



A-Maize-Ing Heat

NATURE'S RENEWABLE PRODUCTS PO Box 500 899 S. PRAIRIE LANE MARSHFIELD MISSOURI 65706

This wood heater needs periodic inspection and repair for proper operation. Consult the owner's manual for further information. It is against federal regulations to operate this wood heater in a manner inconsistent with the operating instructions in the owner's manual.

WARNING

RISK OF FIRE

DO NOT OPERATE WITH FLUE DRAFT EXCEEDING 0.050 IN WATER COLUMN AS MEASURED BEFORE THE BAROMETRIC DAMPER.

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 CONNECT THIS UNIT TO A CHIMNEY FLUE SERVING ANOTHER APPLIANCE.

CAUTION

HOT SURFACES

THE BURNER INSPECTION DOOR MAY BE HOT.

KEEP CHILDREN AWAY.

DO NOT TOUCH DURING OPERATION.

THIS EQUIPMENT MAY ONLY BE INSTALLED BY QUALIFIED PERSONNEL

MAINTAIN COMBUSTION AIR SUPPLY TO BOTH FURNACES. AIR STARVATION IS DANGEROUS. PROVIDE A FRESH AIR OPENING AT LEAST 2,000 mm² (3 in²).

THIS UNIT MAY BE INSTALLED ON A COMBUSTIBLE FLOOR
MINIMUM CLEARANCE TO COMBUSTIBLE CONSTRUCTION:

28" UNIT TO BACKWALL
9" UNIT TO SIDEWALL

18" FLUE CONNECTOR TO BACKWALL
2" PLENUM TO CEILING.

FUEL: BIOMASS
ELECTRICAL: 120 V AC, 60 HZ, 12 A. CONNECT TO SEPARATE 15A FUSE.
MINIMUM DUCT SIZES: 196 SQUARE INCHES

DO NOT ALTER THIS EQUIPMENT IN ANY WAY.
LOAD FUEL CAREFULLY OR DAMAGE MAY RESULT.
INSPECT AND CLEAN FLUES AND CHIMNEY REGULARLY.

THE HEAT EXCHANGER, FLUE PIPE, CHIMNEY, AND DRAFT CONTROL **MUST** BE IN GOOD CONDITION AND CLEANED REGULARLY TO REMOVE ACCUMULATED CREOSOTE AND ASH. CLEAN AT THE END OF THE HEATING SEASON TO MINIMIZE CORROSION DURING SUMMER MONTHS.

DANGER: RISK OF EXPLOSION. DO NOT BURN GARBAGE, GASOLINE, DRAIN OIL OR OTHER FLAMMABLE LIQUIDS.

DO NOT USE CHEMICALS OR FLUIDS TO START THE FIRE.

TURN THE POWER SWITCH TO "OFF" IN THE EVENT OF A "RUN-AWAY" FIRE.

IF THE FIRE GOES OUT DUE TO AN EXTENDED POWER OUTAGE

1. LET THE UNIT COOL
2. REMOVE THE ASHES WITH AN ASH VACUUM
3. FILL THE BURN POT WITH APPROVED BIOMASS FUEL
4. ADJUST THE THERMOSTAT TO A SETTING ABOVE THE ROOM TEMPERATURE
5. APPLY A GELLED FIRE STARTER APPROVED FOR BIOMASS APPLIANCES AND LIGHT
6. SET SWITCH TO "START" UNTIL THE BIN AUGER ENGAGES
7. SET SWITCH TO "ON" AND ADJUST THE THERMOSTAT AS NEEDED

CERTIFIED FOR SERIES CONNECTION TO THE OUTLET ONLY OF AN OIL FIRED, GAS FIRED, OR ELECTRIC FURNACE

MAY BE CONNECTED TO DUCTWORK THAT IS STILL CONNECTED TO ANOTHER FURNACE.

MAY BE ADDED ONTO AN OIL, GAS, or ELECTRIC FURNACE HAVING AN INPUT BETWEEN 34,000 to 120,000 Btu/hr AS SHOWN ON THE NAMEPLATE OF THE OIL, GAS, or ELECTRIC FURNACE.

DO NOT CONNECT DUCTWORK SO A REVERSE FLOW IS POSSIBLE.

OPERATE THE OIL, GAS, ELECTRIC FURNACE PERIODICALLY TO ENSURE IT WILL OPERATE SATISFACTORILY WHEN NEEDED.

DO NOT RELOCATE OR BYPASS ANY OF THE SAFETY CONTROLS IN THE ORIGINAL FURNACE INSTALLATION.

DISCONNECT ELECTRIC POWER TO BOTH FURNACES BEFORE SERVICING.

U.S. ENVIRONMENTAL PROTECTION AGENCY Certified to comply with 2017 particulate emissions standards using wood pellets. Not approved for sale after May 15, 2020
Conforms To: ASTM E2515-2011 & CSA B415.1-10

Emissions: 0.458 lbs/MMBtu – Output (0.197 g/MJ of output)

NATURE'S RENEWABLE PRODUCTS

	MODEL
	SERIAL
	DATE OF MFG



CONFORMS TO
UL STD 391
CERTIFIED TO
CSA STD B366.1
CAN/CSA B415.1-10
ASTM E2515-2011



A-Maize-Ing Heat



OWNER'S MANUAL MODEL NRP620-10 FURNACE



899 South Prairie Lane - P.O. Box 500 Marshfield, MO 65706

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www.naturesrenewable.com

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Table of Contents

THE A-MAIZE-ING HEAT® FURNACE	4
EPA NSPS Compliance	Error! Bookmark not defined.
SAFETY INSTRUCTIONS	7
Smoke and Carbon Monoxide Emissions and Monitors	8
INSTALLATION AND LOCATION CONSIDERATIONS	9
Installation Configurations	9
Mobile Home Installations	9
Supplementary Central Furnace Installations	10
Required Tools	11
Furnace Clearances and Accessibility	11
Combustion Air Requirements	13
Venting	13
Important Vent Installation Requirements	14
Listed Chimney	14
Masonry Chimney	14
Creosote – Formation and Need for Removal	14
Barometric Draft Control	15
Power Vent Option	16
FURNACE UNPACKING AND SET UP	17
Model 14 Storage Bin Assembly	18
Model 14 Bin Vibrator Mounting Instructions	22
THERMOSTAT WIRING	24
ELECTRICAL WIRING	25
FUEL REQUIREMENTS	26
BURNER LIGHTING	27
OPERATION	28
Clinker Buildup	28
Summary of Settings & Operation	29
Draft	29
Timers	29
High Fire	29
Low Fire	30
Initial Settings	30
Power Failure Considerations	30
TROUBLESHOOTING	31
MAINTENANCE	34
CANADIAN REQUIREMENTS FOR SUPPLEMENTARY (ADD-ON) FURNACES	36
SCHEMATIC DIAGRAM	37
SCHEMATIC DIAGRAM WITH POWER VENT OPTION	38
REPAIR PARTS	39
WARRANTY LIMITATIONS AND DISCLAIMERS OF LIABILITY	40

THE A-MAIZE-ING HEAT® FURNACE

As convenience fuels become more expensive and less abundant, biomass fuels become a very attractive and viable alternative heat source. In these times of high energy costs, it makes sense to use a heat source that utilizes a resource that is readily available and cost effective.

NATURE'S RENEWABLE PRODUCTS believes that there is no substitute for safety and quality. You can place confidence in that your A-Maize-Ing Heat® furnace will serve your heating needs now, and for years to come. We ask that you follow our policy of "safety first" when installing and using your A-Maize-Ing Heat® furnace.

We strongly advise you read the Owner's manual before installing and operating your A-Maize-Ing Heat® furnace.

The A-Maize-Ing Heat® furnace is a viable alternative heat source specifically designed for commercial and residential applications. Proper care of this appliance should result in many years of service and comfort. An annual checkup by a competent service person is recommended.

DO NOT OVERFIRE THIS HEATER

Attempts to achieve heat output rates that exceed heater design specifications can result in permanent damage to the heater.

This wood heater has a manufacturer-set minimum low burn rate that must not be altered. It is against federal regulations to alter this setting or otherwise operate this wood heater in a manner inconsistent with operating instructions in this manual.

If you have any problems, questions, or concerns, please contact the nearest A-Maize-Ing Heat® furnace dealer or contact:

Nature's Renewable Products
899 South Prairie Lane
P.O. Box 500
Marshfield, Missouri 65706
Tel. (417) 859-6067

To find a dealer near you visit website www.naturesrenewable.com or contact Nature's Renewable Products.

***NOTE** - The A-Maize-Ing Heat® serial number is located on the label located on the left side of the furnace.

EPA NSPS Compliance

This heater meets the 2017 U.S. Environmental Protection Agency's regulations for wood heaters sold after May 15, 2017. Under specific test conditions this heater has been shown to deliver heat at rates ranging from 34,000 to 120,000 BTU/hr.

Tests were evaluated to CAN/CSA B415.1-2010 Performance Testing of Solid-Fuel-Burning Heating Appliances, ASTM E2515-11 Determination of Particulate Matter Emissions Collected by a Dilution Tunnel, and EPA 40 CFR Part 60 "Standards of Performance for New Residential Wood Heaters, New Residential Hydronic Heaters and Forced-Air Furnaces".

The unit as tested produced an average emissions rate of 0.197 grams/mega joule of total output (0.458 lbs/MMBtu Output).

Summary of EPA test results

CAT	I	II	III	IV
Load % Capacity	<35% of max	35-53% of max	53-76% of max	Max capacity
Tgt Load (Btu/hr)	42,000	52,800	78,000	120,000
Act Load (Btu/hr)	37,722	52,227	75,861	112,434
Test Duration (Hours)	6	6	6	4.33
WoodWt (Lb)	53.5	70.7	101.7	115.2
Qin (Btu)	430,548	568,967	818,444	927,087
Qout (Btu)	226,332	313,363	455,167	487,214
ηN%	52.60%	55.10%	55.60%	52.60%
ET (g)	57.45	60.65	87.25	93.09
E (g/MJ)	0.24	0.18	0.18	0.18
E Output (lb/mmbtu)	0.56	0.43	0.42	0.42
E Input (lb/mmbtu)	0.29	0.24	0.24	0.22
E (g/hr)	9.58	10.11	14.54	21.48
E (g/Kg)	2.51	2	2	1.89

This wood heater has a manufacturer-set minimum low burn rate that must not be altered. It is against federal regulations to alter this setting or otherwise operate this wood heater in a manner inconsistent with operating instructions in this manual.

Do not install or use this product unless the instructions within this manual are carefully read and understood.

Failure to operate the unit in the prescribed manner will void the warranty.

Installation must be performed by a qualified installer, according to federal, state, provincial, and local codes.

SAFETY INSTRUCTIONS

ALL INFORMATION IN THIS SECTION MUST BE READ AND UNDERSTOOD BEFORE INSTALLATION

1. Save these instructions for future reference.
2. Do not install or use this appliance unless the instructions in this manual are read and understood.
3. This appliance must be installed in accordance with all local codes.
4. Installation must be performed by a qualified installer, according to federal, state, provincial, and local codes. Definition of qualified installer: "Any individual or firm that is engaged in and is licensed and/or certified for installation and operation of biomass heating appliances. Who is experienced in such work and familiar with all precautions required and has complied with all requirements of the authority having jurisdiction."
5. Maintain adequate minimum clearances to combustible materials. (See page 11)
6. Install in an area with adequate air for combustion and ventilation - **60 cubic feet per minute minimum.**
7. Do not connect this unit to a chimney flue serving another appliance.
8. Allow the furnace to cool before servicing.
9. Disconnect all power to the unit before performing routine maintenance or service.
10. Establish a regular service and maintenance schedule for efficiency and safe operation.
11. Have a qualified service person perform tasks with which you are not familiar.
12. CAUTION - Hot Surfaces: Children and adults should be alerted to the potential high surface temperatures of the burner door. **Keep children away! Do not touch during operation! Allow furnace to cool before performing any maintenance or service!**
13. **Danger: Risk of fire or explosion. Do not burn gasoline, oil, garbage, or other flammable materials not approved for this appliance.**
14. Do not place clothing or other flammable material on or near this appliance.
15. Ashes should be placed in a metal container with a tight fitting lid. The closed container of ashes should be placed on a non-combustible floor or on the ground, well away from all combustible materials pending final disposal. If the ashes are disposed of by burial in soil or otherwise dispersed, they should be retained in the closed container unit until all clinkers have thoroughly cooled.
16. Use only 20" x 20" x 1" UL approved furnace filter. (Filter included)
17. DO NOT OVERFIRE THIS HEATER. Attempts to achieve heat output rates that exceed heater design specifications can result in permanent damage to the heater.

18. Never add fuel to the burn pot directly while a fire is establish. This can cause the generation of excessive smoke and a potentially hazardous condition.

19. WARNING - Risk of Fire:

- Do not operate with flue draft exceeding 0.4 in. (10 Pa) water column measured before the barometric damper.
- Do on operate with fuel loading or ash removal doors open.
- Do not store fuel or other combustible material within marked installation clearances.
- Inspect and clean flues and chimney regularly.

20. Refer to markings on the appliance for additional information.

Smoke and Carbon Monoxide Emissions and Monitors

This appliance generates smoke and carbon monoxide (CO) as natural bi-products during the normal combustion of the listed fuel. It is therefore strongly recommended to have smoke and CO detectors in areas serviced by the appliance including heater fueling areas, pellet fuel bulk storage areas, and sheds containing heaters.

INSTALLATION AND LOCATION CONSIDERATIONS

WARNING

Failure to install the A-MAIZE-ING HEAT® furnace according to the instructions in this manual may result in death, serious injury, property damage, and/or may void the warranty.

Installation Configurations

IMPORTANT

The A-Maize-Ing Heat® furnace is for use as a solid fuel fired central heat source or supplementary furnace.

Several factors should be considered when choosing the location in which to install the A-Maize-Ing Heat® furnace. The unit cannot be installed in a location that exposes it to the elements. It must be installed in a location protected from the weather. The unit provides radiant heat in addition to the heat delivered from the hot air supply. The radiant heat can help efficiently heat a structure. For instance, if you have a basement that you would like to have warmer, consider installing the unit in the basement since the radiant heat will provide additional warmth to the space where it is located.

Minimum clearances for the A-Maize-Ing Heat® furnace is 2" from top of the plenum to the ceiling, 9" on either side, 18" from the back of the furnace flue to the wall, and 28" from the back of the unit to the back wall. These clearances must be maintained for all installations.

The A-Maize-Ing Heat® furnace should be installed with plenums constructed of metal. The metal hot air plenum should be connected to a warm-air supply-duct system constructed of materials with a minimum temperature rating of 250F.

****IMPORTANT****

Maintain the 196 sq. in. cross section hot air and return air connections to your existing duct work. Reduction in size of these connections can restrict air movement over and through the heat exchanger, resulting in overheating and operational problems with the furnace.

Mobile Home Installations

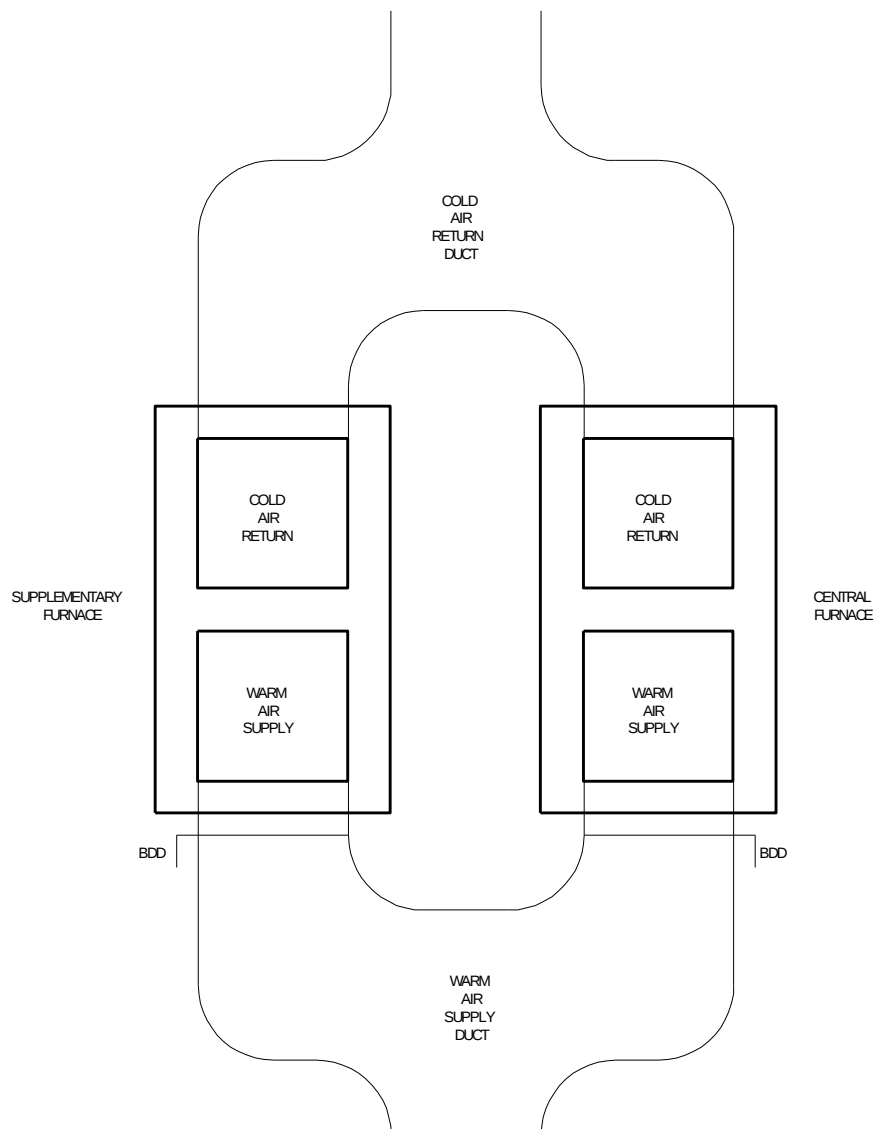
When installing the unit in a mobile home, the appliance must be secured to the floor and an outside air kit must be used.

Supplementary Central Furnace Installations

WARNING

The warm-air supply outlet of the supplementary furnace should not be connected to the cold-air return inlet of the central furnace because a possibility exists of components of the central furnace overheating and causing the central furnace to operate other than as intended.

When installing the furnace as a supplementary “add-on” furnace, install the unit in a parallel air flow configuration with the central furnace and install back draft dampers (BDD) to prevent feedback from one furnace to the other as illustrated below.



Required Tools

Flat-bit screwdriver

Phillips screwdriver

5/16" nut driver

3/8" nut driver

7/16" wrench

7/16" socket

Drill motor and 1/4" drill bit

Furnace Clearances and Accessibility

The A-Maize-Ing Heat® furnace can be installed on a combustibile floor if a non-combustible material is placed directly under the ash removal door and chimney connector. The mat is to extend at least 16" in front of and 8" to each side of the ash removal drawer and 2" either side of the chimney connector.

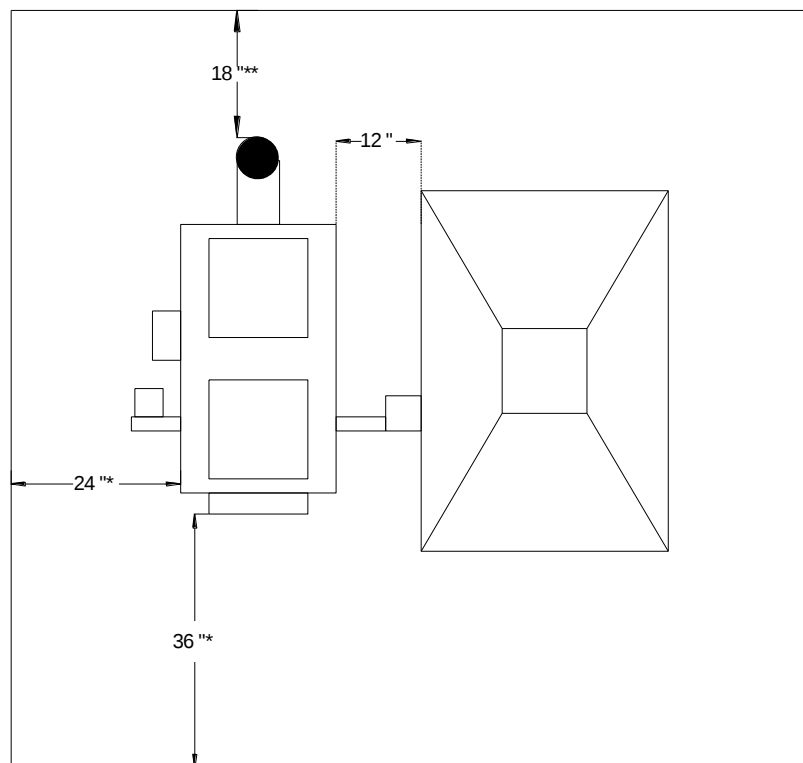
Recommended distances for ease of use and serviceability:

Top 32"

Opposite side from bin 24"

Front 36"

Rear-most surface 18"



Recommended Clearances

Minimum clearances are listed for your safety and the safety of others. Do not install the unit in a space that violates the distances listed.

Minimum distances from a combustible surface:

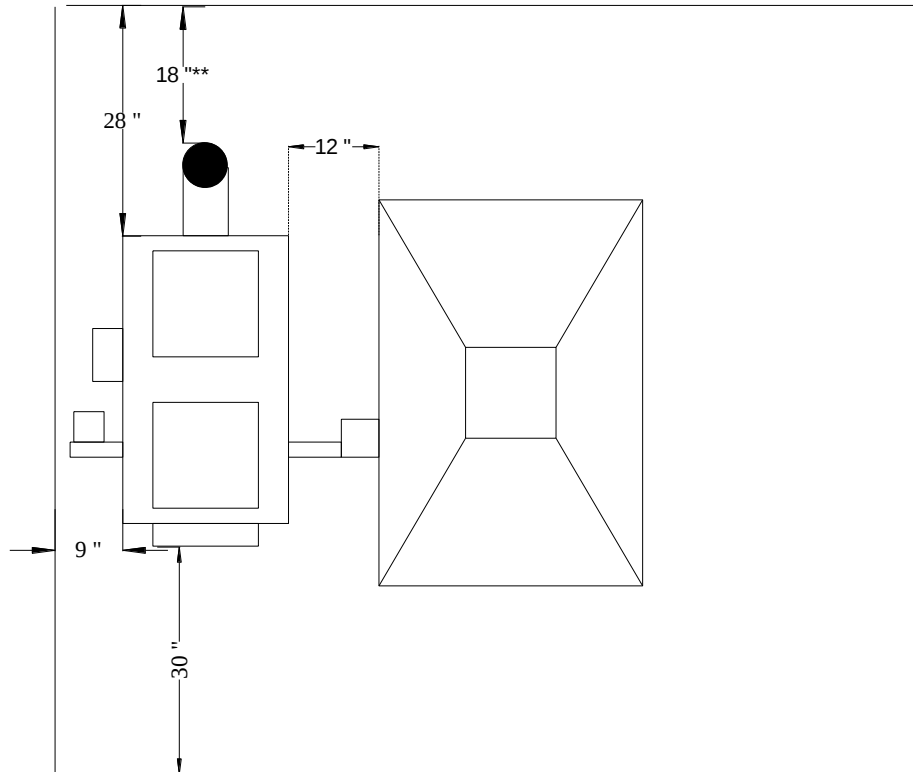
Clearances to combustible construction:

28" Unit to back wall

9" Unit to sidewall

18" Flue connector to back wall

2" Plenum to ceiling



Minimum Clearances

Combustion Air Requirements

Install the A-Maize-Ing Heat® furnace in a room with adequate air for combustion and ventilation - **60 cubic feet per minute minimum.**

Fans installed in the storage area should not create negative pressures in the room where the solid fuel-burning appliance is located.

Outside combustion air may be necessary if:

1. The solid-fuel-fired appliance does not draw steadily, smell, experiences smoke roll-out, burns poorly, or back-drafts whether or not there is combustion present.
2. Any of the above symptoms are alleviated by opening a window slightly on a calm day.
3. The house is equipped with a well-sealed vapor barrier and tight fitting windows and/or has any powered devices which exhaust house air.
4. There is excessive condensation on windows in the winter.
5. A ventilation system is installed in the house.

Venting

WARNING

Failure to provide correct chimney venting can lead to an increase in carbon monoxide and combustion gases into the building resulting in death, serious injury, and/or property damage.

Connect the A-Maize-Ing Heat® furnace to a lined masonry chimney acceptable to the authority having jurisdiction. USA installation may also use a residential type Class A and building heating appliance chimney. Do not connect the A-Maize-Ing Heat® furnace to any chimney flue servicing any other heating appliance, as recommended by the National Fire Prevention Association. All chimney connections must meet the approval of the local building inspector and fire marshal and conform to all local, state, provincial, and national codes.

The furnace is intended for connection to chimneys for residential and building heating appliances in compliance with the Standard for Chimneys, Fireplaces, Vents, and Solid Fuel Burning Appliances, NFPA 211, and intended for installation in compliance with the Standard for Installation of Warm Air Heating and Air Conditioning Systems, NFPA 90B; and the National Electrical Code, ANSI/NFPA 70; and applicable mechanical codes such as the BOCA National Mechanical Code, the Standard Mechanical Code, and the Uniform Mechanical Code.

The site of the installation should be located in an area that is not too close to neighbors or in valleys that would cause unhealthy air quality or nuisance conditions.

Draft is the force which moves air from the appliance up through the chimney. The amount of draft in your chimney depends on the length of the chimney, local geography, nearby obstructions and other factors. Too much draft may cause excessive temperatures in the appliance and may damage the appliance. Inadequate draft may cause back puffing into the room and 'plugging' of the chimney. Inadequate draft will cause the appliance to leak smoke into the room through appliance and chimney connector joints. An uncontrollable burn or excessive temperature indicates excessive draft.

The chimney serves two purposes:

1. Provide “draft” to the furnace for the continuous supply of fresh air into the appliance making proper combustion possible.
2. Exhaust smoke and combustion gases resulting from the burning biomass fuel.

Important Vent Installation Requirements

The minimum distance between the top of the furnace and a combustible ceiling surface must be 2”.

The connection from the chimney to the furnace must be made with a 6” black pipe.

The minimum distance between the connection pipe and a combustible wall surface must be 18”.

Do not use more than two elbows in the connection between the furnace and the chimney.

Horizontal elements of the connection pipe should have a minimum rise of ¼” per foot of run to allow condensation to flow back into the furnace.

Listed Chimney

Use a listed type HT pre-fab. Material of the chimney connector should be made with a minimum 24 gauge black or blued steel. A listed chimney must be rated for solid fuel burning appliance, comply with NFPA Standard 211, and all applicable building codes. Consult a qualified furnace installer and/or the local building inspector to be sure the chimney and connections comply.

Masonry Chimney

Use a low heat masonry chimney. Material of the chimney connector should be made with a minimum 24 gauge black or blued steel. An existing lined masonry chimney must be clean and inspected. All connections to the chimney must comply with NFPA Standard 211 and all applicable building codes. Consult a local building inspector and/or a qualified furnace installer to be sure the chimney and connections are safe and compliant.

Creosote – Formation and Need for Removal

When wood is burned slowly, 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. The chimney connector and chimney should be inspected at least twice monthly during the heating season to determine if a creosote buildup has occurred.

Check daily for creosote buildup until experience shows how often cleaning is necessary.

Be aware that the hotter the fire, the less creosote is deposited, and that weekly cleaning may be necessary in mild weather, even though monthly cleaning may be enough in the coldest months. A small intense fire is preferable to a large smoldering fire to reduce the amount of creosote deposition.

If creosote has accumulated it should be removed to reduce the risk of a chimney fire.

Have a clearly understood plan to handle a chimney fire.

Barometric Draft Control

****IMPORTANT****

The following procedure for measuring and setting the proper chimney draft is probably the most important installation procedure to follow for the proper operation of the A-Maize-Ing Heat® furnace.

The A-Maize-Ing Heat® furnace requires 0.02 – 0.04 inches water column draft (chimney draft) on low fire, to assure proper operation. Low fire mode is when the thermostat is satisfied and fuel is not being augured into the burner. When the chimney draft is too high, burner fire may go out. If the chimney draft is too low, smoke may back up in the furnace and storage bin, causing a possible hazard.

The supplied barometric regulator should be installed in the flue (as per the enclosed instructions) to properly regulate 0.02 – 0.04 inches water column draft. The counter weight setting on the barometric regulator regulates this setting. If this setting is exceeded it could cause a solid fuel fire to burn out of control.

The chimney draft measured at the barometric regulator should never exceed 0.04 inches water column. On extremely tall chimneys or on chimneys larger than 6" diameter, it may be necessary to install a second barometric regulator or to reduce the outlet opening on the chimney to approximately 28 square inches or both to maintain the required 0.02 – 0.04 inches water column draft.

Refer to the installation and adjustment instructions included with the barometric regulator (Part BDC1A01A).

Power Vent Option

****IMPORTANT****

The Power Vent system must be installed and calibrated as instructed in the Field Controls documentation included with the components.

While we recommend a natural draft chimney as the preferred venting solution for the furnace, the Power Vent Option is an alternative venting solution for situations where a natural draft chimney is not practical.

In addition to the venting considerations illustrated at the beginning of this section, the installation of the Power Vent requires additional site planning for venting, power, and wiring of the sensors.

Installation must be performed by a qualified installer, according to federal, state, provincial, and local codes.

The components involved in the Power Vent installation are:

- Field Controls SWG-5AF Power Vent
- Field Controls DIP-1 pressure switch
- Field Controls WMO-1 blocked vent switch
- Barometric Draft Control

The Power Vent Option comes with the SWG-5AF, DIP-1, and WMO-1. The Barometric Draft Control is included with the furnace. Installation and calibration of the entire Power Vent system is detailed in the documents provided by Field Controls included with the components.

Installing the Field Controls Power Vent requires a 120VAC power circuit in addition to the power circuit for the furnace.

Refer your installer to the section in this document titled "SCHEMATIC DIAGRAM WITH POWER VENT OPTION" for information regarding interfacing the Field Controls DIP-1 pressure switch and the Field Controls WMO-1 blocked vent switch with the furnace.

FURNACE UNPACKING AND SET UP

Your furnace was shipped from the factory with a "FURNACE PACKAGE" packing list. That document includes the part number and serial number. Locate that list and check the contents of the packaging to ensure all items were delivered. The items you will have are in the list below.

- A. FURNACE
 - B. HOPPER (Model 14 or Wedge 200)
 - C. HOPPER LID
 - D. HOPPER LEGS AND CROSS BEAMS (Model 14 hopper only)
 - E. HIGH FIRE TIMER (SET @ 30 SEC. ON AND 30 SEC. OFF)
 - F. LOW FIRE TIMER (SET @ 2 MIN. ON 12 MIN. OFF)
 - G. DRAFT CONTROL WITH COLLAR
 - H. FURNACE PARTS BAG (INCLUDES: wooden handles x 4, orange wire nuts x 3, Owner's Manual, First Light Notice)
 - I. HOPPER HARDWARE BAG (Model 14 hopper only) (INCLUDES: 5/16" X 1/2" hex head cap screws x 16, 5/16" hex nuts x 16, 10 X 3/4" self-tapping screws x 2)
 - J. BURNPOT AUGER (already installed)
 - K. BIN AUGER (already installed on Wedge 200)
 - L. FILTER (already installed)
 - M. POKER
 - N. HOSE CLAMP (secured to flex tube on Model 14 Bin)
 - O. VIBRATOR (not applicable with the Wedge 200, already installed on Model 14 Bin)
-
1. After removal of shipping materials, remove the furnace from the pallet by removing the three shipping screws securing the furnace to the pallet. One (1) screw is accessible by removing the filter door. The remaining two (2) are removed from under the pallet.
 2. Remove the Furnace Assembly Package from the combustion chamber.
 3. Slide wooden handles on door handle, door safety handle, and heat exchanger scraper rod.

Model 14 Storage Bin Assembly

1. After removal of the shipping container, assemble the metal hopper stand.
 - a. Position a short bin support on the inside of one of the hopper legs and bolt the support to the leg.



Illustration 1

- b. With the leg pointing up, position a long bin support on the inside of the other portion of the leg so that the long support will be "above" (as viewed with the stand right side up) the short bin support creating one corner of the bin support.



Illustration 2

- c. Repeat steps "a" and "b" above with the remaining sides and a leg to create the opposite corner.



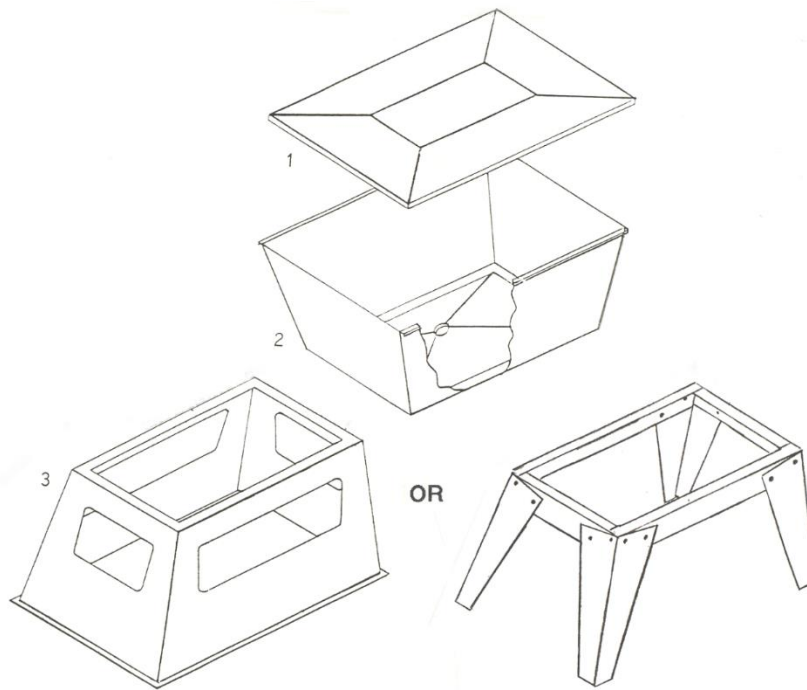
Illustration 3

- d. Arrange the two corners opposite each other with the legs pointing up so that the short bin supports will be "below" (as viewed with the stand right side up) the long supports.



Illustration 4

- e. Bolt the remaining two legs to the opposite corners.
- f. Turn the bin support over and position storage bin, on storage bin base, at desired angle for installation.



2. Install auger assembly by sliding auger boot (with clamp) under PBH1A01A Model 14 Bin outlet; align elbow on BUF1A02A Model 14 Bin Auger tube directly over the BAA1A01A Burner Auger Assembly fuel inlet. Tighten auger boot clamp securely. Install the one #10 X 3/4 sheet metal screws through the auger boot and into the Model 14 Bin outlet to ensure a permanent connection. Install the other #10 X 3/4 sheet metal screws through the auger boot and into the plastic BUF1A02A Model 14 Bin Auger "Tee" inlet to ensure a permanent connection.
3. Remove cover from BUF1A02A Model 14 Bin Auger box.
4. Fasten the flex conduit from the VIB1A01A Vibrator Assembly to the BUF1A02A Model 14 Bin Auger box through the open knockout using the conduit locknut.
5. Fasten flex conduit extending from the BUF1A02A Model 14 Bin Auger box to the BAA1A01A Burner Auger Assembly box using the conduit lock nut.
6. Secure the fuel delivery coupler between BUF1A02A Model 14 Bin Auger tube and BAA1A01A Burner Auger Assembly inlet.
7. In the BAA1A01A Burner Auger Assembly:
 - a. Connect one black bin auger motor lead to the two red wires with an orange wire nut.
 - b. Connect one black auger motor lead to the two white wires with an orange wire nut.
 - c. Connect the two orange wires with an orange wire nut.
8. In the BUF1A02A Model 14 Bin Auger housing:
 - a. Connect the two red wires with an orange wire nut.
 - b. Connect one black auger motor lead to the two white wires with an orange wire nut.

Model 14 Bin Vibrator Mounting Instructions

1. Place the PBH1A01A Model 14 Bin upside down on supports.
2. Place the Mounting Hole Template (shown on page 23) on the largest outside bottom section of the PBH1A01A Model 14 Bin with the "HOPPER SPOUT" indicator against the bin hopper spout.
3. Drill 3/16" mounting holes in the two locations indicated by the template.
4. Remove the NI-2016 4 X 4 Box Flat Lid from the VIB1A01A Vibrator Assembly.
5. Remove the two NI-2012 #8-32 Hex Lock Nuts and NI-1062 3/16" X 1 1/2" Fender Washers from the bottom of the VIB1A01A Vibrator Assembly.
6. Orient the VIB1A01A Vibrator Assembly on the outside of the PBH1A01A Model 14 Bin so the flex conduit is closest to the fuel spout.
7. Mount the VIB1A01A Vibrator Assembly to the PBH1A01A Model 14 Bin by passing the NI-1045 11/32" X 2 1/2" Machine Bolts through the holes drilled.
8. Secure the VIB1A01A Vibrator Assembly to the PBH1A01A Model 14 Bin with the two NI-2012 #8-32 Hex Lock Nuts and NI-1062 3/16" X 1 1/2" Fender Washers from the bottom of the VIB1A01A Vibrator Assembly.
9. Replace the NI-2016 4 X 4 Box Flat Lid on the VIB1A01A Vibrator Assembly.

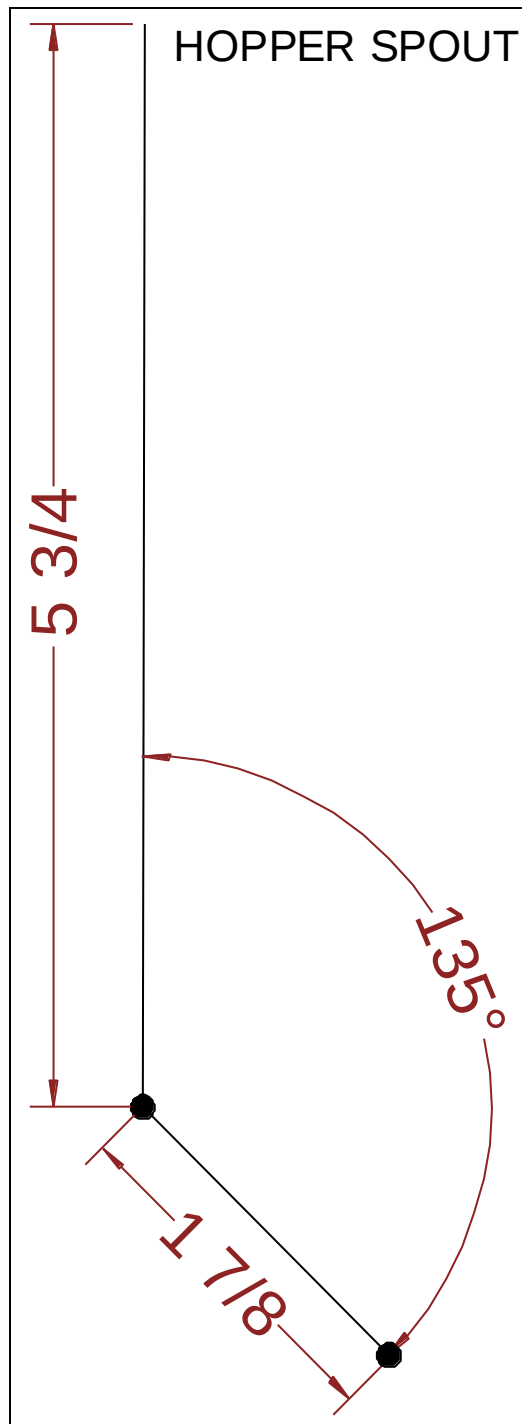
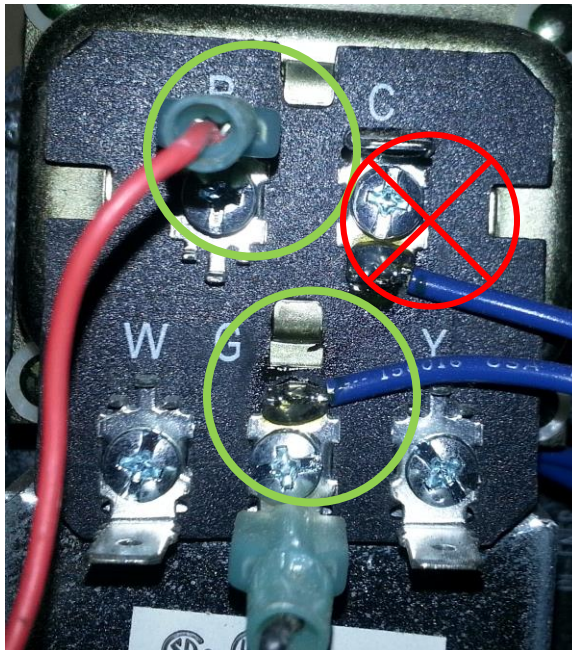
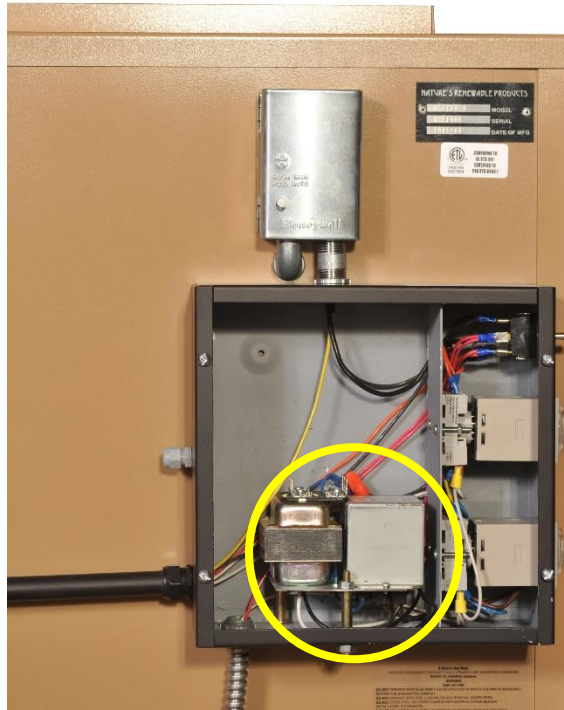


Illustration 5

THERMOSTAT WIRING

Connect thermostat wires to "R" and "G" terminals located on the relay, mounted in the furnace control box.



Note: There is also a "C" terminal on the relay. Positively identify these terminals before connecting the thermostat wire. **Connecting a thermostat wire to the "C" terminal will permanently damage the relay.**

The location of the thermostat has an important effect on the operation of your furnace. Be sure to follow the instructions included with your thermostat.

ELECTRICAL WIRING

WARNING

For your personal safety, turn off electrical power at the service entrance before making any electrical connections.

All electrical work must conform to your local codes and ordinances or with the National Electrical Code. If you are not familiar with wiring and codes in general, have a competent electrician do this job.

Make connections to the furnace junction box (see below) from a 120VAC, 15 amp fused, and grounded circuit that has been tested and confirmed to be wired correctly.

Connect Ground to the green ground lug in the furnace junction box.

Connect 120VAC "neutral" to the white power connection in the furnace junction box.

Connect 120VAC "power" to the black power connection in the furnace junction box.

Solder and tape, or use wire nuts on all connections.



FUEL REQUIREMENTS

The A-Maize-Ing Heat® furnace is designed to burn premium wood pellets and dry shelled corn.

High moisture content will cause the fire to burn cooler and increase the possibility of creosote production along with increasing emissions. High ash content will require cleaning of the heat exchanger more often, decreasing efficiency, and increasing emissions in addition to requiring the ash pan to be emptied more often. High chlorine content can result in the formation of acidic residue, which will corrode the heat exchanger and flue pipe. Fuels with high starch or oil content will more readily form clinkers, which will require additional maintenance to remove, higher ash content, and less efficient fuel use.

When selecting wood pellets as a fuel, we strongly encourage the use of pellets certified by a third party testing organization such as The Pellet Fuels Institute, ENplus, or CANplus. Pellets should have the following characteristics:

- (1) Density: Consistent hardness and energy content with a minimum density of 38 pounds/cubic foot;
- (2) Dimensions: Maximum length of 1.5 inches and diameter between 0.230 and 0.285 inches (smaller/shorter pellets will pack into the burn pot restricting combustion air flow, resulting in less efficient combustion);
- (3) Inorganic fines: Less than or equal to 1 percent;
- (4) Chlorides: Less than or equal to 300 parts per million by weight;
- (5) Ash content: No more than 2 percent.
- (6) Contains no demolition or construction waste;
- (7) Trace metals: Less than 100 mg/kg; and
- (8) None of the prohibited fuels in the "DO NOT BURN" paragraph of this section.

DO NOT BURN: *Burning these materials may result in release of toxic fumes or render the heater ineffective and cause smoke.*

- (1) Garbage;
- (2) Lawn clippings or yard waste;
- (3) Materials containing rubber, including tires;
- (4) Materials containing plastic;
- (5) Waste petroleum products, paints, or paint thinners, or asphalt products;
- (6) Materials containing asbestos;
- (7) Construction or demolition debris;
- (8) Railroad ties or pressure-treated wood;
- (9) Manure or animal remains;
- (10) Salt water driftwood or other previously salt water saturated materials;
- (11) Unseasoned wood; or
- (12) Paper products, cardboard, plywood, or particleboard. The prohibition against burning these materials does not prohibit the use of fire starters made from paper, cardboard, saw dust, wax, and similar substances for the purpose of starting a fire in an affected wood heater. Gelled fire starter approved for use in biomass appliances may be used. Do not use chemicals or fluids to start the fire.

BURNER LIGHTING

NOTE: If the burner has been used, all leftover ash and clinkers must be thoroughly removed from the burner pot before following the lighting instructions.

****IMPORTANT****

On the initial lighting of the furnace, add approximately 2-3 cups of fuel to the hopper. As the fuel feeds into the auger, add only small amounts until the fire is established and the feeding system is working properly. This procedure should be followed at the beginning of each heating season. This procedure should also be followed if the hopper is allowed to empty and the resulting sticky smoke film coats the hopper feed auger. Powdered graphite may also be added to lubricate the auger, but is not recommended with the clear acrylic feed tube.

CAUTION

Biomass stalks, excess cob, fines, dirt, etc. may cause the augers to plug resulting in excessive wear and possible auger motor failure. Burning treated seed corn is not recommended because of excessive clinker build up and problems with fire extinguishing, caused by the treatment used on the corn.

Never add fuel to the burn pot directly while a fire is establish. This can cause the generation of excessive smoke and a potentially hazardous condition.

1. Add wood pellets, dry (15% or below moisture) and clean USDA #3 or better corn, or other approved biomass fuel to the holding bin (see FUEL REQUIREMENTS on page 26). (See **IMPORTANT** and **CAUTION** above)
2. Turn on the electric power to the furnace.
3. Turn thermostat to highest setting.
4. Fill burner pot with biomass fuel.
5. Do Not Use Chemicals or Fluids to Start The Fire. Apply gelled fire starter approved for use in biomass appliances to the top of the fuel and close the door.
NOTE: Kindling wood and paper may be used as a substitute.
6. Once the fire is established, depress toggle switch to start position. This will activate the combustion blower and furnace auger motor. The bin auger motor should be activated after approximately three to five minutes. (Fuel will not begin to auger until the furnace has reached operating temperature and the bin auger motor is activated.)
7. Turn switch to "ON" position.
8. Set wall thermostat to temperature desired.
9. It may be necessary to add kindling wood a couple of times before the fuel is completely ignited.

OPERATION

After the fire has been established in the burner pot and operating temperature has been reached (See burner lighting pg. 26) you need only to set the thermostat to the desired temperature. The thermostat will turn the furnace bin auger motors and combustion blower, on and off, to sustain the desired temperature.

CAUTION

Never add fuel to the burn pot directly while a fire is established. This can cause the generation of excessive smoke and a potentially hazardous condition.

A typical furnace cycle would be:

1. Thermostat activates fuel feed system, feeding the burner pot with fuel. (HIGH FIRE)
2. Heat builds up in the furnace activating the fan switch, which in turn starts the furnace convection blower.*
3. When the thermostat setting is satisfied, the thermostat will shut off the fuel feed system.
4. The furnace timer will activate, auguring a specified amount of fuel to sustain burner fire. (LOW FIRE) Timer is factory set at two (2) minutes "ON" and twelve (12) minutes "OFF". (This is a suggested setting - actual setting can be varied with user experience and fuel used.)
5. Furnace convection blower will continue to run until heat is removed from furnace.

***NOTE:** The furnace blower has three (3) speeds. Low (red wire-#3), Medium (blue wire-#2), and High (black wire-#1). All units are shipped from the factory on the High speed. Blower speed may be changed by accessing the 4" x 4" electrical junction box on the side of the furnace. Disconnect power before changing any electrical connections. Change blower speeds by disconnecting the yellow wire from the current speed wire and reconnecting it to the desired speed wire. Disconnected leads must be insulated to prevent contact with other components.

Clinker Buildup

CAUTION

If the furnace is installed in an unsuitable application, causing the furnace to run on high fire for extended periods of time, or if certain varieties of fuel are burned, clinkers can form resulting in furnace inefficiency and possible fire outage.

The A-Maize-Ing Heat® furnace feeds fuel into the bottom of the burner, therefore creating the most efficient fuel consumption. The residual ash and clinkers are then spilled over the top of the burner ring, falling into the ash pan below. This process essentially cleans the burner chamber.

The clinkers that stick to the side of the firepot must be loosened with a furnace poker (provided) and removed manually with furnace tongs or the clinkers could render the furnace inoperative.

If the formation of clinkers is the result of a fuel high in starch or oil (corn or soybeans for example), blending the fuel with another fuel low in moisture, starch, and oil (wood pellets for example) may provide better results.

Summary of Settings & Operation

Draft

Adjustment of the chimney draft controls the rate of burn and has an effect during High and Low fire operation. Chimney draft must be set between 0.02 – 0.04 inches water column draft during High fire. The use of a second automatic barometric damper may be necessary on some installations to insure the precise draft control. A setting of 0.02 – 0.03 inches is ideal. In most installations, the counter weight on the automatic barometric dampers should be set to the minimum setting.

Refer to the installation and adjustment document included with the draft controller for details.

Timers

There are two timers on the front control panel that regulate system operation. It is important to note that the RED indicators correspond to the "ON" time, and the GREEN indicators correspond to the "OFF" time. Typical adjustments are made to the "ON" and "OFF" time by turning the inner and outer bezels to correspond with the desired duty cycle. As the timer is in the "ON" and "OFF" state, the associated LED in the upper left hand corner of the timer is illuminated. The LEDs will illuminate only when that timer is active.

While the timers are identical, they are configured separately to control the system in the "high" and "low" fire states.



High Fire

Make adjustments to the opening on the combustion blower inlet controls on high fire only. This opening should be adjusted during the high fire mode of operation to obtain an intense flame that consumes the fuel at the same rate it is augured in. When using premium wood pellets, start with the combustion air damper approximately 1/3 open. For other types of fuel, start with the damper approximately 1/2 open.

Maintain the fuel level in the burn pot between the row of holes halfway up the burn pot and the top of the burn pot. Best results for efficient combustion and reduction of visible emissions occur when the fuel is completely consumed just before reaching the top of the burn pot.

The Variable BTU timer relay controls the fuel auger drive rate. Adjusting the Variable BTU Timer varies the amount of fuel fed from the fuel storage bin into the furnace. By adjusting the "ON" (red indicator) and "OFF" (green indicator) time, the fuel auger motor duty cycle varies. To determine the duty cycle, divide the On Time (T_{ON}) by the sum of On Time (T_{ON}) and Off Time (T_{OFF}):

$$\text{Duty Cycle} = T_{ON} / (T_{ON} + T_{OFF})$$

Adjusting the timers for a higher duty cycle will result in more fuel being augured into the burn pot.

The Variable BTU timer comes set at a 50% duty cycle from the factory; 30 seconds "ON" and 30 seconds "OFF".

$$50\% = 30 / (30 + 30)$$

In most cases, setting the timers to the longest time setting that achieves the desired Duty Cycle is recommended to reduce wear of the electromechanical components caused by start/stop cycling. For example, setting both the ON and OFF time to 15 seconds produces a 50% duty cycle just as settings of 30 seconds. However, the 15 second setting results in twice as many start/stop cycles as the 30

second setting.

Allow the furnace to run for 24 hours, then evaluate heat delivery to the space, the level of fuel in the burn pot, and visible emissions before making adjustments to the combustion air and/or Variable BTU timer. Adjust the Variable BTU timer and combustion air damper so that the space is being adequately heated while at the lowest Variable BTU Timer setting that keeps the fuel level in the burn pot between halfway and completely full and the combustion air damper open the least amount that produces no visible emissions from the vent.

Low Fire

Adjusting the on and off cycle time settings on the low fire timer controls the amount of fuel fed to the firepot during the low fire mode of operation. The initial setting of this low fire timer is 12 minutes "OFF" and 2 minutes "ON".

After approximately 24 hours of operation, the timer "ON" and "OFF" time can be adjusted to reduce the amount of fuel consumed during this "low fire" mode of operation, while maintaining a fire during extended period of time during which the furnace is idle.

Initial Settings

The pilot (Low Fire) timer is preset at the factory at 12 minutes "OFF" (green indicator) and 2 minutes "ON" (red indicator). Further adjustment can be made with user experience.

The variable BTU timer relay controls the auger drive rate. It comes set from the factory at 30 seconds ON (red indicator) and 30 seconds OFF (green indicator). Allow the furnace to run for 24 hours, then evaluate if adjustment is necessary.

When using premium wood pellets, start with the combustion air damper approximately 1/3 open. For other types of fuel, start with the combustion air damper approximately 1/2 open. Allow the furnace to run for 24 hours, then evaluate if adjustment is necessary.

This furnace is equipped with an automatic/manual fan switch. Use of the manual setting while the furnace is in operation may cause the furnace to shut down automatically due to the low temperature control. The manual position may be used for summer operation.

Power Failure Considerations

In the case of a short period power outage, the furnace will continue to burn the fuel in the burn pot and will resume normal operation when power is restored.

If the power outage is for an extended period of time, the fuel in the burn pot will be consumed and the fire will extinguish. Should that occur, refer to the Burner Lighting (found on page 26) to restart the furnace.

TROUBLESHOOTING

Trouble-free operation starts with dry, clean fuel, correct draft, and sufficient combustion air. Most problems with furnace operation can be resolved without making any repairs or replacing parts. Before making any repairs or replacing components, make sure that:

- The fuel is dry (less than 15% moisture)
- The fuel is clean (small amount of dirt, foreign material, or fines)
- If corn is used, make sure it is the correct variety with a low amount of oil or wax, and is not treated (seed corn).
- There is proper draft (not too much, or too little).
- The combustion air is sufficient with a fresh air supply of 60 CFM and the combustion air gate is open far enough.

Problem	Possible Cause	Possible Corrective Action
Fire will not start	Some fuels may require the use of another fuel source to provide enough heat to start combustion.	Initial lighting may require the use of kindling wood. Additionally, a gel-based lighting fluid may be used.
Fire will not start	Ash and clinkers in burn pot.	Clean out burn pot before trying to start furnace.
Fire goes out	Chimney draft too high.	• Adjust the barometric draft control as described on page 15. • Tall or large chimneys may require a second barometric regulator. • Reduction of the outlet to 28 square inches may be required.
Fire goes out	Clinker build-up.	• Loosen clinkers with clinker tool. • Blending fuel with another type of fuel may reduce clinkers.
Fire goes out	Fuel moisture too high.	• Replace with dry fuel. • Increase combustion air flow gate opening. • Blend with high BTU rated dry fuel.
Fires goes out	Not enough idle cycle time.	The auger driving too often or too long will push burning fuel out the top of the burn pot extinguishing the fire. Adjust the cycle time to allow for a longer idle.

Problem	Possible Cause	Possible Corrective Action
Fire goes out	Low fire time too long.	During warm weather when heat is not needed often, the low fire timer may need to be adjusted to drive fuel into the burn pot more often and prevent the fire from going out.
Furnace inefficiency	Incorrect timing during low fire operation.	Adjust OFF time after 24 hours of initial operation. Refer to "Operation" on page 28 for timing adjustment information.
Poor Combustion	Excessive dirt or fines.	• Remove dirt or fines from fuel. • Purchase fuel from a dealer or farmer that understands the quality of biomass fuel required for efficient combustion.
Poor Combustion	Fuel moisture too high.	• Replace with dry fuel. • Increase combustion air flow gate opening. • Blend with high BTU rated dry fuel.
Poor Combustion	Flue draft too low.	Furnace requires 0.02 to 0.04 inches of water column draft on low fire to support combustion.
Poor Combustion	Combustion air flow too low.	• The furnace requires 60 CFM of combustion air. Increase the opening of the combustion air intake fan gate. • Install an outside air combustion intake.
Fuel does not feed smoothly into burn pot.	High friction in auger drive.	Pour a small amount of powdered graphite into the auger intake to lubricate the auger system.
Auger is plugged or auger motors do not turn.	Buildup of clinkers in burn pot.	Clean entire burn pot removing all material.
Auger is plugged or auger motors do not turn.	Buildup of material in auger tubes.	Waxy or high oil corn is not recommended and can cause the auger drive to stop functioning. Clean out auger system and repair as necessary.
Auger is plugged or auger motors do not turn.	Foreign object(s) in fuel.	Corn cobs, stalks, or other large material will not pass through the auger system. They can jam the auger and cause damage. Clean and repair as necessary.

Problem	Possible Cause	Possible Corrective Action
Furnace overheating	Fuel feed rate too high	• Increase the Variable BTU Timer "OFF" time • Decrease the Variable BTU Timer "ON" time
Furnace overheating	If used with another furnace, air back feeding from the other heat source may cause overheating.	Consult with a heating contractor to install a device that prevents hot air from feeding back into the heating appliances.
Furnace overheating	The hot air output, or cold air return connections are restricted or are less than 196 square inches.	• Confirm that the hot air output and cold air return are 196 square inches. • Check/replace air filter. • Check for obstructions in the ductwork.
Furnace overheating	Draft is too high	• Check the barometric damper for proper adjustment. A second damper may be required in some instances. • Consult with a heating contractor to check the flue and chimney operation.
Smoke is emitted during the low fire cycle	There is not enough draft.	• Check the barometric damper for proper adjustment to provide sufficient draft during the low fire cycle. • Check the flue and chimney installation. Improper placement of the stack can cause backflow down the chimney. • Check the type of vent pipe. In extremely cold conditions, a poorly insulated vent pipe can cool and cause air to travel back into the furnace.
Smoke is emitted during the high fire cycle	High pressure in the burn chamber.	• Check that there is fuel in the fuel feed system. • Check that the air bypass is not obstructed. • Check the barometric damper for proper adjustment to provide sufficient draft during the high fire cycle. • Check the flue and chimney installation. Improper placement of the stack can cause backflow down the chimney. • Check the type of vent pipe. In extremely cold conditions, a poorly insulated vent pipe can cool and cause air to travel back into the furnace.

MAINTENANCE

Daily

1. Pull heat exchanger tube scraper all the way out and push back in, this maintains the efficiency by removing ash from heat exchanger tubes.
2. Confirm that seals are in good condition.
3. Inspect burner pot. Check that the level of fuel in the burn pot is maintained for proper combustion and minimal emissions. Clinkers will be pushed out of the top of the burner pot as fuel is augured into the burner pot. Clinkers that appear to be stuck to the side of the burner should be wiggled loose. Large clinkers that may appear, must be manually pushed over the top of the burner with a furnace poker or equivalent tool.
4. Check the fuel level in holding bin. Refill as necessary to maintain adequate supply. Lack of fuel in the fuel feed system can cause smoke to be emitted. Do not to store fuel within the appliance installation clearances or within the space required for refueling or ash removal,
5. Check daily for creosote buildup until experience shows how often cleaning is necessary.
6. Inspect flue pipes, joints, and seals regularly to ensure that smoke and flue gases are not drawing into, and circulated by the air-circulation system.

Weekly

1. Check contents of ash drawer and empty as needed. Check the ash drawer more frequently during periods of high use. Ashes should be placed in a metal container with a tight fitting lid. The closed container of ashes should be placed on a non-combustible floor or on the ground, well away from combustible materials, pending final disposal. If the ashes are disposed of by burial in soil or otherwise locally disbursed, they should be retained in the closed container until all clinkers/embers have thoroughly cooled.
2. Remove door on rear of furnace and inspect air filter. Replace if necessary.

Monthly

1. Replace air filter.
2. When wood is burned slowly, 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. The chimney connector and chimney should be inspected at least twice monthly during the heating season to determine if a creosote buildup has occurred. If creosote has accumulated it should be removed to reduce the risk of a chimney fire.
3. Check the fire box access door gasket for visible leaks of smoke or ash. Replace as necessary with 1" fiberglass rope gasket and hi temp silicone approved for wood burning appliances.

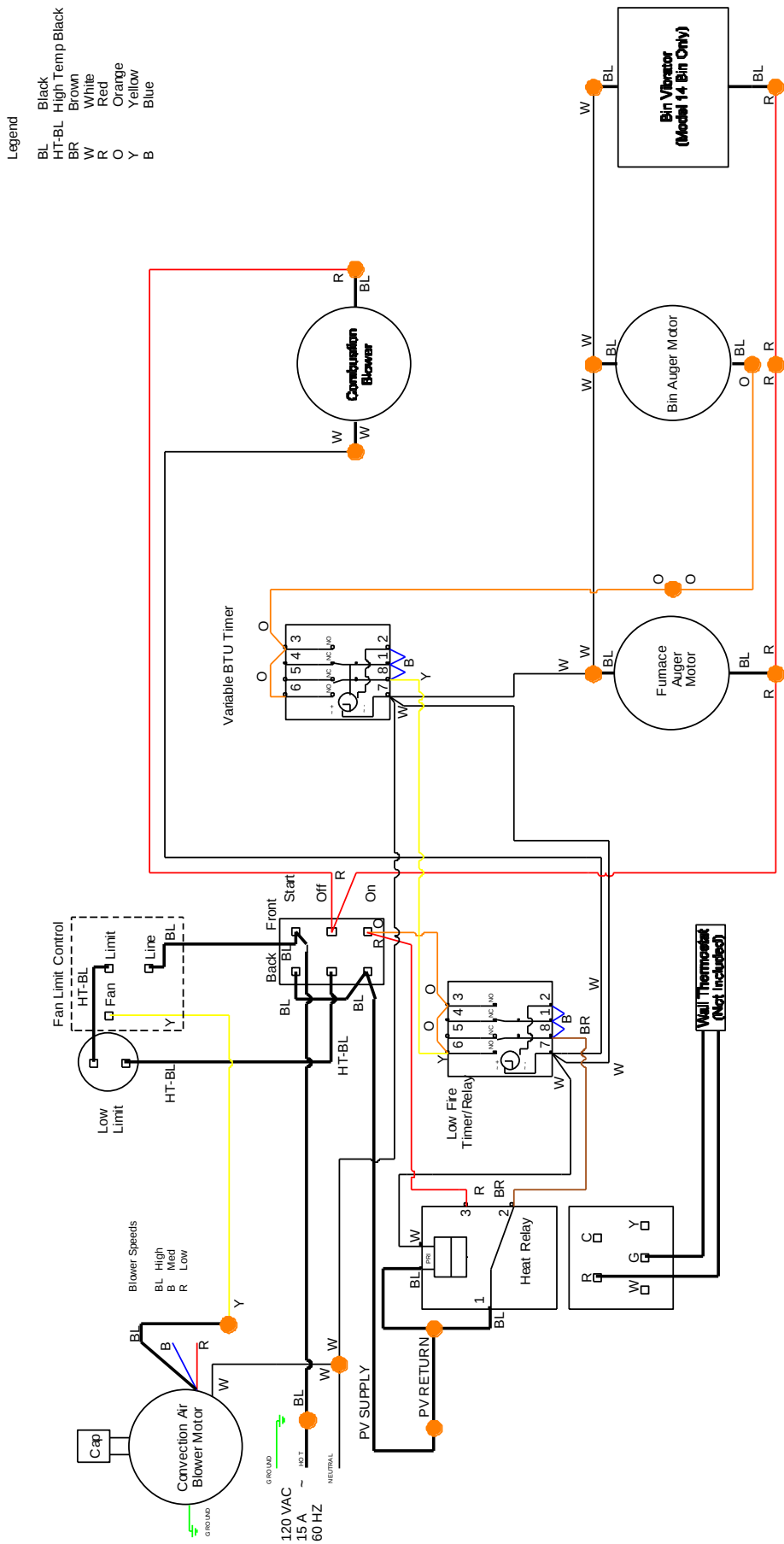
Annually

1. Remove, inspect, and clean the chimney pipe connection and entire stack.
2. The ashes left in the burn chamber and vent pipe will draw moisture when the furnace is not in use. **It is important to thoroughly vacuum the inside of the furnace burn chamber and vent pipe at the end of the heating season. A light oil (WD-40 or equivalent) should be applied to the inside of the burn chamber to inhibit rust.**
3. Cap the furnace exhaust vent pipe to reduce the amount of moisture from entering the burn chamber.
4. Clean and inspect all blower and auger motors.

CANADIAN REQUIREMENTS FOR SUPPLEMENTARY (ADD-ON) FURNACES

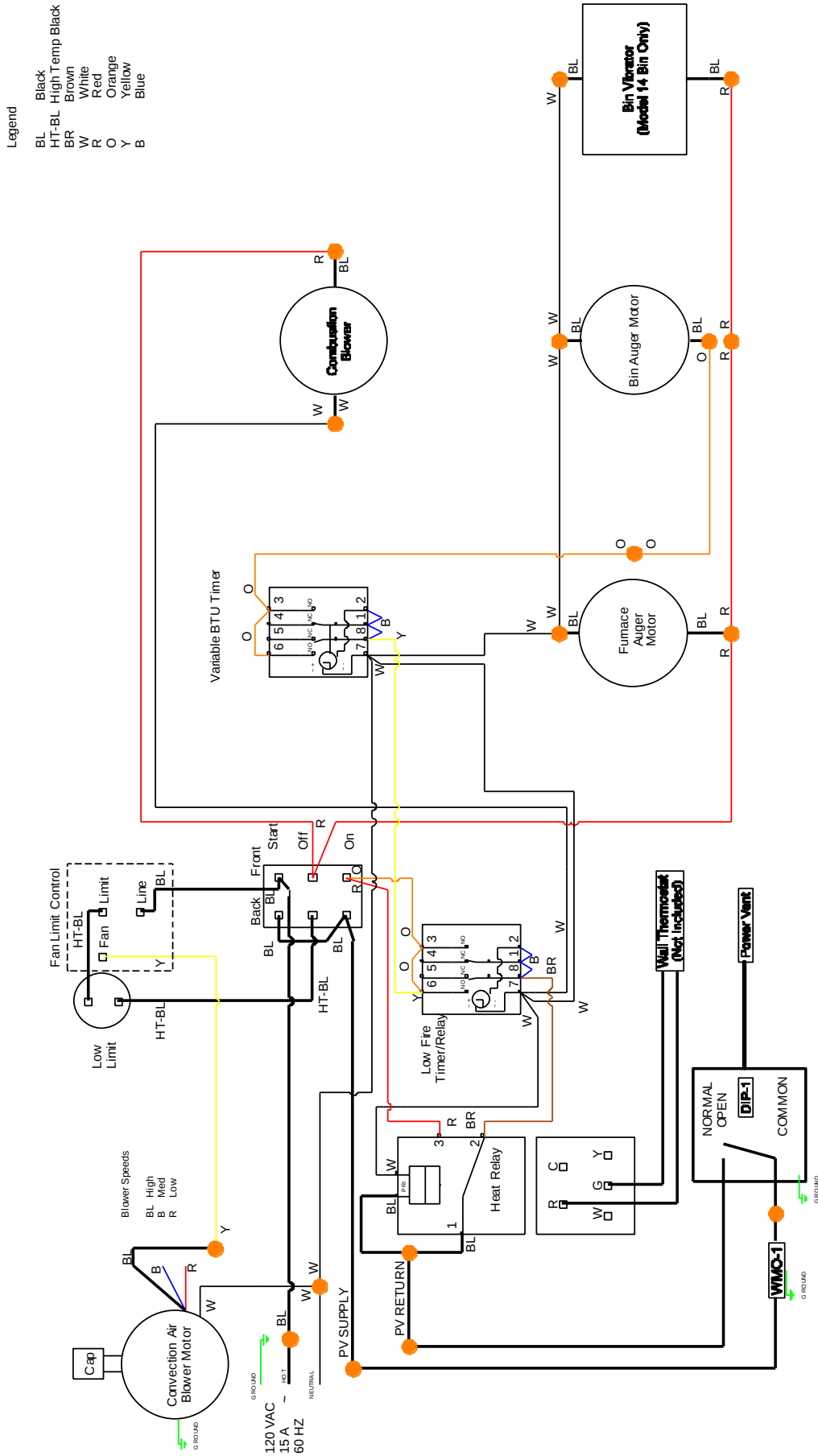
1. DO NOT USE DUCT ELBOWS HAVING AN INSIDE RADIUS OF LESS THAN 6 in. (150 mm) ON THE OIL, ELECTRIC, OR GAS FURNACE.
2. DO NOT CONNECT IN SERIES TO A DOWNFLOW FURNACE.
3. DO NOT CONNECT DUCTWORK SO THAT A REVERSE FLOW IS POSSIBLE.
4. OPERATE THE GAS, OIL, OR ELECTRIC FURNACE PERIODICALLY TO ENSURE THAT IT WILL OPERATE SATISFACTORILY WHEN NEEDED.
5. CERTIFIED FOR INSTALLATION WITH THE FOLLOWING DUCTWORK CONFIGURATIONS ONLY.
6. DO NOT RELOCATE OR BYPASS ANY OF THE SAFETY CONTROLS IN THE ORIGINAL GAS, OIL, OR ELECTRIC FURNACE INSTALLATION.
7. DO NOT CONNECT TO ANY GAS FURNACE THAT HAS NOT BEEN CERTIFIED INITIALLY AS COMPLYING WITH CAN/CGA-2.3
8. THE OPERATION OF THE GAS FURNACE MUST BE VERIFIED FOR ACCEPTABLE OPERATION BEFORE AND AFTER INSTALLATION OF THE ADD-ON APPLIANCE BY A GAS FITTER WHO IS RECOGNIZED BY THE REGULATORY AUTHORITY.
9. DO NOT CONNECT TO ANY GAS FURNACE THAT IS NOT EQUIPPED WITH AN AIR-CIRCULATION BLOWER, OR TO A CHIMNEY OR VENT SERVING A GAS FURNACE OR GAS APPLIANCE.
10. THE ADD-ON UNIT SHOULD ONLY BE INSTALLED ON A FURNACE DUCT SYSTEM AND CHIMNEY THAT ARE IN GOOD OPERATING CONDITION.
11. THE MOTORS ON THE UNIT SHOULD NOT BE CHANGED, HOWEVER, THE SPEED OF THE CONVECTION AIR MOTOR MAY BE INCREASED BY SELECTING THE APPROPRIATE MOTOR SPEED LEAD. THE BLOWER CAN NOT BE CHANGED. THIS EQUIPMENT SHOULD BE INSTALLED, ACCEPTABLE TO REGULATORY AUTHORITY, BY EXPERIENCED LICENSED PERSONNEL.
12. THE INSTALLATION SHOULD COMPLY WITH REQUIREMENTS OF CAN/CSA-B365, AND CHANGES TO THE INSTALLATION SHOULD COMPLY WITH CSA B139 (FOR OIL-FIRED), C22.1 (FOR ELECTRIC), OR CAN/CGA-B149.1 OR CAN/CGA-B149.2 (FOR GAS-FIRED).
13. MAY BE USED WITH GAS, OIL, AND ELECTRIC FURNACES UP TO 120,000 BTU.

SCHEMATIC DIAGRAM



Model 620
Schematic Diagram
05-FEB-2016
NRP620-20160205-SD Rev 1

SCHEMATIC DIAGRAM WITH POWER VENT OPTION



Model 620
Schematic Diagram w/ Power Vent
05-FEB-2016
NRP620PV-20160205-SD Rev 1

REPAIR PARTS

Model NRP620-10

PART NUMBER	PART NAME	DESCRIPTION
APA1A01A	ASH PAN	ASH PAN
HAN1A01A	WOODEN HANDLE	FITS ALL THREE HANDLES
REL1A01A	THERMOSTAT RELAY	INTERFACE FOR WIRING ROOM THERMOSTAT INCLUDING THE HEAT RELAY AND TRANSFORMER
FRT1A01A	TIMER	CAN BE USED FOR LOW FIRE OR VARIABLE BTU
OOS1A01A	TOGGLE SWITCH	ON / OFF/ START
FLS1A01A	FAN LIMIT CONTROL	INCLUDES THE HEAT EXCHANGER VARIABLE TEMPERATURE PROBE
CBA1A01A	CONVECTION BLOWER ASSEMBLY	MAIN AIR CIRCULATION BLOWER ASSEMBLY
CNB1A01A	COMBUSTION BLOWER	COMBUSTION AIR BLOWER FOR BURN POT
LLS1A01A	LOW LIMIT SWITCH	LIMIT SWITCH ATTACHED TO TOP OF HEAT EXCHANGER
AUG1A01A	FURNACE AUGER ASSEMBLY	INCLUDES THE MOTOR AND AUGER
PAM1A01A	FURNACE AUGER MOTOR	FURNACE AUGER MOTOR ONLY
KIT1A25A	FURNACE AUGER KIT	INCLUDES THE BURNER AUGER, AUGER BUSHING, LOCK COLLAR, AND 2 - #10 x 1 3/4" SHEET METAL SCREWS
MBH1A01A	WEDGE 200 BIN	WEDGE 200 BIN ONLY
MBC1A01A	WEDGE 200 LID	WEDGE 200 BIN LID ONLY
SAA1A02A	WEDGE 200 BIN AUGER ASSY	WEDGE 200 BIN AUGER ASSEMBLY
MBB1A01A	WEDGE 200 STAND	WEDGE 200 BIN MOUNTING HARDWARE
BNA1A02A	MODEL 14 AUGER ASSEMBLY	INCLUDES THE MOTOR AND AUGER
BAM1A01A	AUGER MOTOR	BIN HOPPER AUGER MOTOR ONLY (MODEL 14 & WEDGE 200)
PBB1A01A	MODEL 14 STORAGE BIN	INCLUDES THE BIN, LID, AND STAND
PBC1A01A	MODEL 14 BIN LID	BIN LID ONLY
PBH1A01A	MODEL 14 BIN	BIN ONLY
KIT1A26A	MODEL 14 BIN STAND	BIN STAND ONLY
VIB1A01A	BIN VIBRATOR ASSEMBLY	BIN VIBRATOR ASSEMBLY
AIR1A01A	BYPASS AIR ASSEMBLY	BYPASS AIR ASSEMBLY
BDC1A01A	BAROMETRIC FLUE DAMPER	BAROMETRIC FLUE DAMPER
PWV1A01A	POWER VENT	POWER VENT - 5"
KIT1A23A	BIN SLIDE GATE OPTION	SLIDE GATE TO RESTRICT OR STOP FUEL FLOW FROM THE MODEL 14 STORAGE BIN TO THE BIN AUGER
KIT1A24A	FRESH AIR INTAKE KIT	FRESH AIR INTAKE KIT WITH FLEXIBLE HOSE AND EXTERIOR SHROUD

WARRANTY LIMITATIONS AND DISCLAIMERS OF LIABILITY

NATURE'S RENEWABLE PRODUCTS warrants the A-MAIZE-ING HEAT® NRP620-10 furnace against defects in workmanship and material for a period of one (1) year after the date of purchase. NATURE'S RENEWABLE PRODUCTS will repair or replace as necessary any defective parts within the warranty period.

NATURE'S RENEWABLE PRODUCTS warrants the heat exchanger and burner, only, for a period of five (5) years after the date of purchase. NATURE'S RENEWABLE PRODUCTS will repair or replace any defective heat exchanger or burner parts free of charge within the five (5) year warranty period provided that labor shall be at the expense of the owner.

Warranty claims shall be reported to the A-MAIZE-ING HEAT® dealer from which the furnace was purchased. The dealer will provide instructions for the packaging and return of defective items.

This warranty does not take effect until the warranty registration card is sent in. If the card is not filled out and returned to NATURE'S RENEWABLE PRODUCTS within 30 days of date of purchase, warranty claims on your unit may be denied. All warranty claims must be reported to the nearest Nature's Renewable Products A-MAIZE-ING HEAT® furnace dealer.

Dealer Name: _____

Dealer Address: _____

Dealer Phone: _____

Warranty claims will be denied in all cases where the unit is operated in a manner inconsistent with the procedures outlined in the Owner's Manual.

DISCLAIMER OF LIABILITY

THE FOREGOING WARRANTY CONSTITUTES THE ONLY WARRANTY MADE BY NATURE'S RENEWABLE PRODUCTS REGARDING THE A-MAIZE-ING HEAT® FURNACE. NATURE'S RENEWABLE PRODUCTS MAKES NO WARRANTY AS TO MERCHANTABILITY OR AS TO FITNESS FOR ANY PARTICULAR PURPOSE. NATURE'S RENEWABLE PRODUCTS DISCLAIMS ANY AND ALL LIABILITY FOR DAMAGES, CONSEQUENTIAL OR OTHERWISE, COST OR EXPENSE OF ANY SORT OF NATURE ARISING OUT OF THE USE OF THE A-MAIZE-ING HEAT® FURNACE OR OF ANY ALLEGED DEFECT IN DESIGN, MANUFACTURE OR, ASSEMBLY.

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