



# ***Economizer***

## ***IDM 100***



### **Wood Gasification Unit**

## **INSTALLATION AND OPERATION MANUEL**

PLEASE SAVE THESE INSTRUCTIONS  
REFER TO THEM FOR SAFETY AND EFFICIENT PERFORMANCE

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# **PORTAGE & MAIN ECONOMIZER IDM 100 WATER**

## **FURNACE**

Manufactured by  
Piney Manufacturing Ltd.  
Box 130, Piney  
R0A 1K0, MB  
Canada

Thank you for purchasing the Economizer IDM 100 Water Furnace which has been tested and approved by UL and Canadian Standard Association.

Please observe the instructions contained in this manual and affixed to the unit to enjoy the full benefits of heating your home, other buildings and your domestic water in a safe and efficient way. We also recommend that you consult and comply with your local electrical, plumbing and fire codes, which override these instructions. We have also included some maintenance procedures and tips that will ensure efficient, economic and trouble-free operation.

For more information regarding the installation, operation and maintenance of this unit, please contact us or your nearest dealer.

**Piney Manufacturing Ltd.**

## **The Economizer IDM 100 Outdoor Water Furnace**

The Economizer IDM 100 indoor water furnace is safe and highly efficient, conveniently installed inside a shelter to give you the comfort you desire all year round using the oldest and most environmentally friendly fuel of all: WOOD.

This unique system has a fire pot and multi-pass heat exchanger, totally immersed in a water jacket which keeps its components from overheating and warping. The front door is insulated and built of heavy gauge material to eliminate warping. The boiler-tube-style heat-exchanger is designed to extract heat from the exhaust flue which is virtually smoke free before exhaust exits through the insulated stainless steel chimney.

The water temperature is maintained at the desired level automatic controls. The heated water is pumped to the house and the other buildings by means of individual circulating pumps through an individual underground loop for each building or application.

The heating loop will provide the required amount of heat to your house or building, regardless of your existing heating systems as described later on. You can also add a water-to-water heat exchanger to your system to provide you with all your domestic water heating requirements to increase your fuel savings considerably.

The Economizer IDM 100 Water Furnace is equipped with:

- a negative pressure combustion air fan to modulate the burning rate as required,
- safety instruments that would prevent the water from overheating or boiling.

Please follow the instructions contained in this manual to enjoy the comforts of heating with wood in a safe manner.

### **LOCATION**

The ideal location for the Economizer IDM 100 Water Furnace should be:

1. Inside a shelter away from the house for safety and lower insurance rates.
2. In a separate structure such as your garage, shop or shed.
3. Away from storage of wood, chemicals and other flammable materials.
4. Not closer than 50 feet from existing residence and other buildings. (Check with local bylaws)
5. Downstream of prevailing winds relative to main residence.
6. On the side of pipe entry to residence.

### **RECOMMENDATION**

We recommend a hot water circulation loop that will dissipate at least 10% (ten percent) of the estimated heat output of the water furnace in the event that circulation is reduced because of electrical power failure. This loop should be such that it can only be made inoperative by a deliberate manual action. The minimum pipe to be used should be 18mm (.75 inch) in diameter.

### **PLACEMENT**

We recommend a concrete or cement (noncombustible) floor for placing the Economizer 100 Water Furnace. Clearance to sidewall should be 24 inches, clearance to back wall should be 28 inches.

### **CHIMNEY**

We recommend the use of insulated stainless steel pipe as a stack to minimize creosote formation. A six (6) inch chimney is used for the Economizer 100. The stack should extend at least four (4) feet above the building where the Boiler is located.

## CLEARANCES

The Economizer IDM 100 Outdoor Water Furnace should be placed in a location where it always gets a significant amount of fresh air. This is important for the water furnace to operate efficiently, and to have good combustion.

The minimum installation clearances to combustible materials are:

- Back : Twenty eight (28) inches(70 cm)
- Front: Forty-eight (48) inches(122 cm)
- Top Eighteen (18) inches(46 cm)
- Side: Twenty four (24) inches(60 cm)

**Note:** Adequate space should also be left around the Economizer water furnace in addition to the required clearances for servicing and maintenance.

## PIPE TRENCH

- Pre-insulated pipes such Dual Pex Flex, properly sized for circulation requirements are recommended to convey the hot water from the outdoor water furnace to each building.
- The piping should be laid in a flat trench eighteen (18) inches to thirty six (36) inches deep. If high water table is encountered, the trench may be shallower, traffic permitting. It is to your advantage to be down deeper at the boiler/furnace especially as it makes the bend easier.
- Use of water tight insulation is recommended as all Styrofoam will absorb water to the point it becomes very poor insulation. Use only in high dry well drained areas if using at all.
- **All plumbing must be done in accordance with local applicable codes.**

## WATER FILL-UP

- After installing the Economizer IDM 100 Water Furnace in place and connecting to it the supply and return pipe(s) to and from the various buildings to be heated, **IN ACCORDANCE WITH ALL APPLICABLE LOCAL CODES**, the heating installation is ready to be filled with water.
- Before filling the Economizer IDM 100 Water Furnace with water, make sure all valves are in "closed" position, and unused supply and return outlets in the control panel of the outdoor water furnace are tightly capped.
- A permanent water supply to the Economizer IDM 100 Water Furnace is recommended by tapping into the water mains and connecting it to the top of the Water Furnace through a manually operated shut-off valve.
- Add water until the entire heating installation is filled and the level gauge on top of the water furnace shows full.
- Before starting the water furnace make sure the entire heating installation is properly vented to facilitate the circulation of water in the heating loop(s).
- Ensure water trap and discharge pipe are properly installed and unobstructed to release any pressure build-up in the water furnace.

## CORROSION CONTROL

To control corrosion in the Economizer IDM 100 Water Furnace we recommend the following:

1. Always use certified boiler treatment for wood burning furnaces. Submit water samples for testing annually through your dealer. Keep your records.
2. Always maintain the proper water level.
3. If you chose to add commercially available non-toxic antifreeze solution to the water . Ensure that your mixture is no higher than thirty (30) percent non toxic antifreeze. When adding large make-up quantities to compensate for evaporation and to maintain proper water level, use the same ratio of non-toxic antifreeze solution for the make-up water. For very small make-up water quantities no non-toxic antifreeze solution is required.
4. If sedimentation occurs after the initial few weeks, the water should be treated chemically to adjust its pH level. Consult your dealer for water analysis and treatment

5. Keep ashes to minimal. Do NOT burn garbage.
6. Always maintain adequate water level. If level drops occasional, check for leaks or boiling of hot water and refer to Trouble Shooting Section.
7. Ensure that the Economizer IDM 100 is properly grounded.
8. Remove ashes when outdoor water furnace is not used in the no heat required seasons.
9. Cover the chimney during off-seasons to prevent rainwater from entering the firepot
10. Clean the firepot free from ashes and lightly oil for the off season.
11. Clean the heat exchanger with the cleaning tool provided with the Economizer IDM 100 with tool provided.

## ELECTRICAL CONNECTIONS

- The Economizer IDM 100 Water Furnace is factory-wired and is ready for connecting it to an AC/120V/60 Hertz supply
- **All electrical connections should be wired according to all applicable local codes.**
- Make sure the water furnace (and metallic water lines, if used) is well grounded to avoid pitting in the water jacket.



## SAFETY WARNINGS (Risk of Fire)

- **NEVER LEAVE CHILDREN UN-ATTENDED NEAR THE BOILER.**
- **NEVER ADD WATER WHEN OUTDOOR WATER FURNACE TEMPERATURE IS CLOSE TO 212 °F AS IT MAY RESULT IN STEAM FLASHING.**
- **NEVER PREFORM ANY SERVICE OR MAINTENANCE WORK BEFORE WATER TEMPERATURE DROPS BELOW 100 °F.**
- **Do not** store combustible materials or liquids near the Outdoor Water Furnace.
- **Do not** operate with fuel loading or ash removal doors open
- **Do not** store fuel or other combustible material within marked installation clearances.
- **Do not** burn any materials other than natural wood.
- **Do not** use flammable liquids or materials to start or to enhance the fire.
- **Do not** leave wood loading door open or unlatched.
- **Do not** open the loading door too quickly to avoid blowbacks which could cause sever burns.
- Inspect and clean flues and chimney regularly.
- Always check water level, aqua-stat and damper setting for a proper and safe operation.
- **Do not** touch any part on the front of the Outdoor Water Furnace, which are not insulated to avoid skin burns.
- Always store ashes in tightly covered metal containers away from combustible materials.
- Always turn the circulating pump(s) on when burning scraps of wood in the summer to prevent system from overheating.

## INSTALLATION INSRUCTIONS

The installation is to be performed by a qualified installer.

### STARTING-UP

- Before starting- up the Economizer IDM 100, please observe the Safety Warnings in this manual.
- Make sure the Water Furnace| Boiler, circulating loops and existing heat exchangers or baseboard heaters are full of water and properly vented.
- Ensure the circulating pump(s) is properly installed according to manufacturer's instructions. Failure to do so could void the Warranty.
- Load the water furnace with wood only to fill half of the firepot. Use kindling wood to start the fire. **Do not use any flammable liquids to start the fire.**
- Always turn the power off before loading the appliance with wood or opening the firing door. Keep firing and ash pit doors tightly closed at all times for safety when outdoor water furnace is in use.
- Inspect the chimney and make sure it is clear from any obstructions.
- Set the aquastat to your desired temperature setting on Sensor A (180 °F) as described under SETTING. When the water temperature reaches this set point, the control will turn the combustion fan off and close the air damper in the front of the furnace.
- **Do not forget** Sensor B is set to Cooling Mode in order for the cold water shut down to work. Set sensor B to your desired cold water setting meaning that the unit will shut down when it drops to this temperature setting.
- To start the furnace again once it has shut down because of the cold water shut down you will have to use the override switch on the side of the control box. This switch will over ride the furnace at any time (except when the high temperature limit has shut the furnace off): **it should be kept in of position during normal operation.**
- Before leaving the Outdoor Water Furnace location, make sure that:
  1. The water level is adequate.
  2. The wood loading door is tightly closed.
  3. The ash pan door is tightly closed.
  4. The area around the outdoor water furnace is clear from any combustible materials.

### SETTING THE CONTROL

The Economizer IDM 100 Water Furnace is equipped with a digital display immersion type Honeywell aquastat controller which operates in response to water temperature changes. The control is a two stage controller and is simple to operate.

Sensor A is the water temperature control, and Sensor B is the cold water shut off.

The cold water shut off is used to shut the Furnace down when the water in the furnace has gone cold due to running out of wood or the fire going out. This is simply done by hitting the menu button on the control and then arrow up and down to Sensor A or B and set the desired temperature.

The control also has a high limit shut down, that will shut the unit down when it has reached 190 degrees Fahrenheit, it then has to cool down 40 degrees (150 degree Fahrenheit) before it will start again. This setting cannot be changed.

To set the temperature at the desired level, go to page 17-18 of this manual.

## **OPERATING INSTRUCTIONS**

### **(Always, have a clearly under stood plan to handle a runaway fire)**

1. The Economizer IDM 100 Water Furnace may be connected to an existing boiler system. Burn natural wood only. Make sure the wood is dry, and well seasoned.
2. To avoid damage load wood carefully. Always shut off power before opening firing door or loading the appliance with wood. There is also a switch for the blower fan on the side of the control panel which can be turned on or off before opening the firepot door.
3. Do not use chemical substances or liquid fuels to start or enhance the fire.
4. Do not burn garbage, liquid fuels, engine oil, naphtha or other flammable materials, which may cause a fire or an explosion.
5. The Economizer IDM 100 has 2 air flow adjusting valves located in the back of the unit inside the control panel. The air box where the blower fan is mounted on has two handles on it; the top one is the primary air which supplies air to the firebox; the bottom one is the secondary air with supplies air to the exhaust in the bottom chamber after it leaves the fire box these two valves need to be adjusted accurately so that the gasification process is correct.
6. To adjust the air flow: the top valve (primary air) can be open 6 to 8 turns, and the bottom (secondary air) is only 4 to 5 turns. To insure a good setting, check the flame coming out of the fire pot into the reaction chamber, at max burn you should see a very intense flame like a blow torch exiting the fire pot.( For this process to work efficiently the wood has to be dry seasoned and of smaller diameter (3 to 4 inches).
7. Clean the heat exchanger regularly (weekly) to remove accumulated ash. Flue pipe and chimney need to be cleaned periodically. The hotter the unit will run the less creosote will be deposited. A smaller intense fire is preferable to a large smoldering one.
8. Clean the Water Furnace and cap the chimney at the end of each heating season to minimize corrosion during summer months.
9. Always maintain the Water Furnace, flue pipe and chimney in good condition.
10. Do not load the Water Furnace with wood during an electrical power failure. Do not leave fire door open. Do not use firing, ash or damper doors to manually regulate combustion. Do not operate with fuel loading and ash removal doors open.
11. For safety, do not store any fuel or combustible materials within the installation clearances of the outdoor water furnace.
12. Keep firing and ash pit doors tightly closed at all times for safety.
13. Always keep 4 to 5 inches of ash (hot coals) in the firepot , the furnace works best when this coal bed is kept. Keep the ash area below the firepot in the reaction chamber clean and free from ash to allow maximum air to exit the firepot.

## **SAVING TIPS**

- Keep the circulating pump(s) on all the time to maintain a comfortable environment and avoid temperature swings and settling of suspended matter in the water.
- Maintain a regular wood-loading schedule to keep the Outdoor Water Furnace operating under steady-state conditions.
- The Economizer IDM 100 wants to run hot (like any gasification furnace) keep the water temperature setting above 170 whenever possible for maximum efficiency and savings.
- Turn the circulating pump(s) on occasionally during summer to minimize pump seizure.



## CREOSOTE CONTROL

- The Economizer IDM 100, when operated properly will have little or no creosote in the heat-exchanger tubes, all that should accumulate there is very little ash or dust. When creosote forms in the heat-exchanger tubes, the gasification process is not working properly. **When the furnace is not loaded with wood on time and the coal bed disappears; this causes creosote to form in the tubes.**
- **Do not let the furnace burn down to where the coal bed disappears, reload on time.**
- Accumulations of creosote when ignited may result in chimney fires.
- We recommend inspecting the chimney once a month during the heating season and removal of creosote formation to reduce chimney fire hazards.
- Leaky door gaskets will also cause creosote to build up.

## ASH DISPOSAL

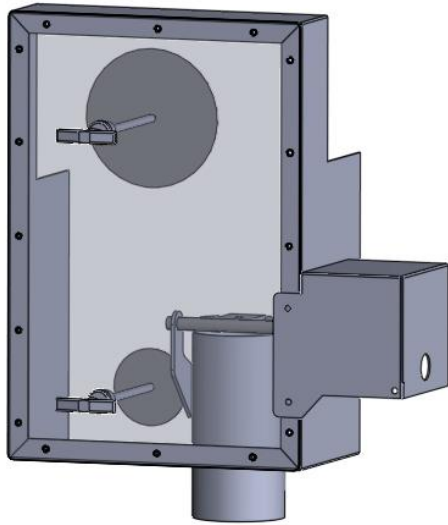
- Keep an eye on the ash level inside the firepot, when this gets to high it will affect the gasification process. Ashes must be removed from the Water Furnace regularly or they will block the flow of air exiting the fire box.
- Ashes should be stored in metal containers with tight lids and kept in an area free of combustible materials until finally disposed.
- Do not dispose of ashes while embers are still hot.
- Check local by-laws for ash disposal. Wood ash can be used to reduce soil acidity or as a fertilizer for the garden.

## MAINTENANCE

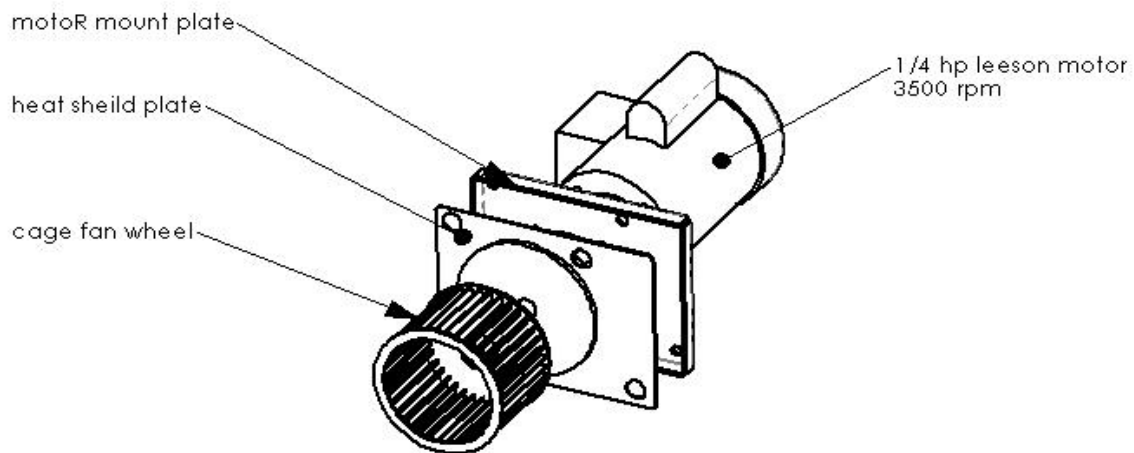
- The Economizer IDM 100 Outdoor Water Furnace is designed to operate for many years with the least amount of maintenance. The main lookout points are ashes in the bottom chamber and dry ash powder in the heat-exchange tubes which are easily cleaned with tools provided.
- The blower motor should also be removed to clean the ash off that catches on the blower wheel, this should be done weekly or monthly as required.(REFER TO PAGE 13)
- **Always shut off the power supply** prior to performing any service or maintenance work.
- Refer to the SAETY WARNINGS and OPERATING INSTRUCTIONS prior to performing any or maintenance work.
- If circulating pump(s) is seized due to a prolonged shutdown, removed the screw in the center of the motor and turn the motor shaft with a screwdriver to loosen it.

The primary and secondary air need to be manually adjusted to the desired amount of air required. This is done simply by turning the handles (as previously described on pages 8 and 9 and 13) on the primary and secondary air flow adjuster. This blower fan assembly should not be altered in any way for increased fire.

# Air Flow Adjustments



Top Lever: Primary Air Adjust  
Bottom Lever: Secondary Air Adjust



## CONNECTION TO HEATING SYSTEMS

The P & M Heating System is versatile and can be connected to any existing or new heating system and/or domestic water system as described below. **The corresponding schematics are provided as a guideline only.** ALL CONNECTIONS MUST BE EXECUTED ACCORDING TO LOCAL PLUMBING AND ELECTRICAL CODES.

### 1. EXISTING FORCED AIR SYSTEM

All you need is to install a water-to-air heat exchanger in your existing furnace plenum (on the supply side) to keep your house as comfortable as you desire using a separate thermostat. Your existing furnace would be used as a back up when required. (Refer to Schematic #1)

### 2. EXISTING WATER BASEBOARD SYSTEM

A water-to-water heat exchanger will be required to replace your existing boiler and provide you with all the comfort you require. Your existing boiler would be used as a back up when required. (Refer to Schematic #2). Another alternative would be to convert your existing system into an "open system" with the assistance of an expert in heating system.

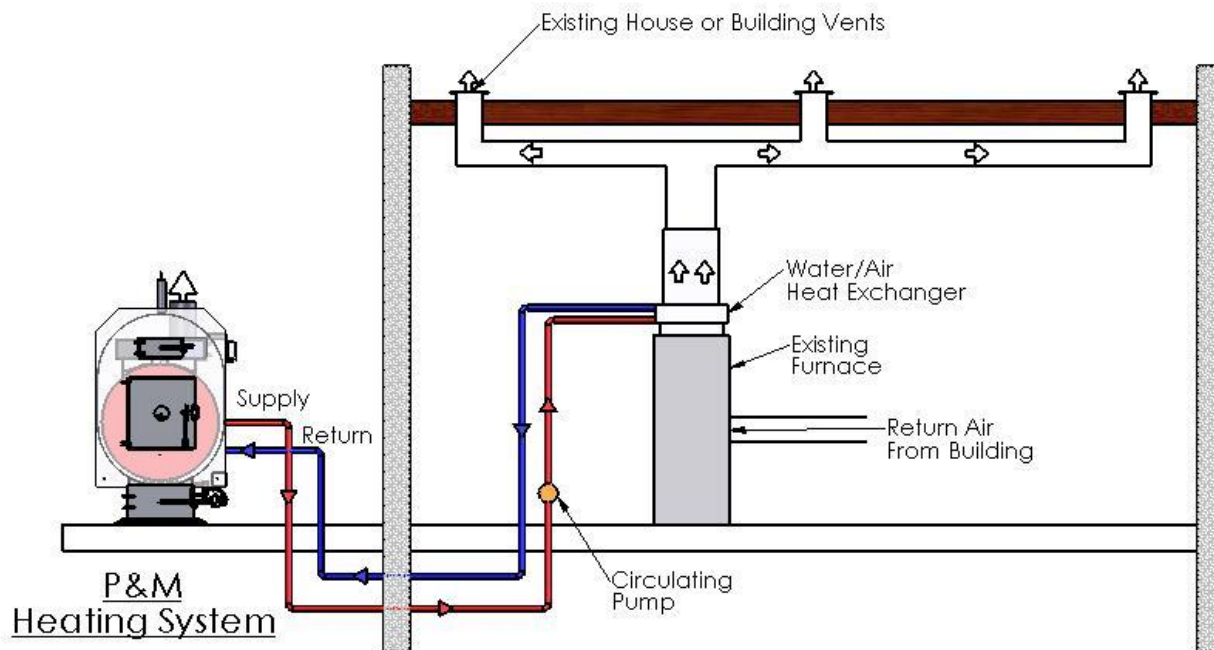
### 3. NEW WATER BASEBOARD SYSTEM

You will not need any heat exchangers in this case as the Portage and Main Heating System is directly connected to the baseboard system to keep your house warm and comfortable. (Refer to Schematic #3)

### 4. DOMESTIC WATER HEATER AND HEATING SYSTEM

You can enjoy more energy savings and running hot water during the heating season by connecting your domestic water heater to the Portage & Main Heating System through a sidearm water heater. (Refer to Schematic #4). We would caution you, however, that creosote may increase during summer due to lowered heat demand. **But** if additional heat could be used elsewhere, then creosote formation would be reduced.

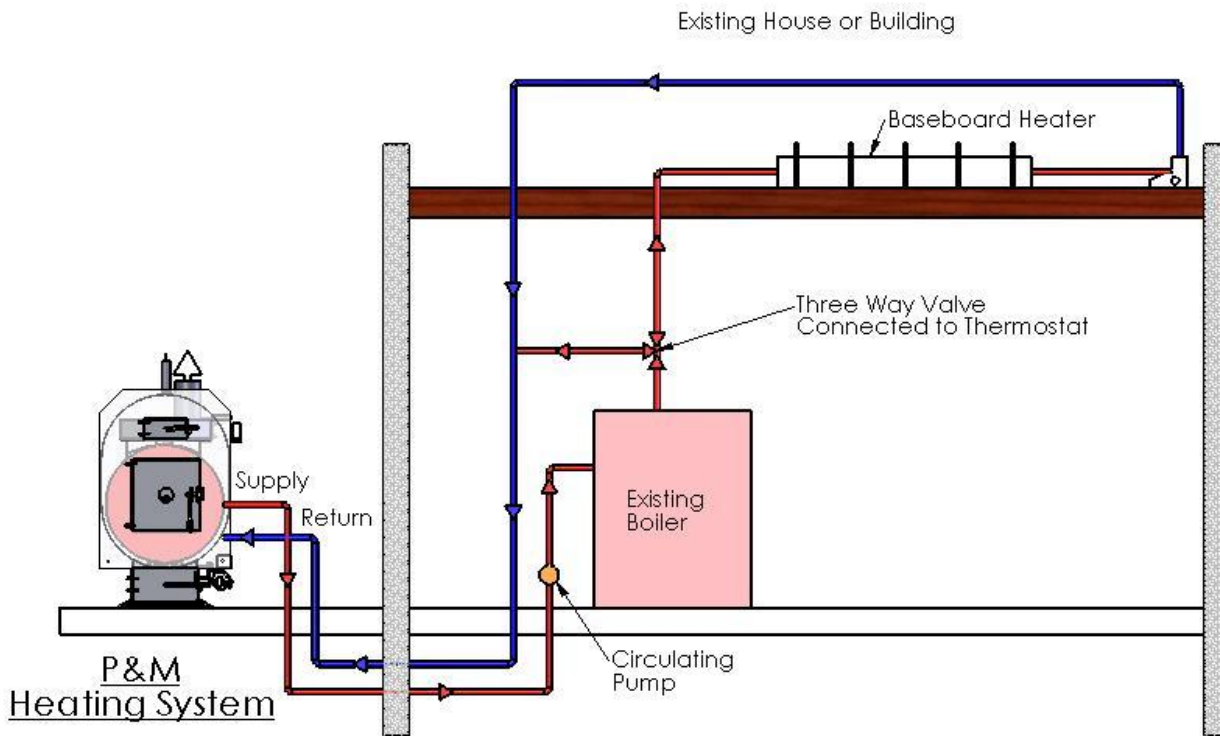
# CONNECTING THE P&M SYSTEM



CONNECTING TO AN EXISTING FORCED AIR SYSTEM

SCHEMATIC #1 - Schematic Drawing for Illustration Purposes Only

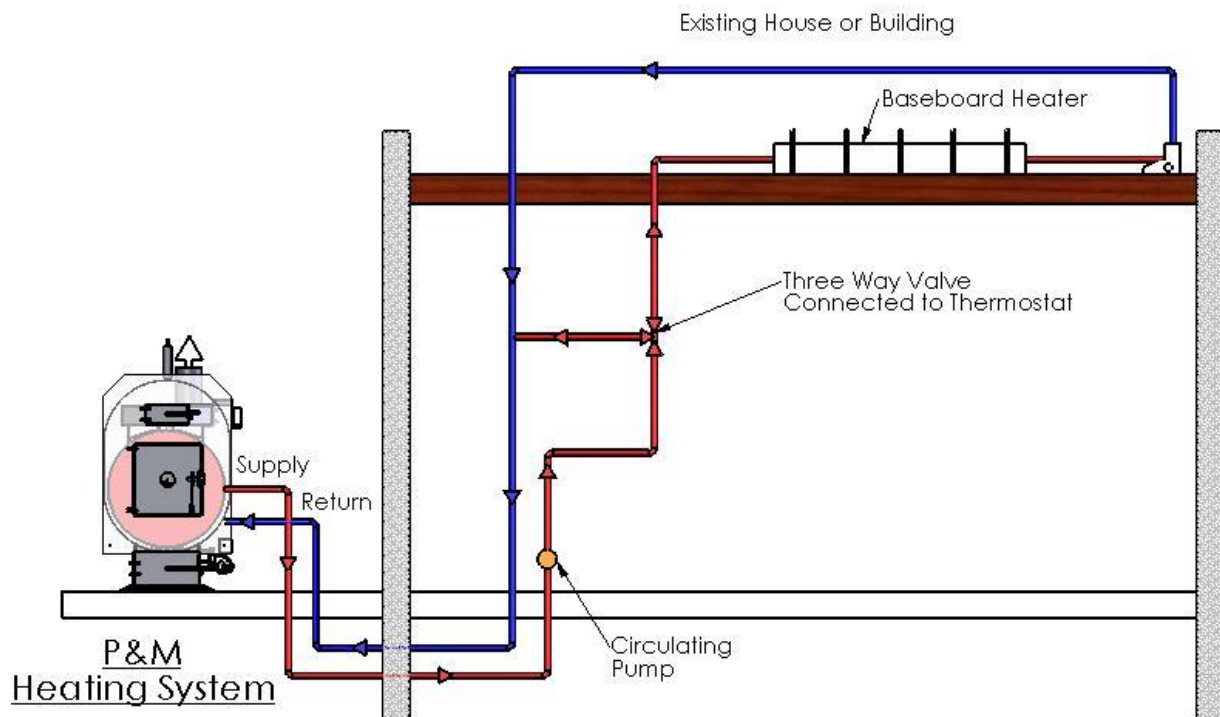
# CONNECTING THE P&M SYSTEM



CONNECTING TO AN EXISTING BOILER / BASEBOARD SYSTEM

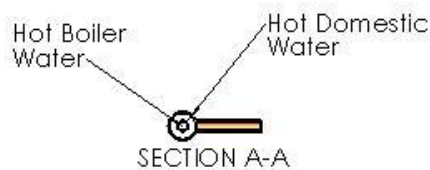
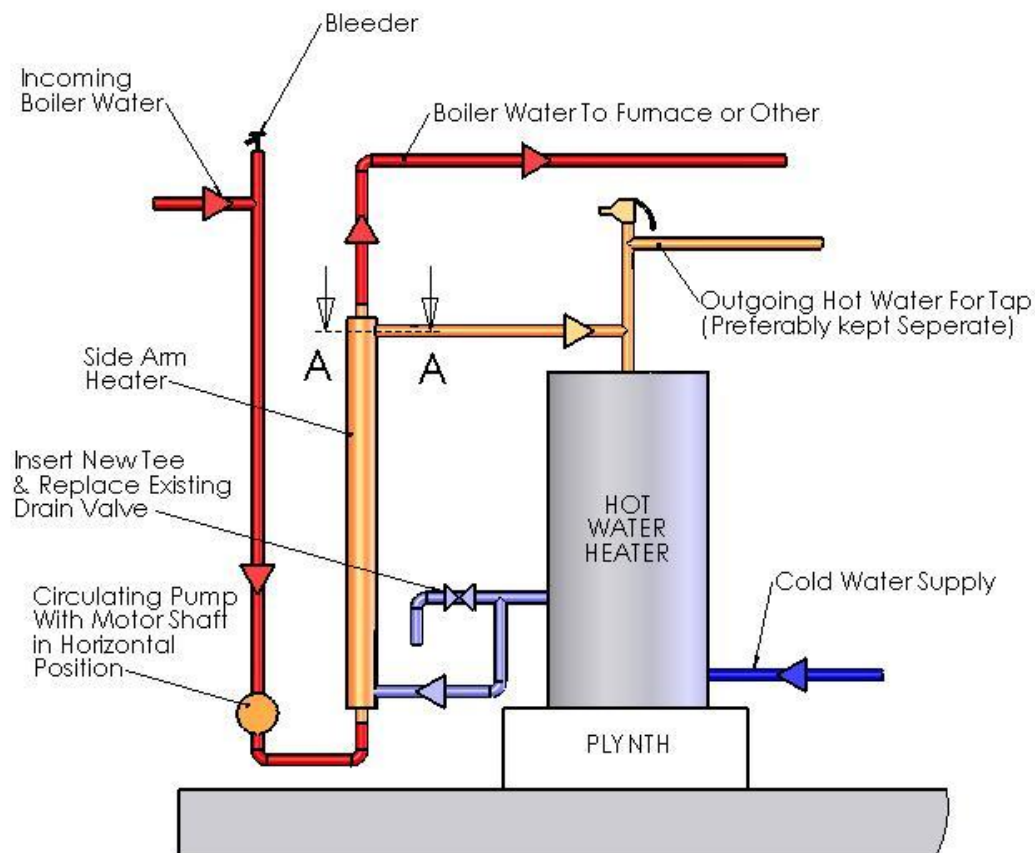
SCHEMATIC #2 - Schematic Drawing for Illustration Purposes Only

# CONNECTING THE P&M SYSTEM



CONNECTING TO A NEW BASEBOARD SYSTEM

SCHEMATIC #3 - Schematic Drawing for Illustration Purposes Only



#### NOTE!

It is suggested that the hot water heater be raised on a plynth as shown, to give max. length of side arm heater. (5 feet long if possible)  
Top outlet should be as close as possible to the top of the water heater

SCHEMATIC #4 - CONNECTING SIDE ARM HEATER TO DOMESTIC WATER TANK

## SETTINGS AND FUNTIONS

The six button keypad is used to move through the menus and enter or change parameter values.

### HOME BUTTON

Pressing the home button at any time exits thE current Programing or setup and returns to the home screen.

### MENU BUTTON

Pressing the Menu button always displays the program menu.

(Pressing and holding the Menu button for five seconds will exit the current screen and take you into setup Menu, you do not need the setup menu to operate the furnace, this is only to change the setup.)

### LEFT AND RIGHT ARROW KEYS

Use these buttons to move backward and forward through the program menu.

### UP AND DOWN ARROW KEYS

Use these buttons to move your selection up and down through a menu.

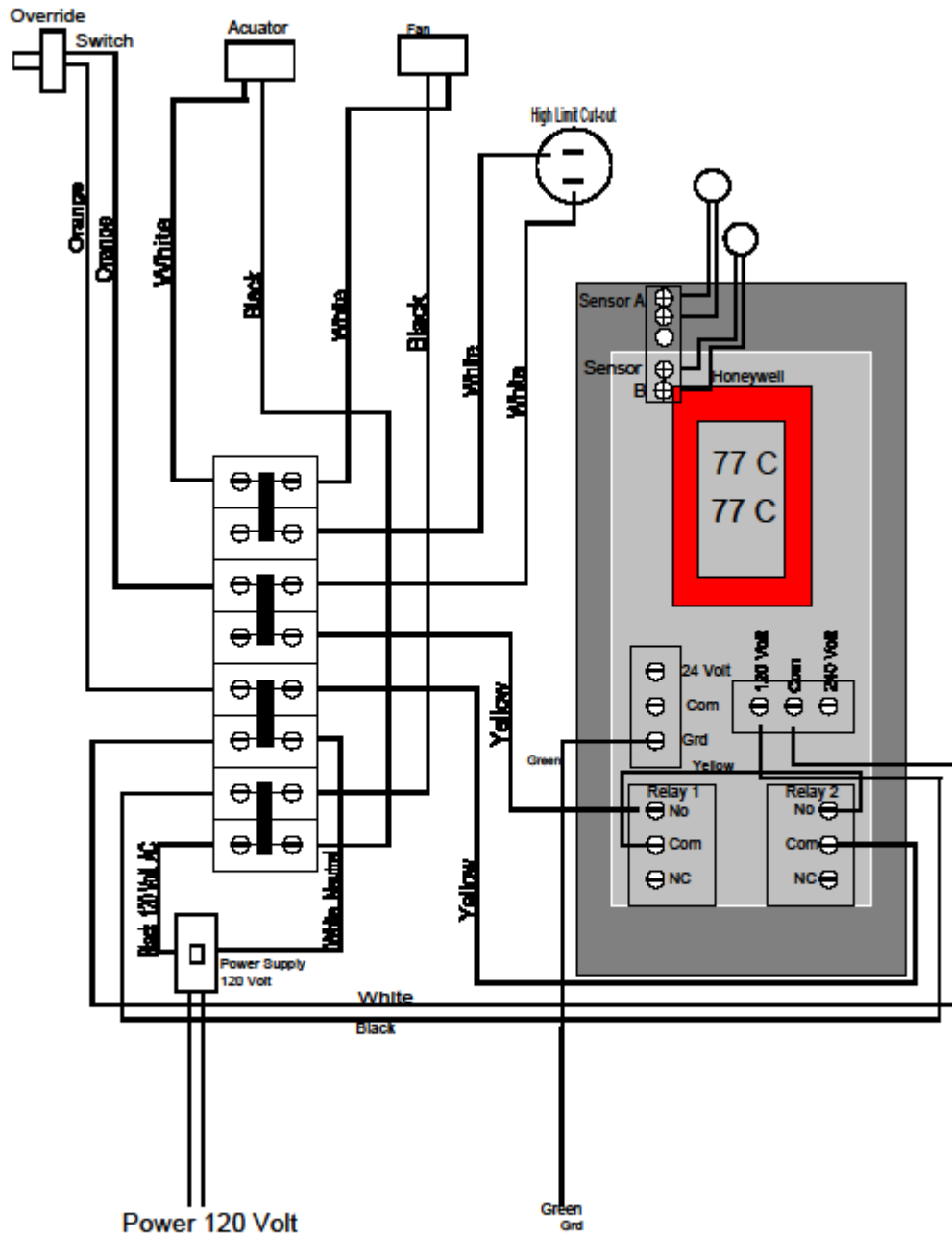
- When a desired item is highlighted, you press the right arrow button to display its contents.
- When a value is displayed the up and down arrows increase and decrease the value.

The toggle switch on the side of the control box is the over ride switch for the blower motor. This can be used to turn the unit on when it is in the off cycle before you open the loading door. This is all so used to turn the unit on when the cold water shut down has been activated.

(THE OVER RIDE SWITCH HAS TO BE IN THE OFF POSSITION FOR NORMAL OPERATING OF THE FURNACE)



## Economizer 100 Wiring Schematic



## TROUBLE SHOOTING

TOO LITTLE HEAT	<ul style="list-style-type: none"> <li>- Fire is out</li> <li>- Low water level or water leaks</li> <li>- Power failure</li> <li>- Circulating pump failure</li> <li>- Air traps in system</li> <li>-fan is not running</li> </ul>	<ul style="list-style-type: none"> <li>- Add wood/build fire</li> <li>- Check leaks then add water</li> <li>- Check electrical circuits</li> <li>- Check pump</li> <li>- Vent system</li> <li> -inspect fan/replace</li> </ul>
TOO MUCH HEAT	<ul style="list-style-type: none"> <li>- Draft damper stuck in open position</li> <li>- Air leaking through wood door</li> <li>- Aquastat malfunction</li> <li>- Thermostat inside house malfunction</li> <li>- Ash door not shut tight</li> </ul>	<ul style="list-style-type: none"> <li>- Clean, lube and reinstall</li> <li>- Clean metal to metal surfaces</li> <li>- Check aquastat</li> <li>- Check thermostat</li> <li>- Check gasket on ash door</li> </ul>
WATER BOILING	<ul style="list-style-type: none"> <li>-Fan running constantly</li> <li>- Aquastat malfunction</li> <li>- Wood door open</li> <li>- Damper lid stuck open</li> </ul>	<ul style="list-style-type: none"> <li>- Aquastat malfunction</li> <li>- Check aquastat</li> <li>- Close door tightly</li> <li>- Clean, lube and reinstall</li> </ul>
CREOSOTE BUILDUP	<ul style="list-style-type: none"> <li>- Air leaking through wood door</li> <li>- Chimney not insulated or damaged</li> <li>- Burning high pitch bearing wood (Pine, Balsam)</li> </ul>	<ul style="list-style-type: none"> <li>- Clean metal to metal surfaces</li> <li>- Insulate or repair chimney insulation</li> <li>- Use mix of dry and harder wood (Poplar, Birch, Tamarack)</li> </ul>

## **Portage & Main Outdoor Water Furnace— Wood Gasification Unit-Economizer IDM 100**

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Portage and Main Outdoor Water Furnaces are designed for burning wood or authorized fuel only. The burning of any other materials or any modifications of the furnace will void this warranty.

The electrical components such as the temperature control, fans, etc., are warranted by their manufacturer for a period of one year or as stated by the manufacturer.

All gaskets, seals, etc., are warranted by Piney Manufacturing Ltd. for a period of one year from the date of purchase.

Pre-cast heat treated refractory brick is guaranteed by the manufacturer to be of premium quality and free from defect at the time of shipping. Fire brick will develop hairline cracks when subjected to extreme heat. This will not affect the performance of the furnace. Piney Manufacturing Ltd. gives 2 year warranty on the pre-cast heat treated refractory brick.

Piney Manufacturing Ltd. does not warranty parts damaged by freezing, overheating, pressurization, use of unauthorized fuels or abuse or lack of maintenance. The Portage & Main Outdoor Water Furnace Wood Gasification Unit—Economizer IDM 100

is designed to be a long lasting simple to operate furnace. Proper care and maintenance as outlined in the manufacturer's maintenance instructions should be followed. The Portage & Main Outdoor Water Furnace must be filled with water that meets recommendations outlined in the Portage & Main Outdoor Water Furnace--Economizer IDM 100 Manual. Failure of proper maintenance such as maintaining water quality by using the recommended water, addition of chemical as required and annually send in samples of water for free testing, will shorten the life of the outdoor water furnace.

Any furnace which is determined to be defective in material or workmanship within three (3) years and returned to Piney Manufacturing , freight prepaid, will be repaired or replaced at Piney Manufacturing Ltd. option at no charge to you.

In year four (4) through the life of the product, Piney Manufacturing will pay a pro-rated share of any repair or replacement cost. The proportionate charge will be equal to the appropriate percentage of the list price of the product at the time of the warranty claim is made, and will be determined as follows: 4<sup>th</sup> year 80%; 5<sup>th</sup> year 70%; 6<sup>th</sup> year 60% 7<sup>th</sup> year 50%; 8<sup>th</sup> year 40%; 9<sup>th</sup> year 30%; year 10<sup>th</sup> and beyond 10%. No cash surrender value at any time. Piney Manufacturing Ltd reserves the right to replace or repair the parts at its sole discretion.

In addition to the warranty above, the Piney Manufacturing Ltd. warranty does not cover:

Components that are part of the heating system (products), used for installation of the Portage & Main Outdoor Water Furnace Economizer IDM 100—underground insulated pipe, radiators, heat exchanger that may be part of the part of the heating systems (products); the workmanship of any installer of Portage & Main Outdoor Water Furnace(s).

In addition, this warranty does not assume any liability of any nature for unsatisfactory performance caused by improper installation or operation; any costs for labor for removal and reinstallation of the alleged defective stove or part, transportation to Piney Manufacturing Ltd., if necessary, and any other materials necessary to perform exchange; any products that have a failure or malfunction resulting from improper or negligent operation accident, abuse, freezing, over-heating, poor water quality, misuse, unauthorized alteration or improper repair or maintenance; improper adjustments, control settings, care or maintenance. Information is in the installation manual and other printed/technical information provided with the product or direct from Piney Manufacturing Ltd.

If warranty requires replacement of any part, Piney Manufacturing Ltd. will take responsibility for the actual cost of the replacement part only. No other warranty is expressed or implied. Piney Manufacturing Ltd. is not responsible for the cost of plumbing, replacement of antifreeze, shipping costs or any other indirect cost associated with the replacement of the part.

Outdoor furnaces are not intended to be the only source of heat; therefore, it is recommended that a back-up system be in place to prevent damages caused by lack of heat.

Piney Manufacturing Ltd. is not liable for any accidents which may occur from the operation of the furnace, or damage incurred due to heating system failure. The purchaser assumes all responsibility for the care, maintenance and safe operation of the furnace.

Piney Manufacturing Ltd. specifically disavows any other representation, warranty or liability related to the condition or use of the product. Any complaints or litigation must be filed in Manitoba, Canada. This warranty is non-transferable and has no cash value.

To validate this warranty, your registration must be completed within twenty (20) days of purchase date and faxed to Piney Manufacturing Ltd. 306-922-1662, with a copy of your sales receipt, showing your date of purchase.

**Portage & Main Outdoor Water Furnace  
Warranty Card for Economizer IDM 100**

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Purchaser's Name: \_\_\_\_\_

Address: \_\_\_\_\_

Phone: \_\_\_\_\_

Model: \_\_\_\_\_ Serial No. \_\_\_\_\_

Date of Purchase: \_\_\_\_\_

Dealer: \_\_\_\_\_

Address: \_\_\_\_\_

Dealer's Signature: \_\_\_\_\_

Date: \_\_\_\_\_

This warranty card must be completed and returned to Piney Manufacturing Ltd by fax to 1-306-922-1662 with a copy of the sales receipt within 20 days of sale date.

"I have read, understood and accept the conditions of this Warranty."

Customers Signature: \_\_\_\_\_

Date: \_\_\_\_\_

## Portage and Main Outdoor Water Furnace

**Initial Set Up Water Analysis:** This form to be faxed to Piney Manufacturing @ 306-922-1662

.....

Dealer Name: \_\_\_\_\_

Date Collected: \_\_\_\_\_

Customer/Owner Names: \_\_\_\_\_

Date Received: \_\_\_\_\_

Unit Serial Number: \_\_\_\_\_

Date Reported: \_\_\_\_\_

Date Unit Installed: \_\_\_\_\_

### System Parameter(s)

Control Test	Result/Residual Present	Control Limits
pH	_____	8.8 to 11.0 (ideal)
Conductivity (Micromhos)	_____	100-4000
WBFT/nitrate level(ppm)	_____	730-1460

**Other Test**  
**Glycol %**

### Recommendation: (circle)

Results in ppm	Amount of WBFT to add per 300 gal.
Less than 50.....	6.0 quarts
51 to 160 .....	4.0 quarts
161 to 280.....	3.5 quarts
281 to 400.....	3.0 quarts
401 to 520.....	2.5 quarts
521 to 640.....	1.5 quarts
640 to 729.....	1.0 quarts

Chemical Analysis: Results in Parts Per Million (ppm)

Treatments(s) Present: Wood Burning Furnace Water Treatment (WBFT)

The above circled amount was added after the initial test: \_\_\_\_\_  
(Dealer's signature)

I understand that system water must be tested annually from the above date to keep warranty valid.

Owner: \_\_\_\_\_ Date: \_\_\_\_\_

The recommendations in this report are based solely on our analysis of your sample.

This report only represents the condition of your system at the time your sample was taken.

## Portage and Main Outdoor Water Furnace

### Annual Water Analysis *This form to be faxed to Piney Manufacturing @ 306-922-1662*

Dealer Name: \_\_\_\_\_

Date Collected: \_\_\_\_\_

Customer/Owner Names: \_\_\_\_\_

Date Received: \_\_\_\_\_

Unit Serial Number: \_\_\_\_\_

Date Reported: \_\_\_\_\_

Date Unit Installed: \_\_\_\_\_

#### System Parameter(s)

**Control Test**  
**pH**

**Result/Residual Present**

**Control Limits**  
8.8 to 11.0 (ideal)

**Conductivity (Micromhos)**

100-4000

**WBFT/nitrate level)ppm)**

730-1460

**Other Test**  
**Glycol %**

#### Recommendation: (circle)

#### Results in ppm

#### Amount of WBFT to add per 300 gal.

Less than 50.....	6.0 quarts
51 to 160 .....	4.0 quarts
161 to 280.....	3.5 quarts
281 to 400.....	3.0 quarts
401 to 520.....	2.5 quarts
521 to 640.....	1.5 quarts
640 to 729.....	1.0 quarts

Chemical Analysis: Results in Parts Per Million (ppm)

Treatments(s) Present: Wood Burning Furnace Water Treatment (WBFT)

The above circled amount was added after the initial test: \_\_\_\_\_  
(Dealer's signature)

I understand that system water must be tested annually from the above date to keep warranty valid.

Owner: \_\_\_\_\_ Date: \_\_\_\_\_

The recommendations in this report are based solely on our analysis of your sample.

This report only represents the condition of your system at the time your sample was taken.

**Portage and Main Outdoor Water Furnace**

**Annual Water Analysis** This form to be faxed to Piney Manufacturing @ 306-922-1662

Dealer Name: \_\_\_\_\_

Date Collected: \_\_\_\_\_

Customer/Owner Names: \_\_\_\_\_

Date Received: \_\_\_\_\_

Unit Serial Number: \_\_\_\_\_

Date Reported: \_\_\_\_\_

Date Unit Installed: \_\_\_\_\_

**System Parameter(s)**

Control Test	Result/Residual Present	Control Limits
pH	_____	8.8 to 11.0 (ideal)
Conductivity (Micromhos)	_____	100-4000
WBFT/nitrate level(ppm)	_____	730-1460

**Other Test**  
**Glycol %**

**Recommendation: (circle)**

Results in ppm	Amount of WBFT to add per 300 gal.
Less than 50.....	6.0 quarts
51 to 160 .....	4.0 quarts
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Chemical Analysis: Results in Parts Per Million (ppm)

Treatments(s) Present: Wood Burning Furnace Water Treatment (WBFT)

The above circled amount was added after the initial test: \_\_\_\_\_  
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I understand that system water must be tested annually from the above date to keep warranty valid.

Owner: \_\_\_\_\_ Date: \_\_\_\_\_

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