

**OZARK BIOMASS RENEWABLE ENERGY
OUTDOOR FURNACE
OWNER'S MANUAL**



Ozark BioMass Renewable Energy Outdoor Furnace

11136 Highway AD | PO Box 50

Falcon, Missouri 65470

Phone 417-453-6751

Fax 417-453-6082

<http://ozarkbiomassfurnace.com>

email: doddsbrothers@gmail.com

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VERY IMPORTANT
SAVE THESE INSTRUCTIONS FOR FUTURE REFERENCE

1. This product should be installed in accordance to local electrical and building codes. Authority having jurisdiction should be consulted before installation.
2. Sizes & Ratings: Ozark BioMass Renewable Energy Furnaces are manufactured in the following sizes and BTU/hr ratings. Voltage rating on all models is 120 V one phase, 60 Hz.
Meramec BTU 150,000 Gasconade BTU 225,000

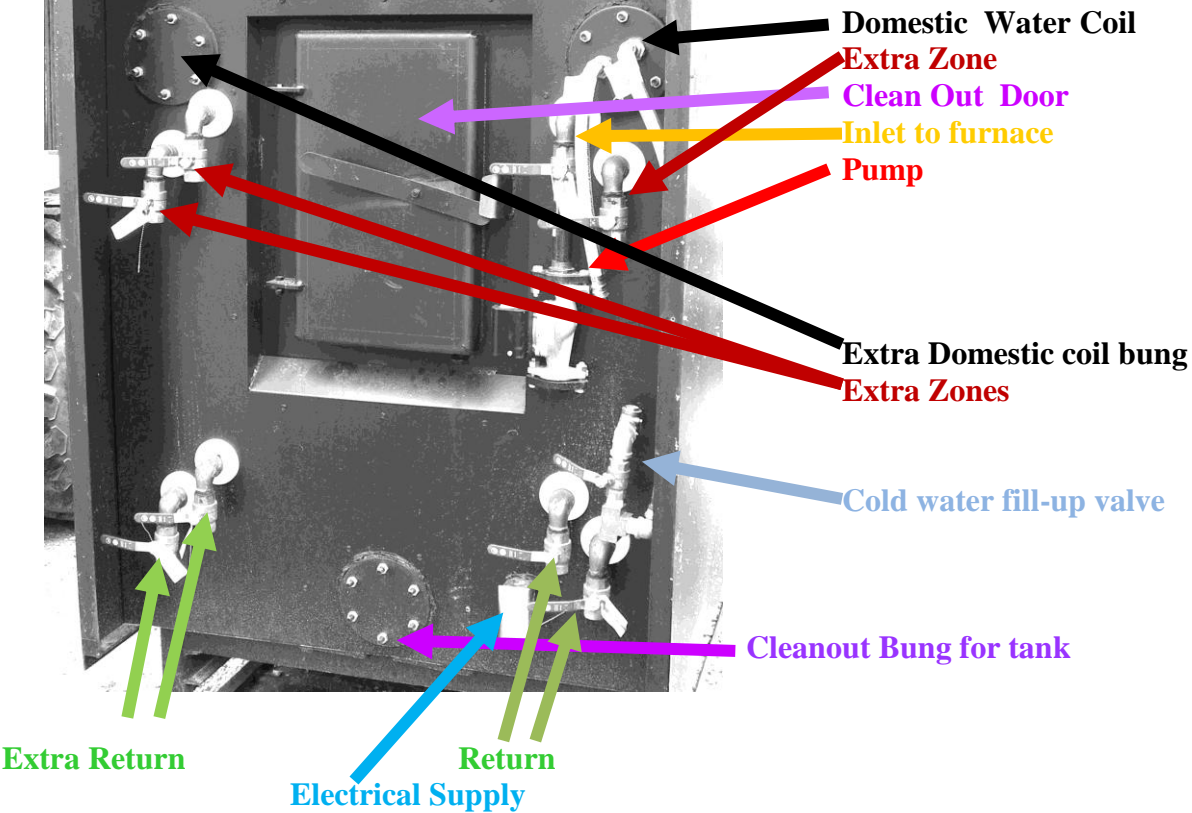
3. The following precautions must be adhered to for the safe operation of this product:
 - a. No makeshift compromises during installation
 - b. Do not use chemicals or fluids to start fire
 - c. Do not burn flammable fluids such as gasoline, naphtha, engine oil or garbage
 - d. Keep children away from this product while it is in operation
 - e. Do not store solid fuel within clearance to combustible materials shown on label within the space required for charging and ash removal
 - f. Ensure that the vent pipe is kept open at all times to insure the stove does not become pressurized and that the condensation tank is placed on vent pipe to help prevent water loss.
 - g. When unit is not in use drain the system of all water to prevent freezing in cold weather
 - h. Make sure sufficient amount of water treatment is kept in unit at all times while unit is filled with water
 - i. Unit must be filled with at all times to insure safer operation otherwise unit will be damaged

SET UP

Your OZARK BIOMASS RENEWABLE ENERGY Outdoor Furnace should be set on a cement pad.

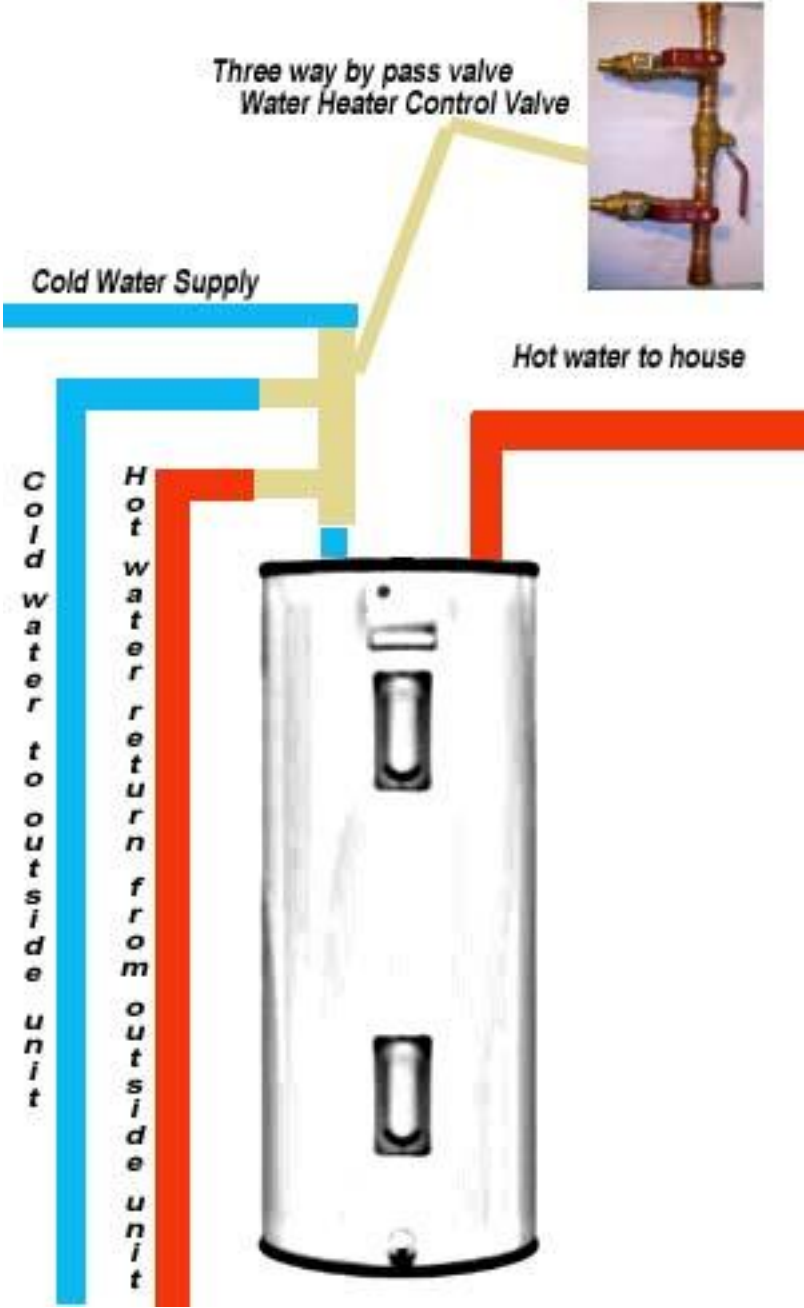
The area around your OZARK BIOMASS RENEWABLE ENERGY unit should be covered with non-combustible material (gravel, concrete, patio stones) at least one foot on either side and back and front.

**ON THE BACK OF THE OZARK
BIOMASS RENEWABLE ENERGY
FURNACE**



While furnace is in use valve above pump should be opened, valve on return line should be opened. The cold water fill up valve should be shut except while filling up furnace tank.

Operation of Domestic Water



When side valves are opened and middle valve is shut your outside furnace will heat your water. Reverse for water heater only.

FIRING DIRECTIONS

Start your fire just as you would for any other wood burner. Stack your wood at the front of the firebox, laying it lengthwise in the firebox. See Figure 30.



When you go to add wood to your OZARK BIOMASS RENEWABLE ENERGY Furnace you should always rake the coals to the front of the firebox and stack your wood at the front also.

The blower on the OZARK BIOMASS RENEWABLE ENERGY will make it easier to start your fire. Note: When you first fire the furnace up the cold water in the tank will cause a tremendous amount of condensation inside the firebox and flues. It should stop in a few hours.

After starting fire shut the fire box door turn fan switch on. If it is dark outside you can turn on your outside light to assist you in loading.

BLEEDING THE SYSTEM

Turn off the ball valve on Heat Inlet and turn on the ball valve on Heat Outlet. If you have cut off flanges on your pump, make sure that they are open. Take the pex pipe loose from Heat Inlet. Leave it loose until you get a good flow of water, then turn on the pump. A steady flow with no gurgles, burps, or spruts signals that no air is coming through the line. Cut off the pump, hook the pipe back up and open the ball valve.

If the coil is mounted at a point as high or higher than the water level in the heater, it may be necessary to bleed the system in sections. Take the pex pipe loose from the outlet side of the pump and make sure that you have water through the pump. Hook that pipe back up at the pump and go to the top (highest) outlet on the coil and loosen that fitting. Turn on the pump and let it run until you stop getting air out of that fitting. Turn off the pump and open the ball valve on Fitting (make sure that the pex pipe has been re-attached). You may get some more air out of the top fitting on the coil at this point. When all air is out, tighten your fittings. The system should now be bled.

INSTALLATION OF THERMOSTAT

The basic concept is to start your circulating pump and air handler simultaneously as there is not time delay for heat strips to warm. Your existing thermostat may be utilized or an additional unit may be installed to exclusively control your new OZARK BIOMASS RENEWABLE ENERGY Furnace.

Service Tip:

Ozark BioMass Renewable Energy Manufacturing recommends installing an electrical receptacle near the wire controlling the circulating pump which is controlled by the thermostat. This will enable a service technician to check the circulating pump without necessitating access to the thermostat.

If you have any questions please contact your Ozark BioMass Renewable Energy Dealer.

Wiring diagram for forced air application



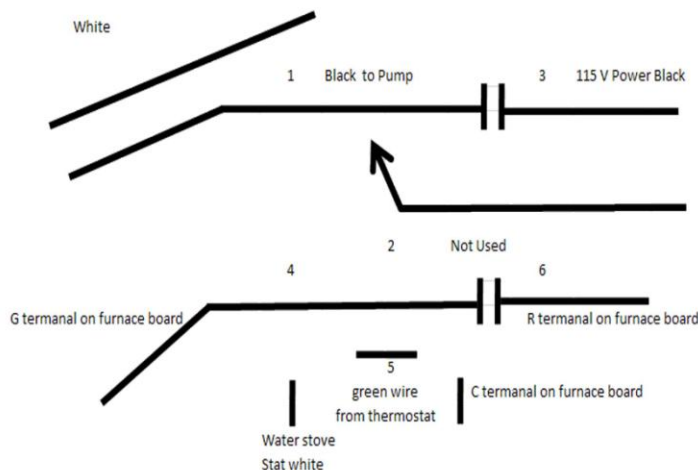
Thermostat

Red - Red wire or on board (Power)

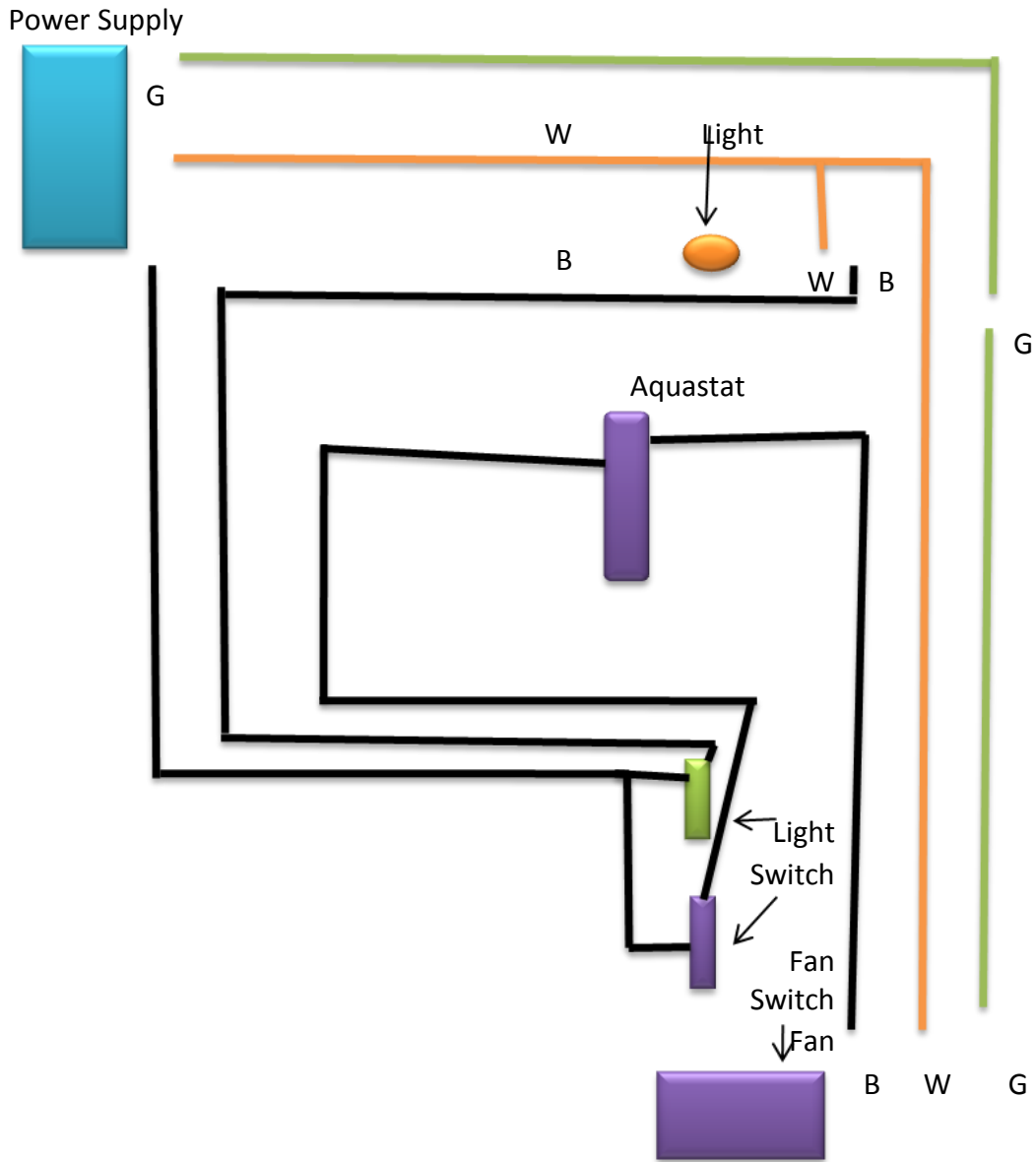
Green - Goes to relay to control fan

White - Goes to (w) on board or whatever for heat

Yellow (or blue) is A/C



Wiring On The Outside Unit



MAINTENANCE

Your Ozark BioMass Renewable Energy Furnace requires maintenance regularly to allow proper performance and efficiency. Requirements include checking all flue pipes, ensuring there is no internal creosote build up. When build up occurs, the scrapers and flue brush in you clean out kit will allow you to remove the burnt materials from the flue pipes here also. Your Ozark BioMass Renewable Energy furnace tank should be flushed annually and Ozark BioMass Renewable Energy Chemical replaced after the tank is cleaned.

We recommend checking the pipes at least once a month and more often if the wood is of high sap content.

After the first full year of operation you OZARK BIOMASS RENEWABLE ENERGY furnace should be drained and inspected for sediment deposits. Ozark BioMass Renewable Energy Chemical should always be used when refilling the tank after it has been drained. Flush with clean water to wash out all of the sediment deposits. The furnace should be drained and flushed with clean water and the Ozark BioMass Renewable Energy Chemical replaced every year or as needed. You will need to caulk around the base of the condensation tank and flue once a year with high temperature caulk.

Cleaning Out Flues

1. To clean out open doors front and back.
2. The upper return flue will normally require the most attention because when wood is burned slowly, or when the wood smoke is cooled sufficiently it produces tar and other organic vapors, which combine with expelled moisture to form creosote. The creosote vapors condense in the relatively cool chimney flue of a slow-burning fire. As a result, creosote residue accumulates on the flue lining. When ignited this creosote makes an extremely hot fire. If creosote has accumulated, it should be removed to reduce the risk of chimney fire. The unit is not to be connected to a chimney flue serving another appliance.

IMPORTANT

It is important to keep the flues free of a creosote build up to avoid a creosote flue fire. Should a creosote flue fire develop it is best to let the fire burn itself out. Even though the creosote fire is very undesirable because of excessive smoke it is much safer to let the flue fire burn itself out. Do not open doors or remove flue covers during a creosote fire because there is a danger of flames leaping out at the newly exposed opening causing severe burns. Remember, the best way to handle a creosote flue fire is prevention. Inspect your flues once a month and keep them clean.

ASH REMOVAL

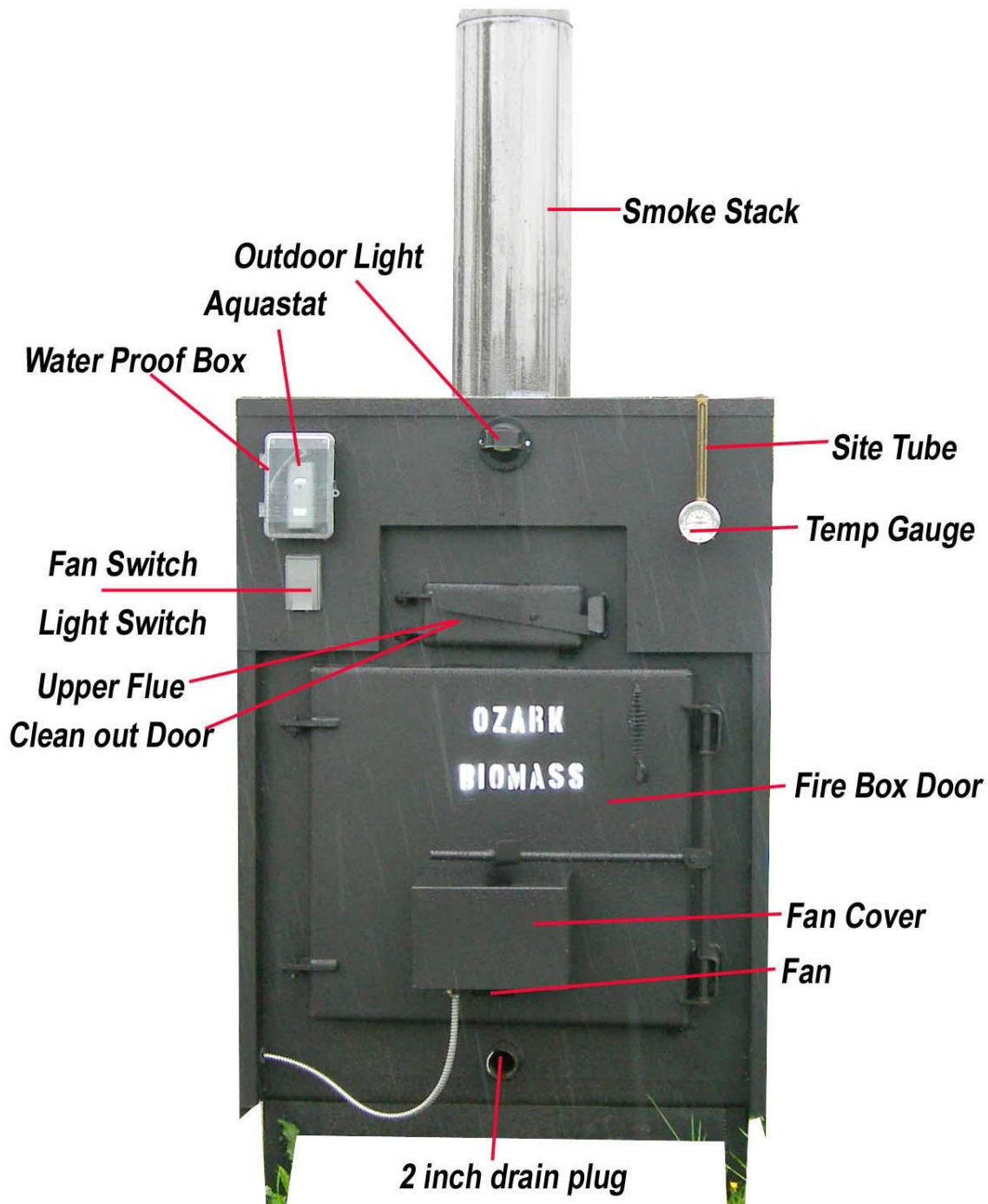
You do not have to take the fire out of the unit to remove the ashes. Here are two ways this can be accomplished.

1. The fire in you Ozark BioMass Renewable Energy furnace burns from front to back. If you like, you may periodically remove ashes from the front of the firebox before you put wood in it.
2. When you put wood in your unit and the fire burned down to just a bed of coals, you can take your flat-nosed shovel and rake the coals to one half of the firebox. Repeat this process for the other side of the firebox.

CAUTION

Dispose of the ashes away from other combustible material. For safety, the ashes can be disposed of in a steel container.

Parts on the front of your furnace.



TROUBLE SHOOTING GUIDE

PROBLEM	POSSIBLE CAUSE	HOW TO CHECK	PROBABLE SOLUTION
House Too Warm	Thermostat May Be Defective		Replace Thermostat
	Relay May Be Defective		Replace Relay
	Improper Wiring		Check All Wiring
	Pump Not Shutting Off Properly		Check The Wiring - In Particular Where It Connects To The Relay
Stove Will Not Heat Up Properly	No Wood In The Unit	Examine	Fill Stove With Wood
	Flues On Stove Pipe Clogged Or Obstructed	Examine	Clean Flues And/Or Stove Pipe
	Aquastat Not Working	Switch To Manual	Replace Aquastat
	Draft Fan Not Working	Check To See If It's Getting Current, If Yes, Fan Is Bad	Replace Fan
	Draft Damper For The Draft Fan Is Hung Shut	Move Flapper Rod By Hand	Clean And Lubricate With WD-40 OR Equivalent. Do Not Do This With A Fire In The Unit. WD-40 Is Flammable.
Not Enough Heat In The House	Aquastat Set Too Low	Draft Fan May Be Cutting Off At Around 140 Instead Of 180	Turn Aquastat Up
	Pump On But Not Circulating	Pipe Is Hot To The Pump And Cold Going Out Of The Pump; Or Pipe Is Hot Going To The Coil And Cold Leaving The Coil.	Bleeding Air Out Of The System
	Pump Will Not Come On Because Of: 1. Bad Thermostat 2. Bad Relay 3. Improper Wiring 4. Bad Pump	Call an electrician.	Solution To: 1. Replace Thermostat 2. Replace Relay 3. Check The Wiring 4. Replace Pump

PROBLEM	POSSIBLE CAUSE	HOW TO CHECK	PROBABLE SOLUTION
Burn Too Much Wood	Flues Clogged Up	Examine	Clean Flues
	Aquastat Is Operating On Too Large Of Differential	Look Inside The Aquastat Cover. The Adjustment Points Should Be As Close Together As Possible.	Squeeze Them Together
	The Return Duct On A Forced Air System Is Allowing Cold Air To Be Sucked In Through Holes And Improperly Sealed Joints.	A Close Inspection Of The system. This Is The Most Common Problem.	Seal The Ductwork
No Domestic Hot Water	Stove Is Not Hot	Look At Thermostat	See "Section 2"
	Aquastat Is Set Too Low	Draft Fan May Be Cutting Off Around 140° Instead of 180°	Turn Aquastat Up
	Stove Too Far Away		Put On A Re-circulating System
Stove Too Hot	Aquastat Set Too High	Draft Fan May Be Trying To Attain Temperature Exceeding 212°	Turn Down Aquastat
	Switch Is On Manual	Turn Aquastat Control Down Below Current Stove Temperature And Flip Switch	Turn Switch To Automatic
	Weather Is Too Hot		Tape Over Most Of The Air Inlet On The Fan and Use More Hot Water. As Long As The Stove Is Full Of Water You Can't Hurt It.

BASIC INSTALLATION DIAGRAM

The Ozark BioMass
Renewable Energy Furnace

This is the area the unit
is attached to the
existing system

