INSTALLATION AND OPERATING INSTRUCTIONS

FOR

THE HARDY OUTSIDE WOOD BURNING HEATER

Model – H3, H5 & H6

HARDY MANUFACTURING COMPANY, INC.
12345 ROAD 505
PHILADELPHIA, MS 39350
PHONE: (601) 656-5866
FAX: (601) 656-4559
www.hardyheater.com
INTRODUCTION

Thank you for purchasing the original all stainless steel Hardy Outside Wood Burning Heater. It represents the result of many years of Hardy experience and the input of Hardy customers in the production of a top quality heater. With the purchase of this Hardy Heater, you can now appreciate the high degree of craftsmanship and reliability that have made The Hardy the leader in the outside woodburning heater field. This manual will provide you with a good basic understanding of the installation and operation of this heater.

THIS MANUAL INCLUDES IMPORTANT SAFETY INFORMATION

Your new heater should have the following:

(1) Owner’s manual complete with Installation and Hook-Up Instructions
(2) Warranty & Return Warranty Card
(3) A tube of silicon (located in the firebox for shipping)
(4) Smoke stack and condenser tank stack both with trim (located in firebox for shipping)
(5) Three cast iron grates (located in firebox)
(6) Two I - beam & 2 Channel Beams (located in firebox)
(7) Shovel (located in the firebox for shipping)
(8) Stainless steel panel and insulation that will be located between the firebox door & ash door after installation of the heater
(9) Stainless steel flame baffle (15” x 10”). Only for use on Hardy model H5 180,000 BTU heater

Should your heater not have any of these items or if you have any questions regarding the operation or maintenance of your heater, please consult you local Hardy dealer.

Again, thank you for purchasing a Hardy Heater.

Sincerely,

Frank L. Moore
President
Hardy Manufacturing Company Incorporated

(MODEL H3 H5 & H6)
Please fill in the following information

Hardy Model ____________________________________________

Serial Number________________________________________

Date of Purchase______________________________________

Date of Installation___________________________________

Dealer Purchased from____________________________________

Dealer Address________________________________________

Dealer Phone Number____________________________________

Please keep this manual with all other important papers. The information in this manual is necessary for the installation, operation and proper use of this unit. If you should ever have a problem or question please refer to this manual or have it available when you call your Hardy Dealer or Hardy Manufacturing Company, Inc.

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12345 ROAD 505
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(MODEL H3 H5 & H6)
SAFETY PRECAUTIONS
WARNING

Do not operate this equipment for other than its intended purpose nor other than in accordance with the instructions contained in this manual and all other instructions accompanying the unit.

For units covered by this instruction book, it is important to observe safety precautions to protect yourself from possible injury. Among the many considerations, you are advised to:

- Observe all safety stickers on the unit.
- This unit must be wired by a qualified electrician in accordance with the National Electrical Code.
- Never use any type of petroleum product, petroleum based product, charcoal starter, lighter fluid, or any other flammable accelerant to start your unit.
- Always open the ash door (bottom) before you open the firebox door (top).
- Never leave the doors open, always latch the doors securely.
- Always use proper care when installing, operating and maintaining the unit.
- Do not modify the unit.
- Do not substitute repairs which can be provided by your dealer, distributor, or Manufacturing Company.

Failure to heed this warning or any additional warnings on the unit may result in an accident causing personal injury.
OUTDOOR FURNACE BEST BURN PRACTICES

1. Read and follow all operating instructions supplied by the manufacturer.

2. FUEL USED: Only those listed fuels recommended by the manufacturer of your unit. Never use the following: trash, plastics, gasoline, rubber, naphtha, household garbage, material treated with petroleum products (particle board, railroad ties and pressure treated wood), leaves, paper products, and cardboard.

3. LOADING FUEL: For a more efficient burn, pay careful attention to loading times and amounts. Follow the manufacturer’s written instructions for recommended loading times and amounts.

4. STARTERS: Do not use lighter fluids, gasoline, or chemicals.

5. LOCATION: It is recommended that the unit be located with due consideration to the prevailing wind direction.

   - If located 50 feet or less to any residence not served by the furnace, it is recommended that the stack be at least 2 feet higher than the eave line of that residence.

   - If located more than 50 but no more than 100 feet to any residence, it is recommended that the stack be at least 75% of the height of the eave line of that residence, plus an additional 2 feet.

   - If located more than 100 feet but no more than 150 feet to any residence, it is recommended that the stack be at least 50% of the eave line of that residence, plus an additional 2 feet.

   - If located more than 150 feet but no more than 200 feet to any residence, it is recommended that the stack be at least 25% of the height of the eave line of that residence, plus an additional 2 feet.

6. Always remember to comply with all applicable state and local codes.
THE HARDY OUTSIDE WOODBURNING HEATER

How does an outside heater heat my home?

The Hardy Outside woodburning Heater is designed to save the most energy and provide the most comfortable heating available. It heats your home by heating a stainless steel tank filled with water, which surrounds the firebox of the outside heater. The heater is basically a non pressurized boiler with an atmospheric vent. This hot water is then circulated through underground hot water pipes to a water coil inside your existing central duct system. The Hardy Heater can be connected to any existing hydronic heating system that operates at 180 degrees or less.

How does THE HARDY heat water for household use?

A plate heat exchanger (optional) is installed in the hot water circulator line. When you open a hot water faucet inside your home, the cold water passed through the other side of the heat exchanger and the water going your hot water heater is preheated. The only energy required is maintaining the hot water temperature. The plate heat exchangers can be used for pools, dairies and other domestic hot water needs.

How do the Thermostat Controls work?

The only visible addition to the heating system inside your home is the thermostat which is located neat the existing thermostat. The two thermostats are installed so that if the outside wood heater is not in operation, you existing unit will automatically take over to maintain your household temperature. The wall thermostat which regulates the heat from the outside heater performs two functions; when it senses your need for heat according to your temperature setting, it turns the water pump on to circulate the hot water through the coil and also turns the blower on inside your central unit to force air across the hot coil. This forces hot air into your central duct system. The outside heater has a hot water thermostat which senses the water temperature of the unit. If the water is not as hot as thermostat setting then the combustion air intake is automatically opened and remains open until such temperature is attained.

Where should an Outside Wood Burning Heater be located?

The outside unit should be located at least 10 feet from your home so that all fire danger is removed from your home. The unit may be installed as much as 100 feet away and still heat your house and hot water. If the unit is located more than 100 feet away, you may experience some heat loss on the water going to your hot water heater. Locate the outside wood heater where it will be convenient for refueling and wood storage. All water and power lines are installed underground between the house and the outside wood heater.
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(MODEL H3 H5 & H6)
SECTION I

GENERAL INFORMATION

1 – 1 Specifications

Type of fuel – Wood

For outdoor use only

Underwriters Laboratories Inc. Listed – 84E4

Electrical Rating 115 VAC / 60 HZ / 1P
MFS-15 AMP, MCA-15 AMP

Clearance to Combustibles
Top, Rear, Sides 18"
Chimney Connector 18"
Front 48"
Flooring Non Combustible

Water Capacity
H3 – Holds Approximately 100 Gallons of Water
H5 – Holds Approximately 130 Gallons of Water
H6 – Holds Approximately 60 Gallons of Water

HEATER DIMENSIONS

<table>
<thead>
<tr>
<th>Description</th>
<th>Wide</th>
<th>Depth</th>
<th>Height</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>H3 – 120,000 BTU</td>
<td>30&quot;</td>
<td>52 ½&quot;</td>
<td>59 ½&quot;</td>
<td>650 lbs.</td>
</tr>
<tr>
<td>H5 – 180,000 BTU</td>
<td>40&quot;</td>
<td>52 ½&quot;</td>
<td>59 ½&quot;</td>
<td>850 lbs.</td>
</tr>
<tr>
<td>H6 – 100,000 BTU</td>
<td>30&quot;</td>
<td>40 ½&quot;</td>
<td>51 ½&quot;</td>
<td>475 lbs.</td>
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FIREBOX SIZES

<table>
<thead>
<tr>
<th>Description</th>
<th>Wide</th>
<th>Depth</th>
<th>Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>H3 – 120,000 BTU</td>
<td>24&quot;</td>
<td>32&quot;</td>
<td>36” + 8” for Grates</td>
</tr>
<tr>
<td>H5 – 180,000 BTU</td>
<td>34&quot;</td>
<td>32&quot;</td>
<td>36” + 8” for Grates</td>
</tr>
<tr>
<td>H6 – 100,000 BTU</td>
<td>24&quot;</td>
<td>24&quot;</td>
<td>36” + 8” for Grates</td>
</tr>
</tbody>
</table>
1-1 Specifications (continued)

On the front of your heater there is a nameplate. Along with other information you will find the model number of your heater. This model number tells you what your heater rating is and what electrical and plumbing options your heater has. Use the following list to determine this. The first section determines the rating of your heater. The second section determines electrical options. The last section determines the plumbing options. For example heater model number **H3-1-07**. The **H3** designates that you have a 120,000 Btu heater. The **1** in the second section designates that you have a standard pump. The **0** in the last section designates that your heater is without domestic hot water. The **7** in the last section designates that you have extra ports on your heater. On H3, H5, and H6 models domestic hot water is only available through the use of externally mounted heat exchanger kits.

### Heater Rating
- H3 – 120,000 BTU
- H5 – 180,000 BTU
- H6 – 100,000 BTU

### Electrical Options
- 0 – Without a Pump
- 1 – Standard Pump
- 2 – 2nd Pump & Relay
- 3 – 3rd Pump & Relay
- 8 – Pump for Plate Heat Exchanger
- 9 – Automatic Water fill

### Plumbing Options
- 0 – Without Domestic Hot Water
- 7 – Extra Ports, 1/2", 3/4", 1", etc.
- 8 – External mounted Plate exchanger
## Section I 1-2  Heater Component Parts (Model H3, H5, & H6)

<table>
<thead>
<tr>
<th>Legend</th>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>600.10</td>
<td>1/2” Brass Elbow</td>
</tr>
<tr>
<td>2</td>
<td>800.10</td>
<td>1/2” Overflow pipe</td>
</tr>
<tr>
<td>3</td>
<td>1100.27</td>
<td>Low water switch</td>
</tr>
<tr>
<td>4</td>
<td>604.32</td>
<td>3/4” Brass caps</td>
</tr>
<tr>
<td>5</td>
<td>604.16</td>
<td>1/2” Brass cap</td>
</tr>
<tr>
<td>6</td>
<td>2000.08</td>
<td>Well fitting</td>
</tr>
<tr>
<td>7</td>
<td>2000.08</td>
<td>Honeywell Hi-temp Thermostat</td>
</tr>
<tr>
<td>8</td>
<td>2004.08</td>
<td>8’ 2 wire power cord</td>
</tr>
<tr>
<td>9</td>
<td>600.30</td>
<td>3/4” Brass elbow</td>
</tr>
<tr>
<td>10</td>
<td>603.32</td>
<td>3/4” x 6” Brass nipple</td>
</tr>
<tr>
<td>11</td>
<td>607.12</td>
<td>3/4” Brass ball valve</td>
</tr>
<tr>
<td>12</td>
<td>502.40</td>
<td>3/4” Bronze flange</td>
</tr>
<tr>
<td>13</td>
<td>502.08</td>
<td>Taco 009 Bronze pump w/ power cord for H3 &amp; H5 Models</td>
</tr>
<tr>
<td></td>
<td>508.09</td>
<td>Taco 008 Bronze pump w/ power cord for H6 Model</td>
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<td>14</td>
<td>2000.52</td>
<td>Relay</td>
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<tr>
<td>15</td>
<td>2001.00</td>
<td>Dormeyer damper solenoid</td>
</tr>
<tr>
<td>16</td>
<td>2004.16</td>
<td>Receptacle box</td>
</tr>
<tr>
<td>17</td>
<td>2004.00</td>
<td>GFCI Receptacle</td>
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<td>18</td>
<td>3200.12</td>
<td>Jack chain</td>
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<tr>
<td>19</td>
<td>2002.04</td>
<td>60 CFM blower w/lid for H6 Model</td>
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<tr>
<td></td>
<td>2002.16</td>
<td>100 CFM blower w/lid for H3 Model</td>
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<tr>
<td></td>
<td>2002.28</td>
<td>130 CFM blower w/ lid for H5 Model</td>
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<tr>
<td>20</td>
<td>603.40</td>
<td>3/4” x close nipple</td>
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<tr>
<td>21</td>
<td>602.16</td>
<td>3/4” Brass tee</td>
</tr>
<tr>
<td>22</td>
<td>607.42</td>
<td>3/4” Boiler drain</td>
</tr>
</tbody>
</table>
SECTION II

INSTALLATION OF HEATER

Section II 2-1 Location of Heater

The Hardy Heater is designed to set outside the building to be heated. The unit must be located a minimum of 10 feet from the building. The unit should be installed upon a concrete pad. There are two typical options that we recommend.

Option 1 has the unit installed on concrete pad with the rear of the water tank flush with end of the pad. We recommend the pad to be 48” wide and 48” long minimum. If you add extra length it will allow ample concrete in front of the heater for loading wood and removing ashes. The space between the rear of the unit and the outside cover will allow a 4” water tight pipe or other means to insulate the plumbing and electrical lines to run directly into the ground. The outside cover can be removed by lifting it off the water tank on all four corners. This will allow you easy access for the connection of the plumbing and electrical lines.

Please see the illustration below for details.
Option 2 illustrates the unit installed on a concrete slab with cut out in the slab for plumbing and electrical connects to run through. We recommend this pad to be 48” wide by 60” minimum long. If you add extra length it will allow ample concrete in front of the heater for loading wood and removing the ashes. The 4” watertight pipe or other means to insulate plumbing that runs underground exits through this cut out to allow connections to the unit. The unit sits on the slab with the rear of the water tank flush or even with the front side of the cutout. The outside cover of the heater can be removed by lifting it from the water tank on all four corners. This will allow you east access for the plumbing and electrical connections.
Section II 2-2  Hull Removal

After placing your new Hardy Heater upon the concrete pad, you are ready to continue the installation process. There are two methods to gain access to the rear of the Heater to make plumbing and electrical connections.

The first and easiest method is to remove the screw holding the back door panel in place. The door is easily removed by lifting up on the handle and taking it out. With the back door removed, using a 5/16" wrench, remove the 8 metal screws that are located below the back door. There are four on each side that hold the panel in place. After the crews are removed, the panel should come out easily and allow access to the bottom of the unit to make plumbing and electrical connections.

The second method is the removal of the entire cover. With the back and the rectangular piece of stainless and insulation between the fire box and ash door removed, the outside cover can be lifted up and off as seen in the picture. To replace the cover simply repeat these steps in reverse order.
Section II 2-3 Set-Up of Grates

First open the firebox door and remove everything from inside of the heater except the two I-beams and three grate. Lay the two I-beams up on the edge and over against the tabs as shown in the picture below. The grates can now be placed on the I-beams in line and side to side. The picture below shows the proper way for grates to be installed.

These grates are designed to be turned over if they warp.

On Hardy H5 models, there is a stainless steel flame baffle (15” x 10”). This flame baffle is inserted in the firebox across the 3/4” stainless steel pipes located directly below the smokestack.
Section II  2-4  Location of Plumbing and Electrical Lines

The plumbing and electrical lines for your unit must be installed underground. The water lines must be buried below the frost line to prevent freezing. The depth of the trench varies to different regions of the country. Be completely sure about the correct depth before the plumbing lines are installed underground.

A trench must be dug wide enough to accommodate a 4 inch watertight pipe or other insulation means. All plumbing and electrical lines should be run inside the 4 inch watertight pipe or other insulation means for a standard installation. If more than 1 zone is to be heated or more than 1 location is to be heated then an additional pipe, or insulation must be installed underground.

This pipe will run from the rear of the unit to the location to be heated. Inside the 4 inch watertight pipe be the 2 water line, thermostat wire, and electrical supply wire. The listing below describes each line and their function.

1. One water supply line to heating system
2. One water return line from heating system
   (All of these must be at least 3/4” pipe and may require 1” because of longer distances or some hydronic applications.)
3. One 3 conductor thermostat wire
4. One #12/2 W/G UF underground Romex wire

If more than one location is to be heated, a second 4 inch or single 6” watertight pipe or other insulation means will need to be installed underground for the water lines and thermostat wires of the second location.
Section II  2-5  Connection of Power to Heater

This unit must be wired by a qualified electrician in accordance with the National Electrical Code.

1. The #12/2 W/G UF wire is run from the electrical system in the house through the 4" watertight pipe or other insulation means to the heater.

2. This wire will connect to the Ground Fault Circuit Interrupter (GFCI) on the back of the heater.

3. Install a Romex Connector in the bottom of the electrical makeup box, and insert Romex wire through this connector.

4. Connect the black wire to the brass screw on the line side of the GFCI receptacle.

5. Connect the white wire to the silver screw on the line side of the GFCI receptacle.

6. Connect the bare copper wire to the green screw on the GFCI receptacle.

7. After the wiring is complete check the receptacle with a circuit tester to determine if the polarity is correct and to make sure the ground is connected. Press the test button on the GFCI receptacle the reset button should pop out indicating the interrupter is operating correctly. Push the reset button back to restore the GFCI receptacle to normal operation. This test should be done monthly to insure safe operation of the heater.

8. If moisture is allowed into Ground Fault Circuit Interrupter box, it will have a tendency to trip unwarranted. Measures should be taken to keep the box dry.
Section II  2-6  Wiring Diagrams (H3, H5, & H6)

This equipment must be installed in accordance with the National Electrical Code.

CONNECTION DIAGRAM

SCHEMATIC DIAGRAM

LEGEND

GFCI  GROUND FAULT CIRCUIT INTERRUPTER
R3   CIRCULATOR PUMP RELAY
PM   WATER CIRCULATOR PUMP
T1   AQUASTAT
BM1  DAMPER BLOWER MOTOR
SOL1 DAMPER SOLENOID
L1   LOW WATER SWITCH
L2   LOW WATER LIGHT
Section II  2-7  Plumbing Instructions

Connection to Heating System

1. The pipe that will supply the heating system is connected to the under side of the pump. This pump is located on the right hand side of the heater (noted by # 3 in diagram.)

2. The pipe that will carry the return water from the heating system is connects to the 3/4” brass tee located at the bottom left hand corner of the heater (noted by # 4 in diagram).

Water pipes must be designed for hot water service (ex. Copper, cpvc, or Pex.) Pipes should be installed in a 4” watertight pipe or some other type of insulating means to prevent heat loss from heater to heating system. Use only copper, brass, or stainless steel fittings. Do not use galvanized or black iron.
Section II 2-8 Filling the Heater with Water

When you are ready to replace the cover, the hull can slide down over the heater. Make sure that the condenser tank and smoke stack opening come through the outside cover. The space between the smoke stack opening and outside cover will need a bead of silicon applied to fill any openings. The condenser tank will also need to be sealed in this manner. The application of silicon to these openings is illustrated by the picture below and diagrams on the next page.

Inside the firebox and should be a rectangular piece of insulation and stainless steel. The insulation fits between the firebox and ash doors. The stainless steel slides between the two doors to protect the insulation.

After these steps, you can install the smoke stack which is three foot section of pipe. The trim should be slid down the smokestack until it sits on the outside cover. The condenser stack must also be installed in the condenser stack opening. The trim should be slid down the smokestack until it sits on the outside cover. The condenser stack must also be installed in the condenser stack opening. The trim must also sit snugly upon the outside cover.

**DO NOT SEAL THE CONDENSER TANK TO THE CONDENSER TANK LID. THIS IS THE WATER TANK VENT AND MUST NOT BE SEALED.**

There are certain parts of the country that have high enough levels of chloride in the water to be harmful to stainless steel tanks. Even though the USDA allows up to 250 parts per million of chloride (salt) in the water as acceptable for drinking, experience has shown that chloride levels as low as 45 parts per million will eventually cause stress corrosion cracking in stainless steel tanks when water is heated. It is therefore required to use rain water or bottled water with chloride content of less than 15 parts per million or test the water supply for chloride to assure that the water supply does not exceed 45 parts per million. Call you Hardy dealer to get a chloride test on your water supply.

Fill your heater with water through the condenser stack opening. If the chloride content of your local water supply exceeds the specifications mentioned above and necessitates the use of bottled or rain water, please do so to maintain the warranty of your heater.
Section II  2-8  Filling the Heater with Water (continued)

THE HEATER MUST BE FILLED WITH WATER BEFORE STARTING A FIRE.

There is a low water switch located in the back of the heater. This low water switch extends into the water tank directly into the condenser tank area. This switch will activate a low warning light mounted into the side of the outer hull. The water level in the heater needs to be high enough to operate low water switch and turn off the low water warning light.
SECTION III

CONNECTION TO CENTRAL HEATING/AC SYSTEM

3-1 Connection to Central Unit with Existing Blower Relay

CONNECTED TO ONE CENTRAL HEATING/AC SYSTEMS THAT HAS AN EXISTING BLOWER RELAY AND ONE PUMP USING HONEYWELL RELAY R8222D FOR THE PUMP RELAY AND THE NEW BLOWER RELAY.

This unit must be wired by a qualified electrician in accordance with the National Electrical Code.

1. Run a three conductor thermostat wire from the wood heater to the central unit in the house. This wire must be rated for underground use or be run inside a watertight pipe. The colors normally are red, white, and green.

2. At the heater, connect the white wire to terminal 8 of the water pump relay (R-3).

3. Connect the red wire to one side of the low temperature sensor (the round disc with two terminals under the insulation near the center of the heater appx. 12” from the top). This is an option that prevents the pumping of water less than 100°F but is not required. If you elect no to use this option, then only a two wire conductor is required, bypassing the low temperature sensor.

4. Connect a jumper wire from the other side of the low temperature sensor to terminal 7 of the water pump relay (R-3) and also connect the green wire to terminal 7 of R-3. If two wires are used then one is connected to terminal 7 and the other to terminal 8.

5. Inside the house:
   A. Install the new wood heating thermostat near the existing thermostat.
      1. Remove the cover on the new home heat thermostat to mount it on the wall. There is round dial visible with an adjustable pointer. This is the heat anticipator. The dial also has a series of numbers. The pointer must be set to the highest number on the dial. On the Honeywell model #(t 822-1016), the pointer is turned counter clockwise as far as it can go.

6. Run a two conductor thermostat wire from the new thermostat to central unit:
   A. The colors normally used are red and white.
   NOTE: If you are not familiar with the control circuit of your central unit, do not continue beyond this point. Call a heating and air conditioning serviceman to complete the wiring. Improper wiring can cause excessive electrical usage or cause your blower motor to over heat and burn out.
Section III  3-1  Connection to Central Unit with Existing Blower Relay (continued)

7. Locate the existing 24 volt transformer:
   A. One 24 volt line (hot) should run from the transformer to the existing thermostat;
      1. Cut this wire and connect the wire going to the existing thermostat to terminal 2 of R-2 (new blower relay).
      2. Connect the wire running from the 24 volt transformer to terminal 1 of R-2 and also connect the red wire of the two conductor thermostat wire to terminal 1 of R-2.
      3. Connect the white wire of the two conductor thermostat wire to the red wire of the three conductor wire.

8. Locate the other 24 volt line (common) coming from the transformer:
   A. Splice a white jumper wire to this wire.
   B. Connect the other end of the white jumper wire to terminal 8 of R-2.
   C. Also connect the white wire of the three conductor thermostat to terminal 8 of R-2.
   D. Connect the green wire of the three conductor thermostat wire to terminal 7 of R-2.
   E. Also connect a jumper wire from terminal 7 of R-2 to terminal 6 of R-2.

9. Locate the existing central unit blower relay (R-1):
   A. Locate the wire running from the existing thermostat to the blower relay coil;
      Disconnect this wire from the existing blower relay coil and connect it to terminal 5 of the new blower relay R-2.
   B. Connect a jumper wire from the existing blower relay coil (the point that you just disconnected) to terminal 4 of relay R-2.

10. If all connections are made properly and the water in the wood heater is hot, the unit should be ready for operation. NOTE: This is a general diagram. You may have to make various changes according to how your unit is wired.
   A. Insure that the compressor on a heat pump or A/C unit does not run when the wood system is running.
   B. Insure that the gas burner, oil burner, or electric elements do not come on when the wood system is running.
   C. Insure that only one speed of the blower motor can be energized at one time. If more than one speed is energized at the same time, the blower motor will burn out.
   D. Insure that the Volt Amp rating of the existing 24 volt transformer is not exceeded when the relays in the wood heating system are energized.
Section III 3-1 Connection to Central Unit

with existing Blower Relay (continued)

CONNECT DIAGRAM

SCHEMATIC DIAGRAM

LEGEND
R1 EXISTING BLOWER RELAY
R3 PUMP CONTROL RELAY
R2 NEW CONTROL RELAY
T2 NEW THERMOSTAT
LTS LOW TEMPERATURE SENSOR
FS EXISTING THERMOSTAT
TC TERMINAL STRIP "C" CONNECTION
TR TERMINAL STRIP "R" CONNECTION
TG TERMINAL STRIP "G" CONNECTION
R EXISTING THERMOSTAT CONNECTION
G EXISTING THERMOSTAT CONNECTION
QUICK CONNECT TERMINALS
Section III  3-2  Location of Heating Coil

The following diagrams and pictures on this page and the following page show various methods of installing the heating coil in forced air system.
Section III 3-2 Location of Heating Coil (continued)

3) SUPPLY TO HEATING SYSTEM

4) HEATING SYSTEM RETURN
SECTION IV

CONNECTION TO HYDRONIC HEATING SYSTEMS (BASEBOARD)

4-1 Connection to Hydronic System
with Existing 24 Volt Transformer

ONE PUMP ON THE WOOD HEATER
USING HONEYWELL REALY R8222D.
This unit must be wired by a qualified electrician in
accordance with the National Electrical Code.

1. Run two conductor thermostat wire from the wood heater to the existing heating
   system in the house. This wire must be rated for underground use or be run inside
   a pvc pipe. The colors normally used are red and white.

2. At the heater, connect the white wire to terminal 8 of the water pump. (R-3)

3. Connect the red wire to terminal 7 of the water pump relay. (R-3)

4. In the house locate the existing pump relay. Connect the red wire of the two
   conductor thermostat wire to the coil of the pump relay that is fed by the existing
   thermostat.

5. Connect the white wire of the two conductor thermostat wire to the coil of the pump
   relay on the side that is fed from the common side of the transformer.
Section IV 4-1 Connection to Hydronic System with Existing 24 Volt Transformer (continued)

CONNECTION DIAGRAM

EXISTING PUMP RELAY

EXISTING PUMP MOTOR

CIRCULATING PUMP RELAY ON FURNACE

EXISTING 24 VOLT TRANSFORMER

LOW VOLTAGE FIELD WIRING

EXISTING THERMOSTAT

SCHEMATIC DIAGRAM

L1

R1

L2

TX1

24V

PM

R3

T1

R1

LEGEND

TX1 EXISTING TRANSFORMER
T1 EXISTING THERMOSTAT
PM EXISTING PUMP MOTOR
R1 EXISTING PUMP RELAY
R3 CIRCULATOR PUMP RELAY
Section IV  4-2  Typical Diagram for Plumbing
Hydronic System

Water Pipes must be designed for hot water service (ex. copper, cpvc, or pex.) Pipes should be installed in a 4” watertight pipe or some other type of insulating means to prevent heat loss from heater to heating system. Use only copper, brass, or stainless steel fittings. Do not use galvanized or black iron. Turn off the makeup water for the existing system. Manual filling of the wood heater or the electric fill option will supply makeup water for the wood heater and the existing hydronic. Close all automatic air vents on the existing system.
SECTION V

PLUMBING OPTIONS FOR DOMESTIC HOT WATER

5-1 Option 1 – Plate Heat Exchanger for Domestic Hot Water located at Hot Water Heater

To use this option it is recommended to bypass the relay and allow the circulator pump on the heater to run continuously. To do this, first unplug the power cord going to the pump, remove the wires of this cord from the relay terminals. Hook these two wires together using a wire nut. Then when all plumbing changes have been made, plug pump cord back into GFCI receptacle.

If your heating system needs to be bypassed you can install manual valves or install a three way zone valve into the heater water supply going to the heating system (see plumbing diagram). Install a tee into the supply line from the pump. One side of this tee will go straight to the heating system, the other side will go to the unit port of the zone valve. The main port of the zone valve will go to one side of the plate heat exchanger. The other port on the same side of the plate heat exchanger will go back to the return port of the heater.

The domestic water hooks up on the opposite side of the plate heat exchanger. The direction of domestic water flow must be reserved from that of the heater water flow. The cold water supply will go into the port opposite the return port, and water back to the hot water heater will connect to the port opposite the line from the zone valve.

The use of bypass valves on both sides of the plate heat exchanger aids in maintenance and cleaning of plate heat exchanger.
Section V 5-1  Option 1 – Plate Heat Exchanger for Domestic Hot Water located at Hot Water Heater

3 WAY ZONE VALVE ALLOWS THE WATER TO FLOW FROM THE BYPASS PORT TO THE MAIN PORT WHEN IT IS OFF. WHEN THE VALVE IS ENERGIZED IT WILL DIVERT THE WATER THROUGH THE HEATING SYSTEM TO THE UNIT PORT AND OUT THE MAIN PORT

DANGER

WATER TEMPERATURE OVER 125° CAN CAUSE SEVER BURNS INSTANTLY
Section V  5-2  Option 2 – Plate Heat Exchanger for Domestic Hot Water located on rear of Heater

When this option is ordered a Taco 008 pump is installed on the rear of the heater. A plate heat exchanger will be mounted directly below the pump, and will be connected to the pump with a stainless steel flex line. This pump will be wired to run continuously.

The domestic water hooks up on the opposite side of the plate heat exchanger. The direction of domestic water flow is reversed from that of the heater water flow. The cold water supply will go into the bottom port and the hot water back to the home hot water heater will connect to the top port.

**DANGER**

WATER TEMPERATURE OVER 125° CAN CAUSE SEVER BURNS INSTANTLY
**Section V  5-3  Automatic Water Fill (Optional)**

When this option is ordered, an electric water solenoid valve and various fittings required is installed on the rear of the heater. It will also require a cold water supply line run to the heater.

The electric water valve is mounted on a 1/4” nipple in the upper right corner on the rear of the heater.

This will leave 1/2” hookup. When hooking up your domestic water supply make sure a cutoff valve is installed and flexible connections to remove the screen for annual cleaning. See illustration below.

![Diagram of automatic water fill system]

1/4” Brass elbow

1/4” x 4” Brass nipple

1/4” Brass swivel adapter

Solenoid valve

1/4” x close Brass nipple

1/4” x 1/2” Brass bushing

100 Mesh filter

1/2” Brass ball valve
SECTION VI
HEATER OPERATION

6-1 Firing the Heater

Start the fire as you would in any other wood heater. Do not use petroleum products to start a fire. After you get an initial fire started, always stack the wood in the fire box straight. Do not cross the wood because this can cause the fire to go out. Any time you add wood, fill the fire box completely full. The heater will burn only as much wood as is needed to keep the water hot.

CAUTION: ALWAYS OPEN THE BOTTOM DOOR BEFORE YOU OPEN THE TOP DOOR.

6-2 Water Temperature

In the back of the heater is a Honeywell hot water aquastat. The normal operating temperature is 170°-180°F. Do not set the thermostat lower than 140°F because the fire might go out. Never set the thermostat above 180°F because the heater could overheat and boil the water away.

6-3 Wood Usage

Never leave the doors open unattended because it will cause excessive wood consumption and could possibly damage the heater. If the heater is burning more wood than usual, check the seal around the front doors. If the seal is bad it will need replacing. Call your local Hardy Dealer and order rope and silicone for the firebox or ash door. The fire in the heater must be out to seal the door. With door still mounted on the heater, scrape the old silicone out of the groove. Run a small bead of silicone in the groove of the door. Start installing the rope at the top edge if the wide groove (next to the hinges) running down the hinge side and continue around the door. Run the rope past the starting point to the bottom of the hinge side of the door. The hinge side of the door will have two layers of gasket, press the rope gasket into the groove so that both layers are even.

6-4 Moisture in the Firebox

On a new heater or the first time you start a fire each year, you will probably think you have a leak in the firebox. The firebox walls will sweat and water will run down the side. This can also happen if the water temperature drops below 100°F in the winter. This drop in temperature can be caused by improper burning due to stopped up grates. If you see moisture in the firebox, wait three days before you get alarmed. If it continues, check to see if you are burning green wood. Green wood will create a lot of moisture in the firebox, even to the extent that water can get as high as an inch or two in the ash pan. If you still think you have a leak in your heater, remove all wood and ashes from the heater. Let it set a couple of days with doors closed. Then open the ash door. If you have a leak, water will run out of the firebox.
Section VI  6-5  Improper Burning

If the fire is not burning properly, remove all of the ashes and wood from the heater. Check to see if the grates are stopped up. Check the air intake at the back of the heater to insure it is clear of ashes. Lift the damper lid to check for ashes. Check to see if the force air blower is running. If you have made these checks and the fire will not burn properly, remove the smokestack and check for creosote buildup. Look down the smoke stack into the firebox to check for creosote buildup. On the 180,000 BTU heater there is a removable baffle in the firebox just below the smokestack. Remove this baffle through the firebox door. Clean off the creosote and reinstall the baffle. These steps should correct the problem. If the fire goes out when the damper is closed and will not start (After the damper has been open for at least 15 minutes), remove one of the screws in the damper lid. If the problem continues, remove the other screw. (Remove the screws only if you are absolutely sure the fire is going out !!!)

6-1  Ash Removal

Ashes must be removed before they build up to the level of the grates. Failure to keep the ash bin cleaned out will result in warped grates. The buildup of ashes in the firebox should be checked at least once a week. Allow the fire to burn down until the grates can be seen. This insures that all of the grates are clear. Failure to do this will cause your heating system to stop working and the grates to warp. If the grates warp slightly, they can be turned over and allowed to straighten out. The drawing shown below shows how the grates should look when you allow the fire to burn down.

When cleaning grates, do not remove ash build up on sides of fire box

Allow fire to burn down and insure all grates are clear at least once a week

Do not allow ashes to build and touch grates and when removing ashes leave at least 1/2" - 1" of ashes in bottom of ash pan
SECTION VII

SERVICE INFORMATION

7-1 Water Circulation System

LOW TEMPERATURE SENSOR, P/N H2000.36 – (WARNING: When working with electrical circuits, use caution to avoid electrical shock) – This sensor can be wired in the home heat thermostat circuit to prevent the pump on the heater from running when the water in the wood heater is not hot. The sensor has set of contacts that close when the water rises to 110°F and open when the water drops to 90°F.

WATER PUMP RELAY, P/N H2000.52 - (WARNING: When working with electrical circuits, use caution to avoid electrical shock) – This is Honeywell DPDT relay with a 24 volt coil. Terminal 4 and 6 (normally open contacts) are used to turn on the water pump. Control voltage (24volts) connected at terminals 7 and 8 routed through a home thermostat energizes the relay.

WATER PUMP FOR HEATING SYSTEM, Taco 009 pump P/N H502.00 – (WARNING: When working with electrical circuits, use caution to avoid electrical shock) - with bronze body. If the pump will not run, first unplug the power cord then check the water pump relay. The relay can be bypassed by disconnecting the wire terminal 6 and the connecting to terminal 5 (terminals 4 to 5 is normally closed) remove the thermostat wire from terminal 8, and plug the power cord back in. This should supply 115vac directly to the pump. If the pump will still not run, unplug the power cord. Remove the four bolts holding the pump to the pump housing. Remove the cartridge from the pump. Spin the impeller, if it will not spin, replace the cartridge. If the impeller will spin, it may have been temporarily stuck (reassemble and try again) or the problem is the electrical winding or capacitor. Use an ohm meter to check the winding and capacitor. If the capacitor is defective, replace it. If the electrical winding is defective, replace the complete pump.
DAMPER AQUASTAT, P/N H2000.08 - (WARNING: When working with electrical circuits, use caution to avoid electrical shock) – This thermostat has a probe that is in a well in the water tank of the wood heater. It has one set of contacts that open on a temperature rise and close on a temperature fall. This thermostat is normally set at 170°F to 180°F. It controls the damper solenoid and the forced air draft. If the damper solenoid and forced air draft will not operate, place a jumper wire across the thermostat terminals. If they operate when the thermostat is jumpered out, and the temperature of the water in the heater is below the set point on the thermostat, the thermostat is defective. Do not leave the jumper on the thermostat because the heater will overheat.

DAMPER SOLENOID, P/N H 2001.00 - (WARNING: When working with electrical circuits, use caution to avoid electrical shock) – This solenoid lifts the cover off the intake to the forced air draft blower. The solenoid is controlled by the damper thermostat. It should lift the cover when the forced air blower comes on and drop the cover after the blower goes off. If the solenoid does not drop the cover when the blower goes off, the solenoid should be replaced. The forced air draft intake cover must be in place when the blower is not running or the heater will overheat and cause excessive wood usage.

FORCED AIR DRAFT BLOWER, P/N H2002.12 - (WARNING: When working with electrical circuits, use caution to avoid electrical shock) – This blower supplies air to the fire box when the damper thermostat calls for heat. If the blower wheel or the intake to the blower is clogged, the blower will not deliver the proper amount of air to the fire. The blower can be disassembled and cleaned. Be sure to seal the blower motor back to the blower housing if the blower is disassembled. The motor should be oiled at the beginning of each heating season. When the heater is not in use, the power cord for the blower should be unplugged.
Each year before the heating season begins, you should check your heater to insure that everything is ready for the heating season.

1. WATER QUALITY – The Hardy Heater is designed not to lose heater water through evaporation. At times during the year, accidental overheating can occur, and the water will evaporate. The evaporation causes a concentration of chlorides (salts) and other minerals. To protect your heater from this buildup of chlorides (salts) and other minerals, we recommend to drain your heater each year at time of startup for the heating season and refill with rain water or bottled water with a chloride concentration of less than 15 parts per million. This will add to the life of your stainless steel tank.

2. DAMPER AND DRAFT SYSTEM – When you plugged in the power cord, the damper solenoid should have opened the draft lid on the draft blower. The forced air draft blower should also have come on. If both of these components are working correctly, unplug the power cord. Open the clean out lid beside the draft blower and check for any build up of ash, tar, or any other material that could restrict the amount of combustion air entering the heater. Check the seal on the clean out lid to assure a good air tight seal is still established. Lift the damper lid on the draft blower and inspect the blower wheel for any build up of lint, dust, creosote, or any other substance that could effect the performance of the draft blower. Spray the damper lid hinge, and the damper solenoid plunger with WD-40, or its equivalent. Oil the draft blower motor with electric motor oil, or 10 weight no detergent motor oil. Do no use WD-40, or machine oil. Check the grates inside the heater to see if there is any ash build up of if the grates are warped. If a grate does warp, lift that grate up and turn it over. Also at this time check the smoke stack for blockage.

3. WATER PUMP – Unplug the power cord going to the water pump. Close the valve above the water pump and the return water valve at the bottom of the heater. Remove the pump motor from the pump housing by removing the four bolts in the pump housing. Remove the impeller cartridge assembly from the pump housing. Check the impeller to determine if it is free by spinning the impeller in the cartridge. Check the pump housing for rust or any other build up that could impede the flow of water. Reassemble the water pump, making sure the “O” ring in the cartridge is seated right. Once the pump is reinstalled, open the water valve above the pump and the return valve.
Section VII  7 – 5  Trouble Shooting Guide H3,H5,&H6

WARNING
HAZARDOUS VOLTAGE WILL CAUSE DEATH, SEVER PERSONAL INJURY OR SUBSTANTIAL PROPERTY DAMAGE. ALWAYS FOLLOW THE SAFETY PRECAUTION WARNINGS POSTED IN THIS INSTRUCTION BOOKLET.

PREVENTATIVE MAINTENANCE
Preventative Maintenance can provide measurable improvements in system performance as well as a marked reduction in comfort complaints. The customer should always remain aware of preventative maintenance actions that could help them avoid unnecessary shutdown time and save them repair expense.

Preventative Maintenance Checklist:
1  **Ground Fault Interrupter Receptacle** > Should be tested monthly to insure proper and safe operation.  
   (a) check with a circuit tester to determine if the polarity is correct. (b) Press the test button, the reset button should pop out indicating the interrupter has tripped. Press the reset button to restore to normal operation.
2  **Heater Piping** > Check all piping occasionally on back of heater for any possible water leaks. Water leaks on heater components can cause electrical shorts, damage to component parts and insulation.
3  **Low Water Light** > Check the low water warning light each week for proper operation to avoid low water or over filling in heaters with electric make-up water systems. See service information section in owners manual for proper checking procedures.
4  **Ash Bin** > Keep ash bin from ash buildup. Remove ashes before they build up to the level of the grates. This will restrict proper air flow and cause the grates to warp. Leave at least 1/2” to 1” of ashes in bottom of ash pan to protect the bottom from burnout.
5  **Damper/Draft System and Smoke stack** > Check at least every two weeks for build up of ash, tar, or any other material that could restrict the amount of air flow required. Oil the blower motor bearings prior to each heating season with 10 to 20 drops of electric motor oil.
6  **Door Seals** > Check firebox door and ash door seals occasionally for damage or obstructions that would affect an airtight seal.
7  **Preseason Maintenance** > Review preseason heater maintenance section in owners manual prior to each heating season.

<table>
<thead>
<tr>
<th>COMPLAINT</th>
<th>AREA OF TROUBLE</th>
<th>POSSIBLE CAUSES</th>
<th>CORRECTIVE ACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ground Fault Interrupter Receptacle Tripping</td>
<td>Ground Fault Interrupter Receptacle</td>
<td>1  Moisture in receptacle</td>
<td>1  Remove cover and check for moisture inside box. If moisture is present, use blow dryer to dissipate. If moisture inside box continues to be a problem, wrap the box with cellophane to protect from moisture.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2  Receptacle not grounded properly.</td>
<td>2  Remove cover and check the bare copper wire connected to the green screw for secure attachment. Test Receptacle for proper operation.</td>
</tr>
<tr>
<td></td>
<td>Forced air draft blower and damper solenoid.</td>
<td>Moisture or corrosion in electrical connections or windings</td>
<td>Check electrical connections and windings for moisture or corrosion. Clean or dry and then test for proper operation.</td>
</tr>
<tr>
<td>Pump Motor</td>
<td>Corrosion in motor electrical connections or windings</td>
<td>Check electrical connections, capacitor and motor winding for bad connections or corrosion. Clean, dry and then test for proper operation.</td>
<td></td>
</tr>
<tr>
<td>Liquid Level Switch, Low water light, and Water solenoid valve</td>
<td>Bad connections possibly to ground.</td>
<td>Check electrical connections for bad connections or corrosion. Clean, dry and then retest for proper operation.</td>
<td></td>
</tr>
</tbody>
</table>
### Section VII  7 – 5  Trouble Shooting Guide H3,H5,&H6

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<tr>
<td>NO HEAT</td>
<td>Pump Performance</td>
<td>Unplug pump and bypass relay by tying relay wires #4 and #6 together. Plug pump back in.</td>
<td></td>
</tr>
<tr>
<td>Main power supply and ground fault interrupter “OK”</td>
<td>Pump does not run</td>
<td>1 Defective pump cartridge</td>
<td>1 Unplug pump. Remove pump. Pull cartridge from pump and spin impeller by hand. If impeller will not spin, replace cartridge.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 Defective pump capacitor</td>
<td>2 Use Ohmmeter. When the meter is connected to the capacitor, the needle should jump towards “0” ohms and slowly drift back to infinity. Replace if defective.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 Defective pump motor winding</td>
<td>3 Disconnect the wires connected to the motor terminals to test the motor independent of electrical connections. Check for ground and continuity with ohmmeter. The insulator of the windings should show no breakage. If it does, replace pump.</td>
</tr>
<tr>
<td>Water temperature is “HOT”</td>
<td>Pump does run</td>
<td>1 Defective 24 volt transformer</td>
<td>1 Located at existing central unit. If 115/120 volts is being supplied to primary side check for 24 volts on secondary. If 24 volts not present, replace transformer.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 Defective low temperature sensor</td>
<td>3 Remove wires on sensor and connect to each other to bypass. If pump runs replace low temperature sensor.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4 Defective pump relay</td>
<td>4 Check relay terminals #7 &amp; #8 for 24 volts. If 24 volts is present, use ohmmeter to check contacts. Connect ohmmeter to terminals #4 &amp; #6. If no reading replace relay.</td>
</tr>
</tbody>
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<tbody>
<tr>
<td>NO HEAT</td>
<td>Aquastat</td>
<td>1 Defective Aquastat</td>
<td>1 Place a jumper wire across terminal #4 &amp; 5 on the terminal strip. If blower and Damper solenoid operates, replace aquastat</td>
</tr>
<tr>
<td>Main power supply and ground fault interrupter receptacle “OK”</td>
<td>Damper solenoid</td>
<td>1 Defective damper solenoid</td>
<td>1 When bypassing aquastat if solenoid does not lift the lid off the intake to the forced air draft blower, replace the solenoid.</td>
</tr>
<tr>
<td>Water temperature is “COLD”</td>
<td>Forced Air Draft Blower Motor</td>
<td>Defective blower motor</td>
<td>1 Make sure all connections are secure. 2 Clear air passages in cleanout and damper blower outlets 3 Clear blower wheel of any lint, ashes or creosote buildup.</td>
</tr>
<tr>
<td></td>
<td>Ash Bin</td>
<td>1 Ash buildup in ash bin</td>
<td>1 Clean out ash bin. Ash bin should be cleaned out each week. Ash buildup on grates can cause grates to warp. If grates warp they can be turned over and allowed to straighten. When removing ashes, leave at least 1/2” to 1” of ashes in bottom of ash pan.</td>
</tr>
<tr>
<td></td>
<td>Heater Stack</td>
<td>1 Ash and Creosote Buildup</td>
<td>1 Clean heater stack of any ash and creosote buildup. On H4 models make sure the baffle plate is clear of ash and creosote buildup. Make sure baffle is in place, otherwise heat will be lost up the stack.</td>
</tr>
<tr>
<td>No Heat</td>
<td>Water supply</td>
<td>Defective Liquid Level Switch</td>
<td>Liquid level switch controls the water level indicator light and water solenoid valve. Check switch with hand by raising or lowering float inside the condenser area. If water solenoid does not click and light does not go on and off, replace the liquid level switch.</td>
</tr>
<tr>
<td>Water Level is “LOW”</td>
<td>Water solenoid valve</td>
<td>1 Defective solenoid valve</td>
<td>1 If water solenoid valve does not click when checking the liquid level switch, but level indicator light does come on – replace solenoid valve. Remove filter screen from 1/2” bushing in end of 1/2” ball valve, clean or replace.</td>
</tr>
<tr>
<td>Water temperature is “HOT”</td>
<td></td>
<td>2 Water filter</td>
<td></td>
</tr>
</tbody>
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<tr>
<td>NO HEAT</td>
<td>Water not circulating through the heat loop</td>
<td>1 Pump not operating</td>
<td>1 See area of trouble: “Pump Operation”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 Inline valves closed/bad</td>
<td>2 Open or replace valves</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 Air trapped in plumbing</td>
<td>3 Bleed lines if air is trapped non pressured lines require pump to be running.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4 Scale deposits in hot water coil reducing water flow and restricting heat transfer.</td>
<td>4 Disconnect the inlet and outlet of the hot water coil and pump clean with descale cleaning kit.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 Air lock in hot water coil</td>
<td>5 Bleed air from hot water coil</td>
</tr>
<tr>
<td>Excessive wood usage</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Or Overheating (boiling)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blowing cold air in house</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water temperature is “HOT”</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power “OK”</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Excessive wood usage</td>
<td>Heater water boils (Symptom –Popoff valve is relieving)</td>
<td>1 Doors open</td>
<td>1 Close all doors and make sure they are securely fastened.</td>
</tr>
<tr>
<td>Or Overheating (boiling)</td>
<td></td>
<td>2 Defective door seals</td>
<td>2 If the seal is bad it will need replacing. Call your local Hardy Dealer for parts. See Owners Manual for replacing door seals.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 Damper blower lid stuck open</td>
<td>3 Unplug blower motor. Check lid and blower for creosote buildup. Remove blower, dissemble, clean, and oil.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4 Damper aquastat defective</td>
<td>4 Check temperature setting on aquastat. Should be 170°F. If aquastat is allowing blower to run until water boils, replace aquastat.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 Water lines / connections leaking</td>
<td>5 Repair or replace all lines or connections that are leaking.</td>
</tr>
<tr>
<td>COMPLAINT</td>
<td>AREA OF TROUBLE</td>
<td>POSSIBLE CAUSES</td>
<td>CORRECTIVE ACTION</td>
</tr>
<tr>
<td>---------------------</td>
<td>---------------------------------------</td>
<td>------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Excessive wood usage</td>
<td>Excessive wood usage</td>
<td>1 Pop-off valve</td>
<td>1 If Pop – off valve is relieving for no reason, replace pop – off valve</td>
</tr>
<tr>
<td>Or</td>
<td>Symptom; Pop off valve is relieving</td>
<td>2 Defective Liquid Level Switch.</td>
<td>2 Check liquid level switch float for upright position, float magnets should be on top. Check switch by moving float up and down to see if solenoid clicks and light goes on and off, if not replace switch</td>
</tr>
<tr>
<td>Overheating (boiling)</td>
<td>Heater water overflowing</td>
<td>3 Solenoid valve stuck or corroded</td>
<td>3 If solenoid does click and the heater still overflows, it could be stuck in open position, - remove and clean or replace.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4 Domestic hot water heat exchanger coil</td>
<td>4 Disconnect line to the electric water solenoid and turn off valve to system fill to assure no water enters tank from the fill system. If heater tank still overfills then remove heater hull and lid to check domestic water coil for leaks, repair or replace</td>
</tr>
<tr>
<td>Improper Burning</td>
<td>Grates</td>
<td>Grates stopped up</td>
<td>Clear grate of ash buildup. If grates are warped, turn over.</td>
</tr>
<tr>
<td></td>
<td>Air intake</td>
<td>Damper blower clogged</td>
<td>Clean damper blower assembly</td>
</tr>
<tr>
<td></td>
<td>Air tube inspection lid</td>
<td>Air tube clogged</td>
<td>Lift inspection lid and cleanout all obstructions</td>
</tr>
<tr>
<td></td>
<td>Smoke Stack</td>
<td>Smoke stack stopped up</td>
<td>Remove smoke stack, check flue out of top of heater, clean both flue pipe and smoke stack</td>
</tr>
<tr>
<td></td>
<td>Baffle</td>
<td>(Model H4 Only)</td>
<td>Remove baffle through the fire box door, clean baffle and flue area.</td>
</tr>
<tr>
<td></td>
<td>Fire</td>
<td>Fire going out</td>
<td>If fire goes completely out remove one screw in blower lid.</td>
</tr>
<tr>
<td></td>
<td>Forced air blower running but no draft</td>
<td>1 Solenoid not lifting lid</td>
<td>1 Replace solenoid</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 Creosote buildup</td>
<td>2 See excessive wood usage</td>
</tr>
<tr>
<td>Moisture In Fire box</td>
<td>Fire box</td>
<td>1 Initial or yearly start up</td>
<td>1 Fire box walls will sweat and water will run down sides, this should clear up in about a week.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 Green Wood</td>
<td>2 Green wood will create moisture at any time.</td>
</tr>
</tbody>
</table>
### Section VIII  Repair Parts (Model H3, H5, & H6)

<table>
<thead>
<tr>
<th>Legend</th>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>600.10</td>
<td>1/2&quot; Brass Elbow</td>
</tr>
<tr>
<td>2</td>
<td>800.10</td>
<td>1/2&quot; Overflow pipe</td>
</tr>
<tr>
<td>3</td>
<td>1100.27</td>
<td>Low water switch</td>
</tr>
<tr>
<td>4</td>
<td>604.32</td>
<td>3/4&quot; Brass caps</td>
</tr>
<tr>
<td>5</td>
<td>604.16</td>
<td>1/2&quot; Brass cap</td>
</tr>
<tr>
<td>6</td>
<td>2000.08</td>
<td>Well fitting</td>
</tr>
<tr>
<td>7</td>
<td>2000.08</td>
<td>Honeywell Hi-temp Thermostat</td>
</tr>
<tr>
<td>8</td>
<td>2004.08</td>
<td>8’ 2 wire power cord</td>
</tr>
<tr>
<td>9</td>
<td>600.30</td>
<td>3/4&quot; Brass elbow</td>
</tr>
<tr>
<td>10</td>
<td>603.32</td>
<td>3/4” x 6” Brass nipple</td>
</tr>
<tr>
<td>11</td>
<td>607.12</td>
<td>3/4” Brass ball valve</td>
</tr>
<tr>
<td>12</td>
<td>502.40</td>
<td>3/4” Bronze flange</td>
</tr>
<tr>
<td>13</td>
<td>502.08</td>
<td>Taco 009 Bronze pump w/ power cord for H3 &amp; H5 Models</td>
</tr>
<tr>
<td>14</td>
<td>508.09</td>
<td>Taco 008 Bronze pump w/ power cord for H6 Model</td>
</tr>
<tr>
<td>15</td>
<td>2000.52</td>
<td>Relay</td>
</tr>
<tr>
<td>16</td>
<td>2001.00</td>
<td>Dormeyer damper solenoid</td>
</tr>
<tr>
<td>17</td>
<td>2004.16</td>
<td>Receptacle box</td>
</tr>
<tr>
<td>18</td>
<td>2004.00</td>
<td>GFCI Receptacle</td>
</tr>
<tr>
<td>19</td>
<td>3200.12</td>
<td>Jack chain</td>
</tr>
<tr>
<td>20</td>
<td>2002.04</td>
<td>60 CFM blower w/lid for H6 Model</td>
</tr>
<tr>
<td>21</td>
<td>2002.16</td>
<td>100 CFM blower w/lid for H3 Model</td>
</tr>
<tr>
<td>22</td>
<td>2002.28</td>
<td>130 CFM blower w/ lid for H5 Model</td>
</tr>
<tr>
<td>23</td>
<td>603.40</td>
<td>3/4” x close nipple</td>
</tr>
<tr>
<td>24</td>
<td>602.16</td>
<td>3/4” Brass tee</td>
</tr>
<tr>
<td>25</td>
<td>607.42</td>
<td>3/4” Boiler drain</td>
</tr>
</tbody>
</table>