons de commande du gaz. Ne jamais utiliser d'outils. Si le bouton ne s'enfonce pas ou ne se tourne pas à la main, ne pas essayer de le réparer. Appeler un technicien qualifié. L'utilisation de la force ou une tentative de réparation pourrait causer un incendie ou une explosion. D. Ne pas utiliser cet appareil si une des composantes a été immergée dans l'eau. Appeler immédiatement un technicien qualifié pour vérifier l'appareil et remplacer toute composante du système de commande ou de gaz qui aurait été immergée dans l'eau. E. Si le système surchauffait ou si le gaz refusait de se fermer, placer le robinet d'arrêt manuel de gaz de l'appareil en position "FERMÉ" (OFF).	INSTRUCTIONS D'ALLUMAGE 1. STOP! Lire les consignes de sécurité sur cette étiquette. 2. Changer le MODE du tableau de commande à STANDBY. 3. Retirer le panneau d'accès avant de l'appareil de chauffage. 4. Cet appareil est pourvu d'un dispositif d'allumage qui allume automatiquement les brûleurs. Ne pas tenter d'allumer manuellement les brûleurs. 5. Tourner le bouton de commande du gaz en sens horaire à OFF (fermé). BOUTON DE COMMANDE DE GAZ MONTRÉ EN POSITION "FERMÉ" (OFF)  Passer à l'étape suivante en l'absence d'odeur de gaz. 7. Tourner le bouton de commande du gaz en sens anti-horaire à ON (OUVERT). 8. Remplacer le panneau d'accès avant de l'appareil de chauffage. 9. Régler le MODE du tableau de commande à SPA ou à POOL. 10. Établir la valeur de réglage sur le tableau de commande à la température désirée. 11. Si l'appareil ne fonctionne pas, répéter les étapes 2 à 10. Si l'appareil refuse toujours de "FERMÉ" fonctionner, dissipe. Suivre les instructions <i>Pour tourner le gaz à l'appareil</i> et appeler votre technicien de service ou votre fournisseur de gaz.
POUR FERMER LE GAZ SUR L'APPAREIL 1. Changer le MODE du tableau de commande à STANDBY. 2. Retirer le panneau d'accès avant de l'appareil de chauffage. 3. Tourner le bouton de commande du gaz en sens horaire à OFF (fermé). 4. Remplacer le panneau d'accès avant de l'appareil de chauffage. 1301623001 REV A	

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Figure 4: Keypad

Keypad Input



KEYPAD INPUTS

The control accepts user inputs via the keypad on the front panel.

1. When changing the mode from “STANDBY” to either “SPA” or “POOL” there may be up to a 10-second delay for the blower fan to begin running. The control performs an internal self-test and then verifies that the blower vacuum switch contacts are open before energizing the blower.
2. It is normal for the heater to display a 1- to 2-second delay in responding to any keypad input.
3. It is normal for the heater to display up to a 5-second delay when the keypad is used to reset the control to clear an error code.
4. The control will accept a mode change during lockout after 5 seconds. The control will continue to display the error code and remain in lockout until it is reset. At reset the control will go to the last saved mode.

OPERATION: SET POINT ADJUSTMENT:

The set point temperature is displayed by pressing the “UP” or “DOWN” buttons while in “POOL” or “SPA” mode. The set point will blink while it is displayed. Further pressing of the “UP” or “DOWN” buttons will adjust the set point temperature up or down as desired. The set point range is between 65°F (18°C) and 104°F (40°C).

FAHRENHEIT VERSUS CELSIUS:

The temperature can be displayed in Fahrenheit or Celsius. TO change the display, use the “MODE” button to place the heater in “STANDBY”. Then press and hold the “UP” and “MODE” buttons until the display shows the °F/°C selection. Press the “DOWN” button to toggle between selections. To accept the selection, press the “MODE” button. If the user does not act, the selection will be automatically accepted after 60 seconds.

WINTERIZATION:

In moderate climates, the heater can continue to operate during short-term cold spells. Do not use the heater to maintain the water temperature just above freezing or for freeze protection. Care must be taken to avoid freeze-up in the heater. When it is used during freezing weather, the pump must run continuously. The heater is not warranted against freeze-ups. In regions where freezing temperatures are encountered, all water must be drained from the heater when it is out of service, to prevent damage to the heater and piping. Draining the heat exchanger is recommended as part of the season’s shutdown procedures.

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SPRING START-UP – CONSULT A PROFESSIONAL:

1. Inspect and clean the heater, being sure the heater is free of leaves and debris prior to startup.
2. Be sure inlet and outlet piping are properly attached to the heater and the drain valve is closed.
3. Turn the filtration system pump “ON” and allow the system to run long enough to purge all the air from the lines.
4. Turn the gas supply to the heater “ON”.
5. Set the temperature control using the keypad to “POOL” or “SPA” and adjust the set point to the desired temperature setting.
6. If operating difficulties are encountered, contact a qualified service company for assistance.

ERROR CODES:

Figure 5 lists the error codes that may be displayed on the heater display board.

Contact a qualified service company for assistance.

Figure 5: **ERROR CODES**

Code	Description	Information
bD	Internal fault/power-up error	On initial trial for ignition. Automatic reset is immediate once the gas valve relay check results are acceptable.
bD	Gas valve sensed as “ON” error	If valve is open when it should be closed the heater will shut down and go into lockout. Blower will operate until error condition is corrected. Automatic restart 2 minutes after error is corrected.
bD	Gas valve sensed as “OFF” error	If valve is closed but flame is sensed the blower will run for 5 s then start a new ignition sequence. If error occurs 10 times during a call for heat the control will go into lockout. Automatic reset is 60 minutes.
bD	Data retrieval error	If control input data is corrupted the heater will shut down and go into lockout.
HF	Flame present with gas valve “OFF” error	If flame is sensed with the gas valve off the control will go into lockout. The blower will run until error condition is corrected. When corrected, control will run blower for 5 s then automatically restart after 2 minutes.
PF	Electrical supply wiring error	This code will display if 120V polarity is reversed, low voltage is detected, or if the ground path is not sufficient. Reset is immediate after error is corrected.
AO	Prover switch open error	If the blower prover switch does not close after the blower starts the control will stop the ignition trial go into lockout. The blower will continue to run. Automatic reset is immediate after the switch closes.
AO	Prover switch open when expected closed error	If the blower prover switch opens unexpectedly during operation the control will shut down and attempt to re-light. If the switch does not close after the blower starts the control will go into lockout with the blower running. Automatic reset is immediate after error is corrected.

Figure 5: **ERROR CODES** (continued)

AO	Prover switch open during post-purge error	If the blower prover switch opens during the post-purge cycle (heater is not firing) the control will display the error code. The post-purge cycle will be completed once the blower prover switch closes.
AC	Prover switch closed when expected open error	If the blower prover switch is closed before blower start-up the control will not start the blower. Automatic reset is immediate when the switch opens.
IO	Igniter open error	If the control is not in lockout and senses that the igniter circuit is open when the blower is running the control will turn off the blower and go into lockout. Automatic restart 2 min. after error is corrected.
SF	Thermistor error	An excessive temperature difference between the two thermistors (5 °F or more) or an “out of bounds” condition on both sensors (less than 10°F or greater than 180°F) will result in the error code. Automatic restart is 2 minutes after the error is corrected.
HS	Excessive water temperature error	If water temperature exceeds 105°F the heater will shut down and go into lock-out. Automatic restart is 2 minutes after water temp. drops below 105°F.
HE	Rapid water temperature rise	If water temperature rises too rapidly the heater will shut down and go into lock-out. Automatic restart is after 2 minutes. After the third occurrence in the same call for heat the heater will lock out.
Sb	Keypad button stuck closed error	If one of the keypad buttons is closed (or pressed) for more than 30 s the error code will be displayed but the control will continue to function. The error code will be cleared when the condition is corrected.
IF	Ignition failure error	If the control exceeds the maximum number of ignition retries or recycles the heater will shut down and go into lockout. Automatic reset is 60 minutes.
CE	Communication error	If communication between the ignition board and the display board is not established within 3 s of power-up an error will be displayed. After communication is established, if it is lost for 30 s, the error will be displayed. The error code will be cleared upon a valid data exchange between boards.
LO	Limit string open error	If the limit string opens the heater shuts down and goes into lockout. Automatic restart is 2 minutes after the error condition is corrected and the limit string closes.
EE	EEPROM error	An error was detected in the ignition control circuit board.

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HAYWARD POOL HEATER CERTIFICATE OF LIMITED WARRANTY

Limited heater warranty:

TERMS AND COVERAGE: We warrant our pool heater to be free from defects in workmanship and materials under normal use and service. Pursuant to this warranty and subject to the Conditions and

Exceptions indicated below:

1. We will replace (cost of freight, installation, cost of fuel, and service labor at user's expense) with the prevailing comparable model, or, at our option, repair any pool/spa heater that leaks under normal use and service within one year from the date of original installation for all users.
2. In addition, we will replace (cost of freight, installation, cost of fuel, and service labor at user's expense) or, at our option, repair any part or parts of the pool/spa heater which malfunctions under normal use and service within one year from the date of original installation for all users.

LIMITATION ON IMPLIED WARRANTIES: WE ARE NOT LIABLE FOR ANY CONSEQUENTIAL DAMAGES FOR BREACH OF ANY WRITTEN OR IMPLIED WARRANTY OF THIS PRODUCT. Implied warranties, including the WARRANTY of MERCHANTABILITY and all other implied warranties that may arise from course of dealing or usage of trade imposed on the sale of this heater under laws of the state are limited in duration to the term of one (1) year for all users. There are no warranties which extend beyond the description on the face hereof. We shall not in any event be held liable for any special, indirect, or consequential damages.

EXPENSE OF DELIVERY AND INSTALLATION:

Each pool heater or replacement part to be furnished under this warranty shall be furnished at our nearest distribution center. We shall not pay, nor be responsible for shipping or delivery charges to the place of installation, nor for labor charges or other costs of removal or installation. Every defective heater or part replaced under this warranty shall become our property, and as such, must be returned to our distribution center with transportation charges paid by the user. Any replacement pool heater furnished under this warranty shall remain in warranty only for the unexpired portion of this warranty.

CONDITIONS AND EXCEPTIONS:

This warranty applies only to the pool/spa at its original place of installation and only for the original owner. It does not apply if the pool heater is installed in violation of any applicable code or ordinance, or is not installed, operated and maintained in accordance with our instructions, or is misused, damaged by accident, weather, act of God, freezing, water void and/or excess pressure, altered or disconnected. It does not apply with respect to:

1. A heater not equipped with Certified C.S.A. limit controls or equivalent pressure relief valve.
2. A heater operated with settings in excess of, and/or with fuel not conforming to those shown on rating plate;
3. A heater on which the serial numbers have been altered, defaced, or removed.
4. Leaks arising from defective installation;
5. Production of noise, odors, or discolored (rusty, etc.) water;
6. Leakage substantially contributed to by sediment, lime precipitate and/or higher than normal dissolved solids (pH above 7.8) in the tank, copper tubes, or water ways;
7. Leakage caused substantially contributed to by corrosive elements in the atmosphere (such as the storage of chlorine or other chemicals);
8. Leakage caused substantially or contributed to by corrosive pool water in an acid condition (pH below 7.2);
9. Damage caused substantially or contributed to by an external source of energy;
10. A pool/spa heater is a water containing device. Leakage of water from this device can be expected at some time due to malfunction or the limitations

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of the service life of various components. Do not install this product where such leakage can cause damage. MANUFACTURER IS NOT RESPONSIBLE OR LIABLE FOR ANY COSTS INCURRED BY SUCH DAMAGE.

IN NO CASE ARE WE TO BE HELD LIABLE FOR DAMAGE TO SURROUNDING AREA OR PROPERTY CAUSED BY LEAKAGE OR MALFUNCTION.

HOW TO CLAIM UNDER THIS WARRANTY:

The original owner, upon discovering the defect, must present the attached completed warranty claim card with proof of purchase either to the dealer or notify the Company in writing at either address:

HAYWARD POOL PRODUCTS, INC.

620 DIVISION ST.
ELIZABETH, NJ 07207

OR

HAYWARD POOL PRODUCTS, INC.

2875 POMONA BOULEVARD
POMONA, CA 91768

Upon receipt of such notification we shall decide whether to repair such parts or replace any pool heater, reserving at all times the right to inspect in order to verify any claimed defect. We also reserve the right to have our representatives make any inspections, repairs, or to furnish replacements. This warranty is intended as a legally binding obligation of the Company, enforceable in the courts. This warranty may give you specific legal rights which may vary from state to state.

LIMITATION ON LIABILITY:

All intended representations have been expressly set forth in this document. This warranty may not be extended by oral or any other additional representations, written sales information, drawings, or other malfunction, is strictly limited to repair or replacement of the defective heater or part, as provided herein and the Company is not responsible hereunder for incidental or consequential or incidental costs or damages. The company neither assumes, nor authorizes any person or firm to assume for us, any further liability or obligation in connection with the sale, installation, use, maintenance, or existence of the heater. **SAFETY WARNING:** Pool heaters are heat producing appliances and to avoid damage or injury in the event of possible overheating of the outer jacket (1) no materials should be stored against the jacket and (2) care should be taken to avoid unnecessary contact (especially by children) with the jacket. When lighting a gas heater, the lighting instructions must be followed exactly to prevent "flashback" of excess gas in the heater. Electronic ignition heaters and electric heaters must have the power shut off when making adjustments to, servicing, or coming into contact with the heater. **UNDER NO CIRCUMSTANCES SHOULD FLAMMABLE MATERIALS, SUCH AS GASOLINE OR PAINT THINNERS, BE USED OR STORED IN THE VICINITY OF THE HEATER OR IN ANY LOCATION FROM WHICH FUMES COULD REACH THE HEATER.** For your comfort, enjoyment and safety, please read the enclosed operating instructions carefully.

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HAYWARD[®] Pool Products

A Hayward Industries, Inc. Company

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Elizabeth, NJ 07207

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2875 Pomona Boulevard
Pomona, CA 91768

Hayward Pool Products, Inc.
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